
Doctoral

Built Environment

2007

Increasing Effectiveness of Public Private Partnerships in the Irish Construction Industry

Louis Gunnigan

Technological University Dublin, louis.gunnigan@tudublin.ie

Follow this and additional works at: <https://arrow.tudublin.ie/builtoc>



Part of the [Construction Engineering and Management Commons](#), and the [Organizational Communication Commons](#)

Recommended Citation

Gunnigan, L. (2007) *Increasing effectiveness of public private partnerships in the Irish construction industry*, Doctoral Thesis, University of Salford, UK, doi:10.21427/D7HS49

This Theses, Ph.D is brought to you for free and open access by the Built Environment at ARROW@TU Dublin. It has been accepted for inclusion in Doctoral by an authorized administrator of ARROW@TU Dublin. For more information, please contact arrow.admin@tudublin.ie, aisling.coyne@tudublin.ie, vera.kilshaw@tudublin.ie.

**INCREASING EFFECTIVENESS OF PUBLIC
PRIVATE PARTNERSHIPS IN THE IRISH
CONSTRUCTION INDUSTRY**

Louis GUNNIGAN

Research Institute for Built and Human Environment
(BuHu)

University of Salford, Salford, UK

Submitted in Partial Fulfilment of the Requirements of the
Degree of Doctor of Philosophy, April 2007

Contents

List of Figures	vii
List of Tables.....	ix
Acknowledgements	xi
Abbreviations	xii
ABSTRACTXIII	
CHAPTER 1: INTRODUCTION AND BACKGROUND TO RESEARCH PROPOSAL.... 1	
1.1 INTRODUCTION.....	2
1.1.1 PPP.....	2
1.1.2 Further Definitions.....	3
1.1.3 Types of PPP	4
1.2 THE CHANGING ROLES OF THE PUBLIC AND PRIVATE SECTORS UNDER PPP	6
1.2.1 Transfer of Risk.....	6
1.2.2 Value for Money	6
1.2.3 Management.....	7
1.2.4 Innovation.....	8
1.2.5 Reasons for using PPP.....	9
1.2.6 Social	9
1.2.7 Legal	10
1.2.8 Economic	10
1.2.9 Environmental	12
1.2.10 Political	13
1.2.11 Technological	13
1.3 HISTORY OF PPP.....	13
1.3.1 North America.....	14
1.3.2 Australasia	14
1.3.3 South Africa/Pacific Rim	15
1.3.4 Europe.....	15
1.4 DEFINING THE IRISH CONTEXT.....	17
1.5 RESEARCH ISSUE	18
1.5.1 Defining the Issue	18
1.5.2 Aim of the Research	20
1.5.3 Importance of the Issue	20
1.5.4 Outline Research Method.....	21
1.6 POTENTIAL BENEFITS AND APPLICABILITY OF THIS RESEARCH	26
1.6.1 Sponsoring Authorities	26
1.6.2 Providers of the Public Service Facility.....	26
1.6.3 Public Sector Staff who work in the Facility	27
1.6.4 Users of the Public Service Facility.....	27
1.6.5 Stakeholders on future projects	27
1.7 EXCLUSIONS, LIMITATIONS, CONSTRAINTS, RESERVATIONS	28
1.7.1 Exclusions	28
1.7.2 Limitations	28
1.7.3 Constraints.....	28
1.7.4 Reservations.....	29

CHAPTER 2: REVIEW OF THE ROLES OF THE PARTICIPANTS IN TRADITIONAL PROJECTS AND PPP PROJECTS.....	30
2.1 INTRODUCTION.....	31
2.2 PROJECT IDENTIFICATION	32
2.3 DETAILED APPRAISAL	34
2.5 STATUTORY PROCESS	36
2.6 PRE-PROCUREMENT	37
2.7 PROCUREMENT	39
2.8 CONSTRUCTION	41
2.9 OPERATION AND MAINTENANCE	41
2.10 REVIEW.....	44
2.11 SUMMARY OF ISSUES ARISING.....	45
CHAPTER 3: REVIEW OF RECENT PPP/PFI PROVISION OF EDUCATIONAL FACILITIES IN IRELAND AND THE UK.....	47
3.1 INTRODUCTION.....	48
3.2 PROVISION OF EDUCATIONAL BUILDINGS IN IRELAND	48
3.2.1 Investment in School Buildings since 1997	50
3.2.2 The Grouped Schools PPP.....	51
3.3 PROVISION OF UK SCHOOL BUILDINGS	56
3.3.1 Introduction of PFI	57
3.3.2 PFI in Schools (Audit Commission, 2003)	57
3.3.3 Recommendations of the report	59
3.3.4 Taking the Initiative (Audit Scotland, 2002).....	60
3.4 LESSONS LEARNED	64
CHAPTER 4: CHALLENGES FACING THE KEY PARTICIPANTS IN A SCHOOLS PPP/PFI	66
4.1 INTRODUCTION.....	67
4.2 THE ROLE OF THE CONTRACTING AUTHORITY.....	67
4.2.1 Detailed Appraisal Stage	69
4.2.2 Statutory Process Stage.....	75
4.2.3 Pre–procurement Stage.....	77
4.2.4 Procurement Stage.....	86
4.2.5 Construction Stage	91
4.2.6 The Role of the Contracting Authority – Summary	95
4.3 THE ROLE OF THE FACILITY PROVIDERS (PSO).....	96
4.3.1 Early Project Stages.....	98
4.3.2 Procurement Stage.....	102
4.3.3 Construction Stage	108
4.3.4 The Role of the PSO – Summary	111
4.4 SUMMARY OF THE CHALLENGES FACING CONTRACTING AUTHORITIES AND PROVIDERS OF SCHOOLS THROUGH PPP	113
4.4.1 Transfer of Risk.....	113
4.4.2 Value for Money	113
4.4.3 Management.....	114
4.4.4 Innovation.....	115

CHAPTER 5 ADDRESSING THE CHALLENGES THAT ARE EMERGING IN THE CONTINUED INCREASE IN PPP/PFI USE.....	117
5.1 INTRODUCTION.....	118
5.2 CULTURE AT SECTOR LEVEL.....	118
5.3 CULTURE AT THE INDIVIDUAL LEVEL.....	121
5.3.1 Accountability.....	122
5.3.2 Public Interest.....	122
5.3.3 Bureaucratic Behaviour.....	122
5.3.4 Motivation.....	123
5.4 DEVELOPING A TRUE PARTNERSHIP ENVIRONMENT.....	124
5.4.1 Why is it not happening now?.....	126
5.4.2 What outcome is ideally required?.....	126
5.4.3 What can be done to meet the challenge?.....	127
5.4.4 What cultural issues must be addressed?.....	128
5.5 WORKING TOGETHER TO REDUCE RISK.....	129
5.5.1 Why is it not happening now?.....	129
5.5.2 What outcome is ideally required?.....	130
5.5.3 What can be done to meet the challenge?.....	130
5.5.4 What cultural issues must be addressed?.....	130
5.6 ACHIEVING VALUE.....	131
5.6.1 Why is it not happening now?.....	131
5.6.2 What outcome is ideally required?.....	132
5.6.3 What can be done to meet the challenge?.....	132
5.6.4 What cultural issues must be addressed?.....	133
5.7 HARNESSING THE POTENTIAL FOR INNOVATION.....	135
5.7.1 Why is it not happening now?.....	135
5.7.2 What outcome is ideally required?.....	136
5.7.3 What can be done to meet the challenge?.....	136
5.7.4 What cultural issues must be addressed?.....	136
5.8 SUMMARY.....	137
CHAPTER 6: A CONCEPTUAL MODEL OF THE CURRENT PPP PROCESS.....	138
6.1 INTRODUCTION.....	139
6.2 DEVELOPING A MODEL FRAMEWORK.....	139
6.3 SUMMARY OF RESEARCH TO DATE.....	142
6.4 SUMMARY OF RESEARCH TO DATE.....	144
CHAPTER 7: RESEARCH METHODOLOGY.....	146
7.1 INTRODUCTION.....	147
7.2 THE RESEARCH PARADIGM.....	148
7.3 RESEARCH PHILOSOPHY.....	150
7.3.1 Epistemological stance.....	150
7.4 RESEARCH FRAMEWORK.....	152
7.5 THE RESEARCH QUESTION(S).....	153
7.6 THE RESEARCH PROCESS.....	153
7.7 RESEARCH DESIGN.....	155
7.7.1 The questions being researched.....	156
7.7.2 The propositions being put forward.....	156
7.7.3 The units of analysis.....	156

7.7.4 Linking the data to the propositions	157
7.7.5 The criteria for interpretation of the findings	158
7.7.6 Planning the Research Design	159
7.7.7 The Link between Attitudes and Outcomes	159
7.7.8 Scope of the Research	159
7.7.9 Design of Research Instruments	160
7.7.10 Analysis of the Data	163
7.8 RESEARCH TECHNIQUES	164
7.8.1 Project Outcomes - Data Collection Protocols	164
7.8.2 Project Outcomes - The Measurement Instrument	166
7.8.3 Project Outcomes - Data Analysis Protocol.....	168
7.8.4 Participant Attitudes - Data Collection Protocol.....	170
7.8.5 Participant Attitudes – The Measurement Instrument	171
7.8.6 Participant Attitudes - Data Analysis Protocol	180
7.8.7 Pre-testing	181
7.9 RESEARCH ANALYSIS.....	185
7.10 TESTING	186
7.10.1 Construct Validity	187
7.10.2 Internal Validity / Credibility	187
7.10.3 External Validity / Transferability	188
7.10.4 Reliability	188
7.11 NEXT PHASE	188
7.12 SUMMARY.....	189
CHAPTER 8: DATA COLLECTION AND PROCESSING AND ANALYSIS.....	190
8.1 INTRODUCTION.....	191
8.2 PROJECT OUTCOMES	192
8.2.1 Data Collection.....	192
8.2.2 Data Processing and Analysis – Outcomes relating to Risk	195
8.2.3 Relating the Data to Proposition 1 – Outcomes relating to Risk.....	202
8.2.4 Data Processing and Analysis – Outcomes relating to Value	203
8.2.5 Relating the Data to Proposition 1 – Outcomes relating to Value.....	207
8.2.6 Data Processing and Analysis – Outcomes relating to Innovation.....	209
8.2.6 Relating the Data to Proposition 1 – Outcomes relating to Innovation	213
8.2.7 Summary – Project Outcomes.....	213
8.3 PARTICIPANT ATTITUDES	214
8.3.1 Data Collection.....	214
8.3.2 Data Processing – Attitudes relating to Risk	215
8.3.3 Relating the Data to Proposition 2 – Attitudes relating to Risk	227
8.3.4 Data Processing – Attitudes relating to Value	229
8.4.6 Relating the Data to Proposition 2 – Attitudes relating to Value	242
8.4.7 Data Processing – Attitudes relating to Innovation	244
8.4.8 Relating the Data to Proposition 2 – Attitudes relating to Innovation.....	256
8.5 SUMMARY	258

CHAPTER 9: COLLATING AND RELATING PROJECT OUTCOME AND PARTICIPANT ATTITUDE DATA.....	259
9.1 INTRODUCTION.....	260
9.2 RISK OUTCOMES AND ATTITUDES	261
a. Risk Identification and Analysis	263
b. Responsibility for Residual Value Risk	264
c. Authority Default Termination, Voluntary Termination and Force Majeure.....	264
d. 3 rd Party Income Risk	264
e. Technical Obsolescence Risk - General	271
f. Technical Obsolescence Risk - IT	275
9.3.1 VALIDITY OF PROPOSITION 3 TO RISK	278
9.4 VALUE OUTCOMES AND ATTITUDES	279
g. Management of generation of 3 rd party income	281
h. Monitoring of PSO performance and application of sanctions	284
i. The commercial approach of the PSOs to the projects.....	286
j. The Working Relationship	291
9.4.1 Validity of Proposition 3 to Value	296
9.5 SUMMARY	298
CHAPTER 10: TESTING THE FINDINGS & REFINING THE MODEL	299
10.1 INTRODUCTION	300
10.2 TEST HEADINGS	300
10.2.1 Construct Validity	300
10.2.2 Internal Validity.....	301
10.2.3 Credibility	302
10.2.4 External Validity	302
10.2.5 Transferability	302
10.2.6 Reliability	302
10.3 RISK	302
10.4 VALUE.....	317
10.5 OUTCOME OF TESTING	348
10.6 REFINING THE MODEL	349
10.7 SUMMARY.....	353
CHAPTER 11: CONCLUSIONS AND RECOMMENDATIONS FOR FURTHER RESEARCH.....	355
11.1 INTRODUCTION	356
11.2 THE RESEARCH OBJECTIVES.....	356
11.3 CONCLUSIONS	359
11.3.1 The Link between Participant Attitudes and Project Outcomes	359
11.3.2 Affective Element of the Public Sector Attitude	361
11.3.3 Behavioural Element of the Private Sector Attitude	361
11.3.4 Attitude is one of many different causes of outcome	362
11.3.5 Knowledge of PPP Procedures.....	362
11.3.6 Understanding the Partnership	363
11.4 ORIGINAL CONTRIBUTION TO KNOWLEDGE	364
11.4.1 The PPP Effectiveness Model	364
11.4.2 The Link between Attitudes and Outcomes.....	364
11.5 POTENTIAL BENEFITS AND APPLICABILITY OF THIS RESEARCH	365
11.5.1 Sponsoring Authorities	365
11.5.2 Providers of the Public Service Facility	365
11.5.3 Public Sector Staff who work in the Facility	366

11.5.4 Users of the Public Service Facility	366
11.5.5 Stakeholders on future projects.....	366
11.6 EXCLUSIONS, LIMITATIONS, CONSTRAINTS, RESERVATIONS	366
11.6.1 Exclusions	366
11.6.2 Limitations.....	367
11.6.3 Constraints	367
11.6.4 Reservations	368
11.7 RECOMMENDATIONS FOR FURTHER RESEARCH	369
11.7.1 Short Term	369
11.7.2 Medium Term.....	369
11.7.3 Long Term	370
11.8 SUMMARY.....	371

APPENDICES367

Appendix 1: Rating of Project Outcomes.....	368
Appendix 2: Relating the Project Outcomes Data to Proposition 1	371
Appendix 3: Illustrative use of analysis technique drawn from pre-test data	372
Appendix 4: Interview with Seán Slowey – Grouped Schools.....	380
Appendix 5: Interview with Donal Burke - NMCI	397
Appendix 6: Interview with Michael Delaney - CIT	410
Appendix 7: Interview with Dave Gordan (1).....	428
Appendix 8: Interview with Mark Cherry	440
Appendix 9: Interview with John Farrell.....	450
Appendix 10: Interview with Philip Clarke	463
Appendix 11: Interview with Dave Gordan (2).....	479
Appendix 12: Interview with Ferga Kane	488
Appendix 14: Interview with Patrick Mitchell	507

REFERENCES519

BIBLIOGRAPHY534

List of Figures

Chapter 1

Figure 1.1: Research Structure	25
--------------------------------------	----

Chapter 2

Figure 2.1: The Project Process	32
---------------------------------------	----

Chapter 3

Figure 3.1: Age of School Buildings in England	57
--	----

Chapter 4

Figure 4.1: Role of DOES Staff during Detailed Appraisal Stage	69
--	----

Figure 4.2: Typical Risk Profile In PFI	71
---	----

Figure 4.3: Role of Contracting Authority during Statutory Process Stage.....	76
--	----

Figure 4.4: Role of Contracting Authority during Pre-procurement Stage.....	78
--	----

Figure 4.5: Contracting Authority role in Procurement (bidding) Stage	87
---	----

Figure 4.6: Contracting Authority role in Procurement (negotiation) Stage.....	89
---	----

Figure 4.7: Contracting Authority role in Construction Stage	91
--	----

Figure 4.8: Contracting Authority role in Operation Stage	92
---	----

Figure 4.9: Tasks to be undertaken by the PSO in the early stages	98
---	----

Figure 4.10: The Generic Change model.....	100
--	-----

Figure 4.11: Preparation and submission of the bid – PSO Roles.....	103
---	-----

Figure 4.12: Negotiating the Contract – PSO Roles	107
---	-----

Figure 4.13: PSO role in the construction stage	109
---	-----

Chapter 5

Figure 5.1: The Levels of Partnership	125
---	-----

Figure 5.2: Proposed Staging of PPP Tasks.....	128
--	-----

Chapter 6

Figure 6.1: Simple Process Model	139
--	-----

Figure 6.2: Initial Framework for Conceptual Model.....	141
---	-----

Figure 6.3: Revised Framework for Conceptual Model.....	142
---	-----

Figure 6.4: Research Progress to date	143
---	-----

Chapter 7

Figure 7.1: Types of Case Study Design.....	154
---	-----

Figure 7.2: Units and Sub-Units of Analysis.....	157
--	-----

Figure 7.3: Focus of recorded Attitude.....	181
---	-----

Figure 7.4: Research Methodology	189
--	-----

Chapter 8

Figure 8.1: Focus of Public Sector Risk Attitude – Project 1	218
--	-----

Figure 8.2: Focus of Private Sector Risk Attitude – Project 1	220
---	-----

Figure 8.3: Focus of Public Sector Risk Attitude – Project 2	223
--	-----

Figure 8.4: Focus of Private Sector Risk Attitude – Project 2	226
---	-----

Figure 8.5:	Relating Data on Risk Attitudes to Proposition 2	227
Figure 8.6:	Focus of Public Sector Value Attitude – Project 1	231
Figure 8.7:	Focus of Private Sector Value Attitude – Project 1	233
Figure 8.8:	Focus of Public Sector Value Attitude – Project 2	237
Figure 8.9:	Focus of Private Sector Value Attitude – Project 2	241
Figure 8.10:	Relating Data on Value Attitudes to Proposition 2	242
Figure 8.11:	Focus of Public Sector Innovation Attitude – Project 1	246
Figure 8.12:	Focus of Private Sector Innovation Attitude – Project 1	249
Figure 8.13:	Focus of Public Sector Innovation Attitude – Project 2	253
Figure 8.14:	Focus of Private Sector Innovation Attitude – Project 2	256
Figure 8.15:	Relating Data on Value Attitudes to Proposition 2	257
Chapter 10		
Figure 10.1:	PPP Effectiveness Model	350

List of Tables

Chapter 1

Table 1.1:	Types of Public Private Partnerships.....	5
Table 1.2:	Sectoral PPP Analysis by European Country	16
Table 1.3:	Objectives, Research Tools and Outputs Required	22

Chapter 5

Table 5.1.	Differences between employment in the public and private sectors.....	121
------------	---	-----

Chapter 7

Table 7.1:	Attitude Rating Scales.....	162
Table 7.2:	Innovation Categories.....	166
Table 7.3:	Comparison of Project Outcomes.....	168
Table 7.4:	CSFs in a DOES schools PPP	169
Table 7.5:	Rating of Interview Responses relating to Risk.....	180
Table 7.6:	Isolation of Potential Effect of Attitude on Outcome	185
Table 7.7:	Summary of Effect of Project Participant Attitude on Outcome	186
Table 7.8:	Test of Instance Finding	187

Chapter 8

Table 8.1:	Relating Data on Risk Outcomes to Proposition 1.....	203
Table 8.2:	Relating Data on Value Outcomes to Proposition 2.....	208
Table 8.3:	Relating Data on Risk Attitudes to Proposition 2	227
Table 8.4:	Relating Data on Value Attitudes to Proposition 2	242
Table 8.5:	Relating Data on Innovation Attitudes to Proposition 2.....	256

Chapter 9

Table 9.1:	Potential effect of CSFs on project risk outcome differences.....	262
Table 9.2:	Isolation of Potential Effect of Attitude on Risk Outcome a	263
Table 9.3:	Isolation of Potential Effect of Attitude on Risk Outcomes b and c.....	264
Table 9.4:	Isolation of Potential Effect of Attitude on Risk Outcome d.....	265
Table 9.5:	Isolation of Potential Effect of Attitude on Risk Outcome d - continued.....	266
Table 9.6:	Isolation of Potential Effect of Attitude on Risk Outcome e	271
Table 9.7:	Isolation of Potential Effect of Attitude on Risk Outcome e - continued	272
Table 9.8:	Isolation of Potential Effect of Attitude on Risk Outcome e - continued	273
Table 9.9:	Isolation of Potential Effect of Attitude on Risk Outcome f.....	275
Table 9.10:	Isolation of Potential Effect of Attitude on Risk Outcome f - continued.....	276
Table 9.11:	Summary of Effect of Project Participant Attitude on Risk Outcome.....	278
Table 9.12:	Potential effect of CSFs on project value outcome differences	280
Table 9.13:	Isolation of Potential Effect of Attitude on Value Outcome g	281
Table 9.14:	Isolation of Potential Effect of Attitude on Value Outcome g (continued)...	282
Table 9.15:	Isolation of Potential Effect of Attitude on Value Outcome g (continued)...	283
Table 9.16:	Isolation of Potential Effect of Attitude on Value Outcome h.....	284
Table 9.17:	Isolation of Potential Effect of Attitude on Value Outcome h (continued)...	285
Table 9.18:	Isolation of Potential Effect of Attitude on Value Outcome i.....	287
Table 9.19:	Isolation of Potential Effect of Attitude on Value Outcome i - continued	288

Table 9.20:	Isolation of Potential Effect of Attitude on Value Outcome i - continued	289
Table 9.21:	Isolation of Potential Effect of Attitude on Value Outcome j.....	291
Table 9.22:	Isolation of Potential Effect of Attitude on Value Outcome j (continued) ...	292
Table 9.23:	Isolation of Potential Effect of Attitude on Value Outcome j - continued....	294
Table 9.24:	Isolation of Potential Effect of Attitude on Value Outcome j - continued....	295
Table 9.25:	Summary of Effect of Project Participant Attitude on Valve Outcomes	297

Chapter 10

Table 10.1:	Test of 1st Instance Finding.....	304
Table 10.2:	Test of 2nd Instance Finding.....	306
Table 10.3:	Test of 3rd Instance Finding	307
Table 10.4:	Test of 4th Instance Finding	309
Table 10.5:	Test of 5th Instance Finding	310
Table 10.6:	Test of 6th Instance Finding	311
Table 10.7:	Test of 7th Instance Finding	312
Table 10.8:	Test of 8th Instance Finding	314
Table 10.9:	Test of 9th Instance Finding	315
Table 10.10:	Test of 10th Instance Finding.....	320
Table 10.11:	Test of 11th Instance Finding.....	321
Table 10.12:	Test of 12th Instance Finding.....	322
Table 10.13:	Test of 13th Instance Finding.....	324
Table 10.14:	Test of 14th Instance Finding.....	326
Table 10.15:	Test of 15th Instance Finding.....	327
Table 10.16:	Test of 16th Instance Finding.....	328
Table 10.17:	Test of 17th Instance Finding.....	330
Table 10.18:	Test of 18th Instance Finding.....	331
Table 10.19:	Test of 19th Instance Finding.....	332
Table 10.20:	Test of 20th Instance Finding.....	334
Table 10.21:	Test of 21st Instance Finding	335
Table 10.22:	Test of 22nd Instance Finding	337
Table 10.23:	Test of 23rd Instance Finding.....	338
Table 10.24:	Test of 24th Instance Finding.....	339
Table 10.25:	Test of 25th Instance Finding.....	341
Table 10.26:	Test of 26th Instance Finding.....	343
Table 10.27:	Test of 27th Instance Finding.....	344
Table 10.28:	Test of 28th Instance Finding.....	346
Table 10.29:	Test of 29th Instance Finding.....	347

Acknowledgements

Completing a PhD is a task that cannot be accomplished with the support and assistance of others. I would like to express my gratitude to all of those who assisted me throughout the process, but in particular to the following people:

Professor Mustafa Alshawi, for the initial discussion which helped me to clarify my objectives and convince me that the MERIT PhD route through the University of Salford was right for me;

Dr David Eaton, my Supervisor, who provided invaluable advice and guidance (often at very short notice) throughout my studies;

Professor John Ratcliffe, my Local Advisor, whose experience and insight into the way the world works was invaluable;

Dr Vian Ahmed, Director of the MERIT PhD Programme, who ensured that the programme provided the necessary support network that is required for research students located in numerous diverse locations away from Salford;

The Staff of the School of the Built Environment at the University of Salford, whose efficiency and good humour ensured that any question raised never became a problem;

The Staff of the IIS and the University Library at Salford who came to the rescue on a number of occasions when I had a technical query;

The Dublin Institute of Technology (DIT) for providing funding for my studies;

Phil Murray, Head of the School of Construction at DIT for creating the mental and organisational space for me to undertake my studies;

Garrett Keenaghan, Assistant Head of the Department of Construction Management & Technology, who greatly assisted by taking on a significant portion of my DIT workload during the latter stages of my studies.

However, it is to my family that I owe the greatest debt of gratitude. To my soulmate and wife Áine for her love, support, assistance with proofreading, thousands of cups of tea and running the domestic affairs of the family practically single-handed for over three and a half years - thank you so much.

Finally, to my three sons, Seán, Niall and Conall who have had a physically present but often mentally absent father during the time of my studies - thanks for your patience. And from now on – Dad’s back!

Abbreviations

4Ps	Public Private Partnership Programme
BAFO	Best and Final Offer
BLT	Build Lease Transfer
BOO	Build Own Operate
BOT	Build Operate Transfer
BRE	Building Research Establishment
C&AG	Comptroller and Auditor General
CEP	Centre of Expertise for Procurement
CIC	Construction Industry Council
CIF	Construction Industry Federation
CIT	Cork Institute of Technology
CJV	Construction Joint Venture
CSF	Critical Success Factor
CSS	Critical Success Subfactor
D&B	Design and Build
DBFO	Design Build Finance and Operate
DEHLG	Department of Environment, heritage and Local Government
DIT	Dublin Institute of Technology
DOES	Department of Education and Science
ECI	Early Contractor Involvement
EIS	Environmental Impact Statement
EU	European Union
FM	Facilities Management
GDP	Gross Domestic Product
GNP	Gross National Product
IBEC	Irish Business and Employers Confederation
INS	Irish Naval Service
LEA	Local Education Authority
MORI	Market & Opinion Research International
NAO	National Audit Office
NMCI	National Maritime College of Ireland
NDFA	National Development Finance Association
O&M	Operation and Maintenance
OJEC	Official Journal of the European Community
PA	Project Agreement
PBB	Performance Based Building
PBU	Planning & Building Unit of DOES
PFI	Private Finance Initiative
PIPS	Project Information Procurement System
PPP	Public Private Partnership
PSB	Public Sector Benchmark
PSC	Public Sector Comparator
PSO	Private Sector Organisation
RVI	Risk, Value and Innovation
SLEEPT	Social, Legal, Economic, Environmental and Technical
TRR	Tender Recommendation Report

ABSTRACT

By 2003 the first Irish Public Private Partnership (PPP) projects had reached the operational stage. Media reports were emerging of significant differences in the effectiveness of these projects.

This research set out to find a means by which effectiveness of PPPs could be increased and to develop a model that would assist PPP practitioners with this task in the future. Through a literature review, the Irish PPP process was mapped, the changes encountered in the introduction of PPP were investigated and a conceptual model – based on a traditional process model - was proposed.

The model was tested by examining the outcomes of two projects and assessing the effect of participant attitudes on these outcomes. The projects were analysed in terms of Risk, Value and Innovation, and three propositions were offered:

- there were differences in project outcomes;
- there were differences in the attitudes of the project participants;
- the attitudes influenced the outcomes.

Using a combination of research methods, the data were gathered and analysed. The first two propositions were proven for Risk and Value but not for Innovation. In addressing the third proposition, a pattern matching exercise was undertaken and a number of findings were reached. These findings were further tested to establish their validity, credibility and reliability. The results showed that specific elements of participant attitudes were found to affect some of the project outcomes and that these had a significant effect on the overall success of the project.

The findings showed that PPP conducted as outlined by the conceptual model would not maximise effectiveness. The model was revised so that it commenced with analysis of the desired outcomes and proceeded by working back through the PPP process to define the inputs necessary for success. Using this information, the model was refined, making it ready for use by future PPP practitioners.

CHAPTER 1: INTRODUCTION AND BACKGROUND TO RESEARCH PROPOSAL

1.1 INTRODUCTION

This research sets out to develop and verify an analytical model that will be used to achieve greater effectiveness in future PPP.

This chapter introduces the concept of PPP, defines a number of further terms, defines the underlying principles and the reasons for use of PPP, and identifies the changes that are necessary if PPP is to be effectively used. A short account of the history and development of PPP is then given, followed by an outline of the context of PPP used in Ireland and of the relevance of the research at this time. The aim and objectives of the research topic are then outlined with an initial research method for each objective identified. The means by which the emerging model will be refined and validated is outlined. This is followed by an account of the potential benefits and applicability of the outcome of the research. The chapter concludes with a summary of the exclusions, limitations, constraints and reservations that will apply to this research.

1.1.1 PPP

The concept of PPP is not new - indeed it has been with us for as long as private funds have been used to provide a facility or service that can be used by the general public. Consequently, it is sometimes confused with privatisation and outsourcing of services. However, service outsourcing differs from PPP in that the service provider has little if any involvement in decision-making regarding the service to be provided and the length of the service contract is normally of a short-term nature. The current policy by Irish Local Authorities of contracting out of collection of domestic waste is an example of outsourcing. Privatisation involves a private sector organisation providing a facility to the public at a price that is set by the market's ability to pay for such a service. The government has no involvement in the provision of such a service unless regulation becomes necessary (Allan, 1999). An example of a privatised service is the X-ray service provided by the Charlemont Clinic in Dublin.

PPP combines the efforts of the public and private sectors to provide a facility for use by the public. It is defined as:

"... a combination of resources of the public and private sectors in the quest for the more efficient service provision"

(Akintoye et al., 2003);

"...partnerships between the public sector and the private for the purpose of designing, planning, financing, and constructing and operation of projects which would be regarded traditionally has following within their remit of the public sector"

(Webb and Pulle, 2002);

"...the government and private party working together under a long term arrangements, whereby payments to the private sector depend upon its continuing to deliver the specific services to the agreed performance standards"

(Pierce and Little, 2002);

"... a corporate venture between public and private sectors, built on expertise of each partner that best meets the clearly defined public need to the appropriate application of resource risks and rewards"

(Allan, 1999).

As all of these definitions agree on the nature of PPP, they are all relevant to this research.

1.1.2 Further Definitions

The *Public Sector* is defined as:

"The part of an economy in a mixed economy that covers the activities of the government and local authorities",

(Pallister and Law, 2006);

"The part of an economy that is controlled by the Government",

(Dictionary.com, accessed 27 February 2007).

For the purpose of this research a Public Sector Facility is defined as a building, structure or service traditionally provided from government funding and operated by the public service.

The *Private Sector* is defined as:

"The parts of the economy not run by the government."

(Pallister and Law, 2006);

"The part of the national economy not under direct state control."

(Dictionary.com, accessed 27 February 2007).

Organisational Culture is defined as:

"...the values, customs, rituals, and norms shared by all the members of an organization"

(Pallister and Law, 2006).

Corporate Culture is defined as:

"...the values, beliefs, norms, and traditions within an organisation that influence the behaviour of its members"

(ibid).

There is a marked difference between the values, norms, and traditions of the public and private sectors (Hebson et al., 2003). The Department of the Taoiseach (1996) states that the key goals of the Irish public sector are concerned with efficient and effective use of resources to provide excellence in service to the public. This indicates that public sector workers are motivated by intrinsic rewards, an observation confirmed by Houston (2000). Houston further observed that private sector workers are generally more motivated by extrinsic rewards such as high income than public sector workers.

1.1.3 Types of PPP

There are several types of PPP, each involving the provision of a public service facility under some combination of design, build, finance, operate, maintain, lease, own, and/or transfer. Each PPP involves private resources being used to provide a public service. Such a service can vary from operation and maintenance contracts where the facility is totally owned by the public sector but is being operated and maintained by a private organisation, to a build, operate and own contract where the private sector organisation builds a public facility, operates the facility on behalf of the public sector and continues to own the facility in perpetuity. Table 1.1 summarises the main types of PPP.

	Description	Transfer of title	Duration of Partnership
Operate and Maintain (O&M)	Private sector organisation (PSO) enters contract to operate a public sector facility on behalf of a public sector organisation over an agreed period of time.	Remains with public sector organisation for duration of the contract	For duration of contract
Design & Build (D&B)	PSO enters contract to design, build and provide construction finance for a public sector project. Public sector organisation pays agreed contract sum on completion of the construction phase.	On completion of construction	On transfer of title
Build Lease Transfer (BLT)	Similar to D&B except that the public sector organisation pays for the project over a long-term lease.	On completion of payment of lease	On transfer of title
Design Build Finance Operate (DBFO)	PSO enters contract to design, build, finance, and operate a public sector facility over an agreed period. PSO recovers its investment over the contract period through payments by the public sector organisation for services delivered.	Remains with public sector organisation for the duration of the contract	For duration of the contract
Build Operate Transfer (BOT)	PSO enters concession contract to design, build, finance, and operate a public sector facility over an agreed period. PSO recovers investment over the contract period under the pre-negotiated contract terms. The concession period is usually significantly shorter than the operating life of the facility.	At the end of the contract period	On transfer of title
Build Own Operate (BOO)	PSO enters concession contract to design, build, finance, and operate a public sector facility for as long as the economic operating life of the facility.	Remains with PSO in perpetuity	For duration of the contract

Summarised from

(De Lemos et al., 2003), (Allen, 1999), (PriceWaterhouse Coopers, 2001), (Seader, 2004)

Table 1.1: Types of Public Private Partnerships

Due to the short duration of these studies, this research will be limited to the use of PPP in the built environment, in particular to its application in the construction and operation of educational buildings in Ireland. However, the model to be developed and verified will be relevant to the use of PPP in the provision of other public service facilities.

1. 2 THE CHANGING ROLES OF THE PUBLIC AND PRIVATE SECTORS UNDER PPP

PPP is different from other procurement methods in that it changes the role of the public sector from being a provider of services to being a procurer of services on behalf of the public. The role of the private sector partner changes from being a constructor of facilities to being a service provider (De Lemos et al, 2003). These role changes are manifested in a the following ways:

- transfer of risk;
- value for money;
- management;
- innovation.

1.2.1 Transfer of Risk

Under traditional procurement methods, the public sector retains almost all of the project risk. Under PPP, risks should be transferred to the party best suited to carrying such risks. To achieve this, it is essential that all of the risks involved in the project are identified and that each party is fully aware of the consequences of accepting risk (HM Treasury, 1995). In PPP, it is generally appropriate to transfer risks involved in construction and maintenance to the private sector partner. Where the return on the project is subject to public sector control, it would not be appropriate to transfer this risk to the private sector. It must also be borne in mind that services that are critical to society cannot be allowed to fail and that the public sector will always retain the ultimate responsibility for the operation of such services regardless of how the risk is allocated. The collapse of the UK National Air Traffic Services PPP is an example of how this can occur (Shaoul, 2003).

1.2.2 Value for Money

The government is responsible to the electorate to ensure that they receive value for money in the provision of public services. If PPP is chosen as the preferred procurement method, a value for money

analysis should show that this method would provide better value to the taxpayer over the duration of the provision of the service. In Ireland, this analysis is known as the Public Sector Benchmark (PSB) and is defined as:

"... a comprehensive, detailed, risk adjusted costing of the project elements using conventional procurement over the whole life of the project."

(Department of Finance, 2003)

In the UK this is achieved by using a Public Sector Comparator (PSC), which establishes costs over the operation of the service both by standard procurement method and by PPP. Only those that show better value by using PPP are proposed by using this method. The use of PSB/PSC now requires the public sector to make judgements based on life cycle commercial criteria rather than making judgements based primarily on quality of service. The private sector partner must now adopt a long-term, whole life-cycle view of the project and must base some of its decisions of quality of service rather than commercial factors alone.

1.2.3 Management

Depending on the type of PPP used, the management role of the public sector partner can be significantly different under a PPP than under traditional public service provision. Under a design and build arrangement, the public sector partner will have a lesser input to the design and a more hands-off role in the monitoring of construction. Where a PPP includes operation and maintenance phases, the management of these activities would be carried out by the private sector partner, with the public sector partner monitoring the performance of the services being provided. Payment for the service provided would be dependent on performance reaching specific agreed levels of satisfaction. This is a significant change in the role traditionally performed by the public sector. This requires a change in mindset as the Irish public sector has previously operated on the basis of direct provision of service based on an annual budget. If the funds were not there, the service was not provided. Whatever funds

were available were spent before the end of the year. PPP requires financial analysis on a multi-annual basis, thereby requiring acquisition of further financial management skills and any further skills that are necessary to monitor the performance of the service provider.

Construction activity is cyclical as it is closely linked to the performance of the economy. PPP spreads the income of private sector organisations over a much longer time scale thereby requiring construction companies to adjust their strategic planning to a longer cycle. As most of the large Irish construction companies are managed by engineers, many of whom excelled in the short-term environment of construction projects, the requirement for longer corporate planning cycles will also require a change in mindset in the private sector (Gunnigan, 1999). Involvement in PPP will require much closer working relationships with financiers and facilities management organisations resulting in the need to develop long-term financial management and programme management skills (Gunnigan and Orr, 1998).

1.2.4 Innovation

There is a widely held view that private sector involvement in public service provision will prompt the use of innovation in construction in a bid to maximise the financial return over the whole-life cycle of the project (Chi et al., (2003), Domberger & Jensen (1997)). Such innovation might be introduced to:

- reduce construction time, realising savings in construction overheads whilst bringing the facility into use earlier thereby achieving early generation of income;
- reduce operation and maintenance costs;
- maximise further opportunities for use of the facility thereby generating extra future income.

In introducing innovation, the private sector partner must be prepared to think of the project as a long-term business venture

rather than a short-term project as would be the case under the traditional means of procurement. The public sector partner, who under traditional procurement procedures, would have tight control of the design and construction of the project must now accept a much more “hands-off” role. This will require a significant change in mindset for the public sector project teams. It will also bring into question the current practice whereby individual public sector staff manage traditional projects and PPP projects concurrently.

1.2.5 Reasons for using PPP

One of the primary reasons for using PPP is to utilise the private sector’s culture of enterprise in the provision of public services. Through the involvement of the private sector, it is generally anticipated that services could be provided in a more efficient means than would have been possible through public sector alone. However, to establish the range of drivers that lead to PPP being considered as a service procurement route, the rationale of PPP use will be subjected to a brief analysis using the SLEEPT methodology that has been created by the Centre for Risk Management Research at the University of Salford.

The SLEEPT framework represents a series of systems or sub-systems under the headings of:

- Social;
- Legal;
- Economic;
- Environmental;
- Political;
- Technological.

1.2.6 Social

The efficient provision and maintenance of public services is of importance to the public. The provision of such services under PPP is seen as a means of ensuring that high quality services are available

over an extended period of time. Governments that introduce PPP express the general belief that the private sector's involvement will lead to better quality services, delivered earlier and for a lower cost than under traditional public sector procurement, e.g. Government of Hong Kong Special Administrative Region (2003). Opponents of PPP point to potential loss of public sector employment (Ruane, 2000) and a potential erosion of public service values (Robertson and Acar, 1999). Hebson et al., (2003) also state the view that the quality of service provided is only as good as the quality of the contract and ability of the legal representatives of the partners to argue the contents of the contract.

1.2.7 Legal

As with other procurement methods, PPP relies on legal contracts to ensure that the roles and obligations of both the public and private sector partners are clearly defined. PPP is further complicated by the need for further legal agreements between the parties that make up the private sector partner organisation. These parties would typically include a financier, a design practice, a construction company and a facilities management company. These organisations, along with whatever other organisations deemed necessary to carry out the entire project, form a consortium that becomes a legal entity in its own right for the duration of the PPP. As some PPPs can be in existence for up to 30 years, a considerable amount of legal work is necessary to form such consortia. Some of the main criticisms of the PPP process point to the length of the procurement process and the variety of contracts in different sectors. The second review of the Private Finance Initiative (PFI) by Sir Malcolm Bates (1999) called for standardisation of documentation as a means to shortening the procurement process.

1.2.8 Economic

For the public sector, the use of PPP usually involves a change from initial short-term capital expenditure to long-term current expenditure. For example, the construction of a hospital may have an

initial capital cost of several million Euro under traditional procurement. Further costs would arise each year to cover the maintenance of the hospital. Using PPP, the private sector may bear the initial capital costs and on-going maintenance costs in return for agreed annual payments from the public purse for the provision of the hospital. Some such arrangements have been agreed for periods of up to 30 years.

For the private sector, PPP requires involvement with a project for an extended period beyond the construction phase. Whilst this provides a long-term income stream for the private sector partner, it increases the risk to which the private sector organisation is exposed and such risk can have a bearing on the cost of the project. In order to reduce the costs attributable to risk, it is essential that each risk is clearly identified and is placed with the party best placed to bear such risk.

Under the Eurostat (2004) guidelines, a government is allowed to declare PPPs as non-government assets provided the private partner bears the construction risk, and at least one of either availability risk or demand risk. Availability relates to the private sector partner making available the facility or service that it is contracted to provide. Demand relates to the shifts in demand for the service over which the private sector partner does not have the ability to exercise control. If the construction risk is borne by government, or if the private partner bears only the construction risk and no other risks, the assets are classified as government assets. For governments seeking to comply with the Maastricht regulations, set out in the Manual on Government Debt and Deficit (ESA 95, 1995), the ability to keep payments to PPPs "off balance sheet", allows greater flexibility in use of PPP as a mechanism for promoting infrastructural development.

Additional costs arising from the lengthy procurement process, up to 4% of capital costs, according to Dix (1999) must be taken into account when PPP is being chosen as a procurement route. Webb and Pulle (2002) cite both sides of the argument as to whether or not the cost of private sector borrowing is higher than public sector borrowing and whether or not this has an effect on the cost of a PPP. Pierce and

Little (2002) state that the risk of the project itself determines the real cost of finance as the taxpayers' funding of cost overruns, delays, etc., are not priced into a government's borrowing rate.

The key economic issue in PPP is that it should represent better value to the public and it has been reported in the UK that PSC analysis shows an average percentage of 17% better value through the use of PFI (Arthur Anderson and Enterprise LSE., 2000). However, the governments of a number of countries now consider further factors in the value appraisal. The Australian states of New South Wales and Victoria are assessed under public interest criteria such as effectiveness, impact on stakeholders, accountability, consumer rights, etc (Webb and Pulle, 2002). Ireland's Local Authorities carry out a PPP Assessment Report which includes a significant level of stakeholder consultation along with issues that impact on project delivery and the development of approaches to deal with such issues (Department of Environment Heritage and Local Government, 2003).

1.2.9 Environmental

In Ireland, as in most developed countries, environmental issues are now a major factor in infrastructural development. The targets set by EU waste management directives show that Ireland's waste management systems are outdated and are in urgent need of development. A national waste management strategy has been developed and is gradually being implemented on a countrywide basis. Considerable investment is needed to implement the strategy and, it is becoming increasingly apparent that significant private sector investment will be required to achieve the targets set out in the strategy. Consequently, the Department of Environment, Heritage and Local Government has embarked on a programme of projects designed to bring Ireland's waste management into line with that required under EU directives. As the provision of waste management facilities can require significant initial financial investment, it is expected that Ireland's waste management needs will become a significant driver of Ireland's PPP programme.

1.2.10 Political

There are three ways in which a public service can be provided. It can be provided directly by the public sector (traditional public service delivery), provided directly for a profit by the private sector (privatisation) or by PPP (the third way – Gerrard, 2001). The use of private finance to provide public services would generally be considered a right wing policy, as it has been associated with privatisation. However, PPP is different from privatisation in that the public sector retains the overall responsibility for service delivery. Politically, this is an easier policy for centre-left governments to adopt, hence the ease with which the New Labour UK government was able to continue and expand the use of PFI, introduced by the previous right wing Conservative government.

PPP is politically attractive in that most governments have a term of not more than five years in office and the creation of a significant PPP programme can be achieved in that time. With a payback period of 20 to 30 years, a government can get credit now for services that the public will be paying for over the following decades.

1.2.11 Technological

Technology changes now occur at an increasing pace and the private sector is in a constant state of change in order to maximise potential gains that become possible through the application of new technology. Such a level of change is not traditionally associated with the public sector and consequently technological developments would not have immediate consequences for the level of service provided through the public sector. The collaboration of the public and private sectors in a PPP brings about the possibility of gains from new technology as the private sector partner would seek out and apply any advantage that such development would bring.

1.3 HISTORY OF PPP

Whilst PPP has been in existence in one form or another for several hundred years, it is in the past decade that it has begun to increase hugely as a means of procuring public services. It is estimated that

almost 3000 such projects with a value in excess of US\$887 billion entered the planning phase between 1995 and 2004 with 53% of these projects reaching their operational phase by the end of that period (Aecom Consult Team, 2005). The following is a brief summary of PPP activity worldwide.

1.3.1 North America

Most of the major railways in the United States were originally built with private finance in the nineteenth century, under an agreement with the federal government who provided leases for the land on which the railroad was built and decided the route that the railroad was to take (National Council for Public-Private Partnerships, 2003). A considerable portion of America's transport infrastructure in the early decades of the 1900s was provided by the private sector under financial agreements with the federal government. This situation changed dramatically in the 1930s when many of the private sector organisations providing the services went bankrupt following the Wall Street crash. In the following years and through World War 2, America's philosophy for providing public sector services changed in that such services were now provided directly from the public purse. This policy continued until the Reagan administration came to power in the 1980s and a clear policy of private sector involvement in public service provision returned. America now has an extensive program of PPPs in such areas as transport, prisons, schools, water/wastewater, provision of government buildings and science & technology (HDR, 2005). PPPs were initially introduced in Canada through a number of roads, airports and schools being provided under the PPP method (Allan, 1999). The PPP programme continues to expand with projects now underway in health, educational facilities, highways, bridges, rail, power, water and driver education (Richmond, 2006).

1.3.2 Australasia

Due to the political structure of Australia, different states have slightly different processes for the introduction of PPP (Snelson, 2006). PPPs were initially popular in provision of transport (Webb & Pulle, 2002)

but have now expanded into such sectors as water and health (Snelson, 2006). However, many of the projects in Australia are promoted through state sponsorship rather than federal sponsorship and the three states currently the leading the way in Australian PPP are New South Wales, Queensland and Victoria. Up to 2002, approximately \$A17 billion had been invested in PPP in Australia (English and Guthrie, 2003). Whilst accurate figures are difficult to establish, the level of PPP activity evident by 2006 indicates that this figure has increased substantially. Due to a lack of recent investment in infrastructure, PPP is also beginning to gain popularity in New Zealand as a means by which the infrastructure can be improved (Newberry and Pallot, 2003).

1.3.3 South Africa/Pacific Rim

South Africa began a programme of PPP in September 2003 with the signature of twenty PPPs in areas of transport, waste water and sanitation, prisons, health, government accommodation and information technology (Allchorne, 2003a). By the end of 2004, 52 PPP projects were underway (National Treasury PPP Unit, 2004) Hong Kong also entered the PPP market in 2003 and has released its first PPP projects mostly in transport and waste management (Kumaraswamy and Morris, 2002). A significant PPP programme is planned. Japan began its PPP program in 1999 and by 2003 was releasing an annual total project portfolio valued at almost 200 billion yen onto the domestic PPP market (Japan PFI Association, 2003). Taiwan introduced PPP in 2002 and is currently planning a range of projects. Six major projects commenced in 2003 (Allchorne, 2003a).

1.3.4 Europe

Button (2006) summarises the extent of European PPP use to date (Table 1.2). Current European PPP activity varies across different countries, but roads projects are the most popular choice for PPP, followed by health and education projects.

Country	Government Buildings	Defence	Housing	Health & Hospitals	IT	Ports	Prisons	Rail	Roads	Schools & Universities	Sports & Leisure	Water & Wastewater
Austria				✓					✓			✓
Belgium												✓
Denmark											✓	
Finland	✓			✓					✓	✓		
France		✓		✓			✓		✓			
Germany	✓	✓					✓		✓	✓	✓	✓
Greece										✓		
Hungary										✓	✓	
Ireland			✓					✓	✓	✓		✓
Italy	✓		✓	✓		✓		✓	✓			
Netherlands	✓							✓	✓	✓		✓
Norway									✓	✓		
Portugal				✓				✓	✓			
Romania	✓				✓							✓
Spain				✓				✓	✓			
Sweden									✓			
UK	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓

Table 1.2: Sectoral PPP Analysis by European Country

(Button, 2006)

Government accommodation, water/waste water and rail projects comprise the majority of remaining projects with a variety of projects evident in diverse sectors such as prisons, housing, sports/leisure, defence, ports and IT.

Since the launch of PFI in 1992, the United Kingdom has become the undisputed world leader in the use of PPP, with in excess of 667 projects reaching close by 2004 (Eaton, 2006). By the end of 2006, some commentators were stating that the number of PFI projects signed in the UK had now reached 835 (International Project Finance Association, 2007). Regardless of the actual number of projects, the

experience of the UK has resulted in the development of the most comprehensive mechanisms available for the setting up and delivering PPP. PPP has become increasingly popular as a procurement method in Italy, Ireland and Portugal with several projects at the operational stage in these countries. The German PPP market continues to build having recovered from the crisis of confidence in PPP attributable primarily to the negative publicity following the collapse of the Toll Collect motorway-tolling project. (Allchorne, 2003b). PPP use is continuing to become established in other European countries and is likely to expand particularly in the countries that joined the EU in recent years.

1.4 DEFINING THE IRISH CONTEXT

Whilst PPP was used on a small scale in the early 1990s in Ireland, for example the provision and management of the Eastlink and Westlink toll bridges in Dublin, its use was not common in Ireland until it was adopted as a central part of government policy in achieving the targets set in the National Development Plan 2000 – 2006 (Department of Finance, 1999). Between 1994 and 1996, the output of Ireland's construction industry had grown by more than 40%, with a further 11% growth in 1997, aided by significant contributions from the EU Structural and Cohesion Funds (Gunnigan & Orr, 1998). However, continued receipt of the existing levels of contribution from the EU Structural Fund was dependent on retention of "Objective One" status which was assigned to the EU's poorest regions - those with less than 75 per cent of the EU average per capita GDP. EU Cohesion funding was available to states with less than 90% average of EU per capita GNP and as Ireland's average had risen above that figure by 1998, the contributions from the EU were going to decrease and eventually stop over the following years.

In 1998, the Irish Business and Employers Confederation (IBEC) and the Construction Industry Federation (CIF) presented a strong case for the introduction of PPP as a means of raising the finance necessary for the development of Ireland's infrastructure (Reeves, 2003). A report commissioned by IBEC (Fitzpatrick and Associates, 1998)

confirmed that an investment of €18 billion would be required from 2000 to 2006 to bring Ireland's infrastructure up to the required standards. In early 1999, a pilot programme of eight PPP projects was announced. This programme would involve a significant financial input from the private sector and included projects in education, public transport, roads and waste treatment. In late 1999, the government further strengthened its commitment to PPP with the publication of the National Development Plan 2000-2006. This plan outlined a blueprint for infrastructural development and set clear minimum targets for private financial input. By 2001, PriceWaterhouse Coopers (2001) estimated that €13 billion worth of projects would be procured by PPP between 2001 and 2006. By November 2006, nine projects had reached the operational phase, eight were in construction, twenty seven were in procurement and a further seventeen were in pre-procurement (Central PPP Unit, 2006) These projects span such sectors as education, roads, solid waste, public transport, water services, housing, car testing, courts service and driver testing.

1.5 RESEARCH ISSUE

1.5.1 Defining the Issue

The literature consistently highlights the need for organisational change brought about by the introduction of PPP. The following is a small sample of such literature:

De Lemos et al., (2003) highlights the profound need for change in both the public and private sectors in the introduction of PPP and states that the need to adapt to new methods is vital to success;

PriceWaterhouse Coopers (2001) proposed several organisational changes required in the structure of the Irish approach if the PPP programme was to move from the mobilisation phase to the programme expansion phase. Many of these impact directly on the existing organisational culture;

Gallimore et al., (1997) in researching perceptions of risk in PFI, highlight the differences between the public and private sectors. They suggest that public sector managers are cocooned in a culture of

“rules not deals” whilst private sector culture is one of “deals not rules” and that these opposing cultural positions are a major inhibitor to the development of PFI;

Akintoye et al., (2003) in discussing the adoption of a Best Value approach in PFI, states that the achievement of change in the public sector is a gradual, long-term process. These conclusions are widely echoed in other articles that show the slow pace of change in the public sector is not appropriate to the pace of change needed in the introduction of PPP;

Fiscbacher and Beaumont (2003) raise the issue of stakeholder involvement in PPP/PFI and states that these procurement methods require a higher level of involvement of all stakeholders throughout all stages of the project. Clearly this would require significant change as traditional project procurement methods allow only limited stakeholder involvement in the provision of public service facilities;

Hebson et al., (2003) raise the issue of ethos of public sector workers and how this affects the level of service provided. They put forward the view that private sector workers have a different ethos and that PPP could therefore lead to a lower quality service being provided. This argument highlights the need for the private sector to fully understand the nature of the service being provided – an issue that would not be as relevant under traditional procurement.

A summary of the available literature identifies the following PPP-related issues as drivers of organisational change in the public sector:

- the requirement to make judgements based on commercial factors rather than purely on quality of service (De Lemos et al., 2003);
- the organisational issues arising from moving from service provision to service procurement. For example, the need to let go of the “ownership” of public services and to develop a “hands-off” approach to the procurement of these services by concentrating on the output (the service to be provided) rather

than the inputs (the assets or buildings to be constructed in order to provide the service (Forrer et al., 2002).

PPP issues driving organisational change in the private sector include:

- the need to become a service provider rather than concentrating solely on the business of construction (De Lemos et al., 2003);
- the change in the nature of risk between traditional projects and PPP projects (Mawji, 2004);
- the need to understand the nature of the services to be provided and the ongoing requirement for the quality of such services (Hebson et al., 2003).

1.5.2 Aim of the Research

The aim of this research is to develop and verify an analytical model which will be used to achieve greater effectiveness in future PPP projects.

1.5.3 Importance of the Issue

By the late 1990s, it had become clear that a new model was required for funding public projects in Ireland. The model that has emerged is PPP. It was assumed that that PPP would deliver projects in shorter time spans, minimise cost overruns and reduce the level of risk carried by the public sector. The reality, however, has been somewhat different. Long delays in the pre-contract stage have led to spiralling costs and increased time scales (e.g. LUAS light rail system and the Dublin Metro), whilst some PPP projects have been completed ahead of time and within budget (e.g. the National Maritime College of Ireland).

PPPs have been used successfully in a variety of countries for decades. There is no doubt that each country would have experienced and gradually overcome at least some of the difficulties in introducing PPP. Due to its urgent need to provide new public service facilities, Ireland cannot afford the luxury of gradually learning from its

mistakes. There is an urgent need to develop a model that will identify potential difficulties at an early stage so that all parties concerned quickly become attuned to the specific approaches that are necessary for a successful PPP.

Clearly, the introduction of a new method of operation will require organisational change. In the introduction of PPP, the literature consistently points to instances where adequate levels of change have not occurred. Using one project type, the proposed research will identify and analyse the specific difficulties that could occur and the issues that must be addressed if a PPP project is to run smoothly. This will result in establishing the inputs to the project process in a PPP. A framework for an analytical model linking the inputs to project outcomes will be proposed. Following this, a number of projects will be examined to establish specific project outcomes that have arisen. By tracking a key input through the project and testing its validity as a cause of specific project outcomes, the conceptual model will be tested and its practicality will be assessed. Refinement of the model will take place through further testing of the research findings. The model will be made available to the public and private sectors and will be used to reduce the effort required to identify and avoid potential difficulties in future PPPs.

Whilst the model will be developed for one specific project type, it is the intention of the author that the principles used in the development of the model will be applicable in the adaptation of the model to other types of PPP projects. The following section outlines the specific objectives of the research, the research tools to be used and an outline of the work plan that relates to each objective.

1.5.4 Outline Research Method

An outline of the approach that will be taken to this research is presented in Table 1.3. This table outlines the research objectives, the research tools to be used in addressing these objectives and the work plan identifying the tasks to be undertaken.

Objective	Research Tools	Outputs required
1. Develop an understanding of the differences between the roles of the participants in traditional projects and PPP projects	Review of government published PPP guidelines and informal interviews with key public and private sector personnel	Understanding of the differences between the roles of the participants in the different routes
2. Carry out a critical appraisal of the use to date of PPP/PFI in the provision of educational facilities in Ireland and the UK	Review of refereed journal articles, reports and information available of government websites in Ireland and the UK	Summary of the issues arising in the provision of educational facilities through PPP
3. Establish the challenges facing the key participants within the Contracting Authority and the PSO in a schools PPP/PFI	Follows from the establishment of the difference in roles. Carried out through a review of text books refereed journal articles and published reports	Will define the challenges to be addressed if greater effectiveness of PPP is to be achieved
4. Establish a means by which these challenges can be addressed	Review of literature from the wider PPP field and from the field of organisational behaviour	Clear understanding of the challenges. Have gained enough knowledge to propose a conceptual model
5. Propose a conceptual model to be used as a basis for further investigation of a means of improving effectiveness of PPP	Attendance at seminars that were being held to gather the experiences from the PPP pilot programme.	The conceptual model that will be used to test the relationship between project inputs and project outcomes
6. Develop a research strategy to test the model	Desk research on development of research strategies. Pre test of research tool	Clear strategy, tested and refined research tool
7. Carry out field research which will test the model	Data gathering tool, data processing and analysis procedures.	Public and private sector data from PPPs that have reached operational stage gathered and analysed
8. Refine the model into an analytical tool that will be used to increase the effectiveness of PPP	Further testing to establish validity, reliability, credibility and transferability of the findings	Clear results showing the level to which the accuracy of the model can be relied upon

Table 1.3: Objectives, Research Tools and Outputs Required

Under objective 1, a literature review would be conducted using the online facilities of the University of Salford and of the Dublin Institute of Technology (DIT). The purpose of the literature review was to summarise the research to date on requirements for organisational change brought about by the introduction of PPP/PFI. Using key word searches, refereed articles would be sought and downloaded where

possible. Details of key points of each article would be recorded and filed. Relevant issues would be noted and used as a basis for finalising the issues to be investigated later in the research. Further means of assembling the relevant background material included the preparation and delivery of a paper for a conference in construction procurement. This was planned to establish contact with academics and professionals who would be up to date on the emerging issues in this field of knowledge.

In order to prepare this paper, extensive reading on the current PPP process was conducted and a list of new tasks required of public and private sector project participants was compiled. Contact was established with a participant from the Water Services Board in the Department of Environment, Heritage and Local Government and with the PPP Manager of John Sisk & Son Ltd Ireland's largest construction company. Both were interviewed during mid 2004, using a semi-structured interview where each participant was led through the stages of the PPP process and asked to comment on the changes that had occurred in the way the work of procurement and project management was carried out in the move to PPP. Further questioning established the areas where changes in work practices had occurred and the actions that the sectors had taken to cope with the changes. The paper was delivered at the W92 Conference in Las Vegas in February 2005 (Gunnigan & Eaton, 2005).

Objective 2 would begin the process of narrowing the field of study and establishing the specific research questions that would be addressed in this work. As the only PPPs in Ireland that were operational at this stage of the research were those relating to the provision of educational buildings, the study of these PPPs was an obvious choice. In addition, at the outset of this research, the DIT was in the initial planning stages of one of the largest ever campus relocation projects ever undertaken. Consequently, the issue of PPP for provision of education facilities was under examination both by the public and private sectors at the time. As this resulted in greater accessibility to key PPP practitioners in the field of provision of

educational facilities throughout the period of this research, the study of existing PPPs in this field was particularly timely.

Following from the establishment of the issues concerning use of PPP for provision of educational facilities, addressing objective 3 would establish the challenges that were facing the project participants in both public and private sectors.

Objective 4 would establish the issues to be resolved in addressing these challenges and this would require the adoption of a wider perspective to include knowledge from the fields of human behaviour and of organisational psychology. It was only after these four objectives had been met that an understanding would have reached the stage where the work on objective 5 could be addressed – namely the expression of the current PPP process in the form of a conceptual model. This model would then be used as a basis for further investigation of a means of improving effectiveness of PPP on future projects. At that time in the research process, the initial Irish PPP pilot programme was coming to an end and a number of seminars were being held throughout Ireland to summarise the experience and lessons learned. Attendance at these seminars would deepen the understanding of the relevant issues and continue the development of a circle of contacts comprising specific individuals who would later be approached to participate in the research.

This would conclude the first main part of the research. As shown in Figure 1.1, there are two distinct parts to this research. Up to this point it would have been mainly of an exploratory nature, whereas the second part would take a deeper nature, defining a specific area around which detailed field work would be conducted, extensive amounts of data would be generated, in-depth analysis would be conducted and rigorous testing of the emerging findings would take place. Objective 6 was concerned with mapping out and detailed planning of this process.

Objective 7 was to carry out the planned fieldwork, the analysis and the testing of the findings, whilst objective 8 was to refine the model so that it could be used by practitioners to increase the effectiveness of future PPP.

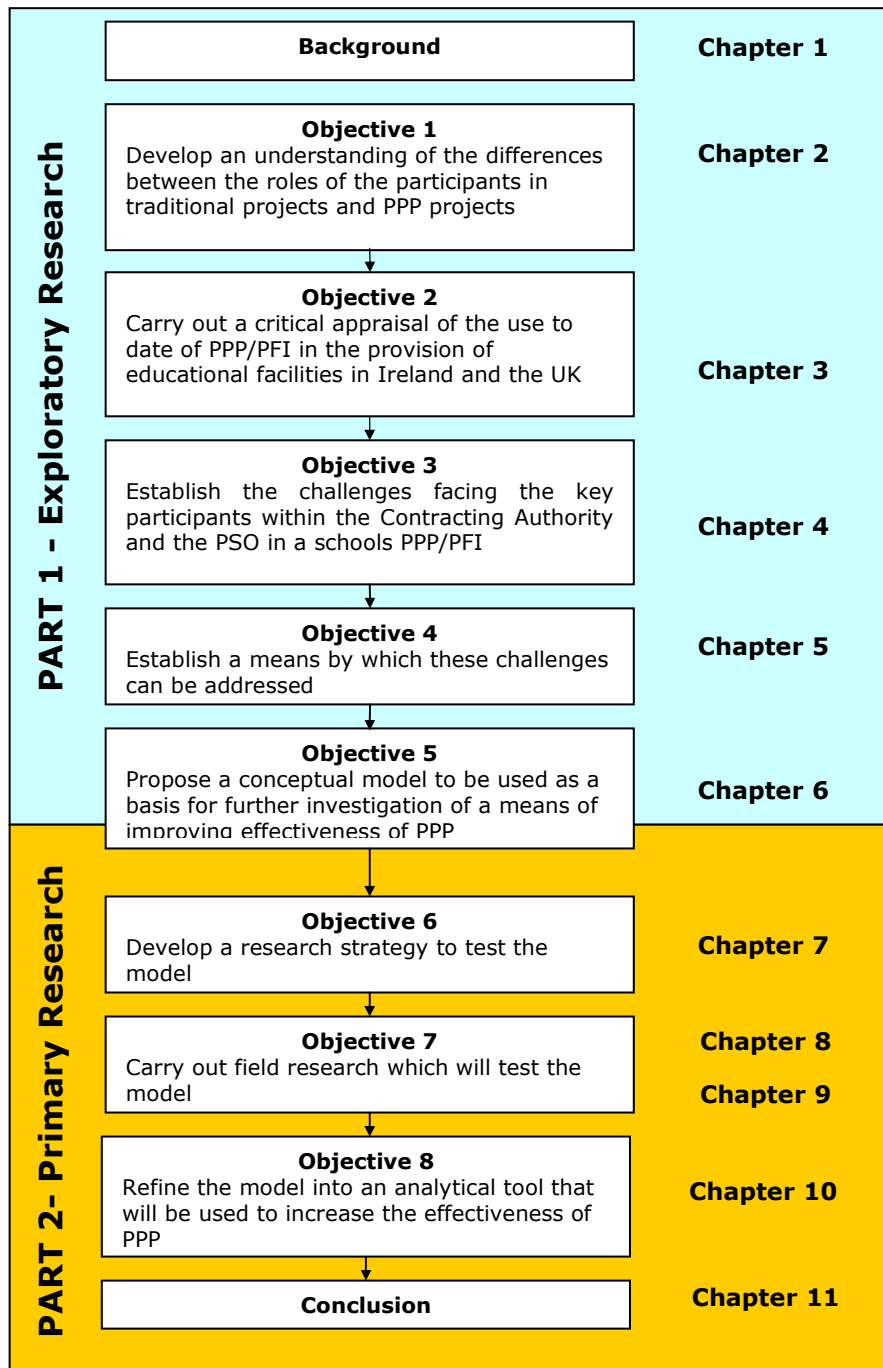


Figure 1.1: Research Structure

1.6 POTENTIAL BENEFITS AND APPLICABILITY OF THIS RESEARCH

The potential benefits and applicability of this research are summarised with reference to each stakeholder group. The stakeholders considered are:

- sponsoring authorities;
- providers of the public service facility;
- staff working in the facility;
- users of the service;
- stakeholders of future projects.

1.6.1 Sponsoring Authorities

The research will provide a mechanism for early identification of the inputs necessary for the efficient and effective use of PPP. With this information available at an early stage, the management of the sponsoring authority can take the appropriate steps to bring about the necessary change in advance of embarking on the PPP. As more private sector organisations become involved in a number of PPPs, they quickly build expertise in the issues that must be addressed. A public sector sponsoring authority that has limited prior knowledge of PPP would be at an immediate disadvantage in this situation. Application by the sponsoring authority of the model proposed in this research could eliminate this disadvantage thereby resulting in more effective use of public funds. More effective use of PPP by sponsoring authorities should also result in shorter procurement cycles, again saving public funds.

1.6.2 Providers of the Public Service Facility

Similar benefits will apply to the private sector partners who will now take on the role of service providers. A key outcome of this research will be the public sector employees' perception of the need for change in the private sector. The application of the model should make each stakeholder aware of the issues that prevent themselves and other partners from performing to the maximum benefit of the entire partnership. Such awareness should bring greater effectiveness in the

delivery of services and shorter procurement cycles, both resulting in reduction in costs. Application of the model in the private sector should highlight all of the skills required to put together a successful team for the entire duration of the project, thereby ensuring that the aims of all partners are accommodated.

1.6.3 Public Sector Staff who work in the Facility

The role of these people in identifying issues that may arise is critical to the success of any project. The nature of a PPP requires both the public sector sponsors of the project and the private sector providers to develop a clear understanding, at a very early stage, of the needs of those employed in the facility to provide the public service. The preparation of the Output Specification will capture most of the issues involving staff needs.

1.6.4 Users of the Public Service Facility

These include the students of the school and others in the locality that make use of the facility for whatever purpose. This research will have implications for the effectiveness of the provision of such facilities in the future. It will also have potential implications for the incorporation of innovative features through increased stakeholder involvement at an early stage in the PPP.

1.6.5 Stakeholders on future projects

Possibly the most significant benefit will be the illustration of the means by which change can be anticipated and managed when the PPP route is chosen to provide a public sector facility. Future stakeholders will have a model that will assist in planning the avoidance of the difficulties that arise in the introduction of PPP and thereby maximise the effectiveness of PPP as a means to provide the facility. It will also highlight the opportunity to incorporate innovation and creativity into the design of the public sector facility.

1.7 EXCLUSIONS, LIMITATIONS, CONSTRAINTS, RESERVATIONS

1.7.1 Exclusions

This research will concentrate on the development and verification of a model that will be used to increase efficiency and effectiveness of PPP. Whilst it will investigate the use of PPP to date in Ireland, this will only be done in terms of providing a background to the research problem. In gathering data, the research will concentrate on PPP projects concerned with the provision of educational facilities. It is not intended to provide in-depth investigation into other PPPs such as large-scale infrastructural works, health sector facilities, social housing, water supply, and wastewater facilities. The intention, however, is that the principles of the use of the model would be applicable to these sectors and that such application would be the subject of future research. These applications will be discussed within the conclusions.

1.7.2 Limitations

Of the Irish PPPs that have reached operational stage, the educational buildings projects have been chosen as they provide the access necessary to gather extent of data required to develop the model. It is also noted that such projects have also been carried out in other countries using PPP and are in operation for a longer period. This would provide further research material from which trends could be established and the emerging issues for Ireland could be identified. In Ireland, the need for replacement of school buildings is a constant election issue – thereby ensuring that there is potential for several PPP type schools projects in Ireland in the medium to long term. However, one of the primary limitations on this research is that these projects are the only ones of their type in Ireland that have reached the operational stage at present. This will necessitate the examination of data from PFI schools projects in the UK and PPP schools built elsewhere.

1.7.3 Constraints

The extent of the research to be carried out is constrained by the time allowed. An overall time of 3 years is allocated to complete the

research. This includes the writing up period. This will restrict the extent of the research, in particular the research-gathering phase. This phase will require a considerable amount of countrywide travel as the facilities that are the subject of this research are situated in different parts of the country, some being 200 miles apart. The private sector organisation that runs one of the projects is based in the UK. A concise research plan will be required to overcome this difficulty.

1.7.4 Reservations

Reservations must be expressed regarding the shortage of independent research that has been done on Irish PPPs. The literature available consists of a very small number of refereed papers, a number of commissioned reports and a number of other documents produced by the Government. Most of the reports have also been commissioned by the Government, though some have been commissioned by the private sector. With such reports, there is a sometimes a tendency towards proving a case rather than investigating the circumstances and drawing independent conclusions. Consequently, the independence of such reports can be open to question. It therefore becomes necessary to rely somewhat on the considerable amount of research that exists on PPP/PFI in the UK and in other countries. However, the findings of such research may not be a precise match for Ireland's circumstances, due to national differences in size, culture, population, economics and level of infrastructural development.

**CHAPTER 2: REVIEW OF THE ROLES OF THE PARTICIPANTS IN
TRADITIONAL PROJECTS AND PPP PROJECTS**

2.1 INTRODUCTION

The objective of this chapter is to carry out an examination and critical appraisal of the traditional and PPP procurements routes, thereby developing an understanding of the differences between the roles of the participants in the routes.

To achieve this objective it will be necessary to develop an insight into the stages of both procurement routes. The PPP route to be chosen is the Design, Build, Finance and Operate (DBFO) contract as this is the only form of contract used to date on schools PPPs in Ireland (Comptroller and Auditor General, 2004). The traditional route will be documented from the literature made available by the Planning and Building Unit (PBU) of the Department of Education and Science (DOES) in Ireland. Once the specific stages of each route are established, an analysis of the literature will be carried out to establish the roles of the participants. The key outcome therefore, in achieving this objective is to document the project stages and the tasks undertaken at each stage. The information required to achieve these outcomes will be sourced from books, reports, guidance documents and articles on PPP, project management & PFI.

In accordance with the guidelines of the DOES, educational buildings are provided through traditional procurement by the relevant educational authority (i.e. the school management board, the Vocational Education Committee or the DOES) entering a contract with the consultants and contractor necessary to construct the required building. Under a DBFO contract, a Private Sector Organisation (PSO) enters contract with the DOES to provide and operate a school building over an agreed period. The PSO recovers its investment over the contract period through payments by the DOES for services delivered.

The project stages, outlined in Figure 2.1 below, are as defined in PPP Guidance Notes 1-15 (Department of Environment & Local Government 2000a-o), the 2004 Schools Building Programme Department (Department of Education and Science, 2003b) and the revised Government PPP Procurement guidelines (Department of

Environment Heritage and Local Government, 2006). Each project stage is briefly outlined and is followed by a commentary which identifies the tasks undertaken at each stage.

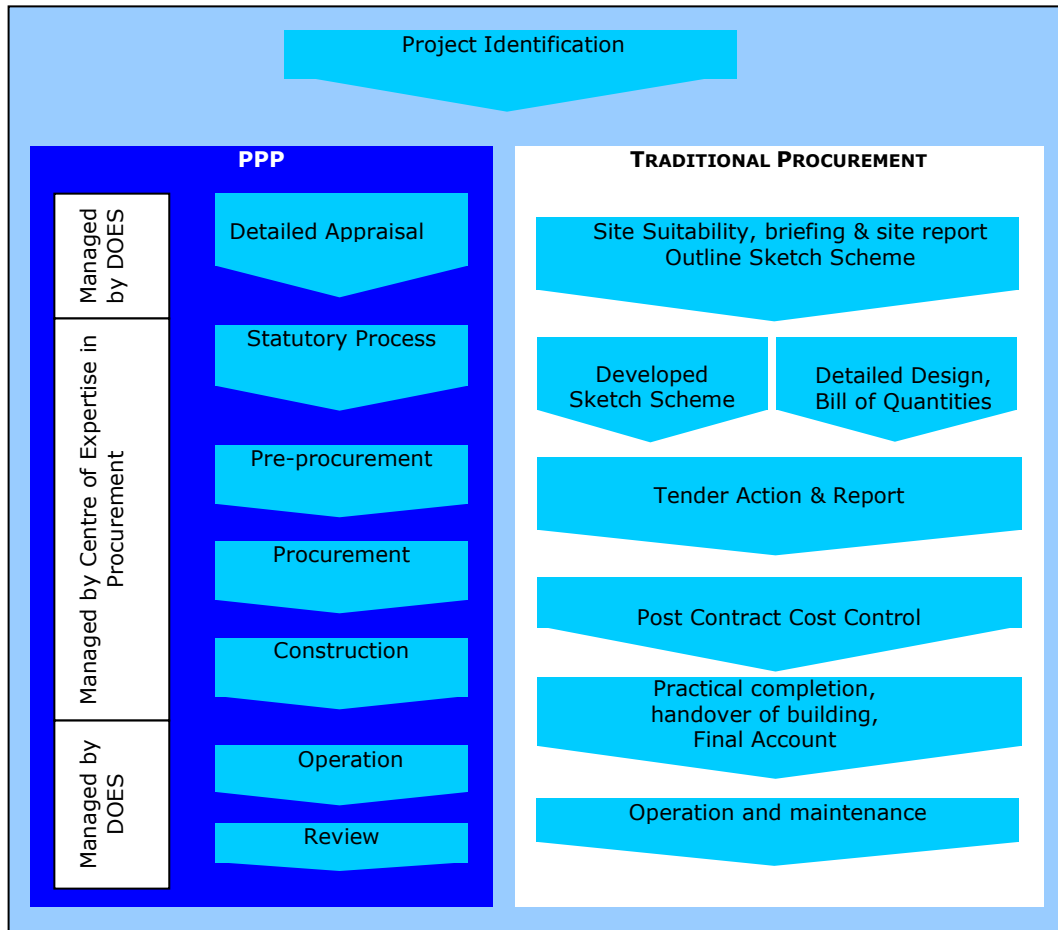


Figure 2.1: The Project Process

(summarised from Department of Environment & Local Government (2000a), DOES (2003) and DEHLG(2006))

The commentary is informed by previous research by the author in this area (Gunnigan and Eaton, 2005). The section concludes with a commentary on the process difference on the DOES and PSO in the use of PPP in the procurement of school buildings. The sections follow the stages of the PPP project process (Figure 2.1) – comparisons with the traditional procurement stages are made within each section.

2.2 PROJECT IDENTIFICATION

Proposals for the provision of new school buildings normally originate from the managing authority of a school or from a local development

group that identifies the need through the local development plan (Department of Environment & Local Government, 2000b). In the case of both procurement routes, the proposal is submitted to the Planning & Building Unit (PBU) of the DOES, the procedure for which is available on the DOES website (www.education.ie). Using the criteria established in the Commission on School Accommodation Reports (1998, 2001a, 2001b, 2002), the New Schools Advisory Committee of the PBU carries out an assessment of the need for the school, by considering the demographics of the school catchment area, proposed curriculum, and existing accommodation.

At this stage, there is no difference between the PPP route and the traditional route, as an initial assessment for potential PPP suitability is now a requirement for all public projects in the Republic of Ireland (Department of Environment Heritage and Local Government, 2003). Carrying out this task involves conducting informal market soundings, through a number of meetings with the private sector. It is likely that a PPP for a single school may not attract sufficient interest from the private sector, so a number of schools may be presented as a bundle to form a single PPP (Department of Environment & Local Government, 2000b).

All Irish government departments use consultants with PPP expertise to fully brief the department staff involved in the meetings (Gunnigan & Eaton, 2005). A number of private sector organisations, such as the Construction Industry Federation (CIF), have within their membership, a number of individuals who have expertise in a range of project types including PPP. Consequently, the private sector has increasingly less difficulty in providing individuals to participate in the informal soundings procedure.

On completion of the Project Identification stage, there is normally a strong indication of whether or not a project will be procured under traditional means or by PPP. At this stage, the National Development Finance Agency (NDFA) makes a recommendation to the Department of Finance as to whether or not the Project should proceed as a PPP (Department of Environment Heritage and Local Government, 2005).

On receipt of the decision to proceed, the Department issues the DOES with permission to proceed with the compilation of a detailed appraisal of the project (Department of Environment Heritage and Local Government, 2006). The following sections group together the stages in PPP and traditional projects and provide commentary on the areas of divergence.

2.3 DETAILED APPRAISAL

In a PPP, the initial stages of the traditional procurement route are combined, namely: Site Suitability, briefing and site report, and Outline Scheme Design (Department of Environment & Local Government, 2000d). In the first of these stages, the PBU carries out an analysis of the site with specific emphasis being placed on the impact of the site on the design and cost of the proposed building. The second stage is concerned with exploration of the options available for meeting the requirements defined in the Project Identification stage. At this stage, the PBU will prepare an outline design and an economic evaluation of the options available.

Where PPP is under consideration as the procurement route, a PPP Assessment is carried out in addition to the traditional procurement stages. The purpose of the PPP Assessment is to help the PBU decide if the project is suitable for a PPP and, if so, what form of PPP is most appropriate. The views of the project stakeholders must be considered in the Assessment report (Department of Environment & Local Government, 2000h). The tasks involved in the Assessment are as follows:

- examination of the nature of the project and any precedent projects, the outcome of which might influence the project under consideration;
- assessment of the scope for transferring of risk;
- evaluation of the urgency of the facility to be provided and the implications of this for the means by which the project proceeds;

- appraisal of the commercial viability of the project in order to confirm the willingness of the private sector to provide the investment needed.

As PPP has had limited use in Ireland in the procurement of school buildings, the PPP Appraisal report has to date been outsourced to consultants by the PBU. Once the PPP Appraisal report is completed it is submitted to the Department of Finance for permission to proceed to the next stage. Where appropriate, the Department of Finance give approval and the PBU then continues with the project. On receipt of approval, a Project Board and a Project Manager are appointed (Department of Environment & Local Government, 2000g). The Project Manager outsources preparation of Project Initiation Document to consultants. As the only PPPs that have reached operation stage in Ireland are pilot projects, a heavy reliance on consultants has been common to date. PriceWaterhouse Coopers (2001) highlighted this as an issue that must be addressed as Ireland's PPP programme moves from the mobilisation phase to the expansion phase. On approval at department level, the project proceeds to the next stage.

As the following stages in a PPP are significantly different to traditional procurement, the DOES has relied heavily on consultants in the evaluation and management of projects to date (Comptroller and Auditor General, 2004). Such a level of reliance is not desirable, as the DOES has not always maintained adequate control of the projects. For example, it has been found that the heavy reliance on consultants has resulted in an inability of all concerned to provide full records of criteria used to make key decisions in the Grouped Schools Pilot Partnership Project (Comptroller and Auditor General, 2004). Following a review of the PPP process in 2005, the Irish Government set up the Centre of Expertise for Procurement (CEP) within the NDFA for the procurement of PPP projects. The CEP now procures all PPPs in Ireland with the exception of PPP projects concerned with roads or rail. It takes responsibility for responsibility and accountability of the procurement of the PPP up to and including the end of the

construction phase, when the project is handed back to the DOES (Department of Environment, Heritage and Local Government, 2006).

At the end of the pre-procurement Stage, the DOES presents a case to the Department of Finance for the project to proceed. On receipt of sanction to proceed, the CEP takes over the project and brings it through to operation.

2.5 STATUTORY PROCESS

All projects, whether PPP or traditional, require planning permission and other statutory consents. Under the traditional procurement route, this stage is known as the Developed Sketch Design, during which the PBU appoints a Design Team that:

- produces an architectural and engineering design for the project;
- prepares a cost estimate for the project;
- completes the land acquisition;
- secures planning permission and other statutory consents.

Under PPP, the Project Board compiles a detailed Risk Assessment, the purpose of which is to identify and assess the extent to which it is appropriate to transfer risk (Department of Environment & Local Government, 2000e). The tasks involved in compiling the Risk Assessment are as follows:

- mapping of the main activities of the project and identification of the associated risks;
- preparation of a Risk Allocation matrix;
- appraisal of each risk;
- allocation of risk to the appropriate party.

Consultants, following a number of workshops that are conducted with school stakeholders, normally carry out the Risk Assessment on behalf of the Project Board (Department of Environment & Local Government, 2000k). The outcome of the Risk Assessment may indicate that some or all of the Statutory Risk continues to be carried

by the DOES. In this case, the Project Board would proceed with the appropriate functions as normal but must ensure that all appropriate consents associated with these elements are secured prior to the Procurement Stage. Since 2003, a Process Auditor must also be appointed to each project where the capital cost is likely to exceed €20 million (Department of Environment Heritage and Local Government, 2003). The role of the Process Auditor is to ensure that the procurement process complies with all relevant EU and departmental regulations and procedures.

2.6 PRE-PROCUREMENT

The purpose of this stage in a project procured by traditional means is to prepare the necessary contractual documentation for the construction phase of the project (Department of Environment & Local Government, 2000c). Under a PPP, the contract will also include the operation and maintenance of the building and therefore requires a more extensive set of documents in order to ensure that all parties to the contract are protected. Under traditional procurement, there are two stages, namely: Detail Design and Bill of Quantities. During these stages, full details of all mechanical, electrical and structural elements of the project are first finalised. Once this is completed a full Bill of Quantities is prepared to ensure that all tender prices submitted for the work are based on precisely the same information. At this stage the Form of Contract is also finalised.

At this stage, PPP shows a significant departure from the traditional procurement route. Emphasis moves from the DOES providing a school building managed by the school authorities to the PPP philosophy of the DOES procuring the services of a private company to provide the appropriate facilities. Fundamental to this is the production of an Output Specification, within which performance standards and monitoring requirements must be clearly defined in achievable and measurable terms to provide a basis for determining contract performance and payment (Department of Environment & Local Government, 2000j). This document must incorporate details of the stakeholder requirements and should clearly identify the elements

of the Statutory Process to be completed as part of the project. It should contain any further planning details or known constraints that would influence the planning, construction and operation phases of the project. The Project Agreement, which will be a draft document at this stage and will be subject to further negotiation prior to entering into contract, sets out the rights and obligations of each of the parties to the contract (Department of Environment & Local Government, 2000m). The Payment Mechanism documentation will show the means by which payments for provision of the service will be processed (Department of Environment & Local Government, 2000l). The Public Sector Benchmark (PBS), which provides an estimate of the cost of the project using the traditional procurement route must also be prepared at this stage.

The tasks involved in preparing this documentation are as follows:

- detailed appraisal of the service to be provided rather than of the construction of the building within which the service will be provided;
- analysis of the statutory issues that could impact on the project;
- presentation of a clear account of stakeholder requirements;
- review of the obligations and rights of each party and consultation with legal advisers in the preparation of the Project Agreement documentation;
- examination of the commercial issues likely to influence or affect the private sector's costing of the project and incorporation of the outcome of this examination in the production of the Payment Documentation;
- financial analysis of the project to produce the PSB.

To date, the work involved in this stage has been outsourced to consultants with the Project Board having a management role in the process. The potential difficulty that may arise at this stage is within the consultant organisation. Such organisations have emerged from

existing consulting engineering and project management companies. In the past they would prepare detailed designs and whilst they would be required to address project life cycle issues, they would be primarily concerned with time, quality and cost during the construction phase. Traditional procurement therefore required a long document preparation phase and a short tender evaluation phase. PPP requires a shorter document preparation phase and a longer tender evaluation phase. It also requires the consultants to produce 20-30 year performance criteria, which requires a detailed knowledge of the service to be provided and the means by which it could be provided (Department of Environment & Local Government, 2000n).

2.7 PROCUREMENT

The Procurement stage in PPP is significantly different from that in traditional procurement (Department of Environment & Local Government, 2000i). Whilst both types of project must be advertised in the Official Journal of the EU (OJEC), if over €20million in value, the traditional route will invite tenders for the construction of the building whereas, a PPP will seek a consortium that will provide a service over a long-term period. The traditional route is concerned with inputs and relies on description of the building whereas the PPP route relies on outputs, concentrating on the performance required of the building in order allow certain activities to be facilitated. Consequently the PPP approach requires the CEP to employ a significantly different management style to that employed under traditional procurement.

Under traditional procurement, construction companies are invited to tender for the project. The Design Team establishes tender evaluation criteria, carries out the tender evaluation and chooses the preferred PSO for the project. The PSO and the DOES enter a contract under which the school will be constructed.

In PPP, the PSO responds to the advertisement under the requirements detailed in the output specification (Department of Environment & Local Government, 2000f). The tendering process may

have a number of stages. For example, the Grouped Schools Pilot Partnership Project went through three stages:

- expression of interest;
- pre-qualification bid;
- detailed tender (Hurst and Reeves, 2004).

The final tender will not only include a detailed technical design of the school but will include the financial models for the whole life cycle operation of the project. Such financial models take into account the projected demographic changes, the projected income and the risks associated with the project over its life cycle. The CEP then carries out the tender evaluation and chooses the preferred PSO for the project. Following any further negotiations that may be necessary, the DOES and the PSO enter a contract.

To date, only three PPP schools projects have been fully tendered in Ireland and of those, two tenders have been won by the British company Jarvis Ltd. Consequently, it is too early to expect any evidence of Irish companies specialising in the PPP schools market. However, a number of Irish companies have now become involved in Construction Joint Venture (CJV) companies on DBFO roads projects. Such CJVs comprise partners that have direct input into the design, procurement and construction stages. A Bid Manager, assisted by a Design Manager and an Estimating Manager, usually manages the design and estimating process. In some cases these three people can originate from three different company partners, leading to co-ordination issues and the need for awareness of the needs of all the partners concerned (Gunnigan & Eaton, 2005).

The organisational change in the private sector resulting from the introduction of PPP has manifested itself in the creation of PPP divisions in a small number of large construction companies. In such companies, these divisions become a significant part of the organisation and take on the task of securing regular income for the company over concession periods of up to 30 years in length. As in the case of the consultants to the DOES, it requires the production of

20-30 year performance criteria, which in turn, requires a detailed knowledge of the service to be provided and the means by which it could be provided.

2.8 CONSTRUCTION

Through the design team, the CEP is closely involved with the construction phase of a traditionally procured project. The design team has a direct role in supervision of work, measurement of quantity of work completed and certification for the purpose of payment to the constructing contractor. The PSO, through its contractor plans, manages and undertakes the contract works.

In a PPP, there is significant change in the role of the public authority as client, now requiring the adoption of a regulatory role and an obligation to step back from direct involvement in the business of construction. This has caused some difficulty for some Government staff at project level (Gunnigan & Eaton, 2005). Consequently, Government Departments give advice and training to staff on their new role and outline the potential risk issues that can emerge if such staff attempt to supervise the construction phase in the manner that would be the norm under traditional procurement (Department of Environment, Heritage and Local Government, 2004).

As the PSO has responsibility for the operation and maintenance of the school buildings for up to 30 years, process change will result in the planning and management of the construction phase. New contractual relationships must be developed and each of these must be protected with a legal contract. The operator of the facility is brought into the construction team at an early stage and constantly gives significant input that will affect the long-term economic viability of the facility. Construction decisions now potentially affect the financial stake of all of the PSO members and these organisations will be involved in decision-making on major issues at project level.

2.9 OPERATION AND MAINTENANCE

Under the traditional procurement route, the PBU concentrates on the provision of the school building. Once it has been constructed and

commissioned, the responsibility for its operation and maintenance passes to the school management authority. In most schools, the school principal has responsibility for health and safety of the occupants, which extends to such issues as managing the cleaning and day-to-day maintenance of the building. The school management board would have the responsibility for planning and managing general maintenance and repairs. Funding for such activities is required from the DOES as part of the annual School Building Programme. Consequently, the management board must apply for funding and the works cannot proceed until the funding has been granted. Large-scale works are treated in the same manner as new projects. Smaller works are carried out under different guidelines.

As the entire DOES School Building Programme is funded from the public purse, the level of work carried out is dependent on the funding available. Regardless of the urgency of the work, it will only be carried out if the funding is available. Consequently, it is possible that a major maintenance and repair issue, such as an inadequate heating system, could exist for a number of years in a school without the necessary work being done to resolve the issue.

Under the PPP route, the operation and maintenance of the school is part of the contract placed between the DOES and the PSO (Department of Environment & Local Government, 2000o). Central to PPP is the issue of the performance of the building and as such, all maintenance issues, whether day-to day or large scale, are the responsibility of the PSO. Consequently, there is a considerable financial disincentive for failure to resolve such issues.

From the school users perspective, there are a number of positive aspects to the PPP approach. Firstly, the school Principal (Head Teacher) can get on with the academic management of the school without being interrupted with the organisation of minor day-to-day issues. Secondly, the school building is maintained at a higher level, as the funding over a 20-30 year period is secure under the PPP contract. However, this does result in a higher annual maintenance cost to the DOES (Comptroller and Auditor General, 2004). Thirdly,

there is no need to apply for funding for maintenance or to suffer the consequences of using a defective building whilst waiting for funding.

However, there are also disadvantages. Firstly, the school Principal now has less control over the management of the school, which could lead to conflict if the PSO decides to take action that is not consistent with school policy but is not expressly excluded by the contract, for example, the type of foods to be sold in vending machines for use by the pupils of the school. This can lead to conflict between the school management and the PSO. Secondly, the average annual maintenance cost of a PPP school will be higher than those that are procured by the traditional route (Comptroller and Auditor General, 2004) and the DOES must meet these costs. This difference arises because maintenance in traditionally procured schools is met from a specific amount of funding received from the DOES each year. The amount is calculated as an allowance per pupil rather than the amount actually needed to adequately meet the maintenance needs of the school. The Comptroller and Auditor General (2004) states that such an arrangement has resulted in underfunding of maintenance in traditionally procured schools. In a PPP, the maintenance of the school is defined in the output specification and protected by the contract between the DOES and the PSO. The PPP cost of maintenance is therefore a realistic cost and consequently is higher than that in a traditionally procured school. Thirdly, it may be difficult to fully assess the risks at the outset of the project and as a result some risks may not have been transferred. For example, a sudden increase in vandalism could raise the question of the amount that could be reasonably expected and as would raise questions relating to the level implied in the contract. This could lead to the service provided by the PSO only being as good as the contract that was agreed. Hebson, et al., (2003) noted a similar issue in the National Health Service in Britain. This diminution of the Principal's control could also result in emergency repairs being addressed more slowly than previously, for example, where a number of windows have been broken, the Principal must contact the PSO to organise repair rather

than organising the repair directly. This puts an extra layer of management into the process and whilst the potential sanctions detailed in the Payment Mechanism should result in quick response, it could cause frustration for a school Principal that is used to a hands-on approach in dealing with such issues.

2.10 REVIEW

The Department of Environment and Local Government (2000o) guidelines stipulate that a review is carried out when the building is ready for occupancy and that further reviews take place at not more than five-yearly intervals up to the end of the concession period. The initial review will examine the manner in which the PPP process has functioned to date and the suitability of the building in relation to the output specification. This is not a significant departure from the process under traditional procurement. However, as the PPP agreement will extend over the contract period of 20-30 years, the review must take place in the context of an ongoing contractual relationship rather than in the context of the end of the contractual relationship. Inevitably, the review must address such issues as the communications strategy for managing the contract and the building of the working relationships between the DOES, the users of the school and the PSO.

The ongoing five-yearly reviews will address issues such as the performance of the PSO, the condition of the school and the management of any changes that are required to the operating contract. As traditionally procured schools are operated and maintained under the control of the school management board, there is no requirement for on-going reviews. Under PPP, the DOES must now carry out a new function. As the contract period nears an end, the reviews will become increasingly focused on the handing back of the school to the DOES and the arrangements for re-tendering the operating contract. Again these issues do not arise in a traditionally procured school.

2.11 SUMMARY OF ISSUES ARISING

This section has identified critical areas of process change when PPP is used to provide a school building. These are:

- the compilation of a PPP Assessment at Detailed Appraisal Stage;
- appointment of a Process Auditor;
- preparation of a detailed Risk Assessment;
- use of Output Specification as the primary means of providing information on which a tender is based;
- the formation of Construction Joint Venture companies as a vehicle for the provision of the facility or service;
- the management of the procurement and construction phases by the CEP;
- the development of a contract that will exist for 20-30 years;
- the need for the public sector to adopt a regulatory role during construction;
- the operation of the facility or service by the private sector;
- the role of the DOES in the monitoring of the operation of the service or facility to agreed contract conditions;
- the process of review of the PPP contract.

The DOES relies heavily on consultants to carry out its work on PPP. This has been done in order to cope with the extra workload and the new processes involved in the first schools PPP. As further schools are procured, the DOES must decide whether or not it will continue to outsource such work and, if so, what measures it must put in place to ensure the ability of the DOES to manage the work of the consultants.

In a PPP, the private sector staff now requires a detailed knowledge of the service to be provided and the means by which it could be provided. They must have the ability to prepare performance criteria

that span periods of up to 30 years and must have the necessary financial planning expertise to view a project from an economic perspective over a period of up to 30 years. Two private sector groups are affected by the introduction of PPP, namely the PSOs and the consultants who work for the DOES.

The PSOs experience process change in the procurement and construction stages. These changes involve greater freedom in design, more complex contractual relationships, more involvement of non-construction organisations in the construction decision-making and a greater involvement of the facility operators in the design and construction phases (Gunnigan & Eaton, 2005).

**CHAPTER 3: REVIEW OF RECENT PPP/PFI PROVISION OF
EDUCATIONAL FACILITIES IN IRELAND AND THE UK**

3.1 INTRODUCTION

The chapter addresses objective 2 through a review of the recent provision of educational facilities in the UK and Ireland. The following sub objectives are addressed:

- to determine the scale of providing educational facilities;
- to establish the recent levels of provision under traditional procurement;
- to outline the lessons learned from the use of PPP/PFI in the provision of school buildings;
- to summarise the issues to be resolved to ensure the future effective use of PPP/PFI in the provision of school buildings.

The sources of this information include refereed journal articles, Government reports, information provided through the Irish Government PPP website (www.ppp.ie), and information that is available through a number of other key websites such as www.4ps.co.uk and www.nao.co.uk.

3.2 PROVISION OF EDUCATIONAL BUILDINGS IN IRELAND

Until the late 1960s most of the first and second level schools in Ireland were run on behalf of the State by the Catholic Church with a smaller number being run by the Church of Ireland. Vocational schools, managed by Vocational Education Committees (VECs) were also provided by the state to provide basis training to those who wanted to enter the workforce by completing a two-year qualification after completing primary education (Lee, 1989, Mulcahy, 1981). Each county had its own VEC which comprised a number of appointees from the state, the county council and the churches. With the introduction of free second level in the Education Act 1967, vocational schools began to expand into the traditional education area. Over the next 20 years, the number of religious personnel required to teach in the church controlled schools began to decline and more lay teachers became appointed as secondary school principals. The parents also became involved in the running of the schools with each school (with the exception of the VEC schools) having a school management

board. These management boards gradually took on a significant role in the management and development of the schools.

Over this period, it became clear that the number of small schools that existed throughout the country was unsustainable and several schools amalgamated. For example, in Tuam, Co. Galway, two girls convent schools, two boys secondary schools and a vocational school amalgamated to become one large school. As these amalgamations take place, the demand for new premises increases.

The provision of school buildings is an issue that surfaces every time there are national and local elections in Ireland. Each political party sets out its plans for upgrading and construction of school buildings as part of its manifesto for government. As the success or failure to provide such facilities has a direct effect on parents of all children, the electorate can easily assess the extent to which such promises have been fulfilled. It is somewhat surprising therefore, that there is no document in the public domain that assesses the condition of the entire building stock of educational buildings on a national basis. The production of such a document was part of the plan for the current government, elected in 2002, and had been specifically promoted by the Minister for Education prior to that election (Woods, 2002). The promised document was to include details of:

- the size, number and type of Irish school buildings that currently exist;
- the projected need for further new buildings;
- the extent to which existing buildings need to be replaced;
- the level of refurbishment required to existing buildings in order to bring them up to the appropriate standards.

Whilst this document has not yet been produced, the Commission on School Accommodation (2002) reported that there were 3,172 primary Schools and 750 second level schools in the Republic of Ireland.

As part of its brief, the DOES each year produces its Annual School Building Programme. This document lists all of the school building projects to be funded by the DOES in a specific year. In order to place a project on this programme, the school managerial authority applies to the DOES for funding for the project. Using criteria provided in the 2003 School Building Programme (Department of Education and Science, 2003b), applications are prioritised. Prior to 2003, the general public was not informed of the criteria applied, leading to accusations of political interference in the allocation of funding. Once the prioritisation process is completed and the DOES has been informed of the available funding for the following year, the annual programme is published. This normally occurs in December of each year. Prior to 1999, the managerial authority of a post primary school was required to acquire a site for the school and to contribute 10% of the capital cost of the school. Since 1999, the DOES acquires the site and the contribution is capped at €63,000 (Martin, 1999). This has significantly reduced the fundraising burden on the managerial authorities of such schools.

3.2.1 Investment in School Buildings since 1997

The school building programme has grown from 12 projects valued at more than €318,000 in 1997 (Woods, 2002) to a planned total 170 projects with a total budget allocation of €387 million in 2004 (DOES, 2003). DOES (2003) reports that 12 new primary schools were completed while 6 were under construction in 2003. These schools ranged in size from 3 to 16 classrooms. In addition over 120 classrooms were provided through 26 completed and 12 on-site primary school extension projects. 3 new post primary schools were completed in 2003 while 6 were under construction. These schools range in size from 1,500m² to 6,000m². 9 large-scale post primary school extensions were completed in 2003 while a further 11 were under construction. These extensions range in size from 1,000m² to 6,000m². With the introduction of multi-annual budgets in the 2005 budget, it is now more difficult to get exact figures of actual annual spending. However the latest annual estimates states that the

amount for building and modernisation of school buildings in 2007 will reach €741million (Hanafin, 2007). It is unclear how this figure breaks down between new schools and modernisation projects or how it is divided across 1st, 2nd and 3rd level education facilities.

3.2.2 The Grouped Schools PPP

In 1999, the Government of the Republic of Ireland established the Central PPP unit to promote PPP use as a means to provide public services. Since early 2000, a significant emphasis has been placed on PPP with the production of several policy documents, guidelines and support structures. Consequently, the PPP programme is now a significant element of Government policy.

As part of its developing PPP policy, the Government embarked on a number of PPP pilot projects in 1999. One such project was to become known as the Grouped Schools Pilot Partnership Project. In late 2004, the Comptroller and Auditor General produced a report for the DOES on this project (Comptroller and Auditor General, 2004). The information contained in this section is a review of the issues raised by that report and is presented against each of the stages of the project to date.

Project Identification

In 1999, the DOES undertook a project identification exercise in relation to three mid-sized schools and concluded that these schools would be best procured as a grouped PPP project. The DOES wrote to the Department of Finance requesting permission to proceed on this basis stating that this project would help to develop PPP policy in the provision of educational buildings and would provide input to future PPP arrangements through identification of potential areas of difficulty encountered during the process. The Department of Finance gave its permission to proceed.

Detailed Appraisal

The DOES examined two procurement options namely: Design, Build and Operate (DBO) and Design, Build, Finance and Operate (DBFO).

As the project was under consideration as a PPP pilot project, the Department of Finance, in which the Central PPP Unit is based, was involved in deciding the procurement option and the Central PPP unit was eager to include a private financing option in the range of pilot PPPs that were under consideration at that time. The external consultants that were retained to advise the DOES, recommended that the DBFO decision be adopted provided it represented good value to the DOES. The schools were to be built on publicly owned green field sites, would be operated by the private sector for 25 years and revert back to the government after that time. In order to attract sufficient private sector interest a further two schools were added to the project by May 2000. There is no evidence that a formal PPP Assessment was carried out for this project.

Statutory Process

At this stage external advisors on behalf of the DOES undertook a Risk Assessment. The risks were to be distributed as follows:

PSO was to carry:

- design and construction risks;
- operational risk;
- normal business risks.

DOES was to carry:

- demand risk;
- residual value risk;
- risks specifically influenced by regulations pertaining to provision of education (e.g. government regulations in relation to change in pupil: teacher ratio, etc.).

The DOES also carried the risks involved in obtaining statutory approvals for the construction of the buildings (Hurst & Reeves, 2004).

Pre-procurement

The project was launched in July 2000 when the Government placed an advertisement in the Official Journal of the European Union announcing the project and inviting expressions of interest. Initially, 12 potential bidders expressed an interest in the project. This was reduced to six following analysis of replies from the potential bidders to a pre-qualification questionnaire. Each of these six was invited to submit outline proposals for the project and on analysis of these proposals, three short-listed bidders remained in the competition by October 2000. The DOES then provided each of the bidders with an Output Specification containing the following information:

- accommodation requirement schedules;
- user and service requirements;
- standard DOES guidelines for school accommodation;
- the form of the bid proposal;
- a description of the means by which the preferred bidder would be selected;
- a draft of the contract for the project.

Procurement

The bidding process was completed by February 2001, when the bids were received. Jarvis Projects Ltd, was selected as the preferred bidder in March 2001. At the initial stages, it was planned that construction would begin in April 2001 with the schools opening in September 2002. However, a further four months of negotiations were to follow until agreement was reached in July 2001 on the details of the contract. The DOES was then required to apply to the Department of Finance for formal approval to proceed. With this application, the DOES submitted its Public Sector Benchmark (PSB) to the Department of Finance. As the PSB is used to compare the cost of procurement under PPP to that procured under traditional means, the DOES was required to produce capital costs, operation costs and residual value costs for the project. As the operation and maintenance

costs of schools under traditional means is quite different from that in a PPP, the DOES was required to develop models on which to base these costs. Similarly, models and assumptions for residual costing were also required. Again, the DOES outsourced this exercise to external consultants. When the PSB was submitted, a number of queries were raised by the Department of Finance and further documentation was required to be submitted to the Department in late September. The Government gave formal approval to proceed in mid November and the contract for the project was finally signed on 16th November 2001. It has subsequently emerged that the projections for the construction of the buildings was under-estimated at €64.29 million (including VAT). The capital cost eventually agreed with Jarvis Projects Ltd was €71.6 million (excluding VAT). This is partly due to the agreement of the DOES to a final design that increased the gross floor area of the five schools from 30,173m² to 34,661m².

Construction

Construction was completed by December 2002 and the schools began operating in January 2003. There is no commentary in the published literature on any issues that may have arisen during the construction phase.

Operation

The schools began operation in 2003 and no publicly available literature yet exists on which to assess the success of the operation of the Grouped Schools PPP.

3.2.3 Conclusions from the Grouped Schools PPP

The Comptroller and Auditor General's Report (2004) concluded the following from the examination of the Grouped Schools PPP:

- existing space norms in relation to area/pupil were exceeded in the project leading to a higher than planned cost of the schools. This has implications for the provision of further new school buildings whether procured by PPP or by traditional

means as the management authority of each school will in future seek the application of similar space norms to their projects. In order to minimise this issue the DOES has now published revised guidelines for design of second-level schools (Department of Education and Science, 2004b);

- the maintenance budget for the PPP schools will be significantly higher than that allowed for a traditionally procured school. This will make operational comparisons in the future more difficult;
- changes in building specification may result in savings on maintenance and running costs but would require extra expenditure at the construction stage.

3.2.4 Changes in procurement policy as a result of the Grouped Schools PPP

Significant changes have occurred in the Government guidelines for PPP use since 1999 some of which have been influenced by the experience gained on the Grouped Schools PPP. Such changes include:

- the requirement for development and assessment of the business case for the project;
- the production of a Public Service Benchmark (PSB) for all projects where PPP is proposed;
- the setting of an affordability cap on all potential PPPs;
- the requirement for involvement of the National Finance Development Agency in all projects with a projected capital value in excess of €20 million;
- the management of the procurement and construction phases by the CEP;
- the appointment of a Process Auditor on all projects with a projected capital value in excess of €20 million.

At the outset of this research, two further school building PPPs were underway in Ireland. Both will provide facilities for the 3rd level sector. The Maritime College PPP had reached the operation phase. Following a protracted negotiation phase lasting almost three years, the Cork School of Music contract was awarded to Jarvis in May 2004 but did not begin construction until early 2006 due to Jarvis Projects' recent financial difficulties forcing it to sell its interests in the project to another PSO. At the time of writing, no independent reports on these projects were available to review.

3.3 PROVISION OF UK SCHOOL BUILDINGS

With specific reference to school accommodation in England, Wilkinson (2002) states that there are approximately 24,000 state schools in England, 3,500 of which are second level schools with most of the remainder being primary schools. These are owned and managed by England's 150 Local Education Authorities (LEAs).

Wilkinson states that annual investment in these schools amounted to a total of £0.7 billion for a number of years up to 2001 when it was raised to £2.1 billion. This figure has increased to £3.5 billion in 2003. However, with over 60% of the building stock in excess of 50 years old (see figure 3.1 below), it is estimated that a further £7 billion is needed just to maintain and improve existing schools up to 2008. This figure does not include new schools that may be necessary due to population growth or other demographic changes.

In Scotland there are approximately 2800 schools provided by government funding through the local councils. In 2000 the estimated backlog for repair and maintenance of these schools was estimated to be approximately £1.3 billion (Audit Scotland, 2002).

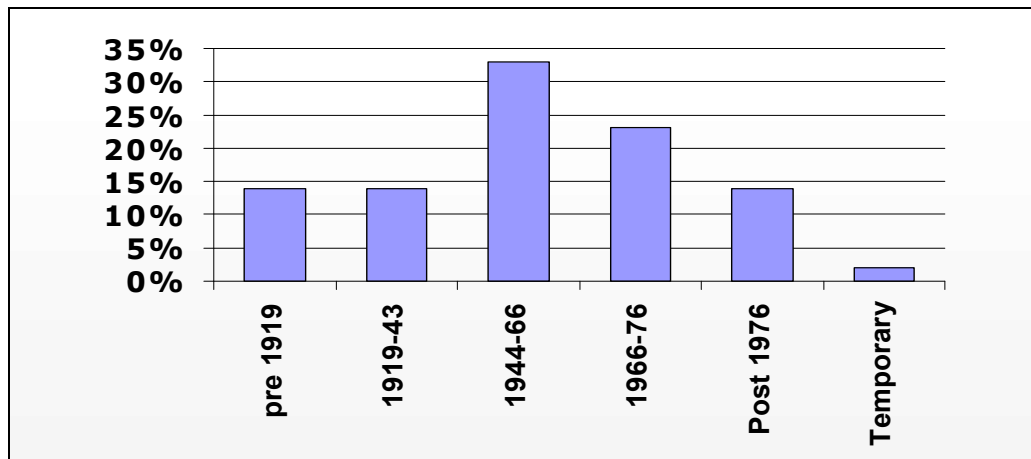


Figure 3.1: Age of School Buildings in England
(Wilkinson, 2002)

3.3.1 Introduction of PFI

As part of the wider Government PFI policy, PFI was introduced as a means of procuring school buildings in the late 1990s. Since that time it has become the primary source of funding for new school buildings in the UK whilst the UK has become the world leader in the use of PFI. The Audit Commission (2003) reports that one third of all local authority commitment on PFI in England is now being spent on schools. In England, by the end of 2006, over 500 schools in 76 schemes with a capital value of £2.4 billion will have been built in England using PFI, whilst a further six schemes are under way in Wales (Audit Commission, 2003). In Scotland, a further 80 schools, with a capital value of £600 million, are being built using PFI with a commitment from the Scottish Executive for considerable further investment (Audit Scotland, 2002). The following is a review of the main findings of the reports of the Audit Commission (2003) and Audit Scotland (2002).

3.3.2 PFI in Schools (Audit Commission, 2003)

The purpose of the report was to compare the quality, cost and service issues of providing schools under PFI compared to traditional procurement. A mix of primary and post primary schools was taken. At the outset, the Audit Commission noted that only 25 PFI schools had been operational for more than two years at the time of the compilation of the report and that this was a major limitation on the

findings. The findings of the report can be summarised in terms of quality, cost, service, risk, and recommendations for the future.

Quality

The Audit Commission was assisted by the Building Research Establishment (BRE) in assessing the technical quality of the schools. Using recognised design criteria, the BRE found that the design quality was generally lower in PFI schools than in traditionally procured schools. Assisted by the Construction Industry Council (CIC) and Market and Opinion Research International (MORI), the Audit Commission found no significant difference in quality from the perspective of the users of the school.

Cost

The Audit Commission had some difficulty comparing costs under the two procurement routes as the traditional route has a distinct split in responsibility between the construction and operational stages. It was noted that the higher construction costs recorded in PFI might be offset in the future by lower maintenance costs. There is also the issue of establishing a value on the amount of risk that is transferred. However, the Audit Commission concluded that PFI had generated an overall saving of between 0.1% and 10% over the life cycles of the buildings examined.

Service

The Audit Commission commented that, under traditional procurement structures, the LEA controls a budget that is subject to a variety of demands. Consequently, expenditure on aspects of routine maintenance can be deferred in order to divert funding to other urgent works. This can lead to lower levels of long-term maintenance spending but could result in a shortening of the useful life of the building, thereby resulting in further increases in long-term capital costs. Under PFI, future maintenance costs are agreed at the outset and are paid for according to the requirements of the contract over a 25-30 year period. Consequently, it is essential that the output

specification be written in a manner that ensures that all maintenance requirements are included.

The Audit Commission noted that early PFI schemes exhibited a lack of understanding by the PFI providers of the needs of the school in the case of equipment and facilities and that little evidence had emerged to show that the PFI providers had made use of the opportunity to innovate. The report notes that whilst users were generally happy with the changes in facilities management (FM) brought about by PFI, some teachers expressed reservations regarding the school management's lack of control of FM under PFI. The Audit Commission stated that the limited level of involvement of FM experts in the procurement process in some of the schools had resulted in service problems.

Risk

The Audit Commission uncovered a number of instances where risks had not been fully recognised by either the LEAs or the PFI providers. Those specifically mentioned in the report are vandalism risk and demand risk. The vandalism risk was understated because the LEA did not have any reliable data on the extent of vandalism and the extent of vandalism was never made clear to the PFI provider in the procurement process. Demand risk occurred where the popularity of the new school attracted more potential pupils than had been anticipated. A reduction in demand occurred in other neighbouring schools leading to uneven demand and increased costs on the LEA. Issues such as these have resulted in the production of a risk register template by the Public Private Partnership Programme (4ps) for use by LEAs.

3.3.3 Recommendations of the report

The Audit Commission concluded that it was yet too early to tell whether or not the use of PFI would result in better-serviced school accommodation. On the issue of value for money, it stated that the costs of PFI could only be viewed as advantageous when a calculation

of cost of future risk was included. The Commission made a number of recommendations including:

- PFI to be used as one of a number of routes for the procurement of school buildings;
- review of financial incentives and restrictions of PFI use;
- review of the means by which the Public Sector Comparator (PSC) is compiled to allow all benefits and risks to be included;
- consideration should be given to the wider issue of siting schools within a complex of multi-purpose buildings thereby allowing buildings to be shared;
- provision of greater levels of support for those involved in PFI projects;
- development of evaluation tools for PFIs;
- review how best to meet the increasing need for new financial and legal skills in the LEAs;
- establish clear working protocols so that everyone involved knows precisely how the PFI process works at all stages;
- school users should be more involved in the PFI process;
- data to be gathered in order to produce guidelines for future decision making;
- greater transparency, more innovation and better risk management.

3.3.4 Taking the Initiative (Audit Scotland, 2002)

The purpose of the Audit Scotland Report is to examine PFI procurement for schools in Scotland, specifically:

- why PFI was adopted and how the project scope was established;
- how well the councils managed the contract award and implementation process;

- the value for money that can be expected from a PFI schools project.

Audit Scotland based its findings on an in-depth review of six projects comprising 65 schools.

Adopting PFI / setting project scope

Audit Scotland showed that the traditional funding arrangements for Scottish schools was inadequate and that a mechanism had been agreed whereby the Scottish Office provided additional financial support for PFI schools projects that would be "off balance sheet". Average annual capital expenditure in education between 1996 and 2001 was below £150 million and under the Local Government (Scotland) Act 1973, councils could only incur further capital expenditure by using funds gained from disposal of existing assets or by making a contribution from their current budgets. However, the Scottish Office devised a scheme whereby it would provide part support funding on an annual basis for capital projects carried out by PFI. This allowed councils to construct schools with a capital value of £643 million, provided the PFI route was used and the contracts were signed by March 2002.

With PFI established as the procurement route so early in the project process, the councils were committed to a 25-30 year project cycle at the outset. An outline business case was prepared to include an output specification, PSC and a draft risk assessment. Guidance was provided from the Treasury and the Office of Government Commerce in the preparation of these documents. Following success at outline business case stage, the councils then prepared the procurement documentation.

Audit Scotland reports that the following issues emerged at this stage:

- there is a danger that emphasis on PFI will lead to a view that all other procurement routes are in some way inferior when, in fact many of the gains made through use of PFI could also be made with other routes;

- uncertainty of the future school demand as the Scottish child population has been continually falling since the 1960s;
- the need for consistency in the norms to be applied to output specifications, classroom sizes and the efficient use of space.

Managing procurement & delivery

Audit Scotland found that the councils implemented sound procedures for the management of the procurement and implementation of the projects. The following issues were noted:

- the cost of external advisors exceeded the original estimates by 80% to 200%. This suggests that the councils underestimated the work involved and/or that advisors were employed to carry out work originally to be carried out by council staff;
- the level of market interest was weak for at least one of the projects. This suggests that not all projects are suitable to PFI and that the councils should always choose the procurement route most appropriate to the project;
- the lessons learned on one project were not always transferred to others. There is a need to explore a means by which experience gained can be used in future projects.

PFI and value for money

Audit Scotland reported that progress to date shows the schools being delivered within the time and cost criteria planned and that there is evidence of better planning, more direct and accountable working relationships, clearer and more concise documentation, better risk management and stronger financial control. However, it is acknowledged, that the circumstances leading to these positive outcomes are not exclusive to PFI. The following issues were also noted:

- managing the PFI procurement process is expensive. Advisors' costs on the projects ranged from £1million to £12 million (between 5% and 15% of core construction costs);

- PFI ringfences the future operation and maintenance funding for the school. This is an advantage to the school, but it reduces the council's capacity to reallocate funds to respond to changing circumstances;
- as these projects would not proceed under any option other than PFI, the preparation of the PSC was scrutinised. Audit Scotland concluded that the preparation of the PSC relied on a number of technical and professional judgements that involved a considerable degree of subjectivity and that where possible both quantitative and qualitative analysis should be used in the decision making process. In particular, it stated that the cost of debt financing by the councils should be a factor to be considered in the PSC in future;
- there has been no systematic development of staff skills and knowledge in the area of PFI schools procurement and project management.

3.4 LESSONS LEARNED

From the experiences of PPP/PFI use in Ireland and the UK to date, the following lessons have been learned:

- PPP/PFI is providing new school buildings on a scale that would not have been possible under traditional procurement;
- new procedures and guidelines have been developed particularly for those in the public sector who are involved in the delivery of PPP/PFI;
- reliance on external advisers has been extensive and more expensive than anticipated, particularly in the pilot project stages;
- in the UK, PFI is only used where it can be shown that it will result in a lower cost over the life cycle of the project. However, the cost savings are not significant;
- in Ireland, the first schools PPP has proved more expensive than traditional procurement but the specific reasons for the extra costs have been established. Updated procedures have been implemented to avoid these costs in the future;
- PPP/PFI is not always the most appropriate procurement route for every school;
- costs vary considerably depending on the size, location and requirements of the school;
- the benefits found from using PPP/PFI are not exclusive to PPP/PFI;
- issues to be resolved to ensure effective future PPP/PFI use;
- the PSB/PSC must be compiled to include adjustments for all risks and benefits. Such risks/benefits must be identified using both quantitative and qualitative analysis;
- there is a need for further development of working protocols to ensure that all participants clearly understand their role in the PPP/PFI process;

- there is a need for systematic staff skills development and knowledge development in the area of PPP/PFI procurement and project management;
- there is need for greater knowledge management that will capture the experience gained on one project so that it can be used on future projects.

CHAPTER 4: CHALLENGES FACING THE KEY PARTICIPANTS IN A SCHOOLS PPP/PFI

4.1 INTRODUCTION

In this chapter, the literature will be examined to establish the challenges facing the participants in each stage of a PPP/PFI schools project, highlighting the knowledge and skills needed to fulfil the various roles of those involved. Using the Project Process that was introduced in Chapter 2 above (Figure 2.1) the roles within the Contracting Authority and the PSO are examined in turn in relation to each stage of the project. The literature available is mainly in the form of textbooks, refereed journal articles and Government reports.

The section ends with a summary of issues arising for participants in the PPP/PFI process. These issues are summarised under the headings used in Chapter 1, namely: transfer of risk, value for money, management, and innovation.

4.2 THE ROLE OF THE CONTRACTING AUTHORITY

In a typical PPP project, the contracting authority can consist of a number of parts of the public sector. Each of these parts has specific responsibilities in relation to the project. PriceWaterhouse Coopers (2001) identifies the following roles that must be filled in a PPP:

- the sponsoring agency
 - the part of the public sector that will act on behalf of the Government in procuring the service required. In the case of procurement of school buildings, this is part of the role of the DOES;
- the sanctioning authority
 - the part of the public service that has responsibility for sanctioning the expenditure of funding in the procurement of the service. In the case of PPP in Ireland, this is part of the role of the Department of Finance.

The Central PPP Unit (2004b) identifies the following individuals and groups that have specific responsibilities within the sponsoring agency:

The *Accountable Officer* – the senior manager in the DOES who has overall responsibility for the project;

The *Project Manager* – the lead individual in the DOES with responsibility for the planning, monitoring and implementation of the project;

The *Project Board* – a group constituted to provide the specialist skills necessary to support the decision-making role of the Project Manager;

The *Secretary of the Project Board* – an individual responsible for the retention of all documentation relevant to the project;

The *Process Officer* – an individual appointed by and reporting to the Accountable Officer. The Process Officer's responsibility is to monitor compliance with the procurement procedures that have been agreed for the project;

The *Contract Manager* – an individual appointed by the Accountable Officer to manage the operational contract;

The technical staff of the Planning and Development Unit (*PBU Technical Staff*) – to whom the initial background work on the project will be delegated.

The literature does not identify specific individual responsibilities within the sanctioning authority. However, the Comptroller and Auditor General report (2004) clearly identifies the Department of Finance as the ultimate authority for approval to enter a PPP contract. Central PPP Unit (2004b) also identifies the sanctioning authority as the body that approves the Affordability Cap, the figure above which the cost of the project cannot rise.

4.2.1 Detailed Appraisal Stage

In relation to the specific tasks to be carried out during the project, Figure 4.1 shows those that are carried out by the contracting authority at the Detailed Appraisal stage.

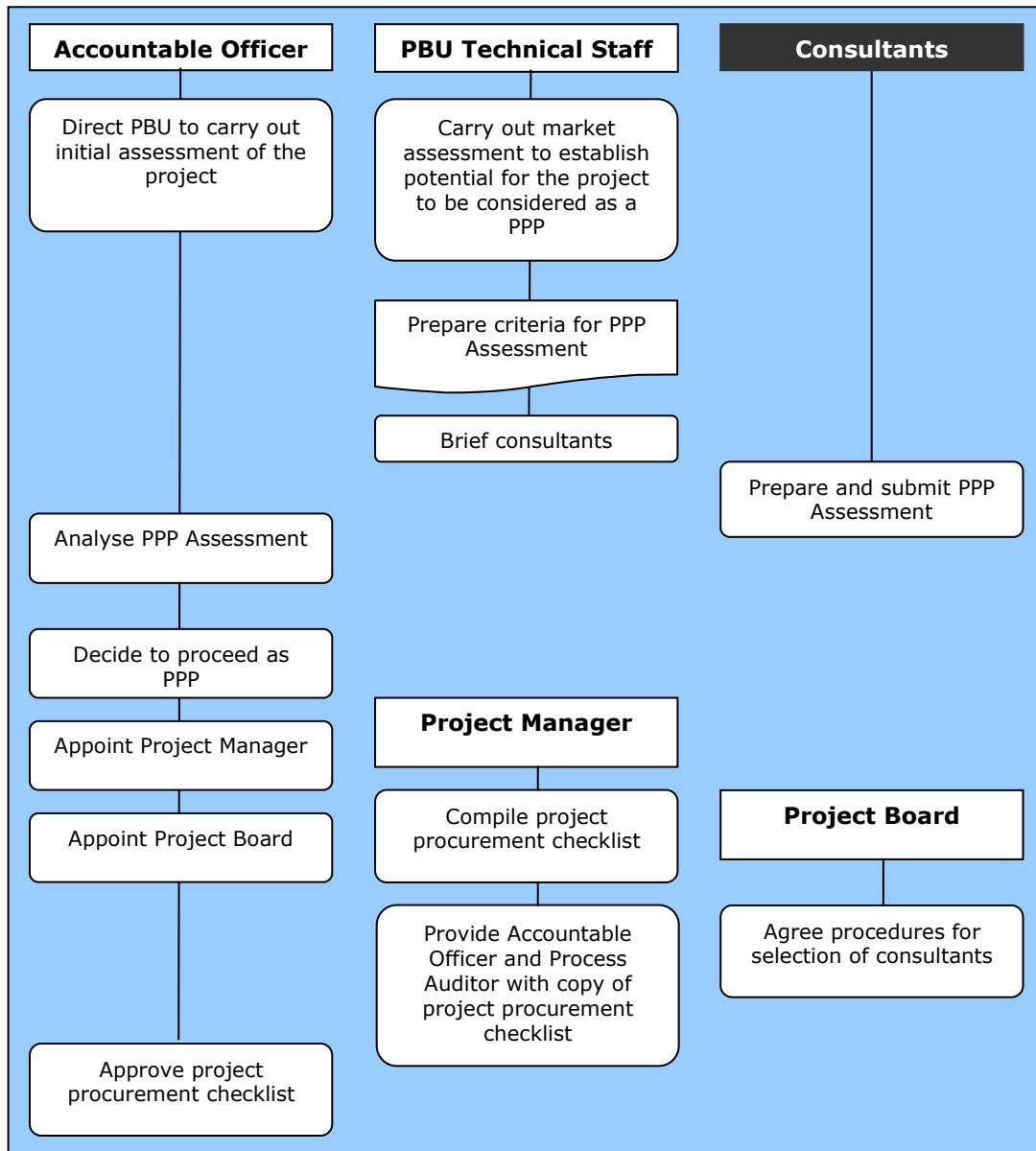


Figure 4.1: Role of DOES Staff during Detailed Appraisal Stage
(summarised from Central PPP Unit, 2004b)

In directing the PBU to carry out the initial assessment, the Accountable Officer requires knowledge of the following:

- the needs of school user: available in the form of the initial submission from the school management authority;

- the PPP process and how it differs from the traditional procurement route: available in the PPP Guidance Notes 1-15 (Department of Environment & Local Government 2000a-o) and in DOES 2004b;
- the current market for a schools PPP: this information changes with time and will be generated by the PPP Assessment;
- the outcome of earlier schools PPPs: currently the only available example is the Grouped Schools Pilot Partnership Project (Comptroller and Auditor General, 2004), further outcomes must be documented as further Irish schools PPPs are procured;
- a general knowledge of provision of school buildings in other countries: available from reports of the Audit Commission (2003) and Audit Scotland (2002).

In addition, the Accountable Officer must have a clear understanding of risk allocation and project finance issues that are likely to emerge as the project develops.

Jackson (2004) identifies six different types of risk in a PFI project, namely:

- demand risk: arising from demographic changes and subsequent participation rates;
- design risk: arising from engineering and other technical design decisions that could influence the level of operational and maintenance costs;
- construction and development risks: arising from potential cost and time overruns caused by inadequate construction management or construction techniques;
- operating cost risks: arising from an underestimation of the true costs of operating the facility;
- performance and availability risk: arising if the operator fails to provide a satisfactory level of service as specified in the contract;

- residual value risk: arising from issues that will affect the value of the facility at the end of the concession period.

Grimsey and Lewis (2002) point to a number of further risks that exist such as:

- regulatory/political risk: arising from legal changes and changes in government;
- environmental risk: arising from environmental changes and regulations;
- revenue risk: arising from a failure to extract revenues;
- force majeure Risk: arising from acts of God, disasters and war.

In addition to these risks Fox and Tott (1999) identify planning risk and insolvency risk as being worthy of consideration. Treharne (2003) illustrates the timing of each risk (figure 4.2) and suggests that risk is highest in the early stages – during construction and commissioning – with a gradual reduction during the operation stage.

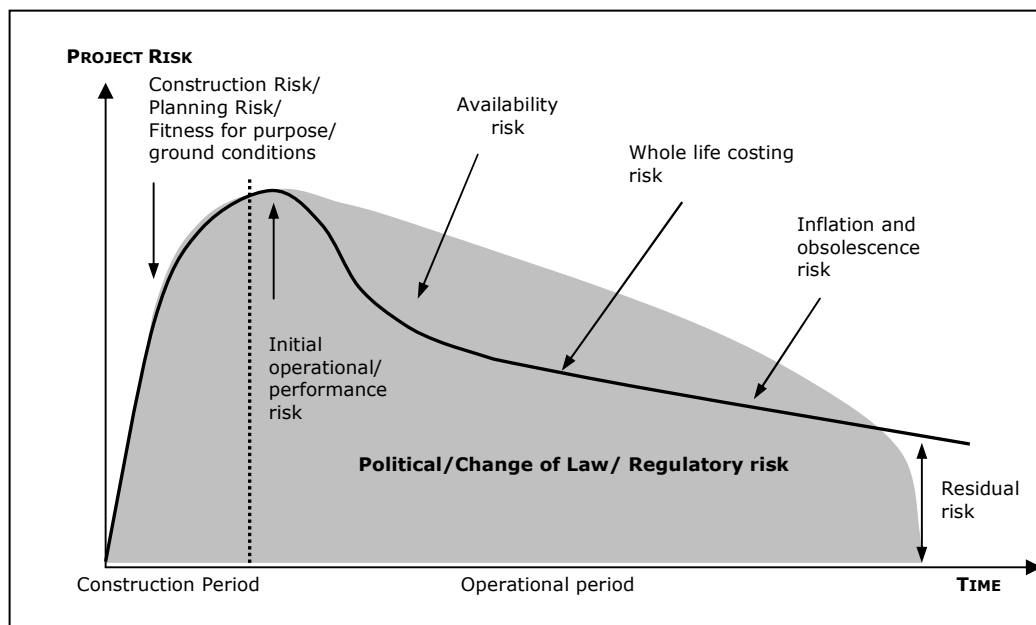


Figure 4.2: Typical Risk Profile In PFI
(Treharne, 2003)

However, Treharne also suggests that risks arising from political, legal and regulatory issues decrease at a slower rate than other risks over the life cycle of the project.

Using the SLEEPT methodology, Eaton and Akbiyikli (2005a) have developed a model that will provide a further detailed breakdown of risk on PFI projects and identify further subcategories of risk. Each of these is analysed in relation to its applicability to the project sponsor, the lenders, and the Special Purpose Vehicle (SPV) and the subcontract builder that would be contracted to design, build and operate the facility.

Gallimore et al, (1997) reminds us that the price of this risk transfer can be high and that value for money criteria could dictate the level of risk transferred. Risk and finance, therefore are inextricably linked. Mawji (2004) states that parties to a contract often focus on negotiating contract positions that protect them from risk rather than working on a joint strategy to reduce each type of risk. Mawji contends that such a joint strategy would lead to a higher level of project management and a better system for control of costs.

Under a PPP, private finance is used in the provision and enhancement of public services rather than in the acquisition of capital assets. Broadbent and Laughlin (2002) identify the issues that have arisen whereby PFI projects are dealt with as "off balance sheet" projects thereby not influencing the Public Sector Borrowing Requirement. Under the Eurostat (2004) guidelines, a government is allowed to declare PPPs as non-government assets provided the private partner bears the construction risk and at least one of either availability risk or demand risk. As one of the primary aims of PPP is to use private finance in the provision of assets necessary for the provision of public services, it is important that the Accountable Officer is aware of the level of risk transfer that is necessary in order that a project is treated as an "off balance sheet" project.

The introduction of private finance to the provision of a public facility will bring with it a range of new financial issues of which the Accountable Officer must be aware.

Firstly, public sector funding for the capital element of a traditionally procured project is provided through the annual budgetary allocation to a government department. The finance for a PPP project will be raised by the private sector using a combination of equity, internally generated cash flows and debt (Dell et al., 2001). The project partners that make up the PSO will generate some of this finance, but usually some further finance will be required from other investors. In most cases, these investors will protect their investments by taking out insurance through a monoline credit insurer. A monoline credit insurer is defined by De Lemos, et al., (2003), as an insurer that only insures credit lines. Such insurance is now common on PPP/PFI projects (Unmack, 2003) having entered the Irish PPP market in 2003 (O'Rourke, 2003a). Monoline insurers will base their costs on the risk rating applied to each project across a range of risks. The lower the overall risk on the project the higher the investment is rated. Ratings run from triple A (AAA), for a highly rated investment and drop down through, AA, and A to BBB and below for less attractive investments. The majority of monolines will seek to insure only the AAA rated investments (Unmack, 2003).

In order to manage the appointment and briefing of the Project Manager and the Project Board, the Accountable Officer must clearly understand the functions of each of their roles and must be skilled in team building, motivating, delegation, negotiation and communication. As with any person who is accountable for the delivery of a complex project, the Accountable Officer will also require skills in planning, project monitoring, problem solving and decision-making.

As PPP is still a new process in Ireland, change management skills will also be required. Gunnigan (1999) examines the use of change management techniques in the construction environment and concludes that the complexity of change management is not

understood in the industry. Defining the task as the lowest level of action, Gunnigan describes a process as a series of tasks, a system as a series of processes, and the function of an organisation as the interaction of a variety of systems. A generic change model is proposed and tested in a number of case studies. It shows that each level of activity, from overall organisation level down to task level, must be considered if successful change is to be achieved. In the introduction of PPP, the Accountable Officer must understand the interaction of each task in a PPP and be aware of the actions that must be taken at a management level to ensure that all concerned embrace the change to PPP.

The PBU Technical Staff will be required to carry out market assessments of the potential of the project as a PPP and to brief the consultants on the requirements of the PPP Assessment. To carry out these tasks, the PBU technical staff requires knowledge of:

- the PPP process and how it differs from the traditional procurement process: available in the PPP Guidance Notes 1-15 (Department of Environment & Local Government 2000a-o) and in DOES 2004b;
- the requirements of the school users: available in the form of the initial submission from the school management authority;
- standard criteria for a PPP Assessment: available in (Department of Environment & Local Government, 2000d);
- the ability of the consultants: will require PBU staff to develop criteria for the assessment of the ability of the consultants.

They will also require skills in marketing, facilitation, communication and presentation.

By the time that the Project Manager is appointed, the PPP Assessment will have been completed and the decision to proceed as a PPP will have been made. Once appointed, the Project Manager must lead the Project Board in the completion of the Detailed

Appraisal stage. This involves two main tasks, the first being the compilation of the Procurement Process Checklist, the second being the agreement of procedures for selection of the consultants who will prepare the Project Initiation Documentation. To complete these tasks, the Project Manager must have an in-depth knowledge of the PPP process and its specific application to the procurement of school buildings. He/she will also have studied the outcome of the PPP Assessment for the project in question and will have become acquainted with the project specific issues that have been manifested to date. In preparing the checklist, the Project Manager will require significant project planning skills whilst displaying further skills in team building, motivation, communication and problem solving as the leader of the project board. In the agreement of the consultant selection procedures, the Project Manager will require a thorough knowledge of the ability of the different consultants to whom the work is to be outsourced and will need to display considerable leadership skills in drawing on the strengths and abilities of the individual members of the Project Board.

4.2.2 Statutory Process Stage

When the project moves into the Statutory Process Stage, the Accountable Officer takes an overseeing role and the Project Board is placed under the control and chairmanship of the Centre of Expertise for Procurement (CEP). The tasks undertaken at this stage are as shown in Figure 4.3.

The guidance documentation (Department of Environment Heritage and Local Government, 2006) states that the Project Manager and CEP should at this stage agree liaison procedures to be followed during the procurement phase. This could therefore result in the Project Manager holding different roles from project to project, but in all projects he/she will be a member of the Project Board and will carry out many of the executive functions of the Board.

The Process Auditor, who is appointed at the start of this stage, should have knowledge of the PPP Process and of the roles of the Project Manager, the Project Board and the CEP in the project. The

Process Auditor will also be required to be skilled in communication and decision-making.

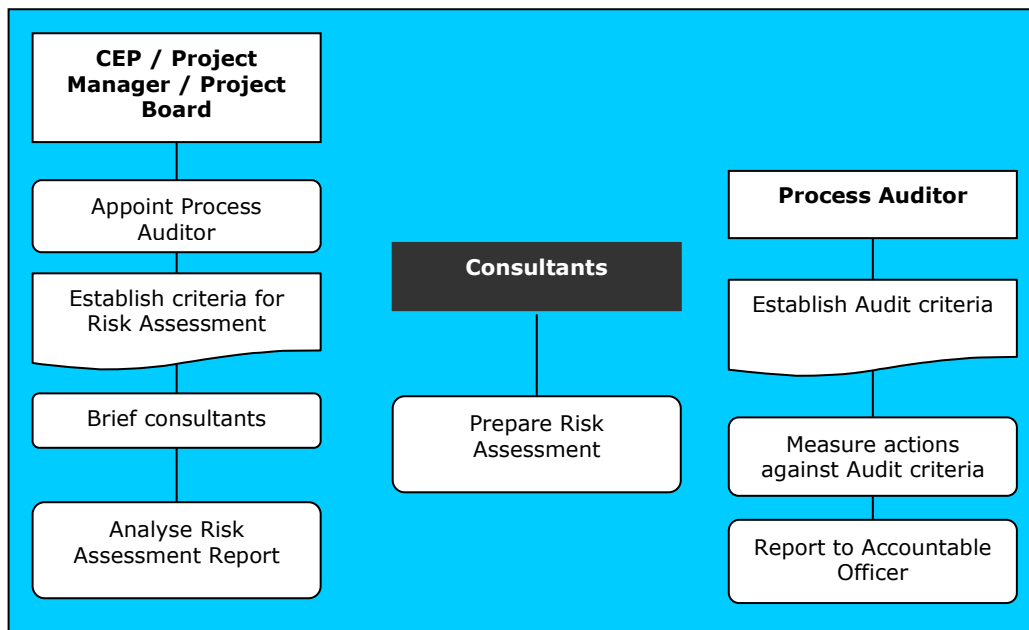


Figure 4.3: Role of Contracting Authority during Statutory Process Stage

(summarised from Department of Environment & Local Government 2000k, Central PPP Unit 2004b and DEHLG, 2006)

The role of the Process Auditor in this stage involves the preparation and implementation of an auditing procedure that measures the compliance of the Project Board with the Procurement Process Checklist. The Process Auditor issues his/her reports directly to the Accountable Officer. In the event of non-compliance with the agreed procurement process, the Process Auditor must seek clarification on the reasons for the deviation from the Project Board. If clarification is not forthcoming, then the Process Auditor must alert the Accountable Officer of the deviation. The Process Auditor must retain all relevant documentation in relation to the decisions taken by the Project Board in the management of the project (Central PPP Unit, 2004b).

In carrying out these tasks, a Process Auditor must have the confidence to act with authority and fairness when a situation arises that could lead to conflict. To achieve this, the Process Auditor must have a clear understanding of the requirements of his/her role and

must, at all times, have the full backing of the Accountable Officer. Skills required for this position include decision-making, communication, reporting and an ability to analyse complex situations and to tactfully deal with potentially conflicting views.

To successfully complete this stage, the Project Manager must have a strong understanding of the different types of risk that arise in a PPP project and of the most appropriate party to bear each type of risk. The knowledge required relating to risk, will be similar to that noted as being required by the Accountable Officer during the Detailed Appraisal stage. In drawing up the Risk Assessment criteria, the Board and will draw on any previous knowledge gained by others that have prepared such criteria for a PPP in the past. Once the Project Board has approved the criteria, the Project Manager will brief the consultants. Again, the skills required by the Project Manager at this stage will include leadership, communication and presentation.

4.2.3 Pre–procurement Stage

The Irish PPP pilot projects to date have been characterised by a heavy reliance on consultants to carry out the work that would not normally arise in the traditional project route (PriceWaterhouse Coopers, 2001). This is especially noticeable in the Pre-Procurement stage as illustrated in Figure 4.4. At this stage, the role of the Project Manager/Project Board is concentrated on briefing the consultants who will prepare the Output Specification, the Project Agreement, the Payment Mechanism documentation and the Public Sector Benchmark. The role of the Process Auditor is similar to that in the previous stage. Consequently, the Process Auditor will need an understanding of the documentation to be prepared in addition to the skills and knowledge he/she would have required to carry out his/her role in the Statutory Process Stage.

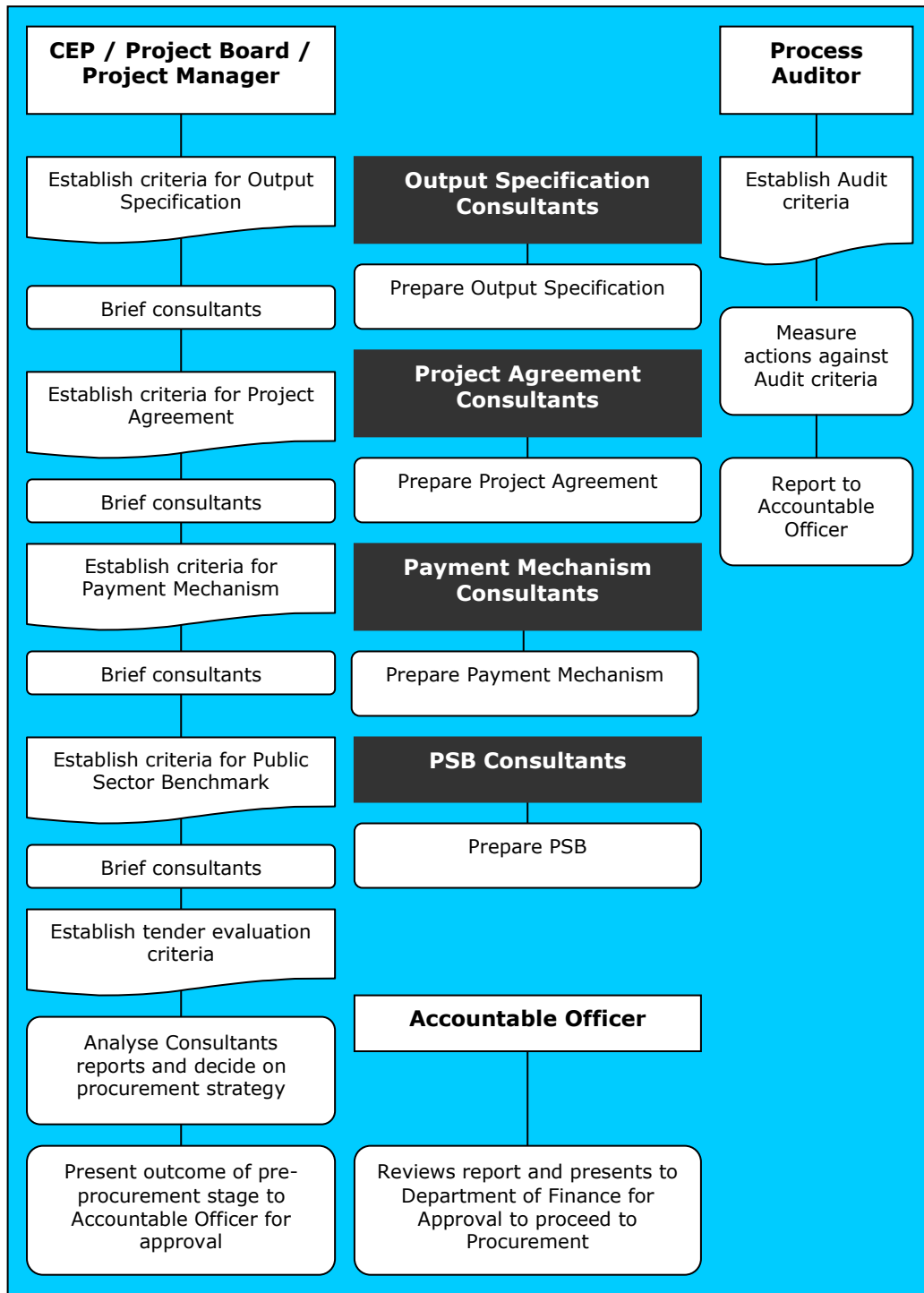


Figure 4.4: Role of Contracting Authority during Pre-procurement Stage

(summarised from Department of Environment & Local Government 2000f and Central PPP Unit 2004b)

In order to brief the consultants who will prepare the Output Specification, the Project Manager must fully appreciate the following aspects of the Output Specification (Department of Environment & Local Government, 2000o):

- *project description* - a clear, concise, logical and unambiguous outline of the DOES requirements which will ensure that the tendering parties know the PBU needs in respect of the schools that are being tendered;
- *organisation outline of the DOES* - aspects of the DOES organisation and management system may have important implications for the services to be offered, particularly where interfaces will arise;
- *stakeholder requirements* - specific stakeholder requirements may have to be catered for, for example the requirements of special needs students;
- *scheme objectives* - the DOES needs to be satisfied that the proposed scheme will comply with the DOES strategy on provision of school buildings. Of particular importance will be issues such as flexibility for coping with future demographic change and potential changes in educational provision, etc;
- *performance standards* - the extent and nature of the service to be provided over the operational term of the contract, the minimum level of service standards to be achieved, details of monitoring and compliance criteria, all of which must be measurable, achievable and realistic;
- *quality standards* - including minimum quality criteria to apply to the school building, the codes and standards that must be satisfied by the facility (for example, space per pupil requirements, etc.,) and the requirements for design checking and approval. These would include requirements or constraints in relation to construction, the requirements to ensure good practice including quality control and quality assurance procedures, testing and commissioning criteria;
- *constraints* - defining the constraints which may have to be taken into account in the design, construction or operational phases of the project in order to meet planning objectives, the requirements of stakeholders, or other limits on the project;

- *risk transfer* - involving the identification, assessment and allocation of risk between the parties in order to ensure optimum allocation of risk as determined following the risk assessment;
- *payment criteria* - setting out the basis for payments (which must be specific, measurable, achievable, realistic and timely);
- *change mechanisms* - whereby changes in certain operating conditions can be provided for within the contract. The Output Specification should require the Contractor to cater for a range of operating conditions, with provision for negotiation where this range is exceeded or where it results in the need for additional facilities or costs; and
- *alternatives* - the Output Specification should recognise that there may be worthwhile alternatives which do not strictly comply with the tender documents, but which may be worthy of consideration. The Output Specification should provide the basis against which alternative solutions can be judged.

The Department of Environment & Local Government (2000o) states that the Project Agreement must address the following issues:

- the required levels of performance and the associated information requirements for judging service performance, as defined in the Output Specification, all of which must be capable of objective measurement;
- the details of the payment arrangements;
- the means by which the financial performance of the project will be assessed including arrangements for revenue sharing. For example, the contract for the grouped schools project stated that profit from vending machines would be split equally between the DOES and Jarvis Ltd (Comptroller & Auditor General, 2004);
- financial performance - reviewing the ongoing financial performance and position of the PSO against the forecasts set

- out in the financial model and enforcing and monitoring any arrangements for revenue sharing or profit capping;
- the specific monitoring activities that will be carried out by both parties, the resources to be provided to achieve these activities and the means by which compliance will be determined;
 - the safety, security, insurance and tax compliance requirements to be placed on the PSO;
 - the means by which interfaces between the parties will be managed;
 - the mechanisms to be used to resolve disputes;
 - the arrangements for addressing default or non-compliance with the agreement;
 - the means by which change in requirements over the life of the project will be addressed;
 - the conditions that will apply at the end of the contract period.

When briefing the consultants on the preparation of the Payment Mechanism documentation, the Project Manager must be aware of the various types of payment that a PSO can typically receive in a PPP such as:

- *user charges* - payments received by the PSO directly from private users of the infrastructure or service (e.g. road tolls);
- *usage based payments* - payments from the DOES to the PSO that vary according to how much the infrastructure or service is used;
- *availability based payments* - payments from the DOES to the PSO for making infrastructure or services available for use at an acceptable standard;
- *performance based payments* - payments from the DOES to the PSO that vary according to the quality of service provided.

(Department of Environment & Local Government, 2000n)

In the case of a schools PPP, payments are normally based on availability and performance. They can also be based partially on usage, as the number of pupils using the school will vary from year to year. However, as the DOES rather than the PSO will have control of the numbers attending, the PSO is not likely to carry the risk associated with low usage but may be compensated if the numbers rise to such a level that the maintenance costs of the school are affected.

To brief the consultants on the preparation of the Payment Mechanism documentation, the Project Manager must fully understand the principles on which a Payment Mechanism is developed. Department of Environment & Local Government, (2000n) suggests a number of principles that are central to the development of a PPP. For the purpose of this work, these principles are adapted for use in a schools PPP:

- the services to be delivered should be measurable, both in terms of quantity, and in terms of quality. The services to be delivered should be defined in the output specification;
- payments should not normally commence until the school is available for use to the required standard;
- the payment mechanism should be based on measures such as usage, availability and performance, and not on the inputs needed to deliver the service;
- availability payments should be based on objective measures, such as number of and size of classrooms available for use;
- performance payments should be based on the achievement of standards that are practical to measure over the entire contract period. It is important that any practical difficulties in monitoring, measuring and auditing the basis for performance payments are carefully thought through. The Project Manager would be advised to consult with the School Principal to eliminate such potential difficulties;

- the payment mechanism should be designed so that deductions can be made for unsatisfactory performance;
- the payment mechanism should not, in principle, contain any fixed element, as the intention is to pay for outputs rather than inputs;
- the PSO should be capable of managing the risks which are being transferred;
- the amount and regularity of payments should be clear and transparent insofar as PSO must be able to model its probable revenue and expenditure streams with reasonable certainty, and the DOES should be able to model and cap its own costs;
- the payment mechanism must be simple to understand.

The Public Sector Benchmark (PSB) is an analysis of the cost to the public sector of providing a facility under traditional procurement. Department of Environment Heritage and Local Government (2003) states,

"...The PSB focuses on the whole life costs over the contract term and provides a detailed cost valuation of all risks (transferred and retained) associated with the project".

The PSB is effectively the same tool as the Public Sector Comparator (PSC) as used in the UK and other countries. In Australia, for example, the PSC is defined as a model of the costs associated with a proposal under a government financed method of delivery where:

- the model is based on the most efficient likely method of achieving the required output;
- potential impact of cost of risk are taken into account;
- the costs are expressed in terms of net present value to the government.

(NSW Construction Policy Steering Committee, 2001)

A principal outcome of the PSB will be the establishment of the maximum cost that must not be exceeded if the project is to be procured as a PPP. This cost is known as the Affordability Cap. Once the Affordability Cap is established, it must be sent along with the PSB to the Sanctioning Authority for approval to proceed to the Procurement Stage.

In briefing the consultants that will compile the PSB, the Project Manager must understand the following principles that guide the production of the PSB:

- the PSB must be based on a reference project that will provide the same service as the facility proposed that is being proposed under PPP;
- a cost must be placed on each risk that is to be transferred;
- a contract duration of 30 years will inevitably involve change at some time during the contract period. The PSB must be flexible enough to allow for change.

Baldwin (2003) contends that facilities management input by the client, at the early stages of a PFI project, is critical to the success of the project. Egan (1998) emphasized the need for clients' understanding of whole life cost assessment. El-Haram et al., (2002) cites a Construction Productivity Network directive in 2000 stating that UK government departments must use whole life cost assessment to support technical decisions in PFI. They go on to propose a model for collecting of life cycle cost data for use in such cost assessments.

To understand the principles behind the compilation of the PSB and the growing demand for incorporation of whole life cycle issues, the Project Manager must therefore have knowledge not only of the construction of a facility but of the operation of such a facility. As most of the PBU staff that have in the past acted as Project Manager on traditionally procured contracts would not have been exposed to the whole life issues in sufficient depth, a knowledge and/or skills gap

may exist that must be addressed in the larger programme of PPP projects that have now gone to the market.

Criteria for Tender Evaluation will be based on the requirements set out in the output specification. To prepare appropriately for the Procurement stage, the procedures for carrying out these tasks should be established before the tendering process begins. To evaluate the actual tender, the Project Manager/Project Board must examine the output specification and develop a weighted checklist of the criteria specified. Bearing in mind that the output specification can be a lengthy document – in the Grouped Schools Project it was over 200 pages in length (Reeves, 2003) – the task of developing the evaluation documentation can be extensive. This work will require considerable analytical skills and a detailed knowledge of the operation of the school. Obviously, this task cannot be completed until the output specification has been prepared. Standard criteria, however, would include:

- deliverability;
- finance;
- operational issues;
- quality;
- technical factors;
- price.

(Construction Industry Council, 1998)

An essential part of the decision-making process in tender evaluation is the means by which those interested in the project will be selected to provide an outline bid and will subsequently be short-listed to provide a detailed bid. In establishing this procedure, it will also be necessary to consider the extent of information to be provided to the bidders at this stage and the expected format of the bids.

As was the case with the PSB, the work involved in the preparation of the tender evaluation will be considerably different from that which would have been the normal procedure under traditional procurement. Again, a skills gap may exist and must be addressed if required.

The final task in the Pre-procurement stage is the preparation of the pre-procurement report. This report will draw together the outcomes of all of the tasks at this stage and will be presented to the Accountable Officer who will in turn present it to the Department of Finance in order to obtain sanction to bring the project to the next stage. Skills required to complete the report include:

- analytical skills – to ensure that each task has been carried out appropriately and to clearly establish the important issues arising;
- problem solving skills - clearly demonstrating the criteria applied to the decisions made;
- reporting skills - clearly recording and communicating the outcome of each task.

4.2.4 Procurement Stage

Figure 4.5 illustrates the initial part of the process of procurement and the tasks that must be carried out during this stage. Again the Process Auditor is concerned with ensuring that all concerned are following the Project Checklist. As the role of the Process Auditor will be similar to that in the previous stage, it will not be analysed further in relation to this stage. For the purpose of clarity, the analysis of this stage is split into the bidding and negotiation phases.

The Project Board will place a notice in the Official Journal of the European Community (OJEC) stating that the project is in procurement. In addition to placing the OJEC notice, the Project Board will place tender information on the Irish Public Sector Procurement Portal (www.e-tenders.gov.ie) and will normally place a notice in the national newspapers.

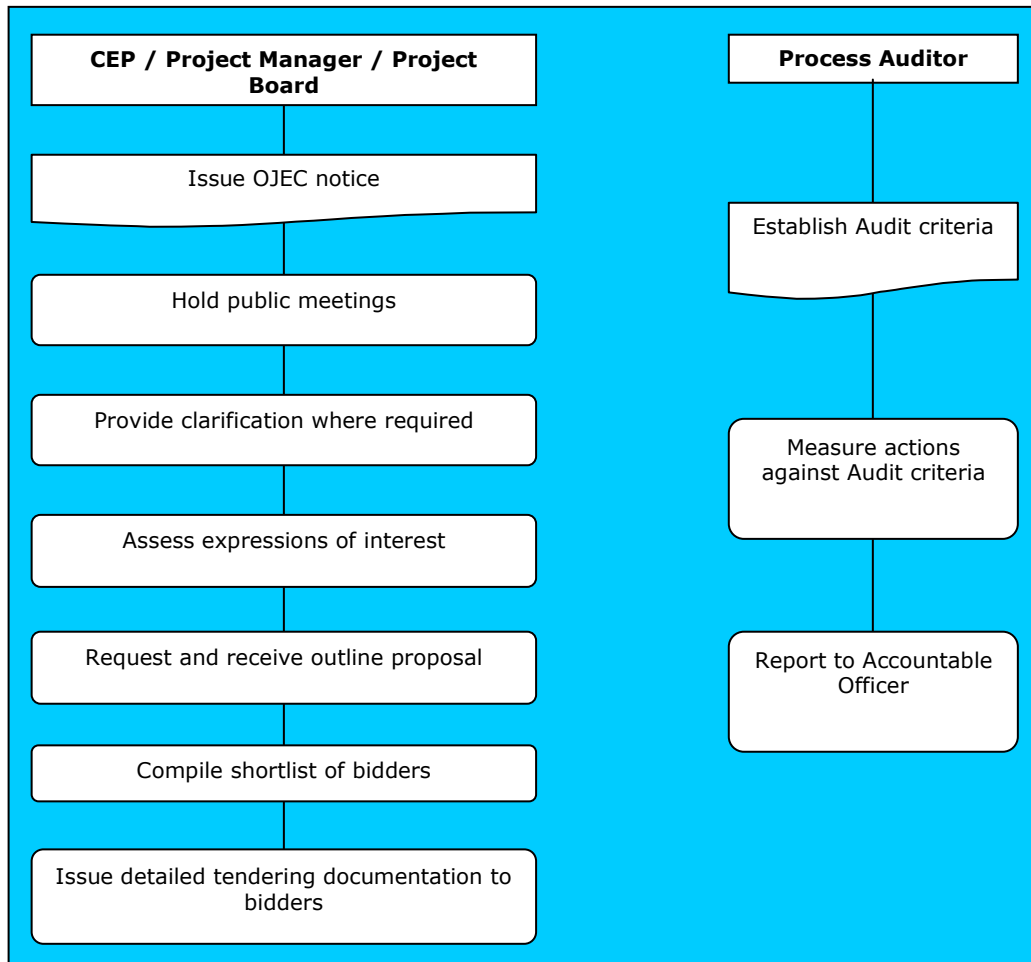


Figure 4.5: Contracting Authority role in Procurement (bidding) Stage

Further information may also be placed on the Government PPP website (www.ppp.gov.ie). A closing date for receipt of expressions of interest will be clearly identified on each notice. With all PPPs to date in Ireland, a public meeting is held at which further information is given to potential interested bidders. In addition, further clarification is also provided to potential bidders who contact the DOES on an individual basis. All clarification given is recorded and where significant, is posted on the Government PPP website.

Using the tender evaluation criteria established during the pre-procurement stage, The Project Board will first examine the initial information provided by those who have expressed interest in the project and select a number of these who will be invited to provide an outline bid. On receipt of the outline bids, the Project Board again

uses the pre-established tender evaluation criteria to compile the shortlist of bidders who will be invited to make a detailed bid.

Figure 4.6 illustrates the tasks that take place in the second part of the Procurement Stage. The activities of the Process Officer are again concerned with the auditing of compliance with procedures and are not shown on this figure. Nonetheless, the Process Officer's role is of considerable importance at this stage as non-compliance with a procedure at this stage can result in errors that may have significant effects on the value for money of the project. An example of such an error is the exclusion of VAT in the calculation of the cost per square metre figure in the Grouped Schools project (Comptroller and Auditor General, 2004). At the end of this stage, the Process Auditor will present the Accountable Officer with a Certificate of Compliance which states that the procurement process was carried out in compliance with the appropriate procedures.

Once the preferred bidder has been identified, the remaining bidders are debriefed. The purpose of the debriefing is to ensure that bidders get an opportunity to learn from the experience and apply what they have learned when bidding for further PPPs in future. Debriefing meetings will also be held with the preferred bidder to clarify outstanding issues. Further meetings are likely to be held while the bidder works on the full development of the proposal. During this time, the Project Manager will begin negotiations on the concession contract with the preferred bidder. Over the course of these negotiations the Project Manager is likely to need considerable support from the Project Board and other experts.

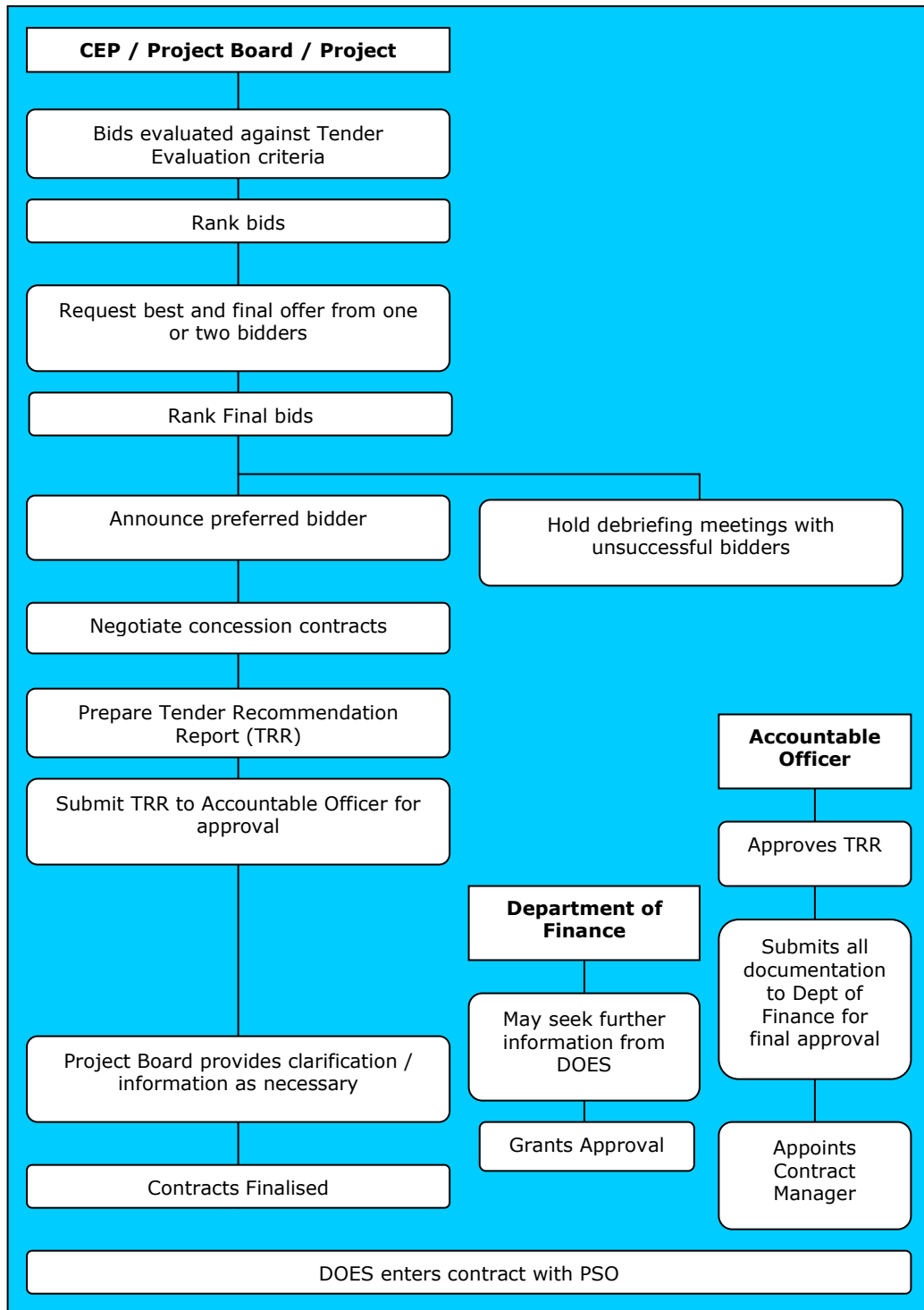


Figure 4.6: Contracting Authority role in Procurement (negotiation) Stage

On conclusion of the contract negotiations, and before the contracts are signed, final approval at Departmental level and at Sanctioning Authority are required. This is initiated by the Project Manager

preparing the Tender Recommendation Report (TRR) which should contain the following elements:

- a short account of the procurement strategy;
- a list of the companies that have expressed an interest;
- the evaluation and award criteria that were applied;
- the criteria used to shortlist the bidders;
- the basis for the recommendation for the award of the contract;
- a note of any issues of significance that arose during the Procurement Stage.

(Department of Environment Heritage and Local Government, 2003)

The TRR is submitted to the Accountable Officer for Departmental approval. Once the Accountable Officer is satisfied with the outcome to date, the TRR and all of the preceding documentation, including the Certificate of Compliance from the Process Auditor, are sent to the Department of Finance, which, as Sanctioning Authority, has the final responsibility for deciding whether or not the project will proceed. This decision may be dependant on the provision of further information by the DOES. In the case fo the Grouped Schools project it took two months to resolve the final queries raised by the Department of Finance before it gave its permission for the project to proceed (Comptroller and Auditor General, 2004).

Once the Department of Finance has given its final sanction to the project, the Accountable Officer appoints the Contract Manager, whose role it will be to oversee the construction, commissioning and certification of the school for use. Following occupation, the Contract Manager will be responsible for the monitoring and certification of the operational phase of the project. With Department of Finance approval acquired and the Contract Manager appointed, the contracts are signed and the Construction Stage begins.

4.2.5 Construction Stage

As the design and construction risk will be carried by the PSO in a PPP, the DOES role, as illustrated in Figure 4.7, will be different to that under a traditionally procurement arrangement. The primary function of the Project Manager at this stage is to provide for a smooth handover to the Contract Manager. The Contract Manager now becomes a member of the Project Board and carries out the executive functions of the Board during the Construction stage. The Board, during this stage, is still under the control of the CEP. The Contract Manager's primary function will be to ensure that the quality of the construction is in compliance with the regulations pertaining to the provision of school accommodation. Once the school is built and commissioned, the Contract Manager certifies to the DOES that it is ready for occupation. Clear criteria must be established at the outset to ensure that the Contract Manager has an effective strategy for carrying out this task.



Figure 4.7: Contracting Authority role in Construction Stage

It is not the role of the Contract Manager to continuously monitor quality, as this is one of the functions of the PSO. Instead the

Contract Manager should agree a means by which the PSO's quality monitoring system is audited and should ensure that spot checks are carried out in order to be satisfied that the required quality is being achieved. The Contract Manager must be very clear regarding the consequences of reverting to the role normally held under traditional procurement. For example, the consequence of giving design advice during construction could result in a transfer of an element of design risk back to the DOES. As the PSO is already being paid to carry this risk, no action on the Contract Manager's behalf must change this.

This is a significant change in role for DOES staff that would have held a contract management role under a traditional contract. Consequently, adequate training must be provided to ensure that the limitations and constraints of the role under PPP are fully appreciated. Other Government Departments have recognised this and have taken steps to ensure that the staff make the transition smoothly (Department of Environment Heritage and Local Government, 2004).

The Project Agreement will define the means by which the Contract Manager will monitor the operational stage of the project. The tasks to be undertaken by the Contract Manager are illustrated in Figure 4.8.

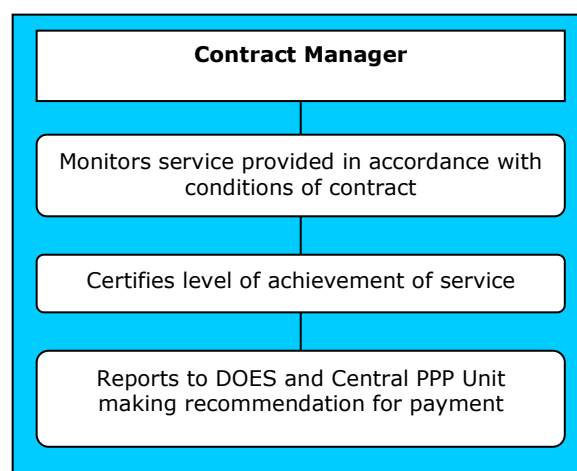


Figure 4.8: Contracting Authority role in Operation Stage

In a school procured under a traditional contract, the Principal, on the authority of the school management board, carries out the function of the management of the school buildings. The DOES staff involved in such a project ended its involvement when the building was commissioned. The only further involvement would come through the assessment of a funding application for a maintenance item that would require significant funding.

Consequently, the operational role carried out under PPP is an entirely new role in the DOES. To carry out the new role, the Contract Manager must understand how a school functions and the day-to-day issues that affect the running of a school, such as:

- the nature of the type of education being provided and the limitations that this places on the use of the building;
- the needs of the staff and pupils;
- the limitations of the school building;
- the change that will be experienced by the school principal and the school management board in operating in the new contractual environment.

Whilst sector specific guidance is given on the operational stage of projects involving roads, waste and water, (Department of Environment & Local Government, 2000o, Water Services National Training Group, 2002)) there is no evidence of documentation containing such guidance in the sector that provides school buildings.

Using the generic titles applied to the above sectors, the following is an interpretation of the Contract Manager's responsibilities in the operational stage of a schools PPP:

Develop a Monitoring Plan

This will follow the monitoring procedures set out in the Project Agreement, setting out a schedule of items to be monitored and a timescale for such activity.

Record Availability

This will relate to the space available for use to the school and will particularly note any action that might adversely affect the operation of the school such as maintenance work. This highlights the importance of clearly defining the acceptable levels of availability in the Project Agreement.

Monitor Performance Standards

This will relate to the standard of the facilities available and the usage of such facilities related to that defined in the Project Agreement.

Authorisation of Payment

A procedure for authorising payments must be set out, agreed and implemented.

Repair and Maintenance

As the school will eventually be handed back to the DOES, it is important that a maintenance and repair schedule is agreed and that the PSO is maintaining the value of the asset by carrying out the work on the schedule.

Contract Obligations

The Contract Manager must monitor compliance with contract obligations and ensure that the service provided conforms with current regulations such as health & safety, waste management, etc. The Contract Manager must also ensure that the PSO has all the relevant valid insurance policies in place at all times.

Change Management

Over a 30-year period, it is likely that some changes will be required in the service to be provided. The Contract Manager should follow the criteria for dealing with this as set out in the Project Agreement.

Stakeholder Management

As the representative of the DOES, the Contract Manager must be aware of the needs and expectations of the stakeholders of the school and have procedures for dealing with each of them.

At the end of the operational stage, the handing back of the school to the DOES will involve the Contract Manager in:

- assessing the condition of the asset (the school) and potential liabilities for upgrading;
- management of the retendering of the ongoing operational service, if this is required.

As this would happen at least 25 years hence, it is somewhat pointless to speculate on the process to be followed as subsequent changes in society could mean that the procedures proposed would be superseded by entirely different procedures.

4.2.6 The Role of the Contracting Authority – Summary

It is clear that a considerable amount of time and effort has been invested into developing new procedures for the public sector's part in PPP. The entire process has been analysed in detail and each stage has been addressed by specific published guidelines. Pilot projects have been carried out in a variety of sectors and each of the problems that became apparent have been addressed with updated procedures (for example, the introduction of a Process Auditor seems to have been strongly influenced by some of the issues that arose in the Grouped Schools project). Several examples of good practice have been taken from other countries, particularly from the UK, which - as the world leader in PFI - has been able to provide examples of procedures that will solve most of the issues that arise in PPP.

However, despite all of the guidelines that have been published, a number of issues remain:

1. There are many instances where new skill sets are required and whilst a framework for general training on PPP is available (Interdepartmental Group on Public Private Partnerships, 2000), there is little evidence that the necessary sector specific training is systematically provided for those who need it;
2. An extensive search of Irish governmental documentation sources revealed several guidelines for the public sector but no

guidance for the private sector in the use of PPP. If PPP is to be a true partnership, one would expect that the government would have published guides showing the private sector how it could profit from participating in the achievement of public sector goals through PPP;

3. Almost all of the governmental documents reviewed concentrated on the requirements of the public sector workers to comply with the new PPP processes, thereby reflecting the Gallimore, et al., (1997) suggestion that public sector managers are cocooned in a culture of "rules not deals". This suggests that the cultural change required in the public sector has not yet been achieved. Whilst one of the prime aims of PPP is to take advantage of the strengths of the public and private sectors in order to provide a better value public service through a partnering arrangement, it is evident that the contractual relationship is equally as adversarial as traditional procurement. Fernie et al., (2004) argue that the extent of change required to maximise the benefits of PFI cannot be attained without addressing both practice and context. The literature reviewed in this work shows that whilst the practice has changed – through the introduction of new processes – the context (the adversarial contractual environment) has not changed. Consequently, it will be necessary to breakdown the adversarial barriers if true change is to be achieved.

4.3 THE ROLE OF THE FACILITY PROVIDERS (PSO)

The remainder of this section analyses PPP from the perspective of the PSO to establish the roles that exist within the various project stages. The literature search in respect of this analysis has not been as fruitful as that required for the previous analysis of the public sector. This is not surprising, as accountability and transparency of the public sector is of major importance particularly where considerable sums of taxpayers' money are involved. Consequently, clear procedures for the public sector are likely to be published and

freely available in the public domain. In contrast, private sector roles and procedures are often controlled by quality management systems that are developed in-house. To retain competitive advantage, such procedures are not normally published in the public domain. However, from the limited number of documents available, the following account of the role of the PSO in a PPP has been compiled.

There are three main types of role that a private company can play in a PPP project (Construction Industry Council, 1998):

1. It may be a company that is specifically established to bid for and operate a number of PPP projects. In this arrangement it would comprise the entire private sector element of the project. Before it ran into financial difficulties, Jarvis Ltd operated in this role;
2. It may be one of a number of companies that come together to bid for a specific project and, upon invitation to prepare a detailed bid, would become a partner in a PSO that would control all aspects of the private sector element of the project. National Toll Roads Ltd took such a role when – as an operating specialist - it joined the Celtic Roads Group that was awarded the PPP contract to build and operate the M1 Dundalk Western Bypass. The other partners are Nuttall, Ascon and Dragados;
3. It may work for the PSO – effectively becoming a subcontractor – and become involved in part of the project, i.e., design, construction or operation. John Sisk & Son Ltd took this role in the Grouped Schools PPP when it was contracted to build two of the five schools that formed that project. In this role, the private company reverts to a role similar to that under traditional procurement.

As the second of these roles raises all of the issues that emerge in the other roles, it is the role that will be examined in this section.

4.3.1 Early Project Stages

The tasks to be undertaken by the PSO in the early stages (i.e. during Detailed Appraisal, Statutory Process, Pre-procurement) are considered together, as a task can span two or more of these stages at any one time. The flow of the tasks is illustrated in Figure 4.9.

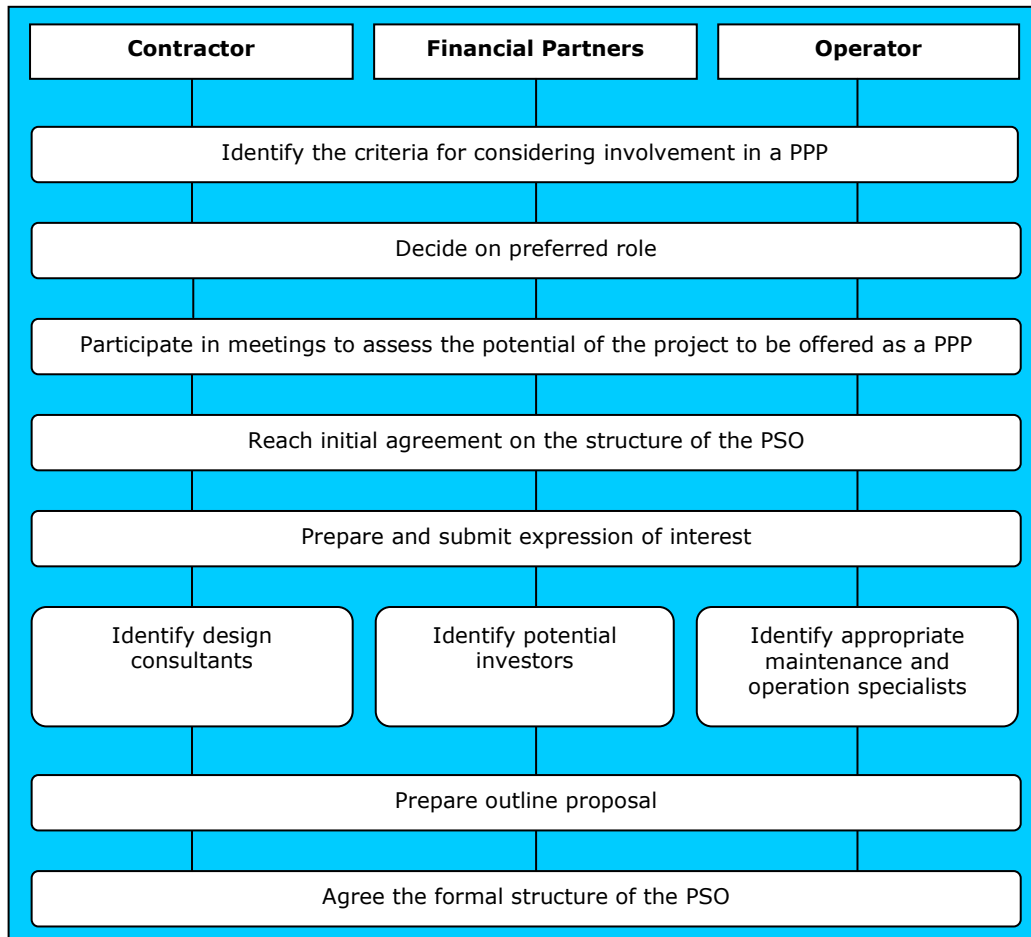


Figure 4.9: Tasks to be undertaken by the PSO in the early stages

For the purpose of the analysis in this section, three different types of consortium partners are considered. Some of the tasks noted are common to all partners, others are issues for one or two partners. The partners identified are the construction specialist (generally a Contractor or a number of contractors), an operating specialist that would manage the operation of the facility (Operator) and one or more financial specialists that would concentrate on securing the finance necessary to fund the project (Financial Partners). In most

PPPs the legal role not usually at partnership level but is provided by a consultant to the PSO. The first task that each partner must address is the criteria for considering involvement in a PPP. This is a fundamental question, as PPP is a new way of doing business and involvement will have long term binding implications for any company that gets involved. In the case of a construction company, most of its business will be project based. Its income derives from its ability to tender competitively and to manage projects effectively. As the market changes, it too must change. The use of new technology must be maximised to ensure that competitive advantage is retained. Many companies enter agreements with clients to secure repeat contracts, thereby lessening their exposure to dramatic fluctuations in the market and as new contractual arrangements emerge, the construction company must examine the potential impact that involvement in such contracts would have on its future. This description shows a construction company to be an organisation that is good at reacting to a set of circumstances rather than being proactive. PPP requires a company to be proactive (Construction Industry Council, 1998) and this requires a fundamental change in the culture of the company.

To establish the company's capacity for change, it can use a variety of analytical tools such as the SWOT analysis, which will highlight the strengths and weaknesses of the company whilst identifying the opportunities and the threats that exist. Such analysis would clarify the internal issues that need to be faced if the company is to change. These issues can then be related to the specific requirements of involvement in PPP such as:

- the need to lengthen the corporate planning cycle to reflect the length of the PPP contract;
- the need to develop an understanding of the nature of the service to be provided and of the mission of the part of the public service that currently provides the service;

- the need to develop new long-term working relationships with non-construction specialists such as financiers and facilities managers;
- the need to invest heavily in the bidding process;
- the need to take on new risks that were previously borne by the client;
- the need to become involved in long term financial arrangements.

Once the decision to get involved is made, a plan must be put in place to develop the parts of the organisation that will be directly involved with the PPP. A variety of tools are available for this change management process such as the Generic Change model as proposed by Gunnigan (1999). In this model, as illustrated in Figure 4.10, a seven-stage approach is used to move from the current state to the changed state. As previously noted, Gunnigan also maintains that each level of activity, from overall organisation level down to task level, must be considered if successful change is to be achieved.

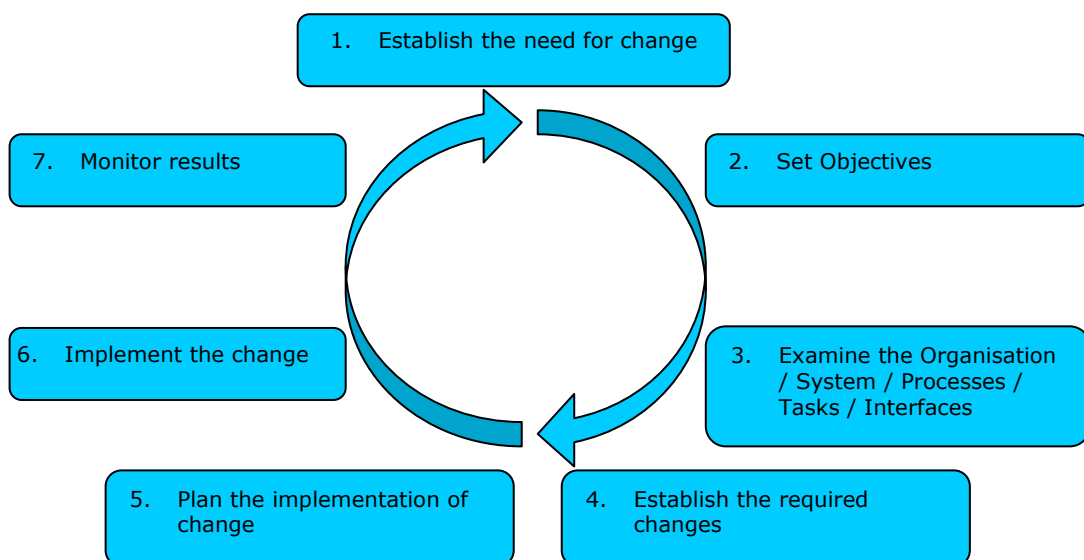


Figure 4.10: The Generic Change model
(Gunnigan, 1999)

In proposing a change model for the Saudi construction industry, Al-Sedairy (2001) suggested that the circumstances must first be investigated to establish the depth of the change required. Each

depth of change will require a different approach. A shallow depth requires a change to greater efficiency, a medium depth requires strategic planning, and a deep level may require complete corporate restructuring. Both of these models require investigation into the need for change and both examine the level at which the change is to occur. Consequently, either model would be appropriate.

The financial partner would normally be expected to be aware of risk and the issues to be considered in putting together an investment portfolio. However, PPP will raise the possibility of using structured finance and will tie the financial partner into a group whose other partners' business interests concentrate on construction and operation rather than solely on finance. The financial partner should also analyse its business to identify the issues to be addressed if it is to become involved in a PPP. Once these are identified, each issue is again related to the change in role that will be required of it in a PPP. Again, a change management strategy will be necessary if involvement is to be pursued.

The contractor and the financial partner will be most heavily involved in the pre-construction and construction phases of the project and the operator's primary involvement will be with the direct provision of the service. However, as the principal party in the interpretation of the output specification, the operator will be centrally involved in the project from the early design stage, through to the completion of the operation stage. Operators entering a PPP would have previous experience in facilities management but may not have had experience in the pre-construction or construction stages. Once again, examination of the business is required and the issues to be confronted in PPP involvement must be addressed.

The self-examination exercise should also reveal issues which show that involvement in PPP at that time might not be in the interests of the company. Where this happens, it might still be desirable for a company to become a subcontractor to a PSO and thereby learn more about the PPP process with a view to becoming a partner in a PSO at

a later date. The self-examination should also highlight a number of the characteristics that would be sought in partner companies and through a variety of business networks and informal contacts, companies that decide to become involved in PPP will match themselves with other partners. At this stage of the process, it is possible that a company could have formed an association with more than one group that is interested in a project.

4.3.2 Procurement Stage

Once the companies have learned about the project and have satisfied themselves that the group with which they have aligned themselves are the most suitable from the perspective of their own organisations, they will then attend the public briefings that will follow the project being advertised in the OJEC. The group will then decide whether or not to prepare an expression of interest and complete the pre-qualification requirements. At this stage the group will decide on the allocation of resources to the early bidding process and the means by which the resultant costs will be met by each partner.

On successfully achieving pre-qualification, the group will begin the process of selection of the various consultants needed to prepare a bid and will enter agreements with these consultants for the preparation of the outline bid. Following further contact with the Contracting Authority, the group finalises and submits the outline proposal. During this time the group will continue to work on reaching agreement on the structure of the PSO.

In the Procurement Stage, the PSO is required to carry out an increased number of tasks. In the first instance, these relate to the preparation and submission of the bid. This process is illustrated in Figure 4.11. The procurement stage is completed through negotiation, the main elements of which are illustrated in Figure 4.12.

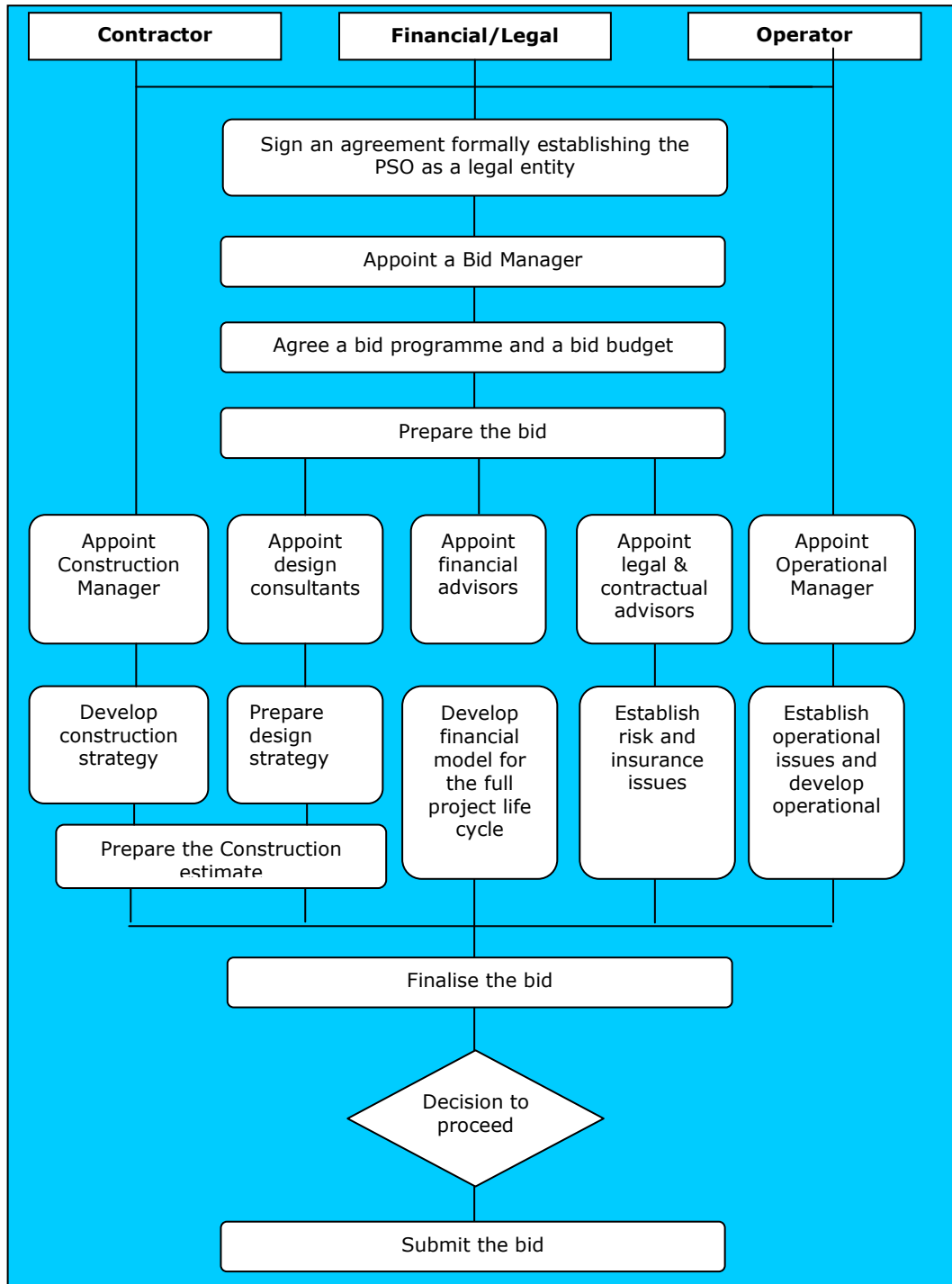


Figure 4.11: Preparation and submission of the bid – PSO Roles

On successfully being short-listed to make a full bid, the group finalises and signs the memorandum of association that will underpin the legal existence of the PSO. As the PSO is now a legal entity in its own right it begins to act as such. The partners appoint a Bid Manager who develops a bid programme and a budget for the

compilation of the bid. The project agreement will have set out the mechanism for deciding how much of the budget each of the partner companies will be required to contribute, the means by which the project will be monitored and the mechanism for establishing the return to be realised by each partner.

Preparation of a bid for a PPP is expensive and is often cited as one of the main obstacles to a company entering the PPP market (Akintoye et al., 2003, Fernie et al., 2004, Kerr, 1998). Irish bidding cost of a large scale PPP can run to two to three million euro (O'Rourke, 2003b). Bearing in mind that, under EU bidding regulations, three full bids must be received, two out of the three bidders will lose the money that they have invested in the bid. The preparation of the bid begins with the development of the design and the formulation of the construction strategy. This process will require considerable involvement from the Operator, as it will be a strategic aim of the PSO that the design must be compiled to maximise efficiency and effectiveness over a 25/30 year operation period rather than to maximise profits in the construction period.

Whilst the central role of the operator may cause some co-ordination issues for the contractor in the PSO, it reflects one of the great strengths of PPP, i.e performance of the building over its lifecycle and full life cycle costs are at the centre of design decisions in a PPP (Ratcliffe, 2004). Murray (2005) takes this further and suggests that the strong correlations between the aims of PPP and Performance Based Building (PBB) means that the concept of PPP and PBB should be considered together in order to maximise the benefit of both. As the design nears completion, the estimates of the cost of construction and operation are compiled. This information is used to develop a financial model for the project and to establish the revenue stream that will be required to satisfy the PSO partners and the investors. Adjustments are made where necessary and the final bid document is agreed. The PSO then reaches the decision point where it must decide on the viability of the project from the perspective of the partner

companies. Once any remaining issues are resolved, a decision is made to proceed and the bid is submitted.

The time taken to prepare a bid varies from sector to sector. In the roads and infrastructure sector it typically takes six months, with two months of that time being used for the development and running of the financial models (Gunnigan & Eaton, 2005). In the first two schools PPPs in Ireland, the bidding period was four months (Comptroller and Auditor General, 2004).

There are two areas of knowledge to be developed by companies entering the PPP bidding process, namely:

- knowledge of the service to be provided;
- knowledge of the financial operation of a PPP.

Currently, the PSO partners rely on the operator to provide the necessary input into how the service should be provided in order to meet the requirements stated in the Output Specification. As there have been only two schools PPPs in Ireland at the operational stage to date, there is no basis in Ireland for judging how great the need is for companies to increase their knowledge of the operation of a school. The Audit Commission (2003) shows that some PFI schools in the UK are experiencing a lack of space and that they cater poorly for the visually impaired. There have also been complaints about temperature control, ventilation, acoustics and poor use of daylight. On the other hand, PFI schools are generally considered durable, easily cleaned and well maintained. This assessment suggests that the requirements of maintaining and cleaning the school buildings are in some cases taking design priority over the needs of the school users.

Most private sector organisations are keenly aware of the need for long term financial planning. However, most of those at senior management level in Irish construction companies have worked their way into such positions by first excelling in technical positions at a project level. An example of this is one of Ireland's largest construction companies, six of whose seven directors began their

professional careers as civil engineers. The seventh trained as a quantity surveyor. Gunnigan (1999) suggests that, as project level operations are short-term by their nature, many of the senior managers continue to apply short-term decision-making criteria to long-term decisions long after they have been promoted from the construction sites to the boardroom. Dealing with the complexities of long-term finance will require a change of mindset in the boardrooms of Irish construction companies if these companies are to become serious players in the PPP market. Those who do not make this change will revert back to the traditional bid and build role that they occupied before PPP was introduced. This trend is already noticeable in the water services sector where some contractors who were involved as lead partners in the initial water services PPPs are now reverting to the role of subcontractor to the PSO (Gunnigan & Eaton 2005).

Figure 4.12 outlines the role of the PSO in the negotiation phase of the procurement stage. Following the bid submission, the CEP will assess each bid against its tender evaluation criteria and will refer back to the PSO to obtain clarification where necessary. Once all clarification is obtained, each bidder will be requested to produce its best and final offer (BAFO). Owing to issues that have arisen during the bid clarification, the BAFO is likely to involve some differences from the initial bid.

Again applying the tender evaluation criteria, the CEP will then further assess the bids and select one as the preferred bidder. Following this announcement, the unsuccessful bidders will be debriefed to ensure that they are fully aware of the reasons why they were not successful and to point out the issues to be taken into account in further PPP bids. One of the unsuccessful bidders may be named as the reserve bidder, the implication being that they become the preferred bidder if the original bidder subsequently does not successfully complete the contract negotiations. The successful bidder is also debriefed and a programme for achieving the proposed next steps in the negotiation process is agreed.

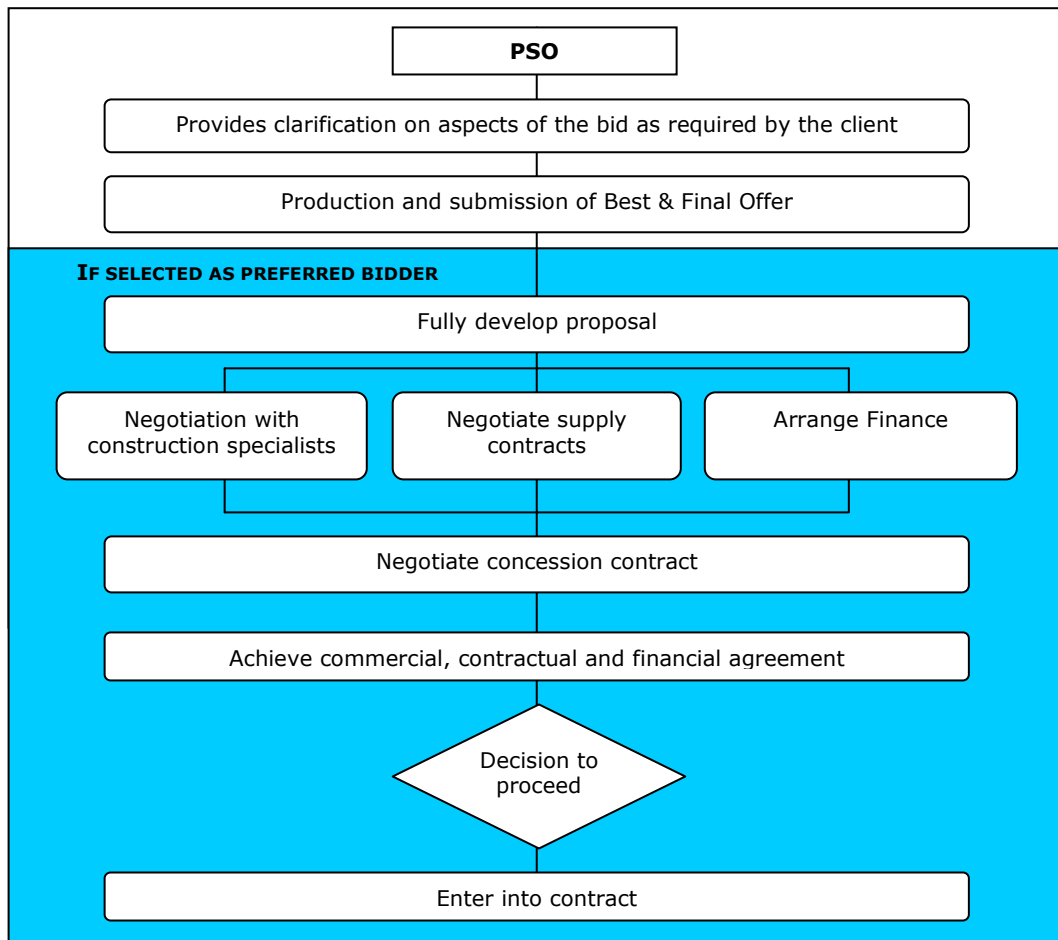


Figure 4.12: Negotiating the Contract – PSO Roles

The PSO must now fully develop the proposal into a workable design and begin negotiation with those who will act in a subcontract role for construction and specific aspects of the operation phase. At this stage, the finance for the project must be secured. From the contractor's perspective, the design and building processes will be familiar and will provide an opportunity for incorporation of buildability issues. For the operator, central involvement in the design process is an opportunity to incorporate operation issues to an extent that may not have been encountered in the past. From all partners' perspectives, the overall costs of the project will be of paramount importance and the financial partner will be constantly analysing design decisions in order to control lifecycle costs. The operator will be the principal partner in sourcing supply and operation subcontractors, whilst the financial partner will carry out most of the

work involved in meeting the due diligence requirements of the financial backers.

Once the requirements have been met, the finance for the project will be secured. When the final design is nearing completion and the financial and operational issues have been resolved, the PSO enters negotiation of the concession contract with the DOES. On successful negotiation, and on receipt of final approval by the Department of Finance, the DOES and the PSO reach commercial, financial and contractual close and the construction phase begins.

In order to maintain control in the negotiation phase, the PSO must appoint a Project Manager who will ensure that no one partner's objectives dominate the decision making process. This role will require a strong willed manager who is highly competent in managing complex projects and in dealing with people who have diverse objectives. The Project Manager would ideally be highly knowledgeable in the PPP/PFI process and be an experienced negotiator.

4.3.3 Construction Stage

The role of the PSO during the construction stage is different from that on a traditional contract in that it is in their commercial interest to design out any future problems that may occur during the operational life of the building. Consequently, it is possible that the construction costs may be higher in a PPP project with a view to making savings over the concession period. Under traditional procurement, a contractor may suggest such a course of action to a client who may or may not act on such advice. However, the contractor is only likely to give such advice where a commercial advantage would accrue to the contractor in the event of the client accepting the advice. Under traditional procurement, the client's consultants would supervise the work of the contractor. Under PPP the client's supervisory role is replaced with that of the PSO partners. Whilst each PPP has its own breakdown of roles, the tasks typically undertaken by the PSO in a PPP are as illustrated in Figure 4.13.

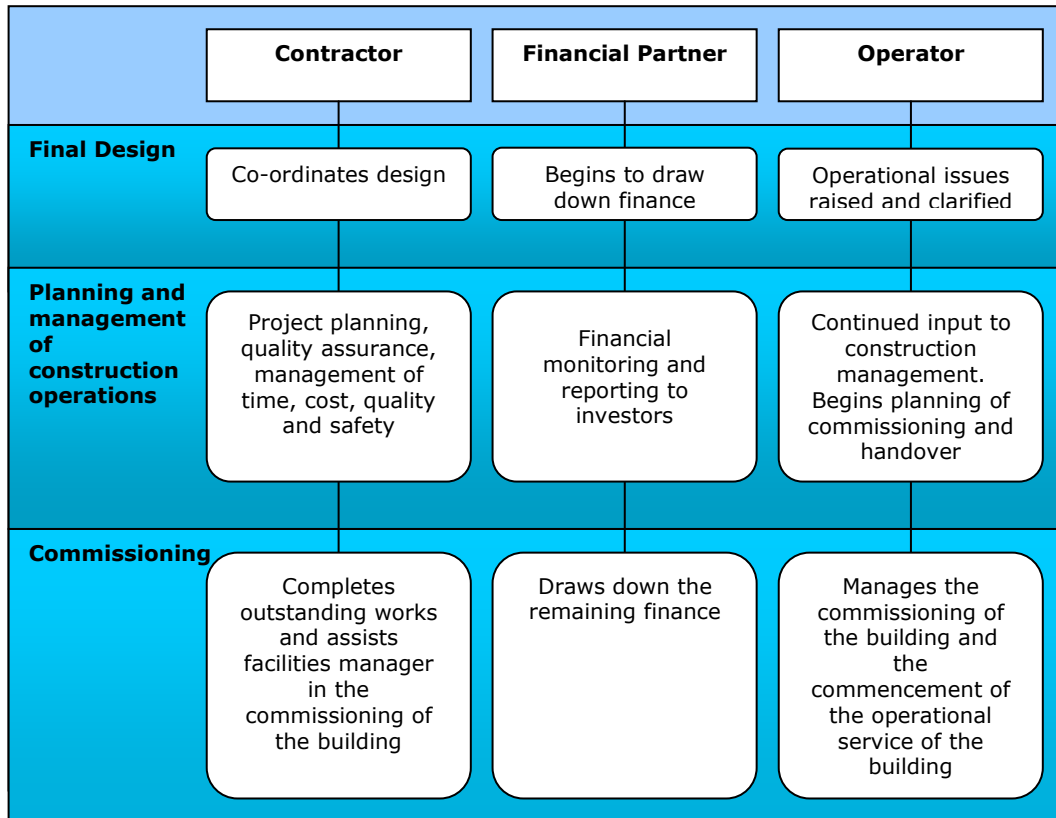


Figure 4.13: PSO role in the construction stage

As the PSO carries the construction risk, it is in its interest that the design is fast-tracked to allow early commencement of construction. Whilst, the PSO is one organisation for the purpose of the project, it uses the individual strengths of the partners to address different issues in the construction phase whilst having the overall effort co-ordinated by the Project Manager. Final design details are resolved and construction gets underway. Ongoing quality monitoring is essential and would normally be part of the role of the contractor. The financial partner, using information provided by the contractor, would carry out cost monitoring. The contractor and the operator would also monitor technical progress. Gunnigan (2003) notes an example of such monitoring in the National Aquatic Centre project where the operator's Director of Sport attended all technical meetings to ensure that any decisions taken would not compromise the technical standards required for international competition in the main swimming pool.

It is essential that the PSO begins to get an income stream from the project at the earliest possible date. Consequently, all work must be carried out in such a manner to allow the building to be commissioned and made ready for use with the minimum of delay. This will involve the input of the operator in the planning of the project and in particular in the planning of the services installation. On a traditionally procured project, the contractor is under financial and contractual pressure to achieve practical completion. In PPP, the contractor is under pressure to achieve final handover.

When the operating phase begins, the DOES will begin to monitor the performance of the PSO in providing the service. Such monitoring will also be carried out by the financial backers. It is essential therefore that the PSO's performance monitoring system is designed to address all of the criteria defined in the project agreement and all of the issues that were raised by the financial backers in the earlier stages when proof of due diligence was required. Once the building is commissioned and begins operation, the role of the operator becomes dominant. Whilst financiers will be familiar with the role of partner in a long-term investment, a contractor new to PPP now finds itself in a new role. It is important therefore that the contractor - and the other partners - have a clear means of monitoring the performance of its investment. Clearly this is an issue that would have been agreed at the formation of the PSO.

As the Project Agreement will have a procedure for dealing with changes that are required in the service, the PSO must have the capacity to carry out such changes and a mechanism for dealing with the costs arising from such circumstances. If the changes are operational, the PSO should assess the requirements and advise the DOES of the consequences to the service charge of such change. If the change involves further capital, the PSO should assess the extent of the investment involved and agree with the DOES the means by which the costs would be met. On agreement, the work would be carried out and the PSO's costs recouped by the means agreed. Where legislative change occurs, a similar exercise would be

instituted and the costs would rest with the party carrying the legislative risk.

As the PPP contract nears completion, the PSO will be obliged to ensure that the school building is in the condition required by the contract. As it will have agreed maintenance and upkeep schedules with the DOES early in the operational stage, the DOES will now exercise its right to carry out a dilapidation survey to ensure that the facility is in the condition required. If it is not, the PSO will be required to carry out the work necessary to bring the school building up to the required standard. The DOES will then have a number of options for the running of the school including re-tendering the operation contract. However, the PPP/PFI market has not yet reached a sufficient level of maturity to clearly identify the issues that typically arise in an end of contract review. Consequently, this work does not investigate this issue further at this time.

4.3.4 The Role of the PSO – Summary

It is clear that there is a shortage of published literature outlining the role of a private sector organisation in a PPP. The Construction Industry Federation in Ireland has confirmed that they know of no such guide for Irish contractors, whilst the Construction Industry Council's (1998) Constructors Key Guide to PFI is the only guide specifically aimed at contractors in the UK. However, as the private sector must follow the public sector procedures, it was possible to establish what the role of the PSO would be in a PPP. What is missing, however, is an account of how the individual members of a PSO and the roles of individuals within these organisations relate to each other. A number of academic sources have been found that refer to specific issues for the private sector and these have been cited in this section. Despite the apparent lack of guidance, the evidence shows that competition for PPP contracts is keen, thereby suggesting that the PSOs are adapting to PPP and developing the procedures necessary to survive in the PPP market. This supports Gallimore,

Williams and Woodward (1997) assertion that the private sector will adapt to PPP as it has a culture of “deals not rules”.

This analysis has raised a number of specific issues that have the potential to cause difficulty for members of a PSO, namely:

1. Involvement in a PPP requires the building of new working alliances and a move from short term planning to long term planning. The move back to the role of construction subcontractor in the water services projects shows that a number of contractors are more comfortable in the short term planning environment;
2. There are many instances where new skill sets are required but there is little evidence that the necessary sector specific training will be provided for those who need it until the deal flow is established. Apart from the roads sector and the water services sector, the PPP market in Ireland is still in a state of early mobilisation. In the schools sector, only three PPP projects have reached construction stage and although a number of others have now reached the procurement stage, the absence of deal flow to this point in time has resulted in the private sector taking a “wait and see” stance. It is clear that the private sector will only mobilise for the schools PPP market when it is certain that a flow of deals will come to the market;
3. There is a danger that the objective of the PSO to make a profit will overshadow the needs of the user of the school. To counteract this, the PSO must develop greater understanding of a number of school specific issues such as the type of education provided and the actual needs of the school users;
4. The cost of bidding is extremely expensive. It does not appear to make financial sense to have a project that must be designed by three different bidders – and incur all of the bidding costs - when two of those designs will never be used. Apart from a handful of the larger contractors, very few can

afford to enter the PPP market and be prepared to risk bid failure.

4.4 SUMMARY OF THE CHALLENGES FACING CONTRACTING AUTHORITIES AND PROVIDERS OF SCHOOLS THROUGH PPP

In Chapter 1, the changes resulting from the introduction of PPP were outlined under the headings of:

- transfer of Risk;
- value for Money;
- management;
- innovation.

The challenges facing those involved in schools PPP will now be summarised under these headings.

4.4.1 Transfer of Risk

Clearly, transfer of risk is addressed under the PPP guidelines and certain elements are being transferred. However, there is no noticeable effort being made to jointly develop measures that would address and reduce each type of risk. This reflects the adversarial nature of the PPP relationship where one party wishes to transfer risk, whilst the other seeks to extract as high a price as possible for accepting the risk. The challenge is to develop a project focused approach to risk that all parties will be satisfied to work towards.

4.4.2 Value for Money

The PSB for the Grouped Schools project showed that the final agreed cost was 17% higher than would have been expected under traditional procurement. As this was a pilot project and several changes in the PPP guidelines resulted from the wider programme of pilot projects, it is expected that future PPP schools projects would not be allowed to proceed unless value for money was achieved. In addition, there is evidence of dissatisfaction among bidders at the high cost of the tendering process. The challenge is to examine value

from a wider perspective whereby value issues important to all parties would be addressed.

4.4.3 Management

The management by the public sector of the Grouped Schools PPP project, as scrutinised by the Comptroller & Auditor General was found to be somewhat less than perfect. Fundamental errors were highlighted such as the calculation of critical costings without allowing for VAT, thereby resulting in significant losses. Whilst it is necessary to highlight the problems that occurred, there is a danger that significant damage has been done to the case for PPP. With the major changes in procedures that PPP requires, the level of change that is necessary to introduce these new procedures, the need to develop new skills and knowledge, and the risk that errors will be highlighted by future reports, it is possible that senior civil servants would now rather procure schools by the tried and trusted traditional procurement route away from the glare of possible controversy. Whilst the decision to use PPP may not be made by civil servants, they can exert considerable pressure on the decision makers to take such a course of action.

The current system of choosing the PSO at such a late stage in the process is resulting in significant and eventually unnecessary design costs, as two out of the three bidders fail having spent millions of euro preparing a bid. This situation is resulting in huge losses for the unsuccessful PSOs making the current procurement process unsustainable in the long-term in a construction industry the size of Ireland's. To date only a handful of Irish companies have become involved in PPP and it is unlikely that others will become involved if bidding costs remain so high. Two things could be done to reduce the costs. Firstly, the deal flow must be increased to ensure that an unsuccessful bid on one project could be modified and become successful on another project and, secondly, the procurement process could be changed to bring the PSO on board much earlier in the PPP process possibly using similar criteria as that used in Early Contractor Involvement (ECI), thereby maximising a partnering type approach to

PPP. This suggestion will be explored further in section 4 of this chapter. The management challenge lies in correcting the current lack of a partnering environment in PPP. From the literature reviewed, there is little to suggest that those involved in a PPP set common goals, plan together to achieve those goals and benefit fairly from the joint achievement of such goals. If anything, PPP is an uneasy alliance where both parties have diverse aims and use a legally binding contract as a means to achieving those aims regardless of the aims of others.

4.4.4 Innovation

Whilst there is evidence of innovation in PFI schools (Eaton et al., 2005), the findings of UK Audit Commission revealed no difference in use of innovation between PFI schools and those procured by traditional means. No innovation was apparent in the Irish Grouped Schools project though some commentators have expressed the view that the 200+ page Output Specification left little room for innovation. The statutory process in Ireland requires an Environmental Impact Statement (EIS) for all infrastructure projects that are seeking planning permission. In turn, a full design is required in order to compile the EIS. As the PSO is not brought on board until the statutory process is completed, there is little scope for innovation in design on such projects. However, a number of the recently completed motorway projects have been opened with up to 33% time savings, suggesting that innovation is being used in the construction stage. Whilst the restrictions on design do not occur in a schools PPP, there is no evidence of design or construction innovation on these projects. The challenge is to find a means of tapping into the innovation that is expected to follow from private sector involvement and to maximise the resulting benefit of such innovation to all of the project partners.

This chapter has examined the challenges that face those who become involved in a PPP and has highlighted the issues that must be resolved if the potential of PPP is to be maximised. The following

chapter delves deeper into these issues to find the root causes and to plot the further course of this research in seeking a solution.

**CHAPTER 5 ADDRESSING THE CHALLENGES THAT ARE EMERGING IN
THE CONTINUED INCREASE IN PPP/PFI USE**

5.1 INTRODUCTION

The challenges that have been highlighted in Chapter 4 will now be examined to establish a means by which each can be overcome. To achieve this, literature from the wider PPP field and from the field of organisational behaviour will be reviewed. This chapter brings to an end the work on the first four objectives and will conclude by summarising the progress of the research to this point.

The challenges highlighted in Chapter 4 are summarised as follows:

- an environment of true partnership must be developed with each partner being committed to the overall goals of the partnership rather than the specific goals of their own organisations;
- all of the partners in the PPP must work together to reduce and manage risk;
- value issues for all partners must be identified and addressed;
- the potential for innovation in maximising benefits to all partners must be harnessed.

As all of these challenges involve closer co-operation between the project partners, it is worth investigating the issues that arise when the public and private sectors must work together. In such an investigation, a key issue to be explored is the difference between the public sector and the private sector. Beginning with an outline of the cultural make-up of the public and private sectors both at sectoral and employee level, each of the stated challenges is addressed in turn identifying the changes that must be made to address each challenge.

5.2 CULTURE AT SECTOR LEVEL

In Chapter 1, the following definitions of the public sector were presented:

The *Public Sector* is defined as:

"The part of an economy in a mixed economy that covers the activities of the government and local authorities",
(Pallister and Law, 2006);

"The part of an economy that is controlled by the Government",
(Dictionary.com, accessed 27 February 2007).

These definitions refer to the public sector as a part of the economy that is under the ultimate control of the state. The public sector comprises a number of groups and individuals who are employed by the state to control the services provided by the state to the citizens of the state. In giving these groups the authority to act on behalf of the state, clear rules must be defined to ensure that the authority is exercised effectively and efficiently for the common good. This is the reason that the public sector concentrates on "rules not deals" as highlighted by Gallimore et al, (1997). As a result, when a new system of work is imposed, the public sector will develop a new series of rules by which the new system will operate. Such systems must ensure that there is a means by which the accountability of those operating the system can be assessed, that there is a mechanism whereby the value of the public investment can be reviewed and that the rights of the citizens are protected. Invariably, as a new system is introduced, the rules will continue to be developed and refined until they reach a workable equilibrium that will guide the behaviour of the public sector. The introduction of the Irish Government's regulations on PPP is a good example of development and refinement of a new set of rules to permit the public sector to become involved in PPP. However, whilst the public sector now has its rules in place, PPP involves the development of a long-term business relationship with the private sector and it appears that the private sector has difficulty with some of the rules that define the terms of the relationship.

In Chapter 1 the following definitions for the private sector were presented:

"The parts of the economy not run by the government."
(Pallister and Law, 2006);

"The part of the national economy not under direct state control."
(Dictionary.com, accessed 27 February 2007).

The individuals and groups that work in the private sector are accountable to their own organisations and to the laws of the state. Within the organisation, the development of competitive advantage and the need to provide a return to the stakeholders are the key criteria by which individual success is judged (Porter, 1980). There is no requirement for accountability for the common good and no other public accountability except in the case where negligence results in the law of the land being broken. Consequently, the rules of operation that govern the behaviour of the private sector are generated within the private sector organisation.

Unlike the public sector, organisations in the private sector exist in an environment where they compete with each other for survival and are constantly looking for a competitive edge (Sabatine, 1999). Where it is necessary for two or more private sector organisations to cooperate in order to achieve a common aim, these organisations will jointly work out the rules that will govern the behaviour of each organisation. Where such cooperation is necessary on an ongoing basis, partnerships can develop again with agreed specific rules of operation. Where industry wide issues require the involvement of a large number of organisations, trade associations are formed with the original members deciding on the initial rules. New members may join, provided they agree to abide by the rules. Furthermore, a mechanism will exist within such an association whereby the rules can be changed to allow the members to maximise opportunities that develop in the business environment.

In the private sector, therefore, rules of operation are seen as a means to define the parameters of a business relationship that will benefit all parties in the relationship. In the public sector, the rules of operation are seen as a means of protecting the state and those who act on behalf of the state. This is one of the fundamental cultural differences that determine the behaviour of those who work in one or other of these sectors.

5.3 CULTURE AT THE INDIVIDUAL LEVEL

In a time when financial rewards in the private sector are at an all time high (Techstaff, 2007), there are many thousands of people who prefer to work in the public sector. These people hold an enormous range of positions ranging alphabetically from architects to zoologists. They include, amongst others, professionals in the fields of education, health care, infrastructural development and law. Many of these people are employed in administrative and clerical positions. Together, all of these people operate the systems that provide the citizens of the state with the public services that are required if the state is to continue to grow and develop as a modern economy. Hebson et al., (2003), citing Pratchett and Wingfield (1996), identify Accountability, Public Interest, Bureaucratic Behaviour, Motivation and Loyalty as the five principles associated with the public sector ethos. Using these principles as a framework, Table 5.1 below summarises the differences between employment in the public and private sectors at an individual level. This table is followed with a review of the literature that supports the differences highlighted in the table.

Principles	Public Sector	Private Sector
<i>Accountability</i>	Committed to implementing public policy – accountable to the head of the relevant public body	Committed to achieving output targets set by the organisation
<i>Public Interest</i>	Concerned with the public good and with the needs of individual people	Confined to that required by law
<i>Bureaucratic Behaviour</i>	Implement the rules in an impartial and objective manner	Concerned with results, will try to get agreement to change the rules if they are preventing achievement of target output
<i>Motivation</i>	Primarily intrinsic	Both extrinsic and intrinsic
<i>Loyalty</i>	Complex set of loyalties to department, institution, the wider community	Loyalties to goals of the organisation and to personal goals

Table 5.1. Differences between employment in the public and private sectors

5.3.1 Accountability

Huberts et al., (2003) shows accountability to be a core value of the public sector whilst it is viewed as a desirable value of the private sector. Hebson et al., (2003), through study of health workers who transferred to the private sector as a result of PFI provision, concluded that public sector workers are driven primarily by a concern for working in the public interest. In contrast, they suggest that private sector workers are driven primarily by output and profit targets set by their organisations and that this is resulting in a decrease in quality in service under PPP. This shows a distinct difference in attitude between the two sectors.

5.3.2 Public Interest

In researching the civic attitudes and behaviours of individuals, Brewer (2003) found that public servants are more altruistic and civic minded than other people and that they are more likely to be motivated by a strong desire to perform public, community and social service. Brewer further states that these findings show the attitudes likely to be displayed by those who are suited to working in the public sector rather than attitudes that are developed as a result of these people working in the public sector.

5.3.3 Bureaucratic Behaviour

Gallimore et al (1997) best summed up the difference between the public and private sectors by stating that public sector workers were concerned with "rules not deals" whilst private sector workers were concerned with "deals not rules". Huberts et al., (2000) shows that contradicting public and business ethics leads to a difference in behaviour where the public sector acts as a guardian whilst the private sector is driven by a commercial approach. This shows that those working in different sectors can exhibit different behaviours to the same set of circumstances.

5.3.4 Motivation

In examining the differences between public and private sector motivation, Houston (2000) set out to ascertain what it is that motivates public sector workers. Houston found that public sector workers place less importance on higher pay and more value on the actual work they do than do private sector workers. Houston also found that public sector workers place a higher value on opportunities for promotion and job security than private sector workers. Houston concludes that applying motivational schemes, derived in the private sector, as an incentive to achieve change in the public sector, will not necessarily achieve the required results as workers from the different sectors are motivated by different factors. This view confirms earlier research in this area by Kellough and Lu (1993) and Ingraham (1993).

The challenges to the development of PPP identified above, relating to partnership, risk, value and innovation will now each be systematically examined in the light of the organisational culture differences that exist between the public and private sectors. As the attitudes of individuals appear to be important in the difference between public and private sector, it is important at this stage to define what is meant by an attitude. Oppenheim (1992) defines an attitude as "*...a state of readiness, a tendency to respond in a certain manner when confronted with certain stimuli*". Bohner and Wänke (2002) define an attitude as "*...a summary evaluation of an object of thought*".

There are three elements that together comprise an attitude (Zikmund, 1997), namely:

- the affective element – which displays general feelings/emotions to something;
- the cognitive element – which displays awareness/knowledge of something;
- the behavioural element – which reflects a disposition to action about something.

The strength of each of these elements defines the overall attitude of an individual to something.

5.4 DEVELOPING A TRUE PARTNERSHIP ENVIRONMENT

The terms 'Partnership' and 'Partnering' are often used to describe working closely together. It is important at this stage to clarify the similarities and differences between these terms as they are used extensively together from this point on. In its narrowest sense, a partnership can be defined as a contract between persons engaged in a business (Davidson et al., 1988). However, in recent years, it has become viewed as more than that. The Social Partnership – partly responsible for the increase in Ireland's economic prosperity over the last decade – is not a contract but involves agreement between government, business, unions and community groups as to how ongoing change is to occur in Irish society at a national level. In this case, diverse groups must take into account the issues that are important to others and must together work towards resolving the issues that the partnership as a whole agrees to address. Development of the true partnership environment is concentrated more on this wider view of partnership.

Bresnen and Marshall (2000) cite a number of definitions for partnering including:

"...long-term agreements between companies to co-operate to an unusually high degree to achieve separate yet complementary objectives."

(Construction Industry Institute, 1991)

"... a long-term commitment between two or more organisations for the purpose of achieving specific business objectives by maximising the effectiveness of each participant's resources."

(NEDO, 1991)

Bennett and Peace (2006) describe partnering as:

" ...a set of actions taken by the work teams that form a project to help them cooperate in improving their joint performance."

From this it can be seen that whilst there is agreement on what partnering is, partnership can vary from a narrow definition

concentrating on the contract to a much wider definition that encompasses elements of partnering. It is this wider definition that the author refers to when discussing true partnership. The principles of partnering coincide with the message of Latham (1994) that the level of adversarialism in the industry can be reduced by greater integration and co-operation between partners – in other words – by moving towards greater adoption of partnering. It is widely reported that partnering brings benefits to the project. Bennett and Jayes (1998) research cited examples of adoption of partnering reducing construction costs by 30% and construction times by 60%.

A true partnership consists of three levels as shown in Figure 5.1 (Minister for Economic Affairs, 2001).

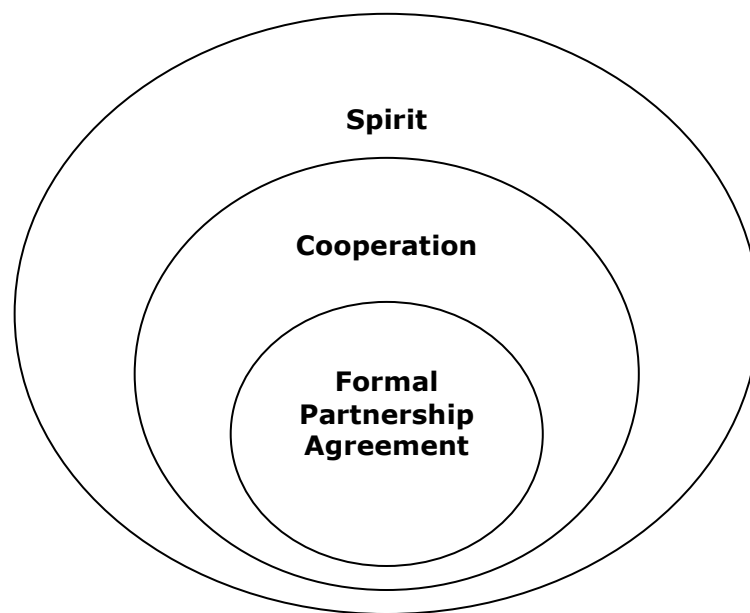


Figure 5.1: The Levels of Partnership
(adapted from Minister of Economic Affairs, 2001)

The “Spirit” level represents the willingness of each partner to examine means by which a common approach can be found to resolving an issue. At this level, there must be a common understanding of the issue to be resolved and a willingness to work together to solve the issue. Once the Spirit level has been achieved, the partners can enter the “Cooperation” level and set about cooperating to resolve the issue. This would involve the setting of

joint goals and deciding on the means by which the resolution of the issue would be approached. The “Formal Partnership Agreement” level is the point whereby a legally binding agreement is drawn up and entered into by the partners.

5.4.1 Why is it not happening now?

The effectiveness of the operation of the partnership at each level is therefore dependent on the degree to which the partners have first worked through the preceding outer level. From the literature reviewed, it is apparent that the emphasis has been placed on the Formal Partnership Agreement level with much less emphasis being placed on the preceding levels. This reflects the public sector attitude that the rules of the partnership are of primary importance in that accountability can be assured. The private sector attitude would be more concerned with the outcome of the partnership. As a result of this difference in attitude and the fact that the public sector attitude defined the way in which the partnership operates, there is no evidence of agreement on common project aims, of cooperation to identify and reduce project risk or of trying to maximise value as a team. As the sectors have worked for decades under adversarial contracts, it is not surprising that such a spirit of partnership and level of cooperation does not exist. In addition all evidence of training that is being provided shows each sector trying to protect its own position rather than work in partnership.

5.4.2 What outcome is ideally required?

The ultimate aim of a schools PPP is to produce a building that will accommodate the educational activities of a community for a period of 25 years in a means that will provide best value for the taxpayer. To achieve this aim, it will be necessary to fully understand the educational needs of the pupils, the working needs of the teachers and the needs of the community that the facility is to serve. It will also be necessary for the school authorities and the community to be aware of the limits that the DOES can go in order to meet these needs.

5.4.3 What can be done to meet the challenge?

It will be necessary for the DOES to spend some time in gaining the necessary understanding of the needs of the eventual users and in briefing the users on the limits to which it can go to meet these needs. Once PPP has been identified as a potential route, a PPP Assessment should be carried out to confirm whether or not PPP is to be the preferred method of procurement. On completion of this exercise, the DOES must place all available information in the public domain and invite prospective PSOs to join in the development of the initial level of "Spirit" in the partnership. A mechanism for this process already exists at present in the public briefings that the DOES conducts in order to establish market interest in the project. However, greater emphasis should be given at this stage on the needs of the school users and how the PSO must work with the DOES to meet those needs with the finance available. Concerns that the DOES may have about the PSO knowing the amount of finance available for each school should not be an issue, as an indication of this figure is already made available in the annual school building programme which is published on the DOES website. In addition, all of the PSOs are aware of the standard DOES accommodation rates per pupil and the standard DOES costs per square metre for school accommodation.

Other tasks required of the DOES at this stage would be the preparation of standard Project Agreement Documentation, Payment Mechanism documentation and the Tender Evaluation Procedures. At the end of the partnership Spirit building stage, PSOs would be invited to tender for the project. This brings forward the procurement process and changes the timing of the stage of the PPP. A comparison of the proposed PPP process with that of the current process is illustrated in Figure 5.2.

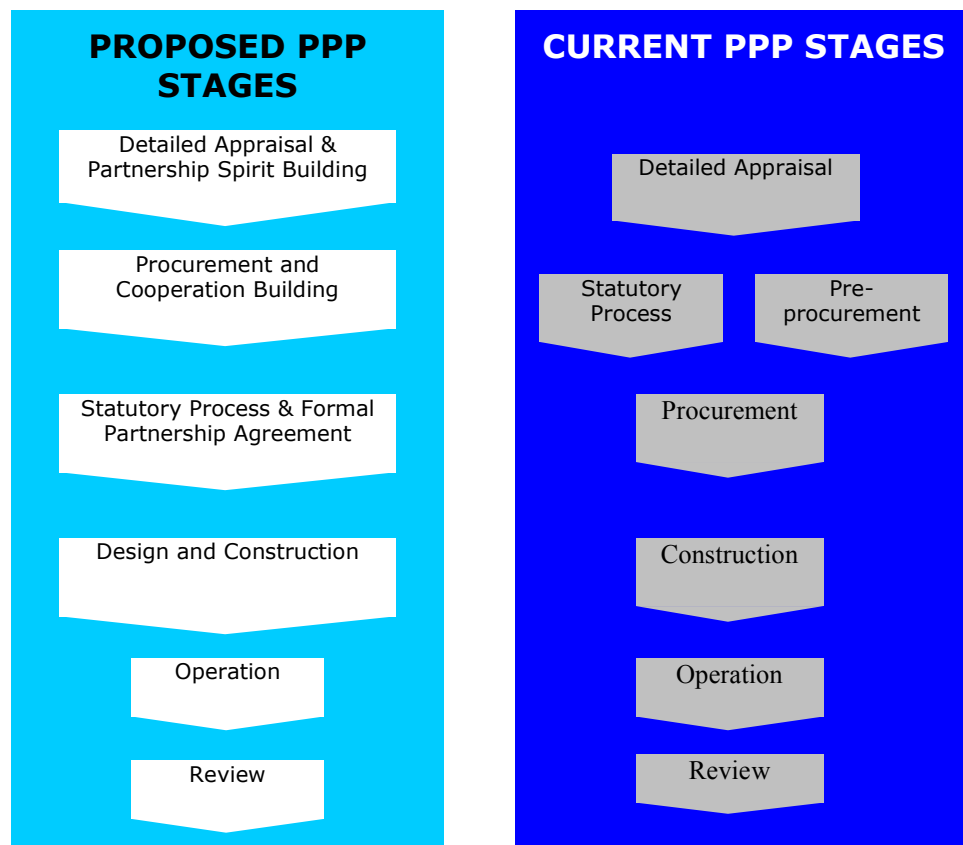


Figure 5.2: Proposed Staging of PPP Tasks

5.4.4 What cultural issues must be addressed?

Making these changes raises a number of cultural issues. Firstly, it would require the DOES to become more open and to move away from the detailed procedures that have been put in place to manage PPP. It has been established that public sector workers develop rules to protect the state and its employees. Consequently, it would be unrealistic to expect the DOES to work without rules. Secondly, the individual staff members of the DOES have nothing to gain from further change. They have already gone through the process of running a pilot project and, following the somewhat critical Comptroller and Auditor General's Report into the Grouped Schools Project, they may not want to try yet another new way to procure a school, especially if this would result in further detailed scrutiny. Public sector workers are generally motivated through the perceived value of the work that they do, and for the security and the

opportunities for advancement that their employment provides. A further pilot project that could go wrong provides nothing obvious to motivate DOES employees. Thirdly, the new system would require the DOES staff to build up further knowledge of the specific needs of the school users. This would require further training for staff.

To resolve these three issues, the DOES staff would need to be convinced that the new system would provide more protection for the state and the individual DOES staff members than earlier PPPs. They would need to be convinced of the potential of such a system for producing a better response to the needs of the school users at a reduced cost. In short, use of the new system would have to address the issues that promote motivation in public sector workers.

From the point of view of the private sector, the new system contains a number of elements that organisations are already proposing such as earlier involvement in the project process and an ability to gain appropriate reward for the use of innovation (O'Rourke, 2003b). For individual private sector workers, it is important that the needs of the school users should be fully understood and that a clear reward system would be in place for addressing these needs.

The difference in attitude between the two sectors has emerged as a potential influence on the way in which the partnerships are working at present. In order to improve the efficiency of the partnerships, the level of influence must be assessed and the specific influencing aspects of these attitudes must be identified.

5.5 WORKING TOGETHER TO REDUCE RISK

5.5.1 Why is it not happening now?

Under the current system, the Contracting Authority in a PPP decides which risks it intends to carry and which it wants to transfer. Whilst best practice suggests that a risk should rest with the party best able to carry it, Irish contractors believe that the amount of risk that the Contracting Authorities try to transfer is excessive (O'Rourke 2003b). Similarly, two-thirds of UK PFI contractors are unsatisfied with the level of risk allocation (Comptroller and Auditor General, 2001).

Consequently, contractors place a high price on acceptance of such risk. The option for the Contracting Authority is to either carry the risk or pay dearly for transferring it. There is no mechanism at present for jointly working to reduce risk as suggested by Mawji (2004). Again, the difference in attitude to risk appears to be an influencing factor. The public sector is risk averse and appears to be trying to off load as much risk as possible. The private sector must make a profit and will only accept risk if it results in a gain.

5.5.2 What outcome is ideally required?

Ideally, a mechanism should be developed whereby the PSO and the DOES work together to identify and reduce each type of risk that could affect the project. An extensive amount of research exists into the identification of types of risk and the relevant literature has been referred to in the previous section. The work of Akbiyikli and Eaton (2005b) is particularly relevant in relation to proposing a model that could be applied to the risk identification process.

5.5.3 What can be done to meet the challenge?

The DOES and the PSO must be brought together with the aim of reduction of overall project risk. Once the risks are identified, the DOES and the PSO must work together on establishing the root causes of each risk, the measures to be adopted to reduce the risk, the procedures for ongoing monitoring of the risk and the PSO's costs of controlling the transferred risk. This could then become a standard procedure across all PPPs and be incorporated into the negotiation phase of the procurement stage.

5.5.4 What cultural issues must be addressed?

The current system exists as a result of many years of operating in such an environment under traditional procurement. For the public sector, the move towards jointly working with the private sector on reducing risk would initially be approached cautiously as it requires a change in attitude. The danger of exposing the state to further risk would be a genuine fear for the public sector and this process would therefore require very careful introduction. However, the rewards of

risk reduction to the public sector are significant and this would be a motivational factor. The private sector must resist the temptation to make short-term gains in this process and should concentrate on the opportunity to reduce its long-term financing costs as a result of lower long-term risk. The short-term construction phase centred attitudes of the private sector must change to longer term life-cycle centred attitudes for this change to occur. Both public and private sector works should be jointly briefed on the types and causes of project risk.

5.6 ACHIEVING VALUE

5.6.1 Why is it not happening now?

Whilst the price agreed by the DOES when entering into a PPP will be benchmarked against traditional costs, the only current incentive to the bidder to reduce the bid price is to ensure that the bid is not rejected. This is a game of chance, where the bidder will try to achieve the highest possible price whilst ensuring that it is low enough to be accepted. This is the same philosophy that is used in traditional competitive tendering. Due to the adversarial nature of the contract relationship, there is no attempt by the partnership as a whole to work together in order to achieve real value for money. This shows a major difference in attitude between the public and private sectors in their approach to value.

In addition, the bid costs are a major cause for concern among PSOs. Currently bidding for a PPP project is a three-stage competitive process followed by a Best And Final Offer (BAFO) stage. The competitive element begins with an expression of interest, continues with an outline bid and ends with a full bid. At this stage one bidder (from three or four) is chosen as the preferred PSO and is instructed to prepare a BAFO. The approximate cost of preparing each of these bids is €1.5million (O'Rourke, 2003b). Eliminating two bidders at this stage results in the total bidding costs of the two eliminated contractors (€3 million) being wasted. O'Rourke states that in some cases, two bidders are taken to BAFO. Such is the detail required in

the bid at BAFO that each bidder incurs further costs of approximately €2 million each. As only one bidder can be chosen, it is inevitable that one bidder stands to lose €3.5 million at this stage. This gives a final bid cost figure of €10 million, €6.5 million of which must be absorbed as a loss by the unsuccessful bidders. Consequently the amount spent on bidding for a single PPP is totally out of proportion with the potential for profit from the project (O'Rourke, 2003b).

5.6.2 What outcome is ideally required?

Ideally, both the DOES and the PSO would work together to seek out and implement measures that would significantly increase value for money for the project as a whole. To reduce bid costs, the process would consist of two stages, the expression of interest and the final bid. In such a scenario, the bidder should be required to produce an outline design, thereby dramatically reducing the cost of bidding.

5.6.3 What can be done to meet the challenge?

The PSO must be given an incentive to increase value for money. Currently, profits are usually calculated as a percentage of the bid price. In choosing the preferred PSO, the DOES could insist on open book tendering where the PSO's profit is stated as a sum of money rather than a percentage of the bid price. A mechanism for distributing subsequent savings in project costs can be established thereby encouraging the PSO to use innovative cost reduction methods. The PSO's profit figure would be at risk if the project costs were to rise above the agreed rates but would be significantly increased if substantial savings were made on the DOES target price.

To address the bid costs challenge, the process as outlined earlier in Figure 5.2 (Page 128), the two stage bidding process could be introduced. As the bidder would already be aware of the level of the target price, criteria such as that used in Early Contractor Involvement (ECI) (currently in use on a number of Irish and UK motorway projects) could be used to request bids based primarily on the quality of the proposal rather than the price.

5.6.4 What cultural issues must be addressed?

The use of open book tendering is a significant move away from current methods where the DOES is trying to get the work done at the lowest cost whilst the PSO is trying to maximise its profit through carrying out the work. Culturally, both parties must move from their own positions and adopt the joint goal of minimising the cost to the state whilst maximising the potential for the PSO to achieve a reasonable profit. The use of ECI has shown that the public and private sectors can begin to change and use such methods. However, ECI is being used in the roads programme where strong working relationships have developed through the existence of a developing deal flow and a series of high profile projects that have been completed inside time and budget targets. Such a positive working environment does not yet exist in the PPP schools market. Consequently, trust must be developed whereby the DOES can feel confident in releasing the target price into the public domain and the PSO can be confident in divulging the open book construction cost and the profit figure.

This is an issue that was central to the introduction of the Project Information Procurement System (PIPS) pioneered by Kashiwagi and Byfield (2002). PIPS sought to concentrate on the project outcome rather than the specification. This was found to significantly reduce the input required by the client during design and construction as the contractor set an initial guide price for meeting the outcomes and was then judged on the extent to which the outcome was met. Payment was made on the achievement of the outcomes rather than the volume of work done. The price quoted for the work was only used as a part of the mechanism for calculation of future payments and the success of the contractor in meeting the outcomes became the criteria for establishing the level of payment rather than the initial price quoted. Tests on the use of PIPS to date show a 98% customer satisfaction rating, no contractor generated change orders and all projects to date finished within the contract time (Sullivan et al., 2005). In promoting a system based on open book tendering,

concentration on the outcomes – already an accepted part of the PPP system – and showing how this has been used successfully elsewhere will begin the process of addressing the cultural issues. By changing the attitudes of both parties to a long-term approach that concentrates on the full life cycle of the project, the value challenges can be met.

There are also cultural issues in the proposed changes in the bidding process. The PPP procurement system that has evolved in Ireland has been developed by the public sector with considerable assistance from a number of advisors. There has been little if any involvement from the private sector in its development. Consequently, it does not address the needs of the private sector. Such is the concern in the private sector at the high bidding costs that a number of senior figures in the private sector have indicated that the future of the entire PPP programme is in doubt if this issue is not addressed (O'Rourke, 2003b). On the other hand, the contracting authorities in the public sector are under the scrutiny of the Comptroller and Auditor General whenever any new system of procurement is introduced and the immediate resultant aim is to ensure that the state is seen to have been protected to the maximum possible extent. The ongoing tribunals in the Republic of Ireland have resulted in a number of former civil servants and former government ministers being jailed for corruption. Consequently, systems that are now being developed by civil servants in Ireland are likely to offer even more protection to the state at the expense of meeting the needs of the private sector, as these systems will themselves be further scrutinised when they became operational. As a result, the introduction a new system that could be perceived in any way as being more favourable to the private sector would necessitate considerable testing and verification in order to convince civil servants of their value.

The key lies in how such a new system would be perceived. If the Irish PPP programme is indeed in danger of collapse as suggested by O'Rourke (2003b), there is considerable political gain in producing a

means by which it could be rescued. To get to that point the following must be addressed:

- to gain public sector support, the rules of operation of the new system must be clear and concise;
- the new system must clearly identify the project objectives and show how they will be achieved;
- the public sector resources needed to operate the new system must be identified and be made available;
- there must be a regular planning and review process that will monitor progress;
- there must be a procedure that will clearly identify any early warning signs that something is not right;
- there must be a means of shutting the project down, if something is going seriously wrong;
- there must be clear targets for bid cost reduction;
- there must be a mechanism whereby the bidders can interact with all of the stakeholders in order to produce a realistic bid;
- there must be clear guidelines for bid preparation;
- there must be clear and transparent bid evaluation procedures.

These issues must be worked out jointly by a working group of interested parties in the public and private sectors. Once agreement is reached, the new system can then be used on a pilot project.

5.7 HARNESSING THE POTENTIAL FOR INNOVATION

5.7.1 Why is it not happening now?

The 200+ page Output Specification that was prepared by the DOES for the Grouped Schools Project is likely to have left little room for innovation (Hurst and Reeves, 2004). Similar issues are highlighted in Irish roads PPP projects where an Environmental Impact Statement (EIS) is required at the Statutory Process stage. As an EIS in Ireland

requires a full design, there is little scope for design innovation by the PSO who joins the project at the Procurement stage.

5.7.2 What outcome is ideally required?

Ideally, the potential of the PSO to produce innovative solutions should be maximised both in the design and construction phases.

5.7.3 What can be done to meet the challenge?

The consequence of providing very detailed specifications is that the facility produced must be judged on the technical descriptions provided in the specification. Such a specification defines the minimum acceptable technical standard for the facility that is to be provided. However, by stating the required outcome in performance terms, for example, the suitability of the learning environment rather than the standard DOES guidelines for space, heat and light, the PSO is given much more freedom to innovate. Development of this type of output specification will require the DOES to concentrate on the actual use of the building rather than standard guidelines and will require the PSO to learn more about the requirements of educators prior to the design phase. It is this requirement of getting the builder to concentrate on the outcomes that is identified as one of the main factors of success of PIPS (Kashiwagi and Savicky, 2003). This is also the thrust of Murray's (2005) argument that PPP and Performance Based Building agendas should be addressed simultaneously.

5.7.4 What cultural issues must be addressed?

The DOES has been the authority that specified and approved the construction of new school buildings for decades. Moving to a system whereby the DOES would not guide the PSO with a technical specification would require a change in mindset for the DOES. The potential for the PSO to "get it wrong" in the view of the DOES would constitute a considerable political risk and the system would require some means by which the DOES could transfer the risk. As all contractors rely on the client – through the Architect – for some element of technical direction, a move to being paid for provision of a school building through an output performance specification would be

a considerable change. To gain confidence in working to an output performance specification, the rules and regulations of such a system must be established and many of the issues earlier referred to under bid cost reduction must be revisited. Prior to that, both parties must be convinced of the need for and advantages of any new system.

5.8 SUMMARY

This chapter has concentrated on the need to address four challenges, namely:

- development of an environment of true partnership;
- implementation of a joint approach to project risk reduction;
- achievement of real value;
- maximising the potential for innovation.

Several aspects of the current system were seen to be preventing these challenges from being resolved. One of the issues that continued to arise was that of the difference in attitudes between the two sectors and the potential influence that this had on the level of success in meeting each of the challenges identified. The following chapter draws together the knowledge gained from addressing the first four objectives and proposes a conceptual model which will be used as a basis for further investigation of a means of improving effectiveness of PPP on future projects.

CHAPTER 6: A CONCEPTUAL MODEL OF THE CURRENT PPP PROCESS

6.1 INTRODUCTION

This chapter draws together the knowledge gained from addressing the first four objectives and proposes a conceptual model which will be used as a basis for further investigation of a means of improving effectiveness of PPP on future projects. One of the issues raised in the literature in the previous chapter has been the fact that there are differences in attitude between the public and private sectors and, on investigation of the challenges arising, these attitudes seem to be influential in the creation of the challenges. These attitudes appears to be influencing the current output of the PPP process and it is somewhat surprising therefore to find a total lack of previous research into the relative effect of public and private sector attitudes on partnerships between the sectors. In taking this research to the next level through to the development of an analytical model, it will be necessary to investigate the effect of these attitudes on project outcomes.

6.2 DEVELOPING A MODEL FRAMEWORK

This research will now concentrate on developing the conceptual model from which the final analytical model will be developed. There are several different types of analytical models, many of which have been used for centuries (Griggs, 2002). However, the type of analytical model to be used depends on the purpose of the analysis and the type of information to be analysed. Bearing in mind that the overall aim of this research is to promote greater effectiveness in PPP, the model must address the PPP process and the outcomes of the process. By definition therefore, a process model is required. In its simplest form, a process model has three principal parts as illustrated in Figure 6.1.



Figure 6.1: Simple Process Model

In reviewing the analysis of the challenges, it can be seen that the extent to which the development of a true partnership is achieved will define the level to which achievement of Risk, Value and Innovation challenges will be successful. In identifying the outcomes required of this model, outcomes relating to Risk, Value and Innovation are therefore appropriate. These outcomes could be judged in relation to their success in meeting objectives that related to a true partnership approach. For example, a successful value outcome would be one where value was achieved by all parties with all parties working to joint value objectives. The model should be flexible enough to show that there are other outputs that are not specifically identified in this research.

The process part of the model would encompass the stages through which the PPP process is conducted. As noted in the previous section, the PPP process is far from perfect and sometimes results in undesirable outcomes. However, the process itself is subject to inputs. These include the guidelines under which the process operates, the market conditions and the contracts used to form the partnerships. However, the attitudes of participants was noted as being a potential influence on the process of PPP and these attitudes should be tested to establish the extent to which this claim of influence is valid. A number of further currently unidentified inputs may also exist and it is important that the model could be used to find any such inputs.

By including these factors, the model takes on a more sophisticated appearance as shown in Figure 6.2.

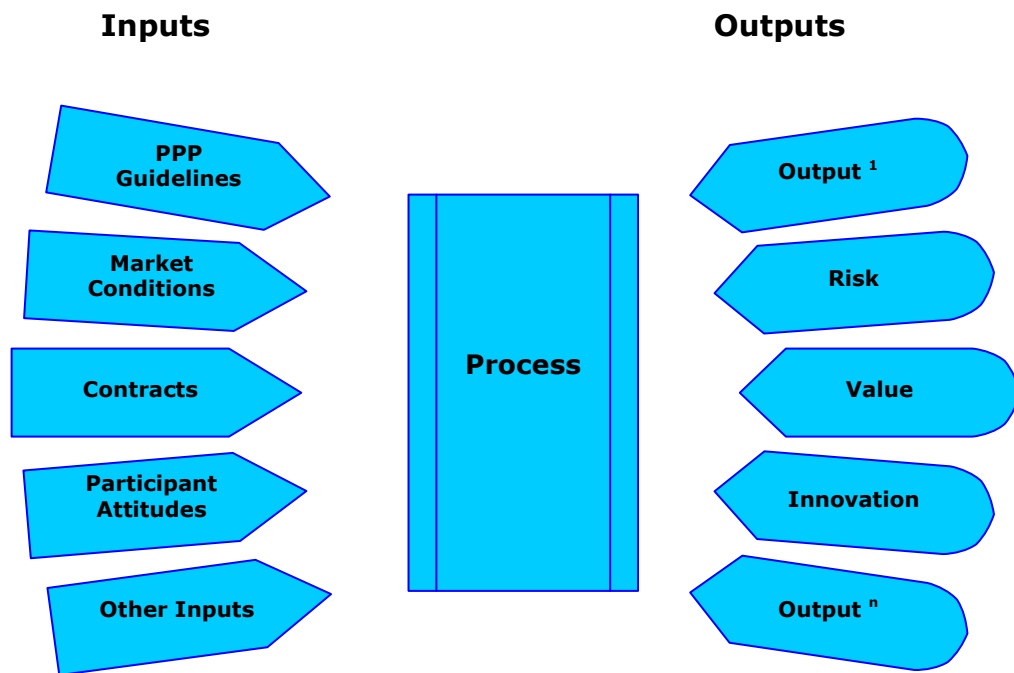


Figure 6.2: Initial Framework for Conceptual Model

Using this model, it will be possible to examine a fixed input and trace its influence through the process to predict the likely outcome. By including a feedback loop as shown in Figure 6.3, the model can be used to learn from the experiences of past projects and regulate the inputs on new projects to get the desired output.

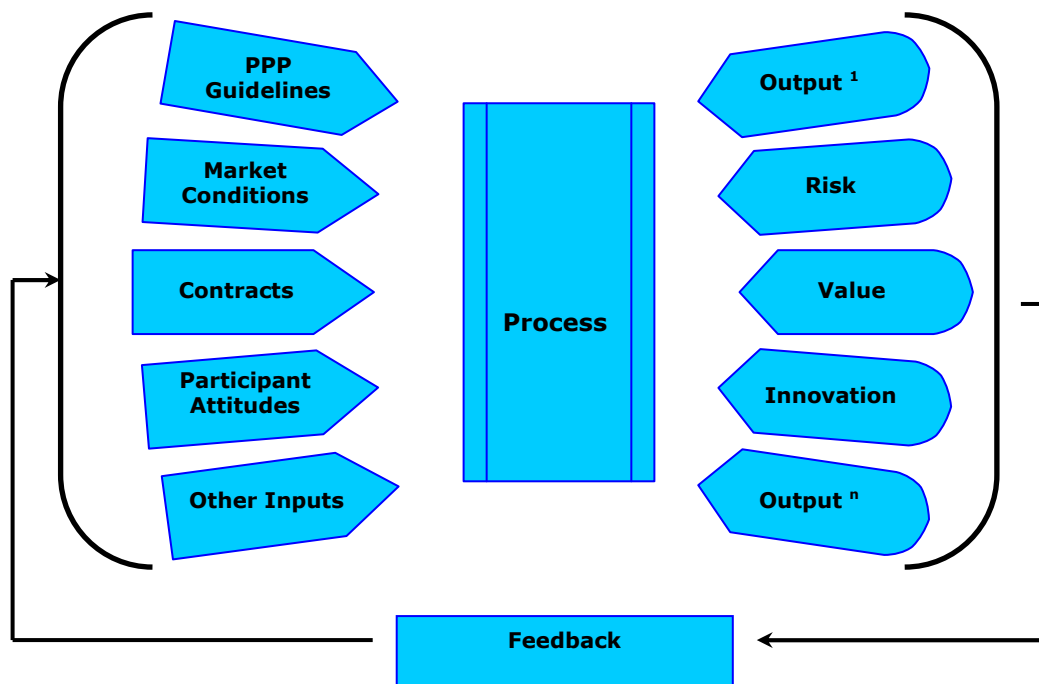


Figure 6.3: Revised Framework for Conceptual Model

It will also be possible to use the model in reverse, where a specific output is required. To achieve this, the process conditions for the outcome will be defined and the inputs will be analysed to establish whether or not the required process can in fact take place. Using the model in this way will allow PPP practitioners to assess the inputs that are necessary to achieve a specific outcome.

6.3 SUMMARY OF RESEARCH TO DATE

This research aims to develop and verify an analytical model that will be used to identify strategies which will lead to greater effectiveness in future PPP. A series of eight objectives were established as steps towards achieving this aim. Figure 6.4 illustrates the progress of the research to this point and shows that, through the literature review in the preceding chapters, the first five objectives aim have now been achieved and a framework for the model has been proposed. However, the process followed to achieve these objectives has raised the question of the effect of the project participants' attitudes on the PPP process and thereby on the project outcomes. Consequently, the

attitudes of the participants are included as an input in the model (figure 6.3) but the legitimacy of its inclusion needs to be tested.

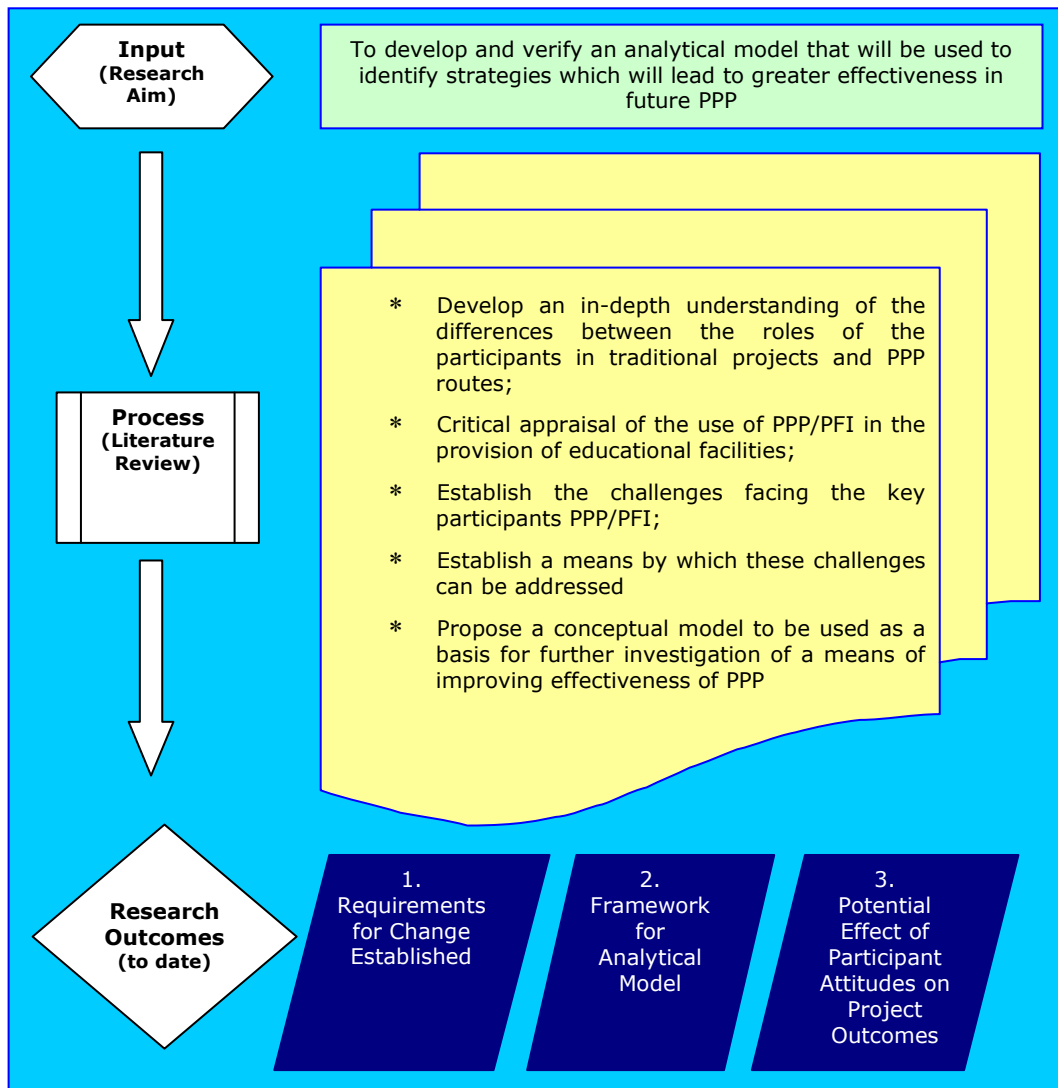


Figure 6.4: Research Progress to date

In moving the research into the further development of the model, data relating to one of the inputs must be gathered and tracked through the model to assess the impact on the outputs. As this research has identified project participant attitudes as one of the potential inputs, it is this input that will be researched. In doing so, test data for the model, relating to this input, will be gathered by measuring the attitudes of the participants on one or more projects. In a parallel exercise, specific project outcomes that have already occurred will be measured. The conditions within the PPP process will

be examined to establish the likely causes of the outcomes. Once the influencing elements of the PPP process on the project outcomes have been identified, the effect of the project participant attitudes on these elements will be assessed thereby establishing whether or not the attitudes affected the outcomes.

6.4 SUMMARY OF RESEARCH TO DATE

The research to date has been concerned with gathering together the existing literature relating to the topic with the aim focussing the research question and establishing a framework for the development of the analytical model. The specific objectives of this part of the research were to:

- develop an understanding of the differences between the roles of the participants in traditional projects and PPP projects;
- carry out a critical appraisal of the use to date of PPP/PFI in the provision of educational facilities in Ireland and the UK;
- establish the challenges facing the key participants within the Contracting Authority and the PSO in a schools PPP/PFI;
- establish a means by which these challenges can be addressed
- propose a conceptual model to be used as a basis for further investigation of a means of improving effectiveness of PPP.

This part of the research was divided into five chapters. Chapters 2 and 3 addressed the first two objectives. Chapter 4 identified the challenges that are arising and chapter 5 examined the options for facing these challenges. In chapter 6, the framework for the model was developed and the means by which it would be used was outlined. The following chapters will now concentrate on using the model to examine the link between project participant attitudes (as an input) and project outcomes (as an output).

The primary research – focussing on the development and verification of an analytical model that will be used to identify strategies which will lead to greater efficiency and effectiveness in future PPP – has begun with the work done in section 5 of this chapter. Through the investigation of the potential influence of project participant attitudes

on project outcomes the following chapters will further develop and refine the model. The next chapter will address the development of the research methodology required to examine the link between attitudes and outcomes.

CHAPTER 7: RESEARCH METHODOLOGY

7.1 INTRODUCTION

This research will now begin the process of using the conceptual model to test the hypothesis that the different attitudes relating to risk, value and innovation, which are held by public and private sector participants in a Public Private Partnership (PPP), affect the project outcomes. This will lead to a reassessment of the suitability of the conceptual model and the proposal of an analytical model that can be used to increase the effectiveness of PPP.

Following from the Literature Review, the conclusion of which was the identification of this research area, this chapter sets out to define in detail the stages in the research process. In addressing this, the research question is revisited and refined. The type of data required is established and the means by which these data are to be obtained is determined. The process by which the data are to be analysed is identified and the means by which the outcome of the research will be presented is established.

The chapter is structured in sections in which the following issues are investigated:

- the research paradigm;
- research philosophy;
- research framework;
- research questions;
- research process;
- research design;
- research techniques;
- research analysis;
- testing.

The chapter concludes with an outline of the next stage of the research.

7.2 THE RESEARCH PARADIGM

Research is often described as being of a quantitative or of a qualitative nature. Quantitative research relies on clearly measurable data and on statistical techniques. It seeks to provide an objective response to a question based on observable outcomes. Whilst this is the preferred approach in scientific research (Silverman, 2001), Bryman (1988) shows that it is also used widely in social science research through such methods as:

- social surveys – using random samples and measured variables;
- analysis of official statistics;
- structured observation;
- analysis of content of mass media products;
- experiments using control groups.

Zikmund (1997) illustrates numerous examples of application of quantitative research including scientific experimentation on the use of products and processes, traffic surveys, and the sampling of voters in order to predict election outcomes, etc. All involve the systematic collection of data followed by an objective analysis relating the data to a theory. With such an approach being adopted, one may ask why we sometimes need any other type of research. However, Silverman (2001) notes that when quantitative research uses statistical analysis to reach conclusions, it enters the realm of what might happen rather than what actually did happen in a specific case. Consequently, the study of a particular set of circumstances relating to the actions of individual human beings may not always be fully explained by quantitative research. A different approach, one which examines the action of individuals, may be more suitable in developing an understanding of the circumstance that caused an event to occur. Such research, carried out by observation of individuals and through interviews rather than through sampling and the use of closed questionnaires, is known as qualitative research. There are arguments in favour of and against each approach but, as Silverman

(2001) points out, it is quite possible that a research project could have elements of both approaches depending on the nature of the data needed at different points during the research project.

There are numerous methods by which research data can be generated and each of these methods has been devised to address different types of questions. Scientific research, such as the analysis of the behaviour of certain materials to specific forces, will require the development of a series of experiments which will be used to produce quantitative data. In these experiments, all of the variables are controlled so that a repetition of the experiment will produce similar results. This method is known as the experimental approach. As this method is only applicable to a situation where the variables are controlled, it is not suitable for this research.

The quasi-experimental approach to research is used where the experimental approach is inappropriate due to lack of control of any of the variables. This approach is best used when observing variables and drawing conclusions that in turn are developed into conceptual models. For example, weather recordings over an extended period of years could indicate cycles of rainfall that can be expected to occur at specific intervals. This information can then be developed into a conceptual model that would be used to guide the design of drainage systems. Again, it is unlikely that such an approach would suit this research as it relies on quantitative data whereas the measurement of attitudes held by individuals is by nature qualitative.

Action Research is a method that allows the researcher to become part of the research problem. It requires the researcher to have the authority to make changes that will affect the result of the research. Conclusions can then be drawn from the research showing that certain changes will bring about different results. This approach is often used in business for the development of new products and processes. It is not appropriate for this research project, as the researcher does not have the authority to change the processes or procedures that are used in PPP.

In summarising the types of research instruments available, Yin (2003a) outlines the circumstances that would suit each instrument. Dividing the instruments into groups that address different types of questions, Yin suggests that "how" and "why" type questions should be investigated with a case study, particularly where the researcher has no control over behavioural events in a contemporary case that is to be studied. A case study approach requires access to data on one or more projects, so that conclusions can be drawn against a range of criteria.

In this research, a study is being conducted of the level to which the attitudes at project outset influenced project outcome. It will identify the attitudes that existed at the outset and establish "why" these attitudes affected the decisions of the participants. It will investigate the effect of the decisions taken to establish "how" these decisions were directly related to the outcome of the project. Consequently, a case study approach would appear to be the most appropriate to this research. However, each element of the research questions must be assessed individually to provide a final assessment of the most appropriate methods to be used.

7.3 RESEARCH PHILOSOPHY

7.3.1 Epistemological stance

Epistemology is defined as the theory of knowledge (Scruton, 2004). Without considering epistemology, a researcher can theorise about what he thinks he has established but would have difficulty in demonstrating the validity of his claims. In order to address the issue it is therefore necessary to define the knowledge that is to be gained and to set out a strategy that will lead to this knowledge.

The aim of this part of the research is to assess the effect of participant attitudes on the outcome of a PPP project. The knowledge that is sought is the extent to which the attitudes affect outcomes in terms of Risk, Value and Innovation. To gain this knowledge, it will be necessary to assess project outcomes against criteria that will

measure the level of success attained under the headings of Risk, Value and Innovation.

In a parallel exercise, the attitudes of the project participants to Risk, Value and Innovation will be investigated. However, to establish what precisely is being measured, the strength of the attitude held must be given a context within which it is measured. In the previous chapter, the development of a partnering atmosphere, where joint project objectives were established and pursued, was highlighted as a potential means for achievement of positive project outcomes. The attitude measuring exercise will establish the attitude of each participant with a range that, on the lower end, shows a commercial approach focused strongly on the participant's own organisation. The higher end will show a partnering approach focused on setting and working to joint objectives for the project as a whole.

Following these investigations, the critical success factors (CSFs) that could have contributed to project outcomes will be identified. There is a significant amount of previous research that investigates the CSFs in construction in general and in PFI/PPP in particular (Jefferies et al., 2002). Pinto and Prescott (1988) and Tsui (1997) identify the "personnel factor" as the most significant factor in project management success. Belout (2004) expanded on this research and contends that this is but one of many factors that affect project success. Chua et al., (1999), showed that each of the participants in a project has a different view on the factors that are most important for project success.

An assessment of the participant attitudes on these CSFs will then be conducted. The CSF assessment exercise will therefore identify the outcomes that appear to have been influenced by project participant attitudes. This will result in an answer to the hypothesis in relation to the projects researched rather than for PPP projects as a whole. However, it will show whether or not participant attitudes had an effect on outcomes *in this case*, thereby establishing the potential requirement for a detailed longitudinal study that would assess the possibility of a similar outcome in other PPP projects. This process is

described by Yin (2003a) as “generalising to theory”. Consequently, whilst this research will lead to knowledge of the potential effect of attitudes on project outcomes, it will be an explanatory study by nature.

7.4 RESEARCH FRAMEWORK

The framework chosen for carrying out this research will be dependent on the data that needs to be generated. In social science, quantitative research is often used to identify attitudes of groups of people to a variety of circumstances. This is a positivist approach that gathers data in an objective manner and uses this data to identify trends. As previously stated, this approach gathers considerable amounts of data and uses statistical analysis to arrive at its findings.

“The most distinctive characteristic of qualitative research is its emphasis on interpretation”

(Erickson, 1986).

Qualitative research uses an interpretivist approach to explain why certain actions occurred and how these actions in turn influenced subsequent actions. In approaching this research, it appears that a qualitative approach would be most suitable, as the attitudes of specific individuals are being assessed and the data produced relates to a specific set of circumstances that have occurred. To generate the necessary data, this research must investigate two projects; one that is generally accepted as having been problematic and another that has run smoothly from inception to its current operation phase. Two such projects exist, namely the Grouped Schools Project and the National Maritime College of Ireland Project and these will be used to generate the required data. As both of these projects were under the control of one specific individual in the Department of Education and Science (DOES) PPP Unit, most of the influence of the CSFs will be common for both projects. By assessing the influence of the CSFs on the different outcomes of the projects, it will be possible to make an assessment of the influence of participant attitudes on the project outcomes.

7.5 THE RESEARCH QUESTION(S)

In this stage of the research there are two key questions to be addressed, namely:

1. What differences in attitudes, to risk, value and innovation, exist between the public and private sector participants in a PPP?
2. Is there a link between these attitudinal differences and the outcome of the projects with which the participants are involved?

Leading from these questions is the hypothesis that will be tested in this research, namely:

"Underlying differences in project participant attitudes to risk, value and innovation have an effect on the level of success of a PPP project".

As noted in the previous chapter, an attitude comprises three elements, namely:

- the affective element – which displays general feelings/emotions to something;
- the cognitive element – which displays awareness/knowledge of something;
- the behavioural element – which reflects a disposition to action about something.

(Zikmund, 1997)

The strength of each of these elements defines the overall attitude of an individual to something. Each of these elements must be measured in relation to the attitudes to a partnering approach to risk, value and innovation.

7.6 THE RESEARCH PROCESS

As noted previously, a qualitative research approach, using a case study, is the most suitable as the primary approach to this project. However, as there are a number of different types of case study, it is

important to choose the type of case study most appropriate to this research. Yin (2003a) identifies the four types of case study design as illustrated in Figure 7.1.

In the first instance, a case study may examine a single case or examine multiple cases. The choice of approach will be based on whether a single case is being studied to establish the particular circumstances of that case and the outcomes of that case, or whether a number of cases need to be studied in order to compare the circumstances that prevailed and the outcomes that were achieved.

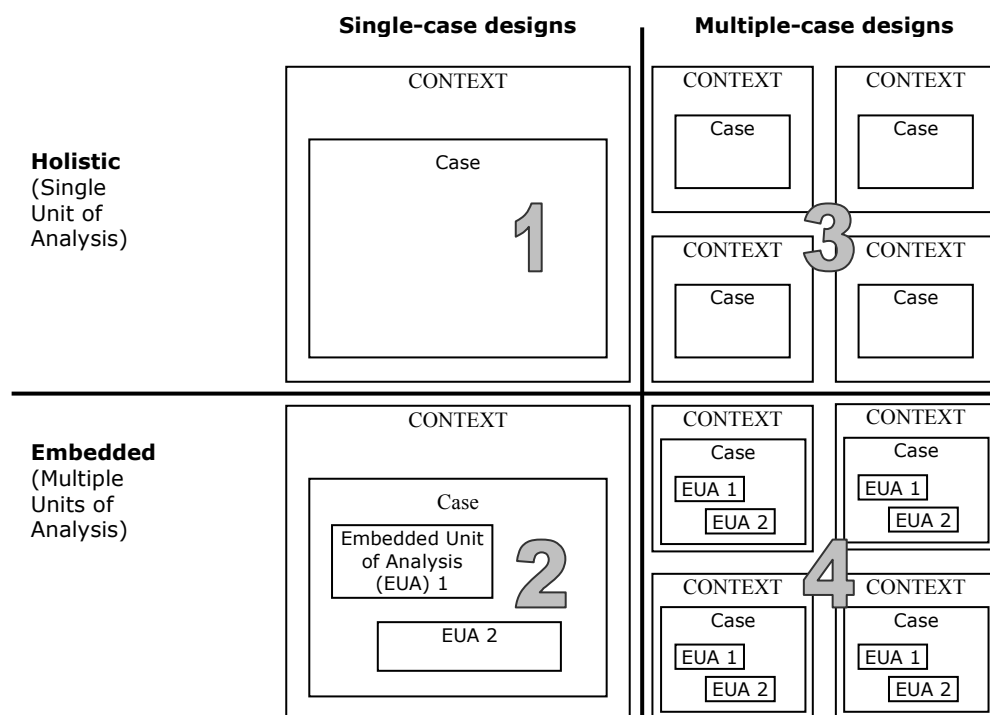


Figure 7.1: Types of Case Study Design

(Yin, 2003a)

Yin (2003a) outlines five rationales for choosing a single case design (types 1 and 2 as shown in Figure 7.1), namely:

- it may represent a critical test for a well developed theory;
- it may be an extreme or unique case that should be studied because of the rarity of the occurrence of such a case;
- it may be a typical case chosen to capture circumstances and conditions that are commonplace;

- it may be a common case but the opportunity to study such a case could be limited;
- it may be studied to establish the changes that take place over a long period of time.

Yin (2003a) also states that the rationale for a multi-case design (types 3 and 4) derives from the need to examine replication. A multi-case design may examine literal replication – requiring the researcher to have prior knowledge of the outcomes and focusing on how and why such replication occurred – or may examine theoretical replication, whereby different conditions would support a number of outcomes.

As this research will examine two different projects and will compare outcomes of both across a range of criteria, this research will have a multi-case design.

To establish whether the case study design will be type 3 or type 4, each case to be studied must be assessed to establish whether the design should be holistic or embedded. Again, Yin (2003a) gives guidance stating that the holistic approach concentrates on research at an organisational or programme level and tends to avoid specific phenomena in operational detail. An embedded approach, on the other hand, identifies the units of analysis to be examined but must not lose sight of the overall research aims in the search for detail. Clearly, therefore, this research will require a multi-case embedded design.

7.7 RESEARCH DESIGN

Yin (2003a) states that there are five especially important components of a research design:

1. The questions being researched;
2. The propositions being put forward;
3. The unit(s) of analysis;
4. The linking of the data generated to the propositions;
5. The criteria for interpretation the findings.

Each of these will now be addressed in turn.

7.7.1 The questions being researched

The questions being addressed by the case study are as follows:

- how did the project outcomes differ in relation to risk, value and innovation?
- what attitudes are held by the project participants that relate to risk, value and innovation in a PPP?
- what outcomes are evident when specific attitudes have been held by the participants?

The case study will therefore encompass two elements, namely: an examination of the available documentation relating to each project (this will relate to the first question and establish the difference in project outcomes between the projects) and the gathering of the data that will be used to establish the attitudes of the project participants.

7.7.2 The propositions being put forward

The following are the propositions that will be investigated.

- there were differences between the outcomes of the projects in terms of risk, value and innovation;
- the participants on the projects held differing attitudes in relation to risk, value and innovation;
- the attitudes of the participants influenced the outcomes of the projects.

7.7.3 The units of analysis

To design the research instruments it is first necessary to establish the units of analysis that are embedded in each case and then decide on the most appropriate means by which each unit of analysis can be examined. There are two basic units of analysis, namely the participant attitudes and the project outcomes. However, to investigate each unit, it is necessary to break it down into further sub-units.

The attitudes to be investigated relate to the risk, value and innovation on each project. Each of these will have further sub units relating the affective, cognitive and behavioural components of the attitude. The project outcomes will also be investigated under the headings of risk, value and innovation. A summary of the units of analysis and their sub units is shown in Figure 7.2.

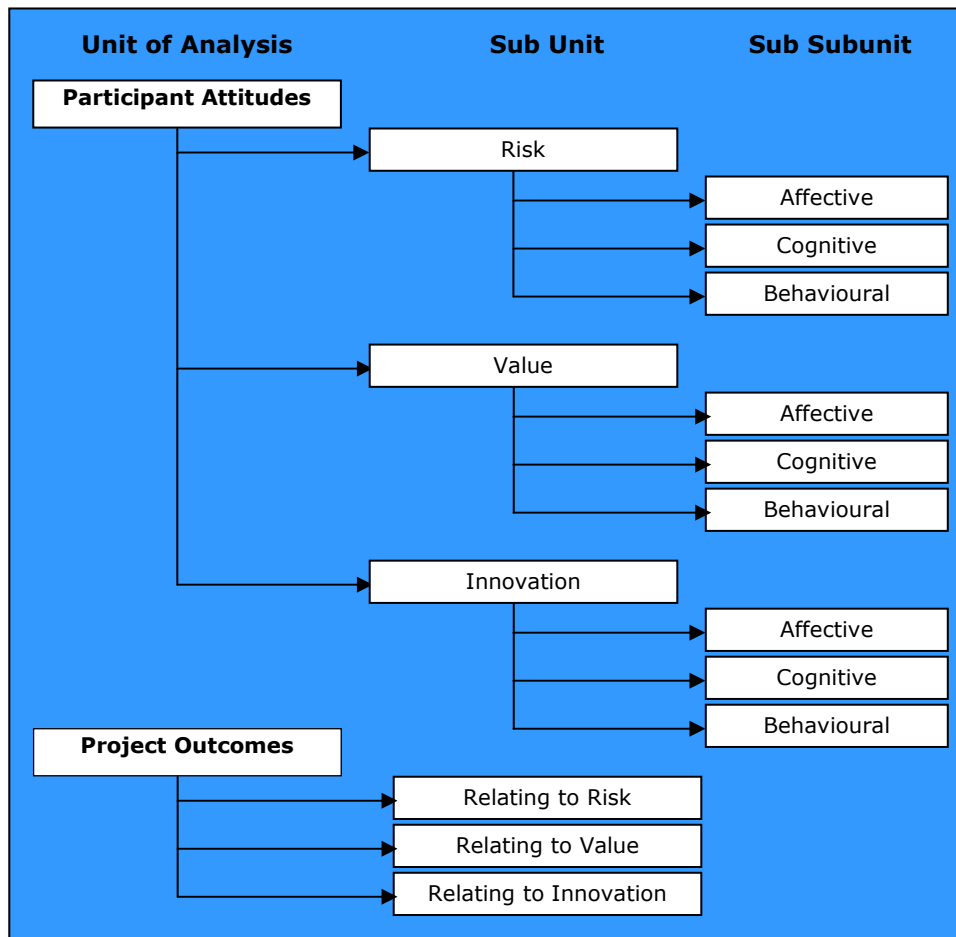


Figure 7.2: Units and Sub-Units of Analysis

7.7.4 Linking the data to the propositions

In order to relate participant attitudes to potential project outcome, two types of data are required:

- data from actual reports of completed projects identifying clearly the success or failure of aspects of the projects. This will address the first proposition and will be a desk-based exercise whereby the data generated will come directly from the information available from documents relating to the

chosen projects. The data gathered will be cross checked with data gathered from the interviews with the project participants;

- attitudes and perceptions of individuals, at the project outset, to criteria that potentially affected PPP success or failure. This will address the second and third propositions and will be gathered through an interviewing process.

This research will require data concerned with project outcome in relation to risk, innovation and value. At present, a number of reports that address the issues of risk, innovation and value in specific PPP projects have been prepared, the most widely known being that by the Comptroller & Auditor General (2004) relating to the grouped schools project. The author has been informed of the existence of a number of internal reports within government departments that have been prepared and are also available for scrutiny for this research. In the event of the reports not containing the required information, the authors of the reports are available for interview.

7.7.5 The criteria for interpretation of the findings

An essential factor in this research will be the consistency of the data produced. As two projects are involved - one of which has been the subject of extensive reporting - it is essential that criteria for judgement of project outcome is consistent across both projects and that the level of data used for analysis is equally robust for both projects. This will be addressed in detail later in this section.

In collecting data on attitude, it is important to realise that attitudes can change over time. Consequently, there is a limitation on the conclusions that can be drawn on the effect of attitudes on project outcome when the attitudes are measured at the end of the project, as the attitudes will have been affected by the experience of the project. As a result, the research tools to be used to gather the data must be sufficiently robust to establish the participants' attitudes at the project outset it is important to gather this data using a combination of research and from a variety of participants. The

interviewees would be drawn from the public and private sector staff that were involved at a number of stages throughout the life cycle of the PPP.

7.7.6 Planning the Research Design

Planning the research design requires the following:

- investigation of the link between attitudes and outcomes;
- finalising the scope of the research;
- the design of the research instruments;
- the means by which the data will be analysed.

Each of these issues will now be addressed.

7.7.7 The Link between Attitudes and Outcomes

In establishing the effect of attitudes on project outcome, it is first necessary to establish all of the factors that potentially affect project outcome and then to establish the extent to which each of these would have affected the outcome of the two projects under investigation. Once these effects have been assessed, an informed conclusion can be made on the effect of attitudes on project outcomes.

7.7.8 Scope of the Research

The Grouped Schools project has been chosen as there were a number of difficulties on the project and these were analysed in detail by the Comptroller & Auditor General (2004). The recording of the attitudes that prevailed at the beginning of the project can then be compared with the project outcome as reported by the Comptroller & Auditor General.

Anecdotal evidence suggests that the National Maritime College PPP Project has been a successful project. At present, there is no published documentary evidence on the outcome of this project. It therefore will be necessary to establish a clear data collection protocol that can be applied consistently to both projects.

7.7.9 Design of Research Instruments

The following project documents will be reviewed:

- the Comptroller and Auditor General's Value for Money Examination Report into the Grouped Schools Pilot Partnership Project;
- the DOES PPP Unit's Internal Report into the Grouped Schools Pilot Partnership Project;
- the DOES PPP Unit's Internal Report into the Maritime College PPP Project;
- the Project Agreement between the DOES and Focus Education for the design, construction, financing and maintenance of the National Maritime College Project.

As stated previously, the authors of these reports are available for interview if the reports themselves do not contain sufficient information on which to base conclusions. The documents will be reviewed in relation to the propositions that were earlier established, specifically concentrating on:

Risk

The extent to which the risks were identified and action was taken to respond to these risks. The key issue here is to establish that the different elements of risk were carried by the party best suited to carry each element;

Value

The extent to which the drivers of value were identified and value was achieved. The key issue here is to establish the success from the perspective of both the public and private sectors;

Innovation

The extent to which benefits of innovation were identified and action was taken to maximise the benefit of innovation to the project as a whole.

The data collection and data analysis protocols for the document review will be addressed in more detail in the Research Techniques section of this report.

There is a variety of instruments available for the collection of data on attitudes. The use of questionnaires is a popular method of collecting data and is generally suitable for use in attitudinal research (Oppenheim, 2000, Gillham, 2000). Questionnaires can be used to record answers to open questions, where the respondent's unprompted response can be recorded. Such questionnaires are often used as part of a structured interview technique and require a very high level of accuracy in the recording of responses. There is also a danger that the responses given could be influenced by the actions of the interviewer and measures must be taken to minimise the effect of such influence. In research, open questionnaires are often used to establish the typical responses of people to specific questions. This information is then used to compile a questionnaire with questions that each has a series of pre-determined answers from which the respondent must make a specific choice. These are called scaled questionnaires as each of the pre-determined answer choices can be assigned a numeric value from which statistical information can be compiled. In the measurement of attitudes, Zikmund (1997) suggests that a number of rating scales are suitable as outlined in Table 7.1.

Type	Description
Simple Attitude Scaling	Respondent asked to agree or disagree with a statement
Category Scale	Given a number of options respondent is asked to choose the statement which best reflects his/her view
Likert (1932) Scale	Respondent asked to use a 1-5 scale to express level of agreement/disagreement with a statement
Semantic Differential / Numerical Scale	Respondent asked to use a 7 point scale to rate several aspects of a concept
Constant Sum Scale	Respondents are asked to divide a constant sum to indicate the relative importance of options presented
Stapel Scale	Respondents given an adjective and are asked to rate intensity of their attitude to the adjective given.
Graphic Scale	Respondents are asked to choose a picture that reflects their attitude. e.g. ☹ ☺ ☻

Table 7.1: Attitude Rating Scales

(summarised from Zikmund, (1997))

Whilst research into attitudes has often relied on the use of questionnaires, this research is concerned with the attitudes that would have existed at a specific time in a project lifecycle. As the projects under investigation have now progressed to further subsequent phases, there is a possibility that the attitudes held earlier would now have changed. Consequently, the use of a questionnaire as the primary research tool would be inappropriate in this research. However, the analysis of the attitudes recorded will require some means of scaling the responses so that the relative level of the attitudes recorded can be assessed. As a result, the questions asked of participants in the case study will be such that they can be analysed in the same manner as data gathered through the use of a questionnaire.

It is planned therefore, to use a structured interview technique to gather the data relating to the attitudes of the project participants. The interview will also use some of the aspects of a technique known at the "strategic conversation" as proposed by Ratcliffe (2002) in order to allow the participants to fully develop the aspects of their responses that will clearly display their attitudes. The data gathered will then be related to a scale showing the attitude of the respondent.

7.7.10 Analysis of the Data

Before collecting data, it is important to decide how it is to be analysed. With analysis in mind it is then possible to define the type of data required and thereby develop an outline of the means by which it can be generated. Figure 7.2 (Page 157) showed the units of analysis to be addressed in this research. In relation to the attitudes of the participants, it was shown that two levels of sub units existed. At the lower level, attitudes were divided into three different components namely the Affective, Cognitive and Behavioural components. All of these are important as they can indicate the reason why someone took a specific course of action that led to a certain outcome. In recording each attitude, it is therefore important to isolate each of these components and collect data that will establish the strength of each component. In turn, the data generated can be assessed to establish the potential background behind the strength of each component with a view to suggesting corrective action that could be taken in the future.

At the higher sub unit level, the overall attitudes in relation to risk, value and innovation will be analysed by relating the attitude components to each of these factors and to provide a comparison with the outcomes that actually occurred. It will also be necessary to establish specific facts regarding decisions that were made during the project. This data is necessary so that an assessment can be made of the influence of CSFs on project outcomes.

In the document review it will be necessary to establish specific criteria against which project outcomes relating to risk, value and innovation can be measured. As noted earlier, each of these factors will be examined to establish the extent to which issues were identified and addressed.

7.8 RESEARCH TECHNIQUES

This section addresses the data collection protocol, the data analysis protocols and the actual measurements to be used on this research.

7.8.1 Project Outcomes - Data Collection Protocols

The following project documents will be reviewed:

- the Comptroller and Auditor General's Value for Money Examination Report into the Grouped Schools Pilot Partnership Project;
- the DOES PPP Unit's Internal Report into the Grouped Schools Pilot Partnership Project;
- the DOES PPP Unit's Internal Report into the Maritime College PPP Project;
- the Project Agreement between the DOES and Focus Education for the design, construction, financing and maintenance of the National Maritime College Project.

The first of these documents is in the public domain and a copy has been obtained. Assurances have been given by the DOES that the second and third documents are both available to be reviewed as part of this research. The documents will be analysed in respect of the project outcomes achieved relating to risk, value and innovation. If necessary, the document authors will be interviewed to supplement the data in the reports. The fourth document will be used to confirm aspects of the Project Agreement on the National Maritime College Project where similar references are available in the Comptroller and Auditor General's Report in relation to the Grouped Schools Project.

In relation to risk, this will assess the extent to which different categories of risk were identified and the logic used in deciding on who would carry each element of risk. The data will be supplemented by further data gathered from the participants in the interviews when each will be asked to clarify the extent to which the risk transfer was considered appropriate to their organisations. There are numerous

lists from previous publications that identify the risk categories in a PPP (Pollock et al., 2004, Akbiyikli and Eaton, 2005a, Eaton and Akbiyikli, 2005, Grimsey and Lewis, 2002, Smith et al., 2006). Once the categories on the projects being researched are clarified, the list produced will be compared with a number of lists from previous publications to ensure that all of the relevant risk categories have been addressed in these projects.

The definition of value is difficult to establish. Some commentators, such as (Li et al., 2004) define it in the narrow context of value for money whilst others use the UK PFI definition of Best Value to describe a wider range of issues such as quality, effectiveness and efficiency of the process (Filkin, 1997). In the achievement of value, a useful definition is provided by Kelly et al., (2004) which defines value as the relationship of cost, time and quality. As these were key issues in the launch of the Irish PPP Pilot Programme, it is this definition that will be used. From the perspective of Time, the key issue to be addressed will be the time from inception of the project to the opening of the school for use. From the perspective of Cost, the issues of assessment of capital cost and of cost in use will be addressed. From the perspective of Quality, the investigation will concentrate on the quality of the facilities delivered in context of fitness for purpose and on the quality of the service provided by the PSO.

In assessing the achievement of innovation, the Construction Industry Council (2000) gives guidance on innovation in the context of PFI and suggests that innovation can be classified as either product-enhancing or cost saving. As cost savings are defined as savings over the entire project life-cycle they include quality improvements that would improve availability of the facility, would enhance durability and reduce running costs. Product enhancing innovations occur when a higher quality product is provided for which the client is prepared to pay a higher price. Innovation will therefore be assessed against these categories with the cost savings split to show whether they accrued to the DOES or the PSO, as shown in Table 7.2.

Product Enhancing
Cost Saving To DOES To PSO

Table 7.2: Innovation Categories**7.8.2 Project Outcomes - The Measurement Instrument**

Each of these elements will be assessed and scored separately from a maximum of 100 marks.

Risk

The first 10 marks will be allocated on a sliding scale reflecting the degree to which the list covers all of the risks that can arise.

The remaining marks are divided as follows:

- 3 marks for each risk category identified, up to a maximum of 30 marks;
- 3 marks allowed on a sliding scale against each risk category where 1 mark does not show a clear breakdown to indicate the logic behind the allocation, rising to 3 marks, which shows how the risk was allocated. A maximum of 30 marks can be allocated against the clarity of the logic behind the application;
- 3 marks allowed on a sliding scale against each risk category where 1 mark indicates that the planned risk allocation is not working, 2 marks shows that it is not working fully and 3 marks shows that the risk allocation has taken place fully. A maximum of 30 marks can be allocated against the level to which the planned risk allocation has been successful.

Value

As one of the primary aims of the PPP Pilot Programme was to produce school buildings at a lower capital cost, the capital cost

element of value should be clearly identified in the assessment. In addition, PPP requires a new method of operation in the DOES PPP unit for the management of the cost of the operation phase of the project. As these (capital cost and operational cost) are the two issues which have been the subject of most political debate on PPP Schools projects in Ireland, 20 marks each will be allocated to the analysis of achievement of value in these categories. The remaining marks will be allocated to the identification and achievement of value objectives relating to time (20 marks) and for quality (20 marks for quality of the facility and 20 for the quality of the service provided by the PSO).

Innovation

The first 30 marks will be allocated on a sliding scale reflecting the degree to which innovation was considered central to the project.

The remaining marks are divided as follows:

- 3 marks for each innovation category identified, up to a maximum of 30 marks. The marks are allocated on the basis that 3 indicates new thinking in the design of a school in Ireland, 2 indicates a change in thinking relating mainly to keeping overall costs down and 1 indicates a change driven by cost to one party only;
- 4 marks allocated on a sliding scale against each category where 4 marks shows considerable evidence of benefit to the project as a whole, 3 shows considerable benefit to both the school/DOES and the PSO, 2 shows benefit to one party only, 1 shows limited benefit and 0 shows that no benefit was achieved. A maximum of 40 marks can be allocated against the benefit of innovation that has accrued to the project.

The full measurement sheet developed for this exercise is attached as Appendix 1.

7.8.3 Project Outcomes - Data Analysis Protocol

The data from the reports will be assembled separately for each project from the material available. This data will be supplemented where necessary through interviews with key individuals identified by the DOES. Data will be triangulated with that extracted from the project participant interviews. The scoring mechanism described above will then be used to quantify the level of success achieved in each project. Differences in the level of success related to Risk, Value and Innovation will be highlighted numerically, using the sheet shown in Table 7.3 which has been developed to provide a structured method for this analysis.

Proposition 1. There are differences between the outcomes of the projects in terms of risk, value and innovation			
Outcome	Difference -	Project 1	Project 2
Risk			

Table 7.3: Comparison of Project Outcomes

This table refers only to risk and its relationship to Proposition 1. The full analysis sheets for risk, value and innovation, are attached as Appendix 2. Where there is a difference between the two projects, the outcome will be analysed in relation to the list of CSFs common to PPP projects shown in Table 7.4 (adapted from Zhang, 2005) and those differences attributable to one or more of the CSFs will be eliminated from the analysis.

The differences that are evident will be further analysed to establish the possibility that they were caused by the attitudes of the participants. The means by which this exercise will be conducted is addressed in the later section of this chapter entitled "Testing". The outcome of this exercise will be to link the data to Proposition 3.

Critical success factor	Success subfactor
Favourable investment environment	1. Stable political system
	2. Favourable Economic system
	3. Adequate local financial market
	4. Predictable currency exchange risk
	5. Predictable and reasonable legal framework
	6. Government support
	7. Supportive and understanding community
	8. The project is in the public interest
	9. Predictable risk scenarios
	10. Project is suitable for privatisation
	11. Promising economy
Economic Viability	1. Sufficient profitability to attract investors 2. Long-term cash flow that is attractive to lenders
Reliable Concessionaire consortium with strong technical strength	1. Leading role by a key enterprise or entrepreneur 2. Effective project organisation structure 3. Strong and reliable project team 4. Good relationship with host government authorities 5. Partnering skills 6. Rich experience in international PPP projects 7. Multidisciplinary participants 8. Sound technical solutions 9. Innovative technical thinking 10. Cost-effective technical solution 11. Low environmental impact 12. Public safety and health considerations
Sound financial package	1. Sound Financial analysis 2. Investment, payment and drawdown schedules 3. Sources and structure of main loans and standby facilities 4. High equity/debt ratio 5. Low financial charges 6. Fixed and low interest rate financing 7. Long-term debt financing that minimises refinancing risk 8. Ability to deal with fluctuations in interest/exchange rates 9. Appropriate toll/tariff level(s) and suitable adjustment formula
Appropriate risk allocation via reliable contractual arrangements	Appropriate and reliable risk allocation in: 1. Concession agreement 2. Shareholder agreement 3. Design & construct agreement 4. Loan agreement 5. Insurance agreement 6. Supply agreement 7. Operation agreement 8. Offtake agreement 9. Guarantee/support/comfort letters

Table 7.4 CSFs in a DOES schools PPP

(adapted from Zhang, 2005)

Zhang's list is chosen as it comprehensively brings together the previous lists of CSF produced from other research. As the shaded subfactors are common to both projects, it is reasonable to assume

that they could not contribute to a difference between the projects. Consequently, they are excluded from further analysis in this research.

7.8.4 Participant Attitudes - Data Collection Protocol

As there are three elements to be investigated, (i.e attitudes in relation to Risk, Value and Innovation) each of which has three sub-elements (affective, cognitive and behavioural) each participant will generate a minimum of nine pieces of data per project. From the public sector perspective, the two main people that influence the development of the project from inception to contract are the Accounting Officer (AO) and the Project Manager (PM). However, as these projects were part of the PPP Pilot Programme, the level of staffing in the DOES PPP Unit meant that one person took on the both the role of the AO and the PM. In order to get a mixture of views on the projects, the AO/PM suggested that the research includes the consultant advisors to the DOES. As these individuals were involved in the discussions that formed the opinions of those in the DOES PPP Unit in the early stages of each project, this would appear to be a reasonable course of action. The individuals involved were identified and agreed to participate.

In the case of the PSO, the key people are the CJV Project Manager and the Facilities Manager as between them, these individuals experienced the development of the project from the initial stages up to the current stage of the operation phase. As the two projects were carried out by different consortia, this required the participation of four different people. Capturing the prevailing attitudes from 1999 from the private sector participants would cause some difficulty, as the teams that bid for the Grouped Schools Project have been disbanded. Jarvis, the winning bidder, has subsequently sold its interest in the project, whilst the unsuccessful bidding consortia disbanded once their bids failed. However, the individuals concerned continue to work with Hochtief PPP Solutions, the company that bought out Jarvis' interest in the project. Both were contacted and agreed to participate. The Focus Education consortium, which

successfully bid for the Maritime College, was still in place and accessible. The relevant people were contacted and agreed to participate.

7.8.5 Participant Attitudes – The Measurement Instrument

The following list of questions was developed to guide the direction of the interview in establishing the differences that occurred across the two projects, relating to risk, value and innovation. Specific questions were designed to measure the cognitive (C), affective (A) and behavioural (B) components of the participants' attitudes. Each of these questions will now be examined in detail.

Questions designed to measure attitudes relating to Risk

Cognitive

Question	What is being measured?	Analysis - Responses scored on a graduated 1-5 scale as follows:
1. <i>What were the objectives relating to risk?</i>	Cognitive question assessing the participant's awareness of the level of risk to be considered on this project by all parties.	1- no clear objectives 2- some objectives relating to own organisation only 3- clear objectives relating to own organisation only 4- some joint objectives 5- clear comprehensive joint objectives
2. <i>Which risks were identified?</i>	Cognitive question assessing the participant's knowledge and understanding of the specific risk issues that were considered on this project by all parties.	1- knowledge of risk limited to risk borne by own organisation 2- some risks of other party identified 3- most of other party risks identified 4- some areas of joint risk outlined 5- comprehensive risk matrix evident

Affective

Question	What is being measured?	Analysis - Responses scored on a graduated 1-5 scale as follows:
3. <i>In your view, which risks were identified as critical to project success?</i>	Affective element of the participant's attitude to risk, measuring the extent to which the participant was open to examining risk from a project perspective rather than from an organisational perspective	1- concentration exclusively on risk that was critical to own organisation 2- some realisation of risks critical to other party displayed 3- considerable awareness of risk issues for other partners displayed 4- openness to discussion of some areas of joint risk 5- clear view that project level risks must be identified by the partnership as a whole
4. <i>In what way were these risks critical?</i>	Further affective assessment element requiring the participant to justify the view given of what was critical	1 - displayed reaction only for risk that was critical to own organisation 2 - displayed some reaction for risks critical to other party 3 - significant consideration of risk issues for other partners displayed 4 - consideration of some areas of joint risk evident 5 - clear view that project level risks must be addressed by the partnership as a whole

Behavioural

Question	What is being measured?	Analysis - Responses scored on a graduated 1-5 scale as follows:
5. <i>What processes were used to analyse risk on the project?</i>	Behavioural question designed to assess the participant's disposition to action towards risk analysis at a project level	1 - concentration exclusively on risk relevant to own organisation 2 - some disposition to action in analysis of risks relevant to other party displayed 3 - willingness to analyse risk issues of other partners displayed 4 - involvement in analysis of some areas of joint risk 5 - clear evidence that project level risks were analysed by the partnership as a whole

6. <i>What process was used to manage the risk allocation?</i>	Further behavioural question designed to assess the participant's disposition to action in the management of risk at a project level	<p>1 - took no role in overall project risk allocation (PSO) / took exclusive responsibility for project risk allocation (DOES)</p> <p>2 - influenced some timing of risk transfer through discussion with DOES (PSO) / accepted amendments to timing of risk transfer following discussion with PSO (DOES)</p> <p>3 - major risks pre-allocated by DOES, minor risks allocated through joint agreement</p> <p>4 - risk allocation driven by DOES with significant input from PSO</p> <p>5 - open forum whereby allocation of project risks was managed by the partnership as a whole</p>
--	--	---

Questions designed to measure attitudes relating to Value

Cognitive

Question	What is being measured?	Analysis - Responses scored on a graduated 1-5 scale as follows:
7. <i>What were the objectives relating to value?</i>	Cognitive question assessing the participant's awareness of the importance of value to all project partners.	<p>1- no clear objectives</p> <p>2- some objectives relating to own organisation only</p> <p>3- clear objectives relating to own organisation only</p> <p>4- some joint objectives</p> <p>5- clear comprehensive joint objectives</p>
8. <i>How were these objectives arrived at?</i>	Cognitive question assessing the participant's knowledge and understanding of the value issues that were considered on this project by all parties.	<p>1- knowledge of value limited to that relating own organisation</p> <p>2- some value issues for other party identified</p> <p>3- most of other party value issues identified</p> <p>4- some joint value issues identified</p> <p>5- comprehensive knowledge of joint value issues evident.</p>

Affective

Question	What is being measured?	Analysis - Responses scored on a graduated 1-5 scale as follows:
9. <i>In your view, which value issues were identified as critical to project success?</i>	Affective element of the participant's attitude to value, measuring the extent to which the participant was open to examining value from a project perspective rather than from an organisational perspective	1 - concentration exclusively on value issues that was critical to own organisation 2 - some realisation of value issues critical to other party displayed 3 - considerable awareness of value issues for other partners displayed 4 - openness to discussion of some areas where joint value issues exist 5 - clear view that value issues at a project level must be identified by the partnership as a whole
10. <i>In what way were these objectives critical?</i>	Further affective assessment element requiring the participant to justify the view given of what was critical	1 - displayed reaction only to value issues that were critical to own organisation 2 - displayed some reaction to value issues that were critical to other party 3 - significant consideration of value issues for other partners displayed 4 - consideration of some joint value issues evident 5 - clear view that value issues at a project level must be addressed by the partnership as a whole

Behavioural

Question	What is being measured?	Analysis - Responses scored on a graduated 1-5 scale as follows:
11. <i>How were the value related objectives analysed?</i>	Behavioural question designed to assess the participant's disposition towards action in analysis of value at a project level	1 - concentration exclusively on value objectives relevant to own organisation 2 - some disposition to action in analysis of value issues relevant to other party displayed 3 - willingness to analyse value issues of other partners displayed 4 - involvement in analysis of some joint issues related to value 5 - clear evidence that project level value-related were analysed by the partnership as a whole
12. <i>How was the value management administered?</i>	Further behavioural question designed to assess the participant's disposition to action in the management of value at a project level	1 - concentrated on value issues that related exclusively to own organisation 2 - influenced management of some issues through discussion with other sector partner 3 - Made some suggestions that would increase value to other sector partner 4 - Made several suggestions to increase project value to both sectors 5 - Open forum whereby value was managed by the partnership as a whole

Questions designed to measure attitudes relating to Innovation

Cognitive

Question	What is being measured?	Analysis - Responses scored on a graduated 1-5 scale as follows:
13. <i>What were the objectives relating to innovation?</i>	Cognitive question assessing the participant's awareness of the level of importance attached to innovation by all project partners	1- no clear objectives 2- some objectives relating to own organisation only 3- clear objectives relating to own organisation only 4- some joint objectives 5- clear comprehensive joint objectives
14. <i>Which potential innovations were identified?</i>	Cognitive question assessing the participant's knowledge and understanding of the innovation-related issues that were considered on this project by all parties.	1- knowledge of innovation limited to that relating own organisation 2- some innovation issues for other party identified 3- most of other party innovation issues identified 4- some joint innovation issues identified 5- comprehensive knowledge of joint innovation issues evident.

Affective

Question	What is being measured?	Analysis - Responses scored on a graduated 1-5 scale as follows:
15. <i>In your view, which innovation-related issues were identified as critical to project success?</i>	Affective question, measuring the extent to which the participant was open to examining value from a project perspective rather than from an organisational perspective	1 - concentration exclusively on innovation-related issues that was critical to own organisation 2 - some realisation of innovation-related issues critical to other party displayed 3 - considerable awareness of innovation-related issues for other partners displayed 4 - openness to discussion of some areas where joint innovation-related issues exist 5 - clear view that innovation-related issues at a project level must be identified by the partnership as a whole
16. <i>In what way issues critical?</i>	Further affective assessment element requiring the participant to justify the view given of what was critical	1 - displayed reaction only to innovation-related issues that were critical to own organisation 2 - displayed some reaction to innovation-related issues that were critical to other party 3 - significant consideration of innovation-related issues for other partners displayed 4 - consideration of some joint innovation-related issues evident 5 - clear view that innovation-related issues at a project level must be addressed by the partnership as a whole

Behavioural

Question	What is being measured?	Analysis - Responses scored on a graduated 1-5 scale as follows:
17. <i>What processes were used to identify potential for innovation on the project?</i>	Behavioural question designed to assess the participant's disposition towards action in analysis of value at a project level	1 - concentration exclusively on innovation-related issues relevant to own organisation 2 - some disposition to action in analysis of innovation-related issues relevant to other party displayed 3 - willingness to analyse innovation-related issues of other partners displayed 4 - involvement in analysis of some joint issues related to innovation 5 - clear evidence that project level innovation-related issues were analysed by the partnership as a whole
18. <i>What process was used to manage the use of innovation?</i>	Further behavioural question designed to assess the participant's disposition to action in the management of value at a project level	1 - concentrated on innovation-related issues that related exclusively to own organisation 2 - influenced management of some issues through discussion with other sector partner 3 - Made some suggestions that would bring benefits of innovation to other sector partner 4 - Made several suggestions to bring benefits of innovation to both sectors 5 - Open forum whereby use of innovation was managed by the partnership as a whole

The remaining questions are included to allow for comparisons between the project outcomes thereby providing an opportunity to triangulate with the data from the project documents.

Risk

19. <i>Which risks were successfully transferred?</i>
20. <i>Why were these transferred successfully?</i>
21. <i>What issues relating to risk arose during the procurement phase?</i>
22. <i>How were these issues resolved?</i>

Value

23. Which objectives were achieved (and to what extent)?
24. Why were these objectives achieved?
25. What issues relating to value arose during the procurement phase?
26. How were these issues resolved?

Innovation

27. Which objectives were achieved (and to what extent)?
28. Why were these objectives achieved?
29. What issues relating to innovation arose during the procurement phase?
30. How were these issues resolved?

To establish the strength of the attitudes of the participants it was also necessary to explore the relative importance that the participants place on risk, value and innovation. This would be established through the responses to the following question.

Relative importance participant places on risk, value and innovation	
Given 60 points to divide up and use to rate the relevant importance of risk, value and innovation, how would you allocate the points?	
Risk	<input type="text"/>
Value	<input type="text"/>
Innovation	<input type="text"/>

The justification for using 60 as the total number is that it is easily divided into three equal parts but it is also easily divided in units of five into unequal parts.

7.8.6 Participant Attitudes - Data Analysis Protocol

The data from the interviews would be processed separately for the PSO and DOES for each project. The data from the two interviews from each organisation would be presented in one sheet as shown in Table 7.5 below. This table processes the data relating to Risk. Similar tables will be made available to process data relating to Value and Innovation.

Risk Attitudes		INTERVIEW 1	Rating (x --)	INTERVIEW 2	Rating (x --)	Total Rating
Cognitive	What were the objectives relating to risk?					
	Which risks were identified?					
Affective	In your view, which risks were identified as critical to project success?					
	In what way were these risks critical?					
Behavioural	What processes were used to analyse risk on the project?					
	What process was used to manage the risk allocation?					

Table 7.5 Rating of Interview Responses relating to Risk

A mark along a 1-5 scale is allocated to each answer given. This is multiplied by the rating that each interviewee gave to the relative importance of Risk, Value and Innovation. The total marks allocated against the Cognitive, Affective and Behavioural elements are then compared to those that have been found from the interviews with participants from the other sector partner and from the second project. Differences are noted and compared to the areas where differences have been found in the data analysis relating to the project outcomes. The analysis of these differences is addressed later in this chapter in the section entitled Research Analysis. This will relate the data to Proposition 2.

When the data have been gathered the elements of the attitude will be shown on a graph to indicate the level of focus on the participant's own organisation at one end as opposed to the project as a whole at the other end, as illustrated in figure 7.3.

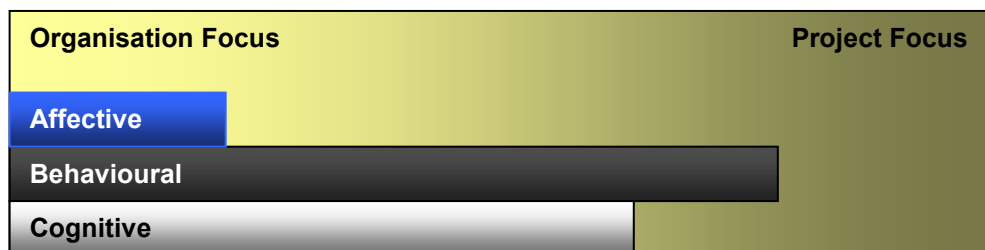


Figure 7.3: Focus of recorded Attitude

This example shows that the attitude recorded had its affective element (general feelings to the process) focused primarily on the organisation, the behavioural element (disposition to action) focused on the project objectives and the cognitive element (knowledge of the process) displaying a strong understanding of both organisational and project issues.

7.8.7 Pre-testing

An interview was conducted with a Bid Manager of a PPP consortium with the aim of establishing the changes that may be required to the data gathering process before the full interviewing process proceeds.

This interview was also used to examine the potential requirement for the use of a different questioning technique in the public sector and private sector interviews. The outcome of the pre-testing interview was as follows.

The interviewing format used

As the interviewer and the interviewee had worked together previously, both parties were relaxed with the format used. The interview followed the planned format and took 54 minutes to complete. It was recorded using a digital voice recorder. As the interviewee was willing to develop each point being made, the interviewer made a number of brief notes during the interview. These were subsequently used to direct the interviewee back to the questions being explored. Consequently, the questions were not always addressed in the planned sequence. Nonetheless, each question was fully addressed during the course of the interview. The following areas need improvement prior to carrying out the primary research:

- a concise introduction to the purpose of the research is required;
- when introducing each of the topic areas of risk, value and innovation, it would be advisable to make a brief statement defining the area to be explored;
- there is a danger of interviewer bias if the interviewer talks too much. This is something of which the interviewer must be aware in future interviews.

The questions asked

The interviewee's response to each of the questions confirmed that they were suitably structured to allow the interviewee to develop their personal point of view. However, the questions on issues that arose during the procurement process, relating to risk value and innovation, did not generate much data. This was due to the nature of the project being discussed – a PPP motorway. Such a project, in Ireland, required a relatively detailed design during the compilation of the

Environmental Impact Statement (EIS). As the EIS is required before the procurement process commences, few, if any, issues of note arose during the procurement process. In the Schools PPP market, however, the issue of the EIS does not arise. For that reason, the continued inclusion of these questions in the planned research is valid.

At the end of the interview, the two following questions were also asked:

Relative importance participant places on risk, value and innovation

Given 60 points to divide up and use to rate the relevant importance of risk, value and innovation, how would you allocate the points?

Risk	<input type="text"/>
Value	<input type="text"/>
Innovation	<input type="text"/>

Relative importance placed on each of the affective, cognitive and behavioural aspects

Given 60 points to divide up and use to rate the factors that define your own attitudes, how would you allocate the points against the following?

How you feel about the issue	<input type="text"/>
What you know about the issue	<input type="text"/>
What you are prepared to do about the issue	<input type="text"/>

The first of these questions raised two further issues. Firstly, the relative score given to each factor would be dependent on the specific project. For example, the risk on the project under discussion was relatively low to another road project that was being tendered at present. The second project involved a combination of tunnelling and

of cut and fill through a flood plain. Consequently, the risk score would be higher on the second project and this was due to the complexity of the project rather than the attitude of the interviewee. Secondly, whilst the interviewee could give a score for each factor, this score might not be replicated by the other CJV partners, each of whom were also concerned with their own organisation's specific objectives.

As a result, the first of these issues must be taken into account in the data analysis. The second issue could be addressed by ensuring that the interviewing process with the private sector includes representatives from the main CJV partners, i.e. those whose primary focus is either construction, operation or investment.

The second question revealed little, as the interviewee stated that in his opinion, people rarely analysed their own attitudes. This creates reservations of the value of any data that would be gathered from this question. Consequently, this question will be omitted from the interviewing process from here on.

A further aim of the pre-testing was to establish the suitability of the use of the questionnaire with the private sector. This was brought up in discussion with the interviewee at the end of the interview. Following this discussion, the author is confident that the line of questioning taken would be suitable to both sectors. However, it will be necessary to be sensitive in phrasing the questions in light of the criticism that has emerged in the reporting of one of the projects.

Following the interview, a limited analysis of the data was carried out using the instruments proposed for this research. The results are shown in Appendix 3. Only the form designed to assess the strength of the participant's attitudes (Table 7.5, Page 180) was used, as there were no comparative project data and no data gathered from a contracting authority with which to compare the outcome. For illustrative purposes the attitudes detected are scaled and displayed on the relative graphs.

7.9 RESEARCH ANALYSIS

There are two types of data to be used in this research. Commentary on the data sorting processes to be used has already been made under the earlier paragraphs relating to Data Analysis Protocols. Once the project outcome data has been sorted and the scoring of the data has been carried out, each of the tables will be examined to establish where there were differences in marks allocated. These will be summarised for Risk, Value and Innovation to establish the level of difference in project outcome between the projects, thereby addressing Proposition 1.

The data relating to attitudes will be presented in the format shown earlier in Table 7.5 (Page 180). The attitude rating for each project and for each sector will be presented in tabular form and will also be presented graphically as shown earlier in Figure 7.3 (Page 181). From the marks allocated, comparisons can then be made to establish the differences in each element of attitude across projects and between the sectors. This exercise will address Proposition 2.

Once the attitudinal inputs and the Risk/Value/Innovation outcomes have been established, the analytical model is then used to establish whether or not there is a link between them. In the first part of this exercise, the critical success subfactors that could have influenced an outcome are identified. This eliminates the non-relevant subfactors and those remaining are subjected to further examination to establish the most likely causes of the outcome. Table 7.6 is used for this exercise.

Critical Success Subfactor (CSS)	Details	Attitude Difference	Likely Cause of Outcome Difference
CSS 1	Details of Process that led to the Outcome	Attitude differences between sectors and projects	What is likely to have caused the Outcome difference and why
CSS 2	Details of Process that led to the Outcome	Attitude differences between sectors and projects	What is likely to have caused the Outcome difference and why

Table 7.6 Isolation of Potential Effect of Attitude on Outcome

Where an attitude is shown to be the likely cause of an outcome, the specific element of the attitude is noted and the sector from which it emanated. These instances are then recorded as shown in Table 7.7.

		Outcome difference		
		Outcome 1	Outcome 2	Outcome 3
Attitude Source Element (PSO/DOES)				
Critical Success Subfactors	CSS1	Affective (PSO) Behavioural (PSO)	Affective (PSO) Behavioural (PSO)	N/A
	CSS2	N/A	Behavioural (PSO)	N/A
	CSS3	Behavioural (PSO)	Behavioural (PSO)	Behavioural (PSO)
	CSS4	Behavioural (PSO)	Behavioural (PSO)	Behavioural (PSO)

Table 7.7: Summary of Effect of Project Participant Attitude on Outcome

7.10 TESTING

To establish the quality of the case study, it is necessary to test the data for:

- construct validity;
- internal validity;
- credibility;
- external validity;
- transferability;
- reliability.

Using the summary shown in Table 7.7, further testing of each instance finding then takes place. This is done using Table 7.8.

Construct Validity	
Internal Validity	
Credibility	
External Validity	
Transferability	
Reliability	

Table 7.8: Test of Instance Finding**7.10.1 Construct Validity**

Yin (2003b) defines construct validity as “establishing correct operational measures for the concepts being studied” and suggests that this can be tested by establishing a chain of evidence that will lead from the concept to the knowledge being sought. This has already been addressed in the Research Philosophy section earlier in this report where the epistemology was outlined. Clear research objectives have been established, the types of data required have been determined, the various means for capturing the data have been instituted. Data will be taken from a number of sources, including internal reports, independent reports and a series of interviews with both public and private sector partners to ensure that the full facts surrounding the projects will be available for analysis. Finally, a research analysis approach has been put in place that will ensure that the hypothesis is rigorously tested.

7.10.2 Internal Validity / Credibility

Internal validity is defined as establishing that a casual relationship exists whereby a specific set of circumstances causes an outcome. In this research, the causal relationship between the participant attitudes and the project outcomes is being investigated. To test the internal validity of the findings, this research will take a pattern matching approach to establish the pattern of outcomes that results when specific attitudes are present. This process will be structured as an explanation building exercise, whereby the rival explanations for the project outcomes will be investigated. The outcome of the analysis will confirm the most likely cause of the outcome difference. This exercise will satisfy internal validity concerns.

7.10.3 External Validity / Transferability

External validity is concerned with the ability to generalise beyond the immediate case study (Yin, 2003b). In this research, the external validity will centre on whether or not the results can lead to the assumption that the outcomes of all PPPs are influenced by the attitudes or will it only be possible to make this claim for the projects that were studied in this research. Again, this issue was raised in the earlier discussion regarding the epistemology of the research.

This research is designed to give a result that will be generalised to theory. This means that the result of the research will be valid for the projects being studied, but as there are two such projects in the case study, they will provide an element of external validity between the two projects. The overall result of the research, will provide a theory that can subsequently be tested over a longer period of time across several projects. This further research, however, will not fall within the scope of this PhD.

7.10.4 Reliability

This aim of a reliability test is to assess the possibility of following the same procedure again and arriving at the same result. To achieve this, a clear documented procedure must be in place.

In this research, the Research Techniques section of this document shows that a number of documents will be examined using specific criteria and a number of individuals will be interviewed using a semi-structured interviewing approach, utilising a range of pre-determined questions that have been designed to guide the interviews. These methods will be fully documented with the interviews being recorded so that there is no ambiguity in the data collected. The analysis of the data generated will be carried out as described in the Research Analysis section and again this process will be fully documented.

7.11 NEXT PHASE

This work has now reached a point where the primary research can be conducted. The process to be followed is outlined in Figure 7.4.

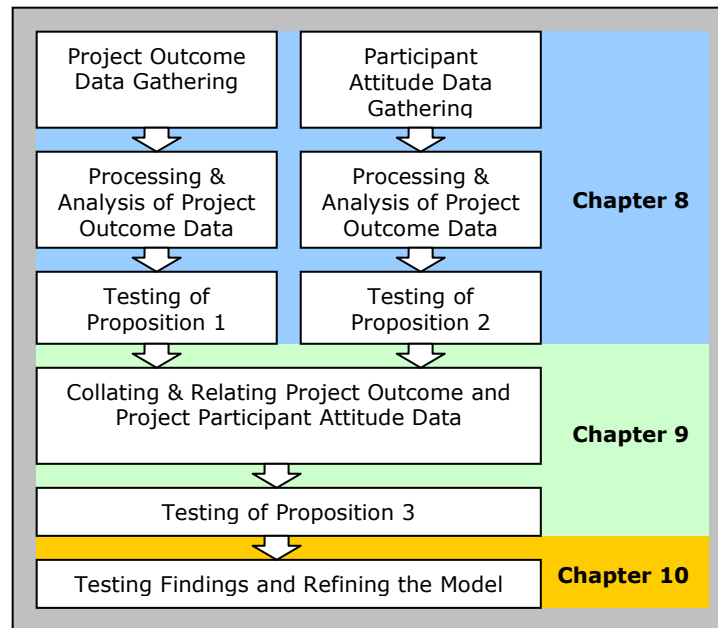


Figure 7.4: Research Methodology

The process begins with the gathering and analysis of the documentation relating to the project outcomes. Parallel to this, the participant interviews are to be arranged and the data relating to attitudes recorded. Once the data have been captured and processed, the initial analysis begins and it is this process that will form the bulk of the next chapter.

7.12 SUMMARY

This chapter has continued the research process from the Literature Review, the conclusion of which was the identification of the research area. The chapter has defined in detail the stages in the research process and the research question has been refined. The type of data required is established and the means by which this data are to be obtained is determined. The procedures to be followed in the data processing and analysis are established. The chapter concludes with an outline of the next phase of the research.

CHAPTER 8: DATA COLLECTION AND PROCESSING AND ANALYSIS

8.1 INTRODUCTION

The previous chapter defined in detail the methodology to be used in the primary research. This research requires data from two different areas, one concentrating on the outcome of two projects and the other being concentrated on the attitudes of the participants in the projects being studied. This chapter addresses this research through the following steps:

The Project Outcomes

- data collection;
- data processing;
- data analysis;
- relating data to Proposition 1.

The Participant Attitudes

- data collection;
- data processing;
- data analysis;
- relating data to Proposition 2.

The chapter concludes with a summary of the findings relating the outcomes and attitudes.

8.2 PROJECT OUTCOMES

In this section, the documents noted in Chapter 7 (page 164) will be reviewed.

8.2.1 Data Collection

At the beginning of this research, the C&AG document was in the public domain. The DOES had given assurances that the internal reports relating to the Grouped Schools and the National Maritime College of Ireland (NMCI) would both be available to be reviewed as part of this research. The documents were to be analysed in respect of the project outcomes achieved relating to risk, value and innovation. The DOES had provided a copy of the NMCI Project Agreement directly to the researcher.

On requesting the internal report documents, it quickly became clear that the completion of the report relating to the Grouped Schools Project had become seriously delayed. However, the author of this report was available and was willing to be interviewed as part of this research. It also emerged that work on the report into the NMCI had not yet commenced and was unlikely to be available in time to be reviewed as part of this research. The DOES confirmed that the information required on the NMCI project would be made available by the current Head of the NMCI, Mr Donal Burke.

This required a change to the data collection process as the purpose of any interviewing at this stage was to have been in the context of confirming or clarifying data rather than gathering the primary data. In turn, this raised the question of the status of the data that would be available. Whilst a published government commissioned report would be open to scrutiny and would have been subject to considerable editing prior to release, the data now to be gathered would be in a much more raw state. There was also a question mark over the rigour that would have been applied by the interviewees in generating the data in that some of what would emerge at the

interview could be subjective information based on an opinion rather than fact.

Conversely, the opportunity of getting the data directly from the interviewees would give a much more in-depth viewpoint of the projects as the people being interviewed would be in a position to relate, from their own experiences, the reasons why specific issues arose and how they were approached. A written report that has been prepared for publication would concentrate only on the strictly factual outcome and would not present the opportunity to allow the detail behind certain actions to be seen. It would be necessary, therefore, in the interviewing process to concentrate on the facts and follow these up with further information that the interviewee was prepared to divulge. This was judged to be achievable as the analysis sheets that had been prepared for this purpose required factual information regarding the outcome of the project in relation to risk, value and innovation. The further information that was required related to the reasons these outcomes were achieved. Whilst it is difficult to gain precise objective reasons why certain outcomes were achieved, the answers to questions can be cross-referenced with the extra information gathered from the project participants. A strong correlation between the reasons given would suggest that they were accurate.

In establishing a structure for the interviews, it was decided to examine the objectives that the DOES had in commissioning the reports. The DOES stated that the objectives that they wished to achieve in the first report were as follows:

- to establish the extent to which the Grouped Schools were meeting the original DOES objectives as a pilot project;
- to examine the level to which the Operator was complying with the Project Agreement;
- to establish the appropriateness of the existing Project Agreement for use in future projects;

- to summarise the findings and make recommendations to the DOES that would be relevant in the further roll out of the Schools PPP programme.

As the first two of these objectives relate to the outcomes of the projects, it was decided that the interviews would concentrate how both projects are performing in meeting the DOES objectives and to what level the Operator was complying with the terms of the Project Agreement. Both of these areas would be investigated in terms of outcomes relating to risk, value and innovation.

Agreement was reached with the DOES that the following people should be interviewed in order to gather the data required.

Mr Sean Slowey	Retired principal teacher of the Ballincollig Community School (one of the schools built as part of the Grouped Schools Project)
Mr Donal Burke	Head of the NMCI

As the data for the Grouped Schools Project is also to be taken from the Comptroller and Auditor General Report (2004), it was agreed that Mr Michael Delaney, Head of Development at Cork Institute of Technology (one of the NMCI partners) would also participate in the interviews to achieve balance between the two projects. As Mr Slowey's report was closer to completion, it was appropriate to conduct this interview first and follow the same structure with Mr Burke.

Mr Slowey's interview took place in the Rochestown Park Hotel, Cork in mid July 2006. Mr Burke's interview took place at the NMCI in late August and Mr Delaney's interview took place in Bewley's Hotel, Dublin, also in late August 2006. All three interviews were recorded using a digital voice recorder and were later transcribed. A copy of the transcript was sent to each interviewee to check the accuracy of the information provided. Any minor corrections that were requested were

incorporated into the final version of the transcript. These full transcripts are attached to this document as Appendices 4, 5 and 6.

In addition to this, the process of recording the attitudes of the project participants included a number of questions that required factual information regarding the performance of the parties within the project agreement. The data from these questions are also used in clarifying specific issues that arose. This information is extracted from the transcripts of the interviews with the project participants. These transcripts record the interviews with the following people:

Appendix 7 – Grouped School Project - Dave Gordan – Head of DOES PPP Unit

Appendix 8 – Grouped Schools Project – Mark Cherry – Farrell Grant Sparks, Advisors to DOES

Appendix 9 – Grouped Schools Project – John Farrell – Regional Director, Hochtief FM

Appendix 10 – Grouped Schools Project – Philip Clarke – Regional Director, Hochtief PPP Solutions

Appendix 11 – NMCI - Dave Gordan – Head of DOES PPP Unit

Appendix 12 – NMCI – Ferga Kane – Deloitte, Advisors to DOES

Appendix 13 – NMCI – Iain Salley – Regional Director, Bovis LendLease (Focus Education)

Appendix 14 – NMCI – Patrick Mitchell – Facilities Manager, Vita LendLease (Focus Education)

8.2.2 Data Processing and Analysis – Outcomes relating to Risk

Using the analysis sheets developed in the previous chapter, the data relating to risk outcomes, gathered from the authors of the DOES reports, C&AG Report (2004), the Project Agreement for the NMCI

and the participant interviews, were processed. To provide structure for the analysis, the risk matrices as published by the Comptroller & Auditor General (2004) (in respect of the Grouped Schools Project) and as provided by the DOES (in respect of the NMCI) were used. These matrices were compared and the data were entered into the sheets under ten broad headings. The level of detail provided in the matrices was sufficient to make a judgement on the extent to which the project risks had been identified and to which their allocation had been planned. Where this level of detail was not apparent from the matrices, comments are added to state where the data were sourced. The risk identification and planned allocation were then rated, as was the extent of detail that was apparent in the risk allocation process. The final part of the process was to assess how well the actual allocation was perceived by those interviewed. This in turn was rated. The overall score at the end of the rating shows the percentage success that the project outcome displayed in terms of risk.

Project: Grouped Schools Project

Date Analysed: 28 September 2006

RISK

Level of Risk Identified	Marks Available	Marks Allocated
Very Comprehensive Risk Identification & Analysis evident	10	
Major and Minor risks identified, Analysis evident	8	8
Major risks identified, Analysis weak	6	
Some Risks identified, Minimal Risk Analysis evident	4	
Poor Risk Identification, no evidence of risk analysis	2	

Risk categories identified	Marks (Max 3 per category)	Clarity on how risk was to be allocated			Marks (Max 3 per category for planned allocation, 3 for successful allocation)
		PSO	DOES	Shared	
Planning Permission DOES carried risk up until Project Agreement. Planning permission granted before signing of Project Agreement. PSO carry risk of implementation of planning conditions	3	X	X		(3+3) 6
Design <ul style="list-style-type: none"> • Site investigation • Time overrun • Cost overrun • Facilities below standard required 	3		X		(3+3) 6
Construction <ul style="list-style-type: none"> • Time overrun • Cost overrun • Facilities below standard required • Facility provision in event of delay 	3	X			(3+3) 6

<p>Commissioning & Operating</p> <ul style="list-style-type: none"> • Failure to meet performance standards • Non-availability of facilities • Facilities not properly maintained • Higher operation costs than expected • Lower operation costs than expected 	3	Carried entirely by PSO			(3+3) 6
<p>Demand Risk</p> <ul style="list-style-type: none"> • Low level of 3rd party use of school • Lower than expected student numbers • Higher than expected student numbers • Changes in Pupil-teacher ratios 	3	X	X	X	No strategy evident for development of 3 rd party use (3+2) 5
<p>Technology Obsolescence</p> <ul style="list-style-type: none"> • Introduction of equipment and other assets based on new technology (Noted as being the responsibility of PSO. Lack of clarity as to what is required – not happening in practice) • Investment in IT (Investment in IT carried by PSO for first 3 years. Has not been renewed. DOES has not made subsequent investment) 	2	X	X	X	(2+1) 3
<p>Financing (Financial structure to be fully in place prior to Project Agreement and carried by PSO thereafter)</p>	3	X			(3+3) 6
<p>Residual Value (Contradiction between information in C&AG (2004) and DOES report interview. C&AG states that DOES takes all of this risk, DOES report interview states risk rests with PSO)</p>	3	?	?		(1+1) 2

Default <ul style="list-style-type: none"> Contractor Default Risk shared with DOES carrying risk of repaying senior debt following contractor default No reference to Authority Default Termination, Voluntary Termination or Force Majeure 	2			X	(2+2) 4
Normal Business regulations (VAT rate change passed back to DOES Other risks arising from changes in law carried by PSO)	3	X	X		(3+3) 6
Total risk rating expressed as a mark out of 100					86

Project: National Maritime College of Ireland

Date Analysed: 2 October 2006

RISK

Level of Risk Identified	Marks Available	Marks Allocated
Very Comprehensive Risk Identification & Analysis evident	10	10
Major and Minor risks identified, Analysis evident	8	
Major risks identified, Analysis weak	6	
Some Risks identified, Minimal Risk Analysis evident	4	
Poor Risk Identification, no evidence of risk analysis	2	

Risk categories identified	Marks (Max 3 per category)	Clarity on how risk was to be allocated			Marks (Max 3 per category for planned allocation, 3 for successful allocation)
		PSO	DOES	Shared	
Planning Risk	3	PSO	DOES	Shared	(3+3) 6
• Planning Permission		X			
• Planning Conditions				X	
• Environmental Impact				X	
• Public Consultation			X		
• Site Acquisition		X			
• Variations				X	
• Legal Covenants			X		
• Consents and Licenses			X		
• Time and Cost Overruns in Planning		X			
Design	3				(3+3) 6
• Information Quality		X			
• Redesign		X			
• Performance		X			
• Variations				X	
• Resources		X			
• Flexibility		X			
• Design Standards			X		
• Inflation			X		
• Time and Cost Overruns in Design	X				

Construction		PSO	DOES	Shared		
• Ground Conditions	3	X			(3+3) 6	
• Weather Conditions		X				
• Site Access		X				
• Public Protest		X				
• Labour Resources		X				
• Material Resources		X				
• Cost Control		X				
• Working Practices		X				
• Workmanship		X				
• Other Facilities		X				
• Variations		X				
• Time Extensions		X				
• Interfaces		X				
• Building Works		X				
• Site Safety		X				
• Utilities		X				
• Industrial Action		X				
• Contracting Authority Staff				X		
• Interruptions		X				
• Inflation		X				
• Demolition of Existing Facilities	X					
• Time and Cost Overruns	X					
Commissioning & Operation	3				(3+3) 6	
• Commissioning		X				
• Variations		X	X			
• Environmental Performance		X				
• Third Party Claims		X				
• Cost Control		X				
• Maintenance		X				
• Design Deficiencies		X				
• Infrastructure Damage		X				
• Inflation						X
• Subcontractor Performance	X					
Demand Risk	2				(2+3) 5	
Demand risk relating to students not noted in the Project Agreement or in Risk Matrix. Raised by D Burke as having been successfully retained by DOES		X				
3 rd Party Income Risk was responsibility of PSO (noted in Project Agreement) but with significant input from local DOES staff (arose in interviews with P Mitchell, D Burke and M Delaney)		X				

Technological Obsolescence		PSO	DOES	Shared	
<ul style="list-style-type: none"> • Introduction of equipment and other assets based on new technology 	2	X			(2+2)
<ul style="list-style-type: none"> • Investment in IT (Investment in IT carried by PSO for 1st 3 years.) 			X	X	4
Financing					
<ul style="list-style-type: none"> • Affordability (Sufficient public finance to fund the unitary payment or subvention) 			X		
<ul style="list-style-type: none"> • Interest Rates Pre Financial Close 	3			X	(3+3)
<ul style="list-style-type: none"> • Interest Rates Post Financial Close 		X			6
<ul style="list-style-type: none"> • Foreign Exchange 		X			
<ul style="list-style-type: none"> • Insurance Scope 				X	
<ul style="list-style-type: none"> • Insurance Cost 		X			
Residual Value	3		X		(3+3)
					6
Default					
<ul style="list-style-type: none"> • Authority Default Termination 			X		
<ul style="list-style-type: none"> • Voluntary Termination 	3		X		(3+3)
<ul style="list-style-type: none"> • Contractor Default 			X		6
<ul style="list-style-type: none"> • Force Majeure 			X		
Normal Business regulations					
<ul style="list-style-type: none"> • Changes in laws 				X	
<ul style="list-style-type: none"> • Inaccurate tax assumptions 		X			
<ul style="list-style-type: none"> • General tax changes 	3	X			(3+3)
<ul style="list-style-type: none"> • VAT change in the status of the service 		X			6
<ul style="list-style-type: none"> • General changes in VAT 			X		
Total risk rating expressed as a mark out of 100					95

8.2.3 Relating the Data to Proposition 1 – Outcomes relating to Risk

As each of the risk headings have been assessed in respect of both projects, the rating system quickly identifies where there is a difference between the two projects. These differences are shown in Table 8.1 where the data gathered is related to the first proposition, namely that there were differences in project outcomes in terms of risk.

Outcome Difference	Project 1	Project 2
Level of Risk Identified	Significant levels of risk identified. Plan for allocation noted.	Extensive, very comprehensive assessment of risk identified. Allocation clearly thought out and documented.
3 rd Party Income	PSO has not developed 3 rd party income stream. DOES not applying any sanction for PSO non performance.	PSO takes responsibility for 3 rd party income with significant input from college management.
Technical Obsolescence - Equipment	Despite being responsible for this risk, the PSO has managed to get the DOES to agree that a significant amount of equipment is installed on a supply only basis, thereby avoiding the risk arising from technical obsolescence.	Very extensive assessment of risk relating to technical obsolescence of equipment. PSO fully committed to its responsibility to carry this risk.
Technical Obsolescence - IT	Poor level of assessment has resulted in a contract that has expired after 3 years with no move to renew the contract for any further period.	Contract for first 3 years still running. PSO and DOES have begun discussions on renewal of the contract.
Residual Value	Responsibility for residual value risk is unclear, contradictions between data from reports and data from interviews.	Responsibility for residual value risk is clear.
Default	Risk matrix does not address Authority Default Termination Voluntary Termination or Force Majeure.	Risk matrix addresses these issues.

Table 8.1: Relating Data on Risk Outcome to Proposition 1

8.2.4 Data Processing and Analysis – Outcomes relating to Value

Using the headings established in the previous chapter, the data relating to value outcomes were extracted primarily from the interviews with the authors of the DOES reports and the C&AG Report (2004). Where necessary, the data was supplemented with further data gathered from the project participant interviews. The data gathered were then assigned a rating and the overall score at the end of the rating shows the percentage success that the project outcome displayed in terms of value.

Project: Grouped Schools Project

Date Analysed: 4 October 2006

VALUE

Value categories	Analysis of achievement of value	Marks (Max 20 per category)
Capital Cost	<p>The evidence conflicts. C&AG (2004) states that, based against tender price of similar sized school, the Grouped Schools were 13% more expensive. However, the school used for comparison was completed at a cost of €400,000 in excess of its tender price and the circulation space in the PPP schools was 15% greater.</p> <p>DOES calculates that provision of a similar school by conventional means would have cost the Exchequer an additional €8.3 million in NPV terms when risk related expenditure is taken into account. As the DOES figures were subject to considerable scrutiny by the Department of Finance prior to finalising the Project Agreement, the DOES concludes that it met its capital cost targets. The PSC prepared by the DOES has never been open to public scrutiny. However, the C&AG has scrutinised this document and concludes that the cost targets were too high and calculated incorrectly.</p> <p>This is difficult to rate due to conflicting evidence. The score that is given reflects the fact that some of the assumptions, on which the DOES figures are based, appear to be open to question.</p>	10
Operating Cost	<p>The unitary payment to the PSO is higher than that paid to a conventionally built school as it is run and maintained in a different way. A number of high extra costs to the DOES have been caused by the PSO (e.g. waste charges and electricity KVA related charges). Some items of equipment which were to be provided on a supply and maintain basis are now provided as supply only, resulting in extra maintenance charges. PSO is making little or no effort to bring in 3rd party income which would reduce overall costs. Despite these issues, the unitary charge continues to be paid in full by the DOES without deduction.</p>	9

Time	All agree that the project timeline was shortened by 6 to 12 months by use of PPP. All of the schools were ready for occupation in advance of the agreed completion date.	20
Quality of the Facility	All agree that the quality of the facility is of a good to excellent standard.	18
Quality of Service	A highly commercial approach to the project on behalf of the PSO, coupled with inadequate resources from the DOES to monitor the operation of the contract, has resulted in several instances of friction between the management of the schools, the PSO and the DOES. A number of issues have arisen where the PSO has not been penalised in according with the Project Agreement for non-provision of service.	8
Total Value rating expressed as a mark out of 100		65

Project: National Maritime College of Ireland

**Date
Analysed:** 26 September 2006

VALUE

Value categories	Analysis of achievement of value	Marks (Max 20 per category)
Capital Cost	A Public Sector Comparator (PSC) was prepared before the project went to financial close. All agree that the capital cost of the project came in comfortably below the PSC figure. The PSC, however, has never been released into the public domain.	18
Operating Cost	The cost of operating the facility is as planned in the PSC. All involved with the project report that it is running smoothly and that the partners are cooperating well to keep costs down. An example of this is the work done by the PSO to reduce the KVA charge to the DOES. A liaison committee meets every 10 weeks and consistently targets ways of bringing in 3 rd party income. This is resulting in a saving to the DOES and further income to the PSO. Minor areas of non-performance have resulted in penalties to the PSO in accordance with the Project Agreement.	18
Time	All agree that the project timeline was shortened by use of PPP. The project was delivered fully commissioned and fit for purpose on the agreed completion date.	20
Quality of the Facility	All agree that the quality of the facility is of a very good standard.	18
Quality of Service	All PSO and DOES staff involved with this project are keen to stress the high level of co-operation and openness that exists between the partners. It is clear that a very positive and pragmatic working arrangement exists. This is reflected in a very high standard of service being provided by the PSO. The college management provides direct monitoring of the operation of the contract.	20
Total Value rating expressed as a mark out of 100		94

8.2.5 Relating the Data to Proposition 1 – Outcomes relating to Value

As each of the value headings has been assessed in respect of both projects, the rating system quickly identifies where there is a difference between the two projects. The difference in relation to Capital Cost arises as a result of confusion regarding the compilation of the PSC. As the PSC for neither project is available for review as part of this research, it would be pointless to speculate further as to the accuracy of the figures presented. The headings that did show significantly different ratings are those concerning Operating Cost and Quality of Service. These differences are shown in Table 8.2 where the data gathered is related to the first proposition, namely that there were differences in project outcomes in terms of value.

Outcome Difference	Project 1	Project 2
Operating Cost	<p>PSO making no apparent effort to keep costs to DOES down.</p> <p>PSO actions adding to DOES costs.</p> <p>PSO taking action to reduce its own maintenance costs by taking advantage of a part of the Project Agreement which is unclear as to which equipment should be supplied with a maintenance contract.</p> <p>PSO is making no apparent effort to bring in 3rd party income which would reduce overall costs.</p> <p>DOES not applying penalties for any of these issues.</p>	<p>The cost of operating the facility is as planned in the PSC.</p> <p>PSO making visible efforts to reduce costs to DOES. High level of co-operation on cost reduction between PSO and DOES.</p> <p>PSO and DOES working closely on developing 3rd party income. This is resulting in a saving to the DOES and further income to the PSO.</p> <p>DOES applying penalties for any non-conformance.</p>
Quality of Service	<p>A highly commercial approach to the project on behalf of the PSO.</p> <p>Poor level of contract monitoring by DOES.</p> <p>Evidence of friction between PSO and school Principals / DOES.</p> <p>A number of issues have arisen where the PSO has not been penalised in according with the Project Agreement for non-provision of service.</p>	<p>PSO approach based on co-operation and openness.</p> <p>College management provides direct monitoring of the operation of the contract.</p> <p>Excellent working relationship evident between PSO and College management / DOES.</p> <p>DOES has no reluctance in applying penalties when non-conformance occurs.</p>

Table 8.2: Relating Data on Value Outcome to Proposition 1

8.2.6 Data Processing and Analysis – Outcomes relating to Innovation

Using the headings established in the previous chapter, the data relating to innovation outcomes were extracted primarily from the interviews with the authors of the DOES reports. Where necessary, the data were supplemented with further data gathered from the project participant interviews. The data gathered were then assigned a rating and the overall score at the end of the rating shows the percentage success that the project outcome displayed in terms of innovation.

Project: Grouped Schools Project

Date Analysed: 6 October 2006

INNOVATION

Degree to which Innovation was considered	Marks Available	Marks Allocated
Very comprehensive approach to Innovation evident	30	
Structured approach to Innovation	24	
Specific but limited targets for Innovation	18	18
Some Innovation considered	12	
No evidence of Innovation Strategy	6	

Potential Innovation identified	Marks (Max 3 per category)	Benefits achieved	Marks (Max 4 per category)
Greater potential use of space through the provision of a building shell with few internal load bearing walls	3	Greater flexibility in the use of the building, particularly in relation to potential changes that may be required of the building in the future	4
Increased circulation space	3	Calmer movement of students throughout the school resulting in less breakages	3
Provision of lobby areas outside classrooms	3	Further increases the ease of movement by taking pupils off the corridors prior to class commencing	3
Greater use of day lighting	3	Gives an airy feel to the buildings which appears to contribute to a calmer atmosphere in the school. Reduces costs of artificial lighting	3
Greater use of adjacencies	3	Results in greater use of preparation space for practical classes and less distance travelled by pupils between classes Change in DOES Specification for conventionally built schools	3

Use of high insulation roofing material	2	Results in lower maintenance costs, and lower possibility of leaks than in traditional tiled roofs. Better sound insulation. Better heat insulation resulting in saving on energy costs Change in DOES Specification for conventionally built schools	3
Use of hardwearing flooring materials	1	Reduced life cycling costs to PSO	2
Use of fair faced block work	1	Eliminates repainting costs to PSO	2
Use of newer design in school furniture	2	Less breakages resulting in lower maintenance costs to PSO Change in DOES Specification for conventionally built schools	2
Use of sturdier materials generally	2	Less vandalism (e.g. in toilet areas), resulting in lower maintenance costs	2
Total innovation rating expressed as a mark out of 100			68

Project: National Maritime College of Ireland

Date Analysed: 6 October 2006

INNOVATION

Degree to which Innovation was considered	Marks Available	Marks Allocated
Very comprehensive approach to Innovation evident	30	
Structured approach to Innovation	24	
Specific but limited targets for Innovation	18	18
Some Innovation considered	12	
No evidence of Innovation Strategy	6	

Potential Innovation identified	Marks (Max 3 per category)	Benefits achieved	Marks (Max 4 per category)
Greater potential use of space through the provision of a building shell with few internal load bearing walls	3	Greater flexibility in the use of the building, particularly in relation to potential changes that may be required of the building in the future.	4
Building designed to accommodate 3 rd party use	3	Use of Sports Hall, Catering Area and Main Lecture theatre close to building entrance makes these facilities accessible to 3 rd parties with minimum disruption to the facility as a whole.	3
Heat generating functions located in the centre of the building	3	Greater reduction in heat loss contributing to objective of production an energy efficient building.	3
Greater capture of light arising from the direction that the roof lights are facing and heat energy efficiency from the ceiling design	3	Reduces costs of artificial lighting and contributes to objective of production of an energy efficient building.	3

Greater use of adjacencies	3	Results in better use of simulator suite and the adjacent break out rooms. Also results in less time spent by students travelling from room to room.	3
Use of high insulation roofing material	2	Results in lower maintenance costs, and lower possibility of leaks than in traditional tiled roofs. Better sound insulation. Better heat insulation resulting in saving on energy costs. Change in DOES Specification for conventionally built 3 rd level colleges.	3
Use of hardwearing flooring materials	1	Reduced life cycling costs to PSO.	2
Use of fair faced block work	1	Eliminates repainting costs to PSO.	2
Use of newer design in furniture	2	Less breakages resulting in lower maintenance costs to PSO. Change in DOES Specification for conventionally built schools.	2
Site locker areas in open spaces off corridors	2	Reduces the number of students on the corridors thereby increasing general circulation space while reducing wear & tear on the corridors.	3
Total innovation rating expressed as a mark out of 100			69

8.2.6 Relating the Data to Proposition 1 – Outcomes relating to Innovation

As each of the innovation headings have been assessed in respect of both projects, the rating system quickly establishes that there is no observable difference between the two projects in terms of project outcome relating to innovation. It is therefore concluded that Proposition 1 is not true in the case of innovation on these projects.

8.2.7 Summary – Project Outcomes

In summary, the research found that there were differences in the project outcomes in some of aspects relating to risk and value. Reasons for these differences will be sought later in the following chapter when Proposition 3 is being explored. No observable difference was detected in the outcomes relating to innovation. As Proposition 3 relates differences in outcomes to difference in attitudes, it is now only valid in the case of Risk and Value. However,

attitudes to innovation are still to be investigated and an assessment will then be carried out as to any further analysis that is to be conducted in relation to innovation.

8.3 PARTICIPANT ATTITUDES

In this section, the outcome of the interviews with the following project participants will be reviewed:

	Grouped School Project	Appendix	National Maritime College	Appendix
Public Sector	Dave Gordan Head of DOES PPP Unit	7	Dave Gordan Head of DOES PPP Unit	11
	Mark Cherry Farrell Grant Sparks, Advisors to DOES	8	Ferga Kane Delloitte, Advisors to DOES	12
Private Sector	John Farrell Regional Director, Hochtief FM	9	Iain Salley Regional Director, Bovis LendLease (Focus Education)	13
	Philip Clarke Regional Director Hochtief PPP Solutions	10	Patrick Mitchell Facilities Manager, Vita LendLease (Focus Education)	14

The transcripts of their interviews are noted for reference.

8.3.1 Data Collection

Seven of the interviews were carried out between July and September 2006. The final interview was carried out in December 2006. In each case the participant was contacted by telephone giving an outline of what was required and offering to send on further information. Of the 8 interviewees, 3 requested the further information. 1 asked for and was sent a full list of the questions that would be asked.

The interviews were conducted in a venue of the participants' choosing. With the exception of one, the venue chosen by the participant was his/own office building. The interview method used was that of the Strategic Conversation (Ratcliffe, 2002) whereby the

questions prepared are used to prompt the interviewee. The questions are used to guide the interview but depending on the directions that the conversation takes, are not always asked in the sequence in which they are written.

The interviews were recorded for accuracy and later transcribed. Each interviewee was afforded an opportunity to make corrections to the transcript where the record did not give an accurate representation of the point being made. A small number of minor amendments were suggested to 4 of the transcripts. The remainder were accepted without amendments.

8.3.2 Data Processing – Attitudes relating to Risk

Using the analysis sheets developed in the previous chapter, the data relating to risk attitudes, gathered from the participant interviews, were processed. The answers were assigned a mark along the appropriate 1-5 scale and then multiplied by the rating each interviewee assigned to risk. The attitudes recorded of the two participants from the public sector on project one are presented first and are followed by the attitudes of the private sector participants on project one. The same sequence is then followed in presenting the attitudes of the participants on project two.

Risk Attitudes Project 1 - Public Sector

Risk Attitudes		INTERVIEW 1	Rating (x 25)	INTERVIEW 2	Rating (x 25)	Total Rating
Cognitive	What were the objectives relating to risk?	On taking advice from consultants, DOES set out the types of risks associated with the project and decided which risks should be carried by which party. Key issue in choosing PPP was to shorten overall delivery time.	4 (100)	To ensure that the risk profile was the same as for schools projects in the UK and to ensure that the DOES benefited from the financial gains of refinancing.	4 (100)	200
	Which risks were identified?	Full Planning Permission ¹ , Design ² , Construction ³ , Availability ⁴ , Operation ⁵ , Project Financing, Demand, Changes in tax rates, Changes in pupil-teacher ratio, Residual value.	5 (125)	As detailed in the C&AG Report.	5 (125)	250
						Σ450
Affective	Which risks were identified as critical to project success?	All were important but 1-5 above would have the most effect on the success of the actual project.	3 (75)	Whole project was critical.	5 (125)	200
	In what way were these risks critical?	1, 2 and 3 – would dictate when the school would become available. 4 & 5 – would dictate the success of the school in use.	5 (125)	It would have implications for the future of PPP in Ireland.	5 (125)	250
						Σ450

Behavioural	What processes were used to analyse risk on the project?	Analysis carried out with expert consultants hired by DOES.	3 (75)	This was primarily the identification of headline risks and where they were allocated. There was no need to get down into the detailed risk.	3 (75)	150
	What process was used to manage the risk allocation?	Risk allocation was carried out by DOES having taken advice from the expert consultants in order to produce draft project agreement. This was given for comment to the six consortia who entered an Expression Of Interest (EOI) in the project. On receipt of the EOIs, meetings were held with each consortium relating to financing, design, legal operation of the project. Comments received were used to finalise the project agreement and this was issued, clearly outlining the risk allocation to each of the three of the consortia who participated in the Invitation To Negotiate (ITN) stage.	5 (125)	Risk is assigned through market acceptance and negotiation. The general principles of this procedure were agreed with all of the bidders at the start and the details were worked out individually with each of the bidders during the bidder liaison meetings.	5 (125)	250
						Σ400

The relative importance ratings of the elements of the risk attitudes of the public sector for Project 1 are therefore summarised as Affective – 450, Behavioural – 400 and Cognitive – 450. This is illustrated in figure 8.1.

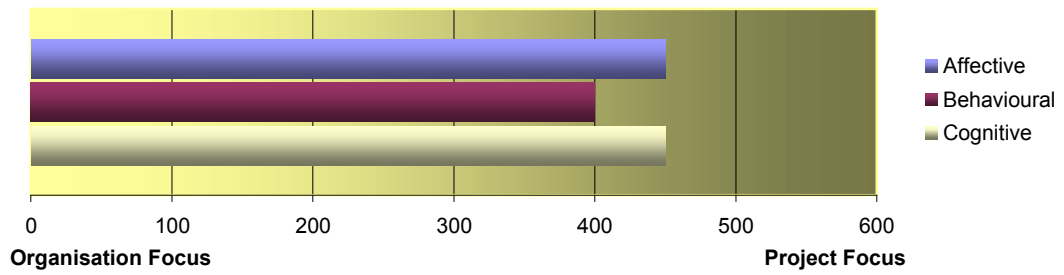


Figure 8.1: Focus of Public Sector Risk Attitude – Project 1

This profile shows the attitude displayed by the public sector participants on this project were not solely concentrating on its public sector risk objectives but was open to working towards project level risk objectives.

Risk Attitudes Project 1 - Private Sector

Risk Attitudes		INTERVIEW 1	Rating (x 20)	INTERVIEW 2	Rating (x 20)	Total Rating
Cognitive	What were the objectives relating to risk?	DOES dictated certain risks were to be transferred.	3 (60)	CJV objective was to get into long term school accommodation provision. Building of trust to reduce risk was a key objective.	4 (80)	140
	Which risks were identified?	Demographic changes to be retained by client Planning Permission, Design, Construction, and Operation – all to be transferred to SPV.	2 (40)	Risk allocation was identified in the Draft Project Agreement. SPV took on risk of Planning, Design, Construction and Inflation.	3 (60)	100
						Σ240

Affective	Which risks were identified as critical to project success?	Planning Permission ¹ , Construction ² , Availability ³ .	2 (40)	The Financial risk.	2 (40)	80
	In what way were these risks critical?	1 & 2 could delay the opening of the school and delay start of income 3 could affect ongoing income.	1 (20)	For commercial viability of the project, but also the scoring mechanism was weighted in favour of Financial, ahead of Design, Sustainability and the other factors.	2 (40)	60
						Σ140
Behavioural	What processes were used to analyse risk on the project?	Brainstorming within the SPV, made use of experience gained on PFI schools in UK.	2 (40)	Risk analysis was an on-going process throughout procurement process. Mostly analysed through discussion.	4 (80)	140
	What process was used to manage the risk allocation?	Managed within SPV – cost of risk transfer was part of pre-contract negotiations with the client .	2 (40)	Arose during meetings between Client and SPV at procurement stage.	4 (80)	140
						Σ280

The relative importance ratings of the elements of the risk attitudes of the private sector for Project 1 are therefore summarised as Affective – 140, Behavioural – 280 and Cognitive – 240. This is illustrated in Figure 8.2.

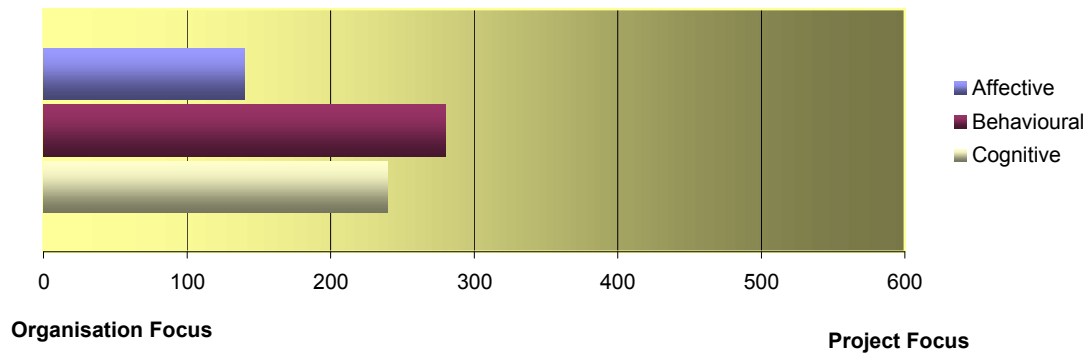


Figure 8.2: Focus of Private Sector Risk Attitude – Project 1

The profile displayed shows an organisation that is strongly focused on achieving its own objectives, with some disposition to action on a number of project level issues. The attitudes recorded suggest that there is a strong understanding of the organisational position and a lesser appreciation of project level issues.

Risk Attitudes Project 2 - Public Sector

Risk Attitudes		INTERVIEW 1	Ratin g (x 25)	INTERVIEW 2	Ratin g (x 20)	Total Ratin g
Cognitive	What were the objectives relating to risk?	On taking advice from consultants, DOES set out the types of risks associated with the project and decided which risks should be carried by which party. Specific risk issues in this project related to the availability of the simulation suite, the training pool and the jetty.	4 (100)	On taking advice from consultants, DOES set out the types of risks associated with the project and decided which risks should be carried by which party.	4 (80)	180
	Which risks were identified?	Full Planning Permission ¹ , Design ² , Construction ³ , Availability ⁴ , Operation ⁵ , Project Financing, Demand, Changes in tax rates, Residual value.	5 (125)	Full Planning Permission ¹ , Design ² , Construction ³ , Availability ⁴ , Operation ⁵ . Full risk matrix produced.	5 (100)	225
						Σ405

Affective	Which risks were identified as critical to project success?	Of the general risks, all were important but 1-5 above would have the most effect on the success of the actual project. As the specific risk issues noted above were critical to the operation of the college, they are critical to project success.	5 (125)	Completion of construction phase and the availability of the simulation equipment.	4 (80)	205
	In what way were these risks critical?	1, 2 and 3 would dictate when the college would become available 4 & 5 would dictate the success of the college in use Availability of the facilities noted above were paramount the project success.	5 (100)	Completion of construction dictated when the college would open and was required to be ready in advance of the new academic year. The availability of the simulation equipment was essential if the college was to function as a naval training facility.	4 (80)	205
Behavioural	What processes were used to analyse risk on the project?	Analysis carried out with expert consultants hired by DOES.	3 (75)	Project Management (PM) Team prepared initial risk matrix and brainstormed with DOES, CIT & INS to finalise matrix.	5 (100)	175
	What process was used to manage the risk allocation?	Allocation was carried out by DOES having taken advise from the expert consultants.	3 (75)	Risk Allocation was written into the output specification and bidders were required to address risk through their bids.	5 (100)	175
						Σ410
						Σ350

The relative importance ratings of the elements of the risk attitudes of the public sector for Project 2 are therefore summarised as Affective – 410, Behavioural – 350 and Cognitive – 405. This is illustrated in figure 8.3.

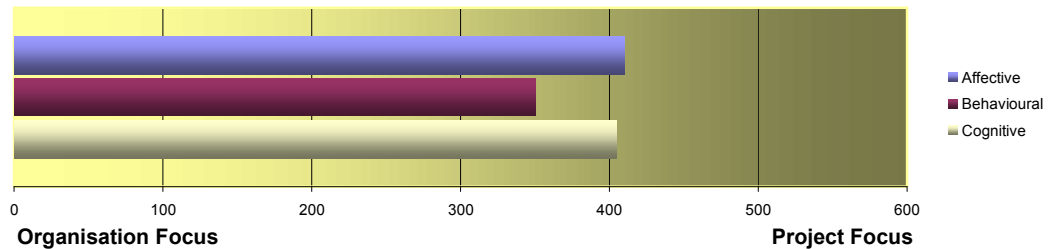


Figure 8.3: Focus of Public Sector Risk Attitude – Project 2

Similar to project 1, this profile shows the attitudes displayed by the public sector participants on this project were not solely concentrating on its public sector risk objectives but were open to working towards project level risk objectives.

Risk Attitudes Project 2 - Private Sector

Risk Attitudes		INTERVIEW 1	Rating (x 30)	INTERVIEW 2	Rating (x 20)	Total Rating
Cognitive	What were the objectives relating to risk?	DOES dictated certain risks were to be transferred through the project agreement.	3 (90)	DOES dictated certain risks were to be transferred through the project agreement.	3 (60)	150
	Which risks were identified?	Standard risks to PPP plus a number of risks arising from the specialist equipment that was required by the client. SPV also had the risk of setting up in a new location.	5 (150)	Changes in law, Demographic changes – all to be retained by client Planning Permission, Investment, Design, Construction, Availability and Operation – all to be transferred to SPV. Also specifically identified was the simulation equipment and the requirement to keep the associated IT provision up to modern standards throughout the duration of the operating contract.	5 (100)	250
						Σ400
Affective	Which risks were identified as critical to project success?	From the perspective of the SPV Construction ¹ and Availability ² were most critical.	2 (60)	Construction ¹ , Availability – particularly the availability of the simulation equipment ² .	2 (40)	100
	In what way were these risks critical?	1 - Could delay the opening of the facility and delay start of income 2 – Could affect ongoing income.	2 (60)	1 could delay the opening of the facility and delay start of income 2 could affect ongoing income.	2 (40)	100
						Σ200

Behavioural	What processes were used to analyse risk on the project?	Analysed at project level by DOES and Project Board SPV risks analysed by brainstorming within SPV partners and use of consultation with Project Board.	5 (150)	Analysed at project level by DOES and Project Board. SPV risks analysed by brainstorming within SPV partners and use of consultation with Project Board discussion. During operational stage, Lend Lease organisation periodically analyse risk at project level by establishing the top ten risks at project level.	5 (100)	250
	What process was used to manage the risk allocation?	Managed by the Project Board. Project Board were very effective in using one point of contact throughout the process to analyse issues and arrive at a quick decision. Project board was empowered to make decisions Ongoing risk analysis within SPV leads to action being taken to reduce or control risk.	5 (150)	Managed by the Project Board. Project Board were very effective in using one point of contact throughout the process to analyse issues and arrive at a quick decision.	5 (100)	250
						Σ500

The relative importance ratings of the elements of the risk attitudes of the private sector for Project 2 are therefore summarised as Affective – 200, Behavioural – 500 and Cognitive – 400. This is illustrated in figure 8.4.

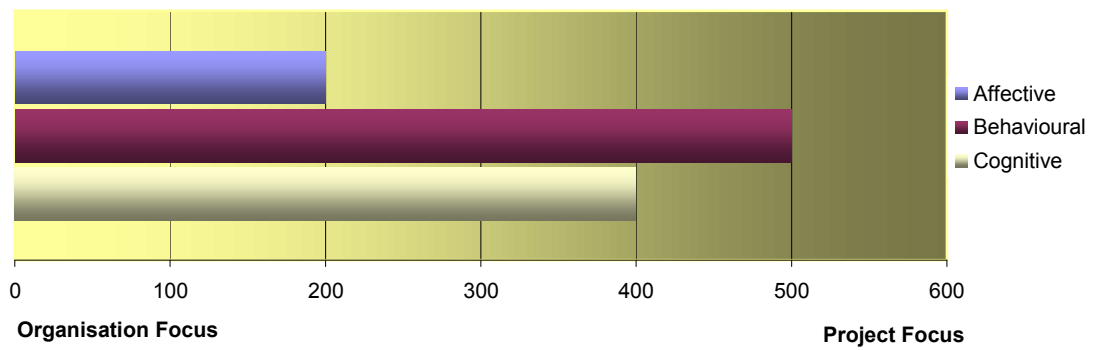


Figure 8.4: Focus of Private Sector Risk Attitude – Project 2

This profile displays an organisation that is focused on its own objectives but also displays a strong disposition to action on project level issues. The attitudes recorded shows that there is a strong understanding of the organisational position and a significant level of understanding of the overall project level issues.

8.3.3 Relating the Data to Proposition 2 – Attitudes relating to Risk

As each of the risk headings has been assessed in respect of both projects, the rating system quickly identifies where there is a difference between the two projects. These differences are shown in Table 8.3 and illustrated in Figure 8.5, where the data gathered is related to the second proposition, namely that there were differences in the attitudes of the project participants in terms of risk.

	Project 1		Project 2	
	Public Sector	Private Sector	Public Sector	Private Sector
Affective	450	140	410	200
Behavioural	400	280	350	500
Cognitive	450	240	405	400

Table 8.3: Relating Data on Risk Attitudes to Proposition 2

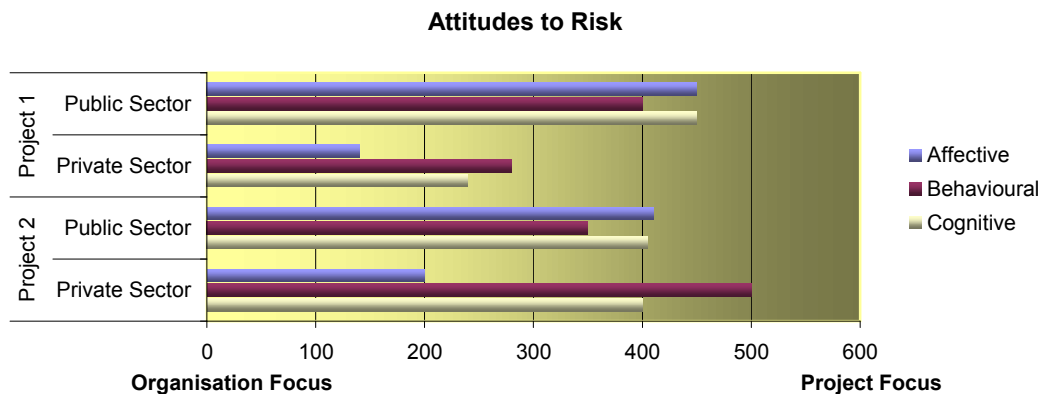


Figure 8.5: Relating Data on Risk Attitudes to Proposition 2

The data presented shows slight differences in the Public Sector attitudes to risk on the projects. However, rather than being exclusively focused on its own objectives, the DOES attitudes show a clear willingness to focus on project level objectives. The most noticeable difference in attitude occurs between the private sector organisations: in particular the difference in the behavioural and

cognitive elements of the risk attitude. The PSO in project 2 shows a much clearer openness to adopting a project focus whilst the PSO on project 1 shows a strong focus in favour of its own organisation. On average, there is a greater tendency in the project 2 organisations to work towards project level objectives.

The differences found show that Proposition 2 is true for risk. The following chapter will investigate whether or not the differences in risk outcomes can be attributed to the difference in focus between the two PSOs.

8.3.4 Data Processing – Attitudes relating to Value

Using the analysis sheets developed in the previous chapter, the data relating to value attitudes, gathered from the participant interviews were processed. The sequence of processing the data relating to risk is repeated here with the data relating to value.

Value Attitudes Project 1 – Public Sector

Value Attitudes		INTERVIEW 1	Rating (x 20)	INTERVIEW 2	Rating (x 25)	Total Rating
Cognitive	What were the objectives relating to value?	To provide a school in a shorter time period than under traditional procurement. To provide a school at the same or lower cost to that which could be provided by the public sector. Buildings to have a life of 10years + at the end of the concession period. To achieve a similar or better standard compared to schools procured under traditional procurement. To find better ways of building schools and to bring this knowledge back into the traditional school building programme.	4 (80)	The time to procure the school would be shorter. The bids would be comparable to the basic building costs that the DOES would have for building conventionally procured schools. The quality would be higher.	4 (100)	180
	How were these objectives arrived at?	Standard objectives of a PPP. 5 th objective identified early in the process as a potential added value outcome of the project.	4 (80)	Standard objectives for a PPP.	4 (100)	180
						Σ360

Affective	Which objectives were identified as critical to project success?	As this was a pilot project, it was critical to ensure that the comparison to procurement under traditional methods was achieved in terms of time, cost and quality.	2 (40)	To ensure that the capital costs were approximately in line with those for conventionally procured schools.	2 (50)	90
	In what way were these objectives critical?	Politically, if these went badly wrong they would be held up as a negative example of PPP for years.	2 (40)	DOES was accountable to the Department of Finance for the costs.	2 (50)	90
						Σ180
Behavioural	How were the value related objectives analysed?	Analysed by DOES having taken advice from the expert consultants.	3 (60)	A cost analysis was prepared as a headline PSC. Service requirements were included as part of the output specification. Time objectives were set by the DOES PBU.	5 (125)	185
	How was the value management administered?	DOES used internal expertise to examine technical aspects of each of the bids. Where internal expertise was not available external experts were consulted on specialist areas.	4 (80)	Negotiated during the procurement process as different bidders came up with their own approaches to the project.	5 (125)	210
						Σ395

The relative importance ratings of the elements of the value attitudes of the public sector for Project 1 are therefore summarised as Affective – 180, Behavioural – 395 and Cognitive – 360. This is illustrated in figure 8.6

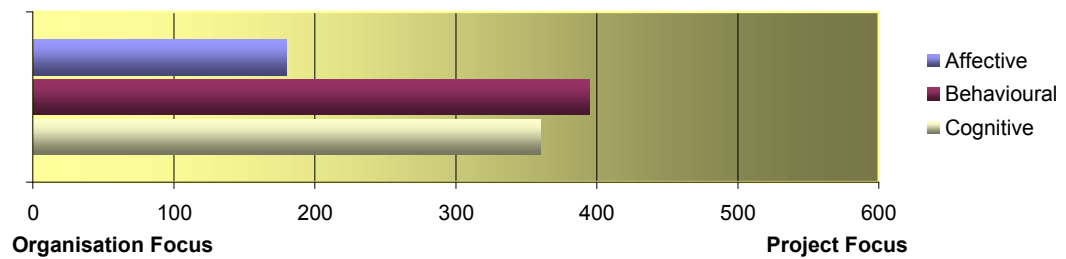


Figure 8.6: Focus of Public Sector Value Attitude – Project 1

This profile shows that the DOES is focused primarily on its own value objectives but also displays a strong disposition to action on project level issues. The attitudes recorded shows that the public sector has a strong understanding of its own organisational position and a significant level of understanding of the overall project level issues.

Value Attitudes Project 1 – Private Sector

Value Attitudes		INTERVIEW 1	Rating (x 25)	INTERVIEW 2	Rating (x 20)	Total Rating
Cognitive	What were the objectives relating to value?	<p>No joint objectives set with DOES SPV objectives, from a time, cost & quality perspective, were:</p> <p>Time</p> <ul style="list-style-type: none"> - To bring the facility to the operation stage as early as commercially feasible. <p>Cost</p> <ul style="list-style-type: none"> - Identify life cycle costs and structure the price to meet these costs. - Make a commercially viable profit. - Cover bidding costs from this project and other projects where SPV was not successful. <p>Quality</p> <ul style="list-style-type: none"> - Produce a building of such quality that initial costs would be justified by later savings due to reduced running costs. - Give the client a potentially value-added product thereby bringing the benefits of UK PFI experience in schools to Ireland. 	4 (100)	<p>Time</p> <ul style="list-style-type: none"> - To get the facility up and running within programme and to continue to run it over the next 25 years. <p>Cost</p> <ul style="list-style-type: none"> - To deliver the project within the tendered price. <p>Quality</p> <ul style="list-style-type: none"> - Produce a building of such quality that life cycle costs would be reduced to a minimum. 	4 (80)	180
	How were these objectives arrived at?	Standard business objectives within SPV.	4 (100)	Standard business objectives.	4 (80)	180
						Σ360

Affective	Which objectives were identified as critical to project success?	Time and cost and first quality objective were critical. Second quality objective was desirable.	1 (25)	All critical in their own way.	1 (20)	45
	In what way were these objectives critical?	Time and cost were critical in order to bring forward the start of the income stream. First quality objective would dictate levels of running costs throughout the life of the project.	1 (25)	All dependent on each other. Without proper quality, you run the risk of getting the lifecycling wrong with a potential negative result to your long term costs.	1 (20)	45
						Σ90
Behavioural	How were the value related objectives analysed?	SPV invested in value engineering techniques.	1 (25)	SPV carried out its own value-engineering exercises.	1 (20)	45
	How was the value management managed?	Internally managed by the SPV.	1 (25)	Internally by SPV.	1 (20)	45
						Σ90

The relative importance ratings of the elements of the value attitudes of the private sector for Project 1 are therefore summarised as Affective – 90, Behavioural – 90 and Cognitive – 360. This is illustrated in figure 8.7.

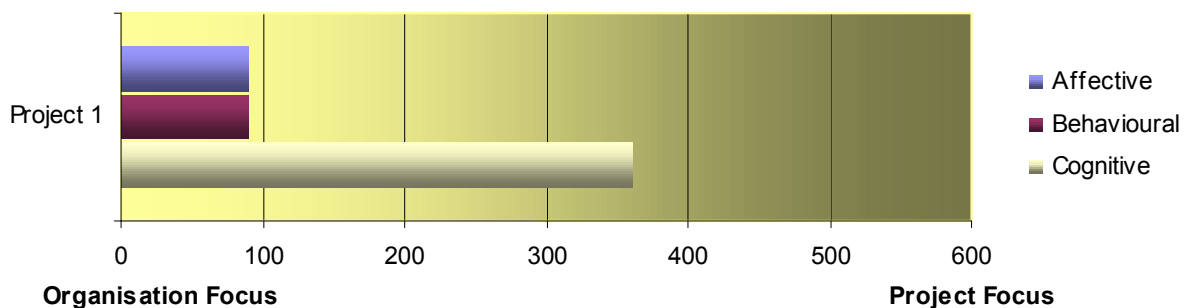


Figure 8.7: Focus of Private Sector Value Attitude – Project 1

This profile shows that the PSO is focused very strongly on its own value objectives and displays very little disposition to action on project level value issues. Despite this, the attitudes recorded show a significant level of understanding of the overall project level value issues in addition to a strong understanding of its own organisational position.

Value Attitudes Project 2 – Public Sector

Value Attitudes		INTERVIEW 1	Rating (x 20)	INTERVIEW 2	Rating (x 30)	Total Rating
Cognitive	What were the objectives relating to value?	<p>Time To provide the college within the time period required by the DOES.</p> <p>Cost To provide the college at the same or lower cost as defined by the Public Sector Benchmark (PSB).</p> <p>Quality To provide a world class facility for the education and training of Navy and merchant seaman personnel.</p>	4 (80)	<p>Time To provide the college in a shorter time period than under traditional procurement.</p> <p>Cost To provide the college at the same or lower cost than that which could be provided by the public sector assuming the facilities provided by both sectors would be identical</p> <p>Buildings to have a life of 10years + at the end of the concession period.</p> <p>Quality To provide a world class facility for the education and training of Navy and merchant seaman personnel. To find better ways of building third level colleges and to reuse this knowledge in the provision of further 3rd level college accommodation.</p>	4 (120)	200
	How were these objectives arrived at?	Standard objectives of a PPP. Second quality objective identified early in the process as a potential added value outcome of the project.	4 (80)	Decided by the management of the DOES PPP Unit in consultation with the PM Team and proposed users of the facility. During the procurement process, in final bid stage, there was close co-operation between the bidder and the DOES on the means by which the objectives would be achieved.	5 (150)	230
						Σ430

Affective	Which objectives were identified as critical to project success?	Whilst time and cost objectives were critical in the initial stages of the project, the first quality objective was the most critical objective.	3 (60)	Whilst time and cost objectives were critical in the initial stages of the project, the quality objective was the most critical objective to the users.	3 (90)	150
	In what way were these objectives critical?	The existing facilities for provision of this training were outdated and replacement was of an extremely urgent nature. The required quality was critical as this was to be a shared facility and only one of the highest standards would convince those using the facility that procurement through PPP was a success.	3 (60)	<p>The existing facilities for provision of this training required the hands-on training to be carried out at sea</p> <p>This was not the way such training was being done in a modern facility</p> <p>The new facility also had to be of the highest standards to attract business from other places</p>	3 (90)	150
						Σ300

Behavioural	How were the value related objectives analysed?	DOES used internal expertise to examine technical aspects of each of the bids. Where internal expertise was not available external experts were consulted on specialist areas.	4 (80)	DOES, PM Team and the bidders used a brainstorming approach to establish, promote and review objectives.	5 (150)	230
	How was the value management administered?	DOES and the preferred bidder developed a strong working relationship which was used in addressing value management issues.	5 (100)	DOES, PM Team and the preferred bidder developed a strong working relationship which was used in addressing value management issues. Debriefing sessions followed discussions, to ensure all information arising was fully recorded and communicated appropriately.	5 (150)	250
						Σ480

The relative importance ratings of the elements of the value attitudes of the public sector for Project 2 are therefore summarised as Affective – 300, Behavioural – 480 and Cognitive – 430. This is illustrated in figure 8.8.

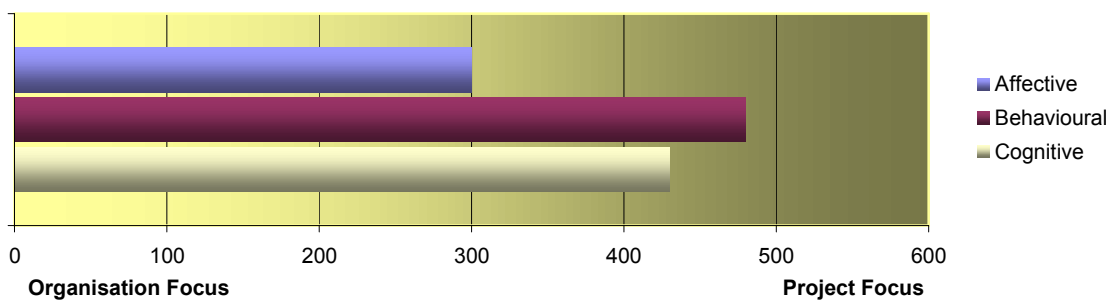


Figure 8.8: Focus of Public Sector Value Attitude – Project 2

This profile shows that the DOES is focused primarily on its own value objectives but also displays a strong disposition to action on project level issues. The attitudes recorded show that there is a strong understanding of its own organisational position and a significant level of understanding of the overall project level issues.

8.4.5 Value Attitudes Project 2 – Private Sector

Value Attitudes		INTERVIEW 1	Rating (x 15)	INTERVIEW 2	Rating (x 20)	Total Rating
Cognitive	What were the objectives relating to value?	No joint objectives set with DOES SPV objectives, from a time, cost & quality perspective, were: Time To bring the facility to the operation stage by the availability date as dictated by the PA. Cost Identify life cycle and capital expenditure costs, creating the best balance and value to maximise the efficiencies of the financial model. Make a commercially viable profit. Quality Produce a building of such quality that initial costs would be justified by later savings due to reduced running costs.	4 (60)	No joint objectives set with DOES From a time, cost & quality perspective, SPV objectives were: Time To bring the facility to the operation stage by 4th October 2004. Cost To deliver the facility at the agreed standard while making a commercially viable profit. The project agreement also required the Client and the SPV to work together to promote 3 rd party income. Quality Clear performance objectives defined in the contract.	4 (80)	140
	How were these objectives arrived at?	Standard business objectives within SPV.	4 (60)	Time Set out in the Project Agreement. Cost Standard business objectives within SPV. Quality Client was very focused on the precise requirements of the facility and ensured that these requirements were clearly identified in the invitation to tender.	5 (100)	160
						Σ300

Affective	Which objectives were identified as critical to project success?	All were critical.	1 (15)	All critical in their own way.	1 (20)	35
	In what way were these objectives critical?	Time and cost were critical in order to bring forward the start of the income stream. Quality objective would dictate levels of running costs throughout the life of the project.	1 (15)	<p>Time</p> <ul style="list-style-type: none"> - critical in bringing the building into use – thereby starting the income to the SPV. <p>Cost</p> <ul style="list-style-type: none"> - construction cost was critical to ensure long term financing projections were accurate while ongoing cost control determines whether or not the SPV make an on-going profit on the project. - for SPV 3rd party income would boost profitability of the project, for Client it would reduce the overall cost of running the facility. <p>Quality</p> <ul style="list-style-type: none"> - critical in that it defines the performance levels that must be achieved and such quality is dependent both on the life cycle analysis that was done at the design stage and on the management of the facility throughout the duration of the contract. 	3 (60)	75
						Σ110

Behavioural	How were the value related objectives analysed?	SPV consulted amongst themselves and with Project Board to analyse objectives.	4 (60)	SPV consulted amongst themselves and with Project Board to analyse objectives.	4 (80)	140
	How was the value management managed?	Internally managed by the SPV.	1 (15)	Initially managed internally by the SPV. During operational stage, SPV and Client Liaison Committee must meet every 3 months. On-going value management is an issue that is discussed at these meetings.	4 (80)	95
						Σ235

The relative importance ratings of the elements of the value attitudes of the private sector for Project 2 are therefore summarised as Affective –110, Behavioural – 235 and Cognitive – 335. This is illustrated in figure 8.9.

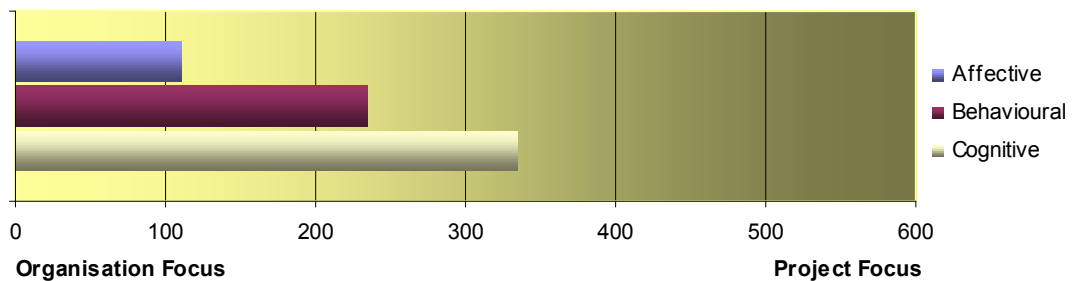


Figure 8.9: Focus of Private Sector Value Attitude – Project 2

This profile shows that the PSO is focused strongly on its own value objectives and but displays a noticeable disposition to action on project level value issues. The attitudes recorded show a strong understanding of its own organisational position and a significant level of understanding of the overall project level value issues.

8.4.6 Relating the Data to Proposition 2 – Attitudes relating to Value

As each of the value headings have been assessed in respect of both projects, the rating system quickly identifies where there is a difference between the two projects. These differences are shown in Table 8.4 and figure 8.10, where the data gathered is related to the second proposition, namely that there were differences in the attitudes of the project participants in terms of value.

	Project 1		Project 2	
	Public Sector	Private Sector	Public Sector	Private Sector
Affective	180	90	300	110
Behavioural	395	90	480	235
Cognitive	360	360	430	335

Table 8.4: Relating Data on Value Attitudes to Proposition 2

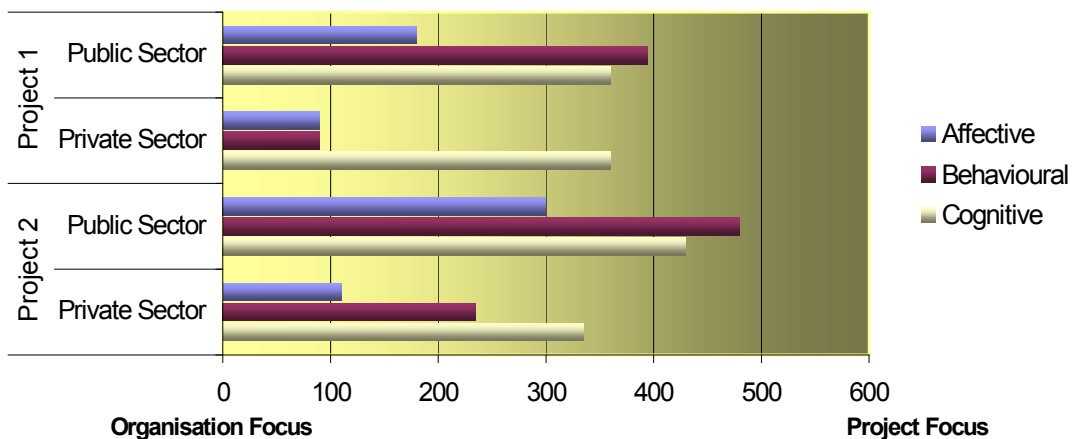


Figure 8.10: Relating Data on Value Attitudes to Proposition 2

The data presented show differences in the private sector attitudes to value on the projects, particularly in the behavioural element of the attitude. However, as would be expected from a commercial

organisation, the primary focus is that of achieving value for the private sector investors in the project. Nonetheless, both organisations show a strong understanding of the value issues at a project level. From a behavioural perspective, the PSO on Project 2 shows a stronger willingness to deliver on project level value objectives.

The public sector attitudes show differences in the attitude to value, with project 2 showing a more pronounced project focus across all three elements. The history of the projects may explain some of this difference as Project 1 was the first such project and the level of caution with which it was approached may have been higher as a result. On average, there is a greater tendency in the Project 2 organisations to work towards project level objectives.

The differences found show that Proposition 2 is true for value. Again, the following chapter will investigate whether or not the differences in value outcomes can be attributed to these differences in focus.

8.4.7 Data Processing – Attitudes relating to Innovation

Using the analysis sheets developed in the previous chapter, the data relating to innovation attitudes, gathered from the participant interviews were processed. The sequence of processing the data relating to risk and to value is repeated here with the data relating to innovation.

Innovation Attitudes Project 1 – Public Sector

Attitudes to Innovation		INTERVIEW 1	Rating (x 15)	INTERVIEW 2	Rating (x 10)	Total Rating
Cognitive	What were the objectives relating to innovation?	<p>Cost Saving Innovation An issue for the operator to ensure that the facility is delivered as fit for purpose whilst reducing running costs over life of the project. Becomes a saving for the DOES where the saving is used to contribute to generating a lower tender price. DOES did not set any specific Cost Saving Innovation objectives for SPV.</p> <p>Product Enhancing Innovation Objectives Gather information on new building practices, use of new materials and use of school furniture/equipment with a view to modernising the specification of traditionally procured schools.</p>	5 (75)	Revolved around the quality of the build, the circulation space (which was to be increased by up to 30%) and getting a higher standard of IT into the schools. Cost Saving Innovation was an issue for the Operator and it was important that the Operator be allowed to incorporate such innovations.	4 (40)	115
	What potential innovations were identified?	Decided by the management of the DOES PPP Unit.	2 (30)	Guidelines for corridor space and circulation space were under review by the PBU at the time.	1 (10)	40
						Σ155

Affective	In your view, which innovation-related issues were identified as critical to project success?	Cost saving objectives must meet fitness for purpose requirements. Product enhancing innovations were important but not critical.	4 (60)	All were important, but not critical.	1 (10)	70
	In what way were these issues critical?	If fitness for purpose was not met, the school would be unsuitable and the DOES would not pay for such a facility.	2 (30)	It was important to show that using the PPP process could bring a benefit.	1 (10)	40
						Σ110
Behavioural	What processes were used to identify potential for innovation on the project?	Product enhancing innovation was openly examined due to the pilot nature of the project. This allowed the DOES to deviate from the standard internal schools specification.	2 (30)	Innovation related objectives arose from question and answer sessions with the bidders and through the bidder liaison meetings.	4 (40)	70
	What process was used to manage the use of innovation?	Increased school size (by 5%) was a requirement in the tender documentation. Other innovation related issues were evaluated by the DOES against the standard technical specification for a school. DOES did not specify specific innovations as the SPV carried the risk of ensuring that the facility met the fitness for purpose requirements.	3 (45)	The DOES architects would examine the proposals and satisfy themselves that they were happy with what was proposed.	3 (30)	75
						Σ145

The relative importance ratings of the elements of the innovation attitudes of the public sector for Project 1 are therefore summarised as Affective – 110, Behavioural – 145 and Cognitive – 155. This is illustrated in figure 8.11.

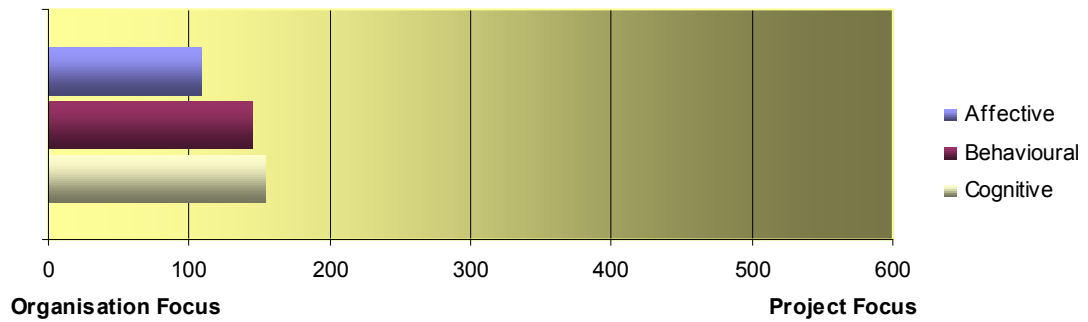


Figure 8.11: Focus of Public Sector Innovation Attitude – Project 1

This profile shows that on project 1, the DOES is focused very strongly on its own innovation objectives and shows little noticeable disposition to action on project level value issues. From a cognitive perspective, the DOES is clear on the innovation that it wants from the project, but is not interested in innovation beyond this.

Innovation Attitudes Project 1 – Private Sector

Attitudes to Innovation		INTERVIEW 1	Rating (x 15)	INTERVIEW 2	Rating (x 20)	Total Rating
Cognitive	What were the objectives relating to innovation?	Cost Saving <ul style="list-style-type: none"> to reduce running costs over life of the project Product Enhancing <ul style="list-style-type: none"> to present the DOES with a better product based on the experience of several years involvement in the provision of schools through PFI in the UK. 	4 (60)	From the design perspective, <ul style="list-style-type: none"> to maximise corridors and circulation areas. to maximise the effectiveness of adjacencies. to extract the maximum amount of available that could be used in the footprint of the building. 	4 (80)	140
	What potential innovations were identified?	Cost Saving <ul style="list-style-type: none"> facilities management involved at design stage in order to maximise savings. Product Enhancing <ul style="list-style-type: none"> Brought suggestions to DOES through the bid which would show that SPV would produce a high quality school. 	4 (60)	Use of different footprints and different layout of blocks within the building.	4 (80)	140
						Σ280

Affective	In your view, which innovation-related issues were identified as critical to project success?	Provision of product enhancing innovations.	4 (60)	To provide schools for the future.	4 (80)	140
	In what way were these issues critical?	Viewed by SPV as being the critical issue that would decide the outcome of the tendering process as most bids would be similar on price.	3 (45)	They are scored as part of the evaluation of the bid, as are affordability and legal issues, etc. The DOES dictates the value that they apply to innovation in the bid and this reflects their own view of how critical it is.	3 (60)	105
						Σ245
Behavioural	What processes were used to identify potential for innovation on the project?	Looked at UK model for schools and made decisions based on this model. In some cases this didn't work as the school culture in the UK is different to that in Ireland.	4 (60)	Regular consultation with experienced educationalists on PSO designs to increase PSO awareness of the issues that it should be raising and the likely reaction from the DOES.	5 (100)	160
	What process was used to manage the use of innovation?	No formal management other than following potential innovations that emerged in value engineering	3 (45)	The design team approached this project with a brief to be innovative and the solutions that arose were arrived at through their application of their experience to the development of the design.	4 (80)	125
						Σ285

The relative importance ratings of the elements of the innovation attitudes of the private sector for Project 1 are therefore summarised as Affective – 245, Behavioural – 285 and Cognitive – 280. This is illustrated in figure 8.12.

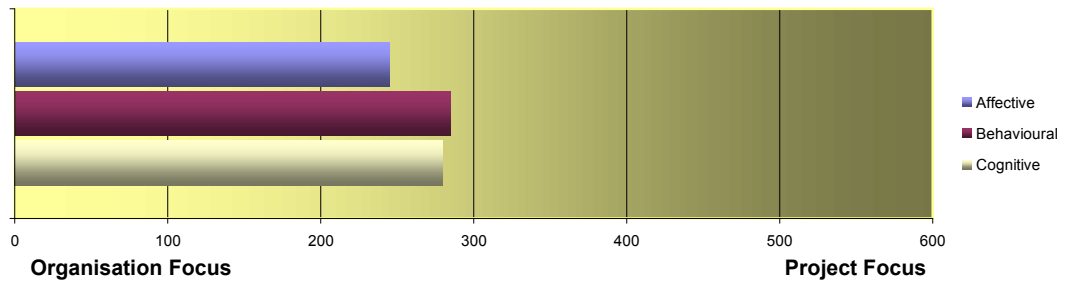


Figure 8.12: Focus of Private Sector Innovation Attitude – Project 1

This profile shows that the PSO is focused strongly on its own value objectives, but is also willing to explore innovation at a project level. It displays a noticeable disposition to action on project level value issues. The attitudes recorded show a strong understanding of its own organisational position and a significant level of understanding of the overall project level value issues.

Innovation Attitudes Project 2– Public Sector

Attitudes to Innovation		INTERVIEW 1	Rating (x 15)	INTERVIEW 2	Rating (x 10)	Total Rating
Cognitive	What were the objectives relating to innovation?	<p>Cost Saving Innovation An issue for the operator to ensure that facility is delivered as fit for purpose whilst reducing running costs over life of the project. Becomes a saving for the DOES where the saving is used to contribute to generating a lower tender price. DOES did not set any specific objectives Cost Saving Innovation for the SPV.</p> <p>Product Enhancing Innovation Objectives To procure a world class state of the art facility for the education and training of Navy and merchant seaman personnel. To gather information on new building practices, use of new materials and use of furniture & equipment with a view to finding better ways of providing further 3rd level accommodation.</p>	5 (75)	<p>Cost Saving Innovation DOES did not set any specific objectives for the SPV in relation to Cost Saving Innovation, as it was an issue for the operator to ensure that facility is delivered as fit for purpose whilst reducing running costs over life of the project.</p> <p>Product Enhancing Innovation Objectives To procure a world class state of the art facility for the education and training of both Navy and merchant seaman personnel. To find better ways of building third level colleges and to reuse this knowledge in the provision of further 3rd level college accommodation.</p>	5 (50)	125
	What potential innovations were identified?	Energy efficient building.	2 (30)	Energy efficiency.	2 (25)	55
						Σ180

Affective	In your view, which innovation-related issues were identified as critical to project success?	Cost saving objectives must meet fitness for purpose requirements. 1 st Product enhancing innovation was critical, 2nd was important but not critical.	4 (60)	First product enhancing innovation was critical.	3 (30)	90
	In what way were these issues critical?	If fitness for purpose was not met, the school would be unsuitable and the DOES would not pay for such a facility. If the facility provided was not world class it would be difficult to persuade the Navy and the Merchant Seamen that a jointly occupied facility was a success.	4 (60)	If the facility provided were not world class it would not meet the new training standards.	2 (20)	80
						Σ170

Behavioural	What processes were used to identify potential for innovation on the project?	Addressed as part of analysis of risk and value and agreed within the Project Team. The Project team worked closely with the bidder to make sure that they were clear on the DOES/INS needs.	5 (75)	They were decided by the management of the DOES PPP Unit in consultation with the PM Team and proposed users of the facility. During the procurement process, in final bid stage, there was close co-operation between the bidder and the DOES on the means by which the objectives would be achieved. The objective relating to learning from the process was set by DOES.	5 (50)	125
	What process was used to manage the use of innovation?	Innovation related design proposals were evaluated by the DOES when proposed by the SPV. DOES did not specify specific innovations as the SPV carried the risk of ensuring that the facility met the fitness for purpose requirements.	5 (75)	Innovation objectives were embedded in the project documents and issues arising during the project were evaluated by the DOES against the standard technical specification for a school. SPV carried the risk of ensuring that the facility met the fitness for purpose requirements.	2 (20)	95
						Σ220

The relative importance ratings of the elements of the innovation attitudes of the public sector for Project 2 are therefore summarised as Affective – 170, Behavioural – 220 and Cognitive – 180. This is illustrated in figure 8.13.

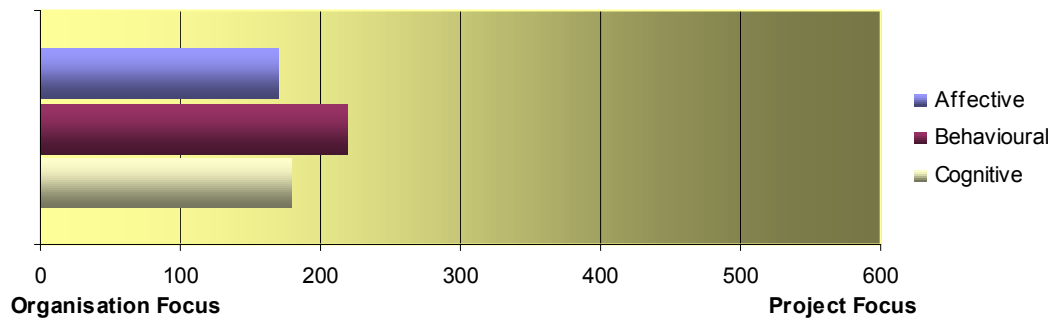


Figure 8.13: Focus of Public Sector Innovation Attitude – Project 2

This profile shows that on project 2, the DOES is focused very strongly on its own innovation objectives and but shows a small level of disposition to action on project level value issues. From a cognitive perspective, the DOES is clear on the innovation that it wants from the project, but does not display significant interest innovation beyond this.

Innovation Attitudes Project 2 – Private Sector

Attitudes to Innovation		INTERVIEW 1	Rating (x 15)	INTERVIEW 2	Rating (x 20)	Total Rating
Cognitive	What were the objectives relating to innovation?	Cost Saving – To reduce running costs over life of the project. Designed as a green building (naturally vented). Use of high quality materials which would lead to an overall saving in lifecycle costs. Product Enhancing - No specific examples come to mind.	3 (45)	Cost Saving – To reduce energy costs over life of the project leading to a saving for all parties. Product Enhancing – Client and SPV must work together to promote 3 rd party income through innovative means. Profit from this activity to be shared between Client and SPV.	4 (80)	125
	What potential innovations were identified?	Green building design requirement established by DOES. Other life cycle cost reducing objectives are standard to a PPP.	4 (60)	Green building design requirement established by DOES. Other life cycle cost reducing objectives are standard to a PPP. Promotion of Product Enhancing innovation is a requirement of the contract	4 (80)	140
						Σ265
Affective	In your view, which innovation-related issues were identified as critical to project success?	Both green building and cost saving objectives.	4 (60)	Low energy building and increased 3 rd party income.	4 (80)	140
	In what way were these issues critical?	Green building design was a requirement of the Output Specification Life cycle costs were critical as they would dictate the tender price and the profitability of the project to the SPV.	4 (60)	Low energy building design was a requirement of the Output Specification Increased 3 rd party income added to the attractiveness of PPP as a procurement method.	4 (80)	140
						Σ280

Behavioural	What processes were used to identify potential for innovation on the project?	Clarification sought from Project Board where necessary. Internal SPV discussions to bring suggestions back to Project Board.	5 (75)	Included by Client in ITN. Further clarification sought from Client where necessary. During operation, Liaison Committee between Client and SPV continues to jointly analyse potential for innovation.	5 (100)	175
	What process was used to manage the use of innovation?	Through a single point of contact on the Project Board. SPV was particularly complimentary regarding the manner in which the Project Board worked throughout the procurement and construction of this project.	5 (75)	During Design and Construction SPV had a single point of contact on the Project Board. SPV was particularly complimentary regarding the manner in which the Project Board worked throughout the procurement and construction of this project. Innovation now managed through the Liaison Committee. E.g., energy usage profile developed and agreed from data gathered over first year and nine months of building use. On-going energy consumption must then be within +5% of profile.	5 (100)	175
						Σ350

The relative importance ratings of the elements of the innovation attitudes of the private sector for Project 2 are therefore summarised as Affective – 280, Behavioural – 350 and Cognitive – 265. This is illustrated in figure 8.14.

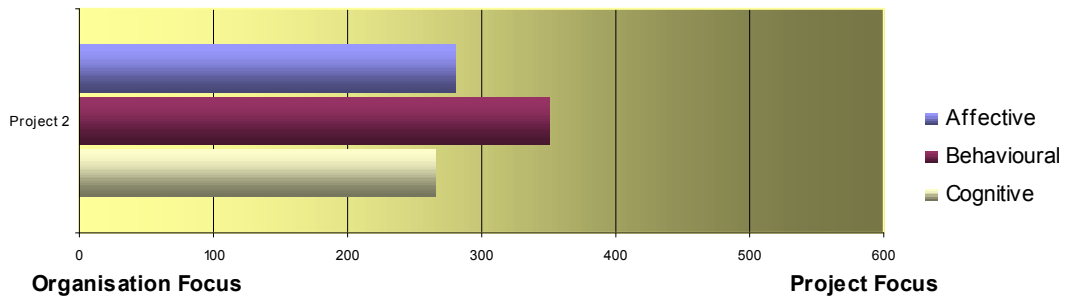


Figure 8.14: Focus of Private Sector Innovation Attitude – Project 2

This profile shows that the PSO is focused strongly on its own innovation objectives, but is also open to exploration of innovation at a project level. It displays a strong disposition to action on project level value issues. The attitudes recorded show a strong understanding of its own organisational position and a significant level of understanding of the overall project level value issues.

8.4.8 Relating the Data to Proposition 2 – Attitudes relating to Innovation

As each of the innovation headings have been assessed in respect of both projects, the rating system quickly identifies where there are differences between the two projects. These differences are shown graphically in Figure 8.15 and in Table 8.5.

	Project 1		Project 2	
	Public Sector	Private Sector	Public Sector	Private Sector
Affective	110	245	170	280
Behavioural	145	285	220	350
Cognitive	155	280	180	265

Table 8.5 Relating Data on Innovation Attitudes to Proposition 2

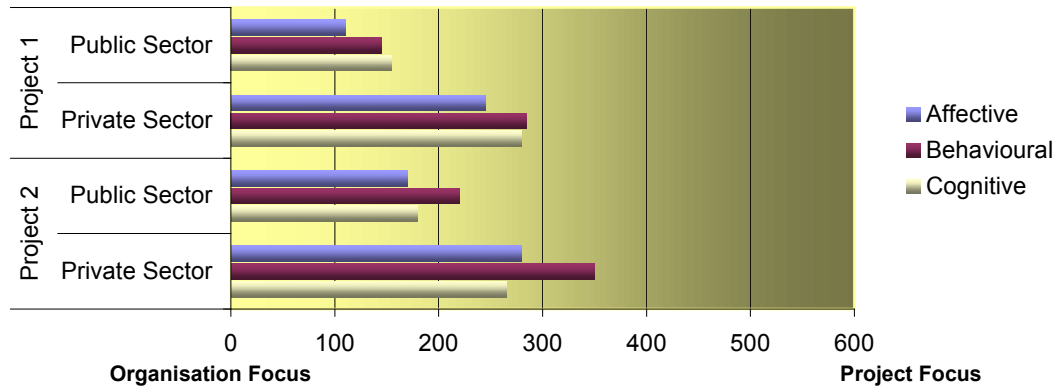


Figure 8.15: Relating Data on Value Attitudes to Proposition 2

The data presented highlights two principal issues. Firstly, the attitude to innovation is more favourable in the private sector than in the public sector. Bearing in mind that one of the government's aims in introducing PPP was to tap into the private sector's approach to innovation, this finding was not unexpected. Secondly, there is a difference in attitude to innovation between Project 1 and Project 2, both from the DOES and the PSOs. The difference within the DOES may be somewhat attributable to the level of caution that would be experienced in the country's first schools PPP and the level of comfort gained from the first project resulting to a lower level of caution on the second project. Within the private sector, the approach of the PSO on Project 2 showed a slightly stronger project focus from a behavioural perspective. However, as Project 2 was a one-off project and would not be compared critically to another such building, the scope of the PSO to innovate may have been greater.

The conclusion reached therefore, is that the differences in attitude are not significant and that the views recorded could have been influenced by a variety of other factors. Proposition 2 in relation to innovation is therefore not proven. Bearing in mind that the project outcome measurement exercise did not uncover any significant

differences in innovation outcomes, there is now no data available to address Proposition 3 in relation to innovation.

8.5 SUMMARY

This chapter summarises the work carried out in addressing the first two propositions of this research. Data on two projects were drawn from eleven separate interviews and analysis of two government published documents. The findings showed that there were differences between the outcomes of the projects in terms Risk and Value. Project 2 displayed a more positive outcome across a range of factors. No significant difference was found in Innovation outcomes. Whilst no significant difference was found in the attitudes of participants to Innovation, differences in the project participants' attitudes in terms of Risk and Value were observed. These attitudes were plotted on a scale to illustrate the focus of the interviewee on his/her own organisation versus the project as a whole. Those participants involved with project 2, on average showed a greater tendency to work to project level objectives than those on project 1. The following chapter will investigate whether or not the differences in project outcome can be attributed to this difference in attitude, thereby testing the third proposition.

CHAPTER 9: COLLATING AND RELATING PROJECT OUTCOME AND PARTICIPANT ATTITUDE DATA

9.1 INTRODUCTION

Relating the data to Propositions 1 and 2 has shown clearly that there were differences in project outcomes and there were differences in participant attitudes. Proposition 3 states that the project outcome differences can be attributed to the differences in participant attitudes. The outcome differences will now be highlighted and examined in relation to the differences in project participants' attitudes to establish the effect of the attitudes on the outcomes. In chapter 3, a means of testing the credibility of this proposition was proposed. This involves the recognition that there are Critical Success Factors (CSFs) that are common to several project types and that these CSFs affect project outcome. Each of these CSFs has a number of components of critical success subfactors (CSS) that together comprise the CSF. By relating each CSS to the outcome difference, an assessment is made as to whether or not the CSS was a factor in the outcome that was observed. All non-relevant CSSs are then eliminated from the analysis. Those CSSs that remain are examined in light of the recorded project participant attitudes, to establish the influence of the attitudes on each CSS.

The analysis is conducted for risk and value only, as the previous chapter has established that there was no significant difference in the outcome relating to innovation recorded between the projects. Each section concludes with a summary of the elements of attitude that affected each CSS. The chapter concludes with an overall summary of the findings.

9.2 RISK OUTCOMES AND ATTITUDES

Table 8.1 (Page 203) in the previous chapter highlighted the following areas of difference in project outcome relating to risk:

- a. More extensive risk identification and analysis on project 2;
- b. Responsibility for residual value risk is unclear in project 1, but is clear in project 2;
- c. Risk allocation of Authority Default Termination, Voluntary Termination and Force Majeure is unclear in project 1, but is clear in project 2;
- d. Difference in effectiveness of transfer of 3rd party income risk;
- e. Transfer of technical obsolescence risk, relating to general equipment, is not as effective in project 1 as in project 2;
- f. Transfer of technical obsolescence risk, relating to IT, is being addressed in project 2, but is not being addressed in project 1.

Differences a, b and c are in the control of the public sector, whilst d, e and f are outcomes that can be affected by both parties. Each must now be examined to determine the cause of the outcome. To conduct this exercise, each difference is related back to the CSS first outlined in Table 7.4 in chapter 7 (Page 169). The potential presence of each CSS as a factor in the outcome is noted as either Yes (✓) or No (✗) in Table 9.1.

Critical success factor	Success subfactor	Risk Outcome Difference					
		a	b	c	d	e	f
Favourable investment environment	1. Supportive and understanding community	x	x	x	✓	x	x
	2. The project is in the public interest	x	x	x	x	x	x
	3. Predictable risk scenarios	x	x	x	x	x	x
	4. Project is suitable for privatisation	x	x	x	x	x	x
Economic Viability	5. Sufficient profitability to attract investors	x	x	x	x	x	x
	6. Long-term cash flow that is attractive to lenders	x	x	x	x	x	x
Reliable Concessionaire consortium with strong technical strength	7. Leading role by a key enterprise or entrepreneur	x	x	x	x	x	x
	8. Effective project organisation structure	x	x	x	✓	✓	✓
	9. Strong and reliable project team	x	x	x	✓	✓	✓
	10. Good relationship with host government authorities	x	x	x	✓	✓	✓
	11. Partnering skills	x	x	x	✓	✓	✓
	12. Rich experience in international PPP projects	x	x	x	x	x	x
	13. Multidisciplinary participants	x	x	x	x	x	x
	14. Sound technical solutions	x	x	x	x	✓	x
	15. Innovative technical thinking	x	x	x	x	x	x
	16. Cost-effective technical solution	x	x	x	x	x	x
	17. Low environmental impact	x	x	x	x	x	x
	18. Public safety and health considerations	x	x	x	x	x	x
	Sound financial package	19. Sound Financial analysis	✓	x	x	✓	x
20. Investment, payment and drawdown schedules		x	x	x	x	x	x
21. Sources and structure of main loans and standby facilities		x	x	x	x	x	x
22. High equity/debt ratio		x	x	x	x	x	x
23. Low financial charges		x	x	x	x	x	x
24. Fixed and low interest rate financing		x	x	x	x	x	x
25. Long-term debt financing that minimises refinancing risk		x	x	x	x	x	x
26. Ability to deal with fluctuations in interest/exchange rates		x	x	x	x	x	x
27. Appropriate toll/tariff level(s) and suitable adjustment formula	x	x	x	x	x	x	
Appropriate risk allocation via reliable contractual arrangements relating to:	28. Concession agreement	✓	✓	✓	✓	✓	✓
	29. Shareholder agreement	x	x	x	x	x	x
	30. Design & construct agreement	x	x	x	x	x	x
	31. Loan agreement	x	x	x	x	x	x
	32. Insurance agreement	x	x	x	x	x	x
	33. Supply agreement	x	x	x	x	✓	✓
	34. Operation agreement	✓	x	x	✓	✓	✓
	35. Offtake agreement	x	x	x	x	x	x
	36. Guarantee/support/comfort letters	x	x	x	x	x	x
		3	1	1	8	8	7

Table 9.1: Potential effect of CSFs on project risk outcome differences

In total, 28 CSSs are considered to be potentially influential on the risk outcome differences. Those CSSs that remain are now examined

in light of the recorded project participant attitudes, to establish the influence of the attitudes on each CSS.

a. Risk Identification and Analysis

Table 9.2 examines the risk outcome difference a), which recorded a higher level of risk analysis on project 2.

CSS	Details	Attitude Difference	Likely Cause of Outcome Difference
Sound Financial analysis (CSS 1)	Project 1 - Public Sector Comparator (PSC) prepared during the latter stages of the tendering process, prior to final approval by the Department of Finance, resulting in financial uncertainty and lack of clarity in risk allocation during the bidding process. Project 2 - PSC prepared at the Invitation to Tender (ITT) stage.	Significant differences across all elements between Public and Private sector attitudes for both projects. Minimal Public sector	Lower levels of risk identification & analysis on project 1 likely to have arisen from the political attitude of the day that the project must proceed quickly and be procured by PPP (Herne, 2006).
Concession agreement (CSS 2)	Project 1 - Assembled late in the bidding process, this was the first such agreement for the provision through PPP of school buildings in the Republic of Ireland. Project 2 - Lessons learned were incorporated into Project 2 agreement. Draft of agreement available at ITT stage.	difference between projects. Significant private sector difference in behavioural element between projects	Cause is likely to be a lack of experience in the PPP process in project 1 rather than the attitudes of the participants.
Operation agreement (CSS 3)	As concession agreement.		As concession agreement.

Table 9.2: Isolation of Potential Effect of Attitude on Risk Outcome a

Outcome differences a) are shown not to have been affected by the attitudes of the project participants. Table 9.2 shows that they are more likely to have resulted from the political pressure to bring the Grouped Schools Project to the operational phase combined with the DOES lack of experience in PPP.

b. Responsibility for Residual Value Risk**c. Authority Default Termination, Voluntary Termination and Force Majeure**

As risk differences b and c are each related to the same single critical subfactor, they are examined together in Table 9.3. They each show a more positive outcome on the second project.

CSS	Details	Attitude Difference	Likely Cause of Outcome Difference
Concession agreement (CSS 4) (CSS 5)	Project 1 - Assembled late in the bidding process, this was the first such agreement for the provision through PPP of school buildings in the Republic of Ireland. Project 2 - Lessons learned were incorporated into Project 2 agreement. Draft of agreement available at ITT stage (interview with Michael Delaney, 2006 – Appendix 6).	Significant differences across all elements between Public and Private sector attitudes for both projects. Minimal Public sector difference between projects. Significant private sector difference in behavioural element between projects.	Cause is likely to be a lack of experience in the PPP process in project 1 rather than the attitudes of the participants.

Table 9.3: Isolation of Potential Effect of Attitude on Risk Outcomes b and c

Again the conclusion reached is that risk outcome differences b and c are attributable to the learning process of the first project, with the lessons learned being applied to the second project, rather than a difference in attitude of the participants.

d. 3rd Party Income Risk

Tables 9.4 and 9.5 examine risk difference d) which identified a difference in the effectiveness of 3rd party income risk transfer. Again, a more positive outcome is evident on the second project. Eight subfactors were identified as potentially influencing the outcomes. Each of these will now be examined to locate the cause of the difference.

CSS	Details	Attitude Difference	Likely Cause of Outcome Difference
Supportive and understanding community (CSS 6)	Two different communities: Project 1 – 2 nd level schools in 5 different locations plus local residential community, Project 2 – 3 rd level college in one location plus local business community.	Significant differences across all elements between Public and Private sector attitudes	Difference caused by diverse nature of projects.
Effective Project Organisation Structure (CSS 7)	Project 1 – no joint team action to address 3 rd party income risk. Project 2 – joint team addressing 3 rd party income.	for both projects. Minimal Public sector difference between projects. Significant private sector difference	Differences in PSO affective and behavioural attitude elements correspond with Project 1 PSO disinclination to engage in joint approach.
Strong and Reliable Project Team (CSS 8)	Project 1 - DOES team consisted of DOES PPP Unit project manager (PM), DOES architect plus 5 principals (with no construction experience or contractual expertise). All decisions by PM. Team not based at project location. PSO project team had extensive experience in UK PFI schools. Project 2 – Team members had extensive experience in Marine, Engineering, Law and Finance. PSO team was new to PPP	in behavioural element between projects.	Difference in composition of project team likely to have affected this outcome. However, it is unlikely that attitudes influenced this CSS.

Table 9.4: Isolation of Potential Effect of Attitude on Risk Outcome d

CSS	Details	Attitude Difference	Likely Cause of Outcome Difference
Good Relationship with host government authorities (CSS 9)	Project 1 – Highly commercial relationship Project 2 – Strong business relationship based on cooperation and openness	Significant differences across all elements between Public and Private sector attitudes for both projects.	High behavioural element score of Project 2 PSO attitude shows clear positive disposition to action on project level risk issues. Attitude is therefore a factor in the difference between projects
Partnering Skills (CSS 10)	Project 1 – No evidence of partnering Project 2 – Entire project based on a partnering approach	Minimal Public sector difference between projects. Significant private sector difference in behavioural element between projects	Clear and constant reference to pragmatism and openness of participants suggests that difference in effectiveness of project management was influenced by the attitudes of the participants.
Sound Financial Analysis (CSS 11)	Project 1 – no evidence of financial analysis of potential 3rd party income Project 2 – clear financial plans for development of 3rd party income		Would appear to have been caused by a lack of experience in the PPP process in Project 1 rather than the attitudes of the participants.
Concession agreement (CSS 12)	Project 1 - Assembled late in the bidding process, (first such agreement for the provision through PPP of school buildings in the Republic of Ireland). Project 2 - Lessons learned were incorporated into Project 2 agreement. Draft of agreement available at ITT stage (M.Delaney interview, – Appendix 6).		Would appear to have been caused by a lack of experience in the PPP process in Project 1 rather than the attitudes of the participants.
Operation Agreement (CSS 13)	As Concession Agreement.		As Concession Agreement.

Table 9.5: Isolation of Potential Effect of Attitude on Risk Outcome d - continued

From these tables (9.4 – 9.5), it can be seen that the difference in the effectiveness of allocation of 3rd party income risk has been influenced by the attitudes of the project participants but only through the critical success subfactors that require interaction, namely: Effective Project Management Structure, Strong and Reliable Project Team, Good Relationship with host government authorities and Partnering Skills.

The decision of the DOES Project Manager to delegate decision making powers to a smaller team on Project 2 shows a different behaviour on Project 1 to that on Project 2. However, no significant difference in public sector attitudes were evident in the attitude measurement. Consequently the DOES Project Organisation Structure has not been affected by different attitudes. However, there is a significant difference in the attitudes of the PSOs in relation to 3rd party risk. This is evident in the Project Organisation Structure in that the PSO is not driving the development of this income in Project 1 whereas, a co-operative approach – led by the PSO - is evident on Project 2. This is mirrored by clear differences in behavioural and cognitive private sector attitudes to risk.

On Project 1, the DOES team is fragmented. It cannot be site based, as the five schools are built in different locations and the school principals are naturally focused on their own schools rather than on the project as a whole. On Project 1, reference to the attitude of the occupants (interview with Sean Slowey, 2006 – Appendix 4) to the PPP process itself is noted as varying widely, from outright opposition to acceptance. In fact, the Principal teacher of one of the schools was ideologically opposed to PPP but accepted the process on the basis that the school would not be provided if he opted out. Although these attitudes did not show up in the attitude measurement, as the occupants' attitudes were not included in the study, the attitude nevertheless exists within the project team, resulting in the team being a fragmented group. This is further underlined by the fact that

the team has not met as a group since the schools went into use over three years ago.

Conversely, Project 2 displays the full acceptance of the PPP process across all of its users (interview with Michael Delaney, 2006 – Appendix 6). The structure and operation of the management team on Project 2, is very clearly defined and the members of the management team are clearly focused on the effective and efficient operation of the project. This indicates that there was a difference in the affective element of attitude between the two projects and it begs the question of the extent of work done at project outset to reach the level of buy-in that is necessary for project success on Project 1. Interestingly, the public sector attitude scores recorded on Project 1 were higher than those recorded for Project 2. This is because the measurement of the attitudes of the occupants was outside the scope of this research. Further investigation, into the effect of occupant attitudes, should be addressed in a future study. (See Chapter 11, Conclusions and Recommendations for Future Research).

Different levels of cooperation between the public and private sector teams mark the difference in performance of the management teams. This was particularly evident in the behavioural element of the attitudes to risk which showed a significant difference in private sector scores between the projects. This is further substantiated through the accounts given of the working relationships that had developed on the projects. There was evidence of a very positive working relationship between the DOES and the PSO on Project 2 (interview with Donal Burke, 2006, - Appendix 5) whilst the opposite is the case on Project 1 (interview with Sean Slowey, 2006 – Appendix 4). Interestingly, the attitude that promoted more cooperation came from the PSO team that had no previous experience in use of PPP in the provision of schools. This suggests that there are cultural issues to consider in the use of the UK PFI approach outside the UK as proposed by Eaton, et al (2007).

There is also a particularly positive disposition towards partnering on Project 2. This is evident from the business cards given to this researcher by all of those interviewed. Each card described the person involved under the function that he/she carried out in the National Maritime College rather than as an employee of the partner organisation. There was no evidence of a partnering approach in the management of Project 1 and this is reflected through the cognitive element of the attitudes recorded from the private sector, where risk was viewed almost exclusively from the private sector perspective only. In Project 2, the private sector partner displayed a strong understanding of the risk issues that were important to the public sector, in addition to demonstrating strong awareness of the private sector risks. When questioned as to why this partnering approach developed on Project 2, the response consistently referred to the attitude of the partners. For example,

"The Project Board and the SPV worked very well together. The attitude of the members of the project board was to bring an issue out into the open and to deal with it in an open, pragmatic manner. All of the partners were fully aware of the requirements of the other side and they dealt with issues that arose in an amicable and businesslike manner."

(Interview with Ferga Kane, 2006 – Appendix 12)

"Seafarers in general and ships officers in particular are trained to be part of and lead teams. As well as that, being pragmatic in reaching solutions is particularly important. If you are on a ship, for example, there is no fire brigade to call when there is a problem. You must solve the problem and get on with the other people that are there. You must work with people who do different jobs, have different types of education and that come from different backgrounds. That's how the attitude was, and still is, here. We all know our own jobs but we are all in this together and we found that if we worked with each other it was easier to meet most of everyone's objectives."

(Interview with Patrick Mitchell, 2006 – Appendix 14)

The management of the NMCI defined the facility to be provided as a partnership from the outset, rather than defining the facility as an output of the partnership agreement. Consequently, the issue of 3rd party income was driven by the PSO on the second project with the cooperation and active involvement of the DOES. On Project 1, the PSO would wait for the DOES to propose a means of generating 3rd party income and would act only if it were financially advantageous to do so. Whilst the project agreement places the 3rd party income risk with the PSO in Project 1, there appears to be no sanction applied if the PSO does not make any effort to generate such income. This scenario shows a clear difference in the behavioural element of attitude between the PSO participants in the projects.

In Project 1, the project board consisted of the five school principals and the DOES project manager. This board continued in place when the buildings went into use but, as they have never met since that time, there is no effective management at project level of the risk allocation relating to 3rd party income (interview with Sean Slowey, 2006 – Appendix 4). In Project 2, the DOES project manager appointed 3 individuals with executive authority to manage the DOES interest in the Design, Construction and Operation of the facility. These people had individual expertise in Engineering, the Marine and Law/Finance. They were empowered to make decisions at project level without referring back to the project manager. In the operation phase, they participate in a project liaison meeting with the PSO every 10 weeks to continually review the operation of the project. Included in this review is an assessment of opportunities for the development of 3rd party income (interview with Donal Burke, 2006 – Appendix 5).

This analysis shows that the Cognitive and Behavioural elements of the attitude displayed by the PSOs have influenced the outcomes relating to the transfer of 3rd party income risk on these projects.

e. Technical Obsolescence Risk - General

Tables 9.6, 9.7 and 9.8 examine risk difference e) which identified a difference in the transfer of technical obsolescence risk relating to general equipment. Eight subfactors were identified as potentially influencing the outcomes. Each of these will now be examined to locate the cause of the difference.

CSS	Details	Attitude Difference	Likely Cause of Outcome Difference
Effective Project Organisation Structure (CSS 14)	Project 1 – public sector team has not met for almost three years. No joint team structure for addressing this issue. Project 2 – joint project team meets every 10 weeks to deal with issues such as this. The achievement of transfer of General Technical Obsolescence Risk is more successful on Project 2.	Significant differences across all elements between public and private sector attitudes for both projects. Minimal public sector difference between projects. Significant private sector difference in behavioural element between projects.	Differences in private sector affective and behavioural attitude elements correlate with difference in outcome. Project 1 PSO has achieved an interpretation of the PA not envisaged by the public sector. PSO on Project 2 has accepted the risk as originally envisaged.
Strong and Reliable Project Team (CSS 15)	Project 1 - All expertise was from DOES. 5 principals had no construction or contractual expertise. PSO project team had extensive experience in UK PFI schools. Project 2 – Team members had extensive experience in Marine, Engineering, Law and Finance. PSO team was new to PPP.		High behavioural element score in Project 2 private sector attitude shows clear positive disposition to action on risk. Consequently, attitude is a factor in the difference between the projects.

Table 9.6: Isolation of Potential Effect of Attitude on Risk Outcome e

CSS	Details	Attitude Difference	Likely Cause of Outcome Difference
Good Relationship with host government authorities (CSS 16)	Project 1 – Highly commercial relationship Project 2 – Strong business relationship based on cooperation and openness	Significant differences across all elements between public and private sector attitudes for both projects.	High behavioural element score in Project 2 private sector attitude shows a positive disposition to action on risk. Attitude is therefore a factor in the difference between projects
Partnering Skills (CSS 17)	Project 1 – No evidence of partnering Project 2 – Entire project based on a partnering approach	Minimal public sector difference between projects. Significant private sector difference in behavioural element between projects.	Clear and constant reference to pragmatism and openness of participants suggests that difference in effectiveness of project management was influenced by the attitudes of the participants.
Sound Technical solutions (CSS 18)	Project 1 – DOES was not well prepared for the work involved in ensuring that all of the equipment needed for the school was included in the bid. Project 2 – Project Team had clearly established their requirements for technical equipment prior to financial close	behavioural element between projects.	Would appear to have been caused by a combination of a lack of experience in the PPP process in Project 1 and the sense of ownership of the project displayed by the project team on Project 2.

Table 9.7: Isolation of Potential Effect of Attitude on Risk Outcome e - continued

CSS	Details	Attitude Difference	Likely Cause of Outcome Difference
Concession agreement (CSS 19)	Project 1 - Assembled late in the bidding process, this was the first such agreement for the provision through PPP of school buildings in the Republic of Ireland. Project 2 - Lessons learned were incorporated into Project 2 agreement. Draft of agreement available at ITT stage (Michael Delaney interview, Appendix 6).	Significant differences across all elements between Public and Private sector attitudes for both projects. Minimal Public sector difference between projects.	Would appear to have been caused by a lack of experience in the PPP process in Project 1 rather than the attitudes of the participants.
Supply agreement (CSS 20)	Project 1 - PA was not detailed enough regarding which equipment was supply only and which was supply/maintain. The spirit of the PPP contract would suggest that some of the equipment that the PSO insists is supply only should have been supply/maintain. Project 2 – Project Team had clearly established their requirements for technical equipment and had thought about the implications of its supply under PPP.	Significant private sector difference in behavioural element between projects.	Would appear to have been caused by a lack of experience in the PPP process in Project 1 rather than the attitudes of the participants.
Operation agreement (CSS 21)	As Concession Agreement.		As Concession Agreement.

Table 9.8: Isolation of Potential Effect of Attitude on Risk Outcome e - continued

The strongly commercial focus of the PSO's attitude coupled with a lack of resources in the public sector for the management of the PSO on Project 1 have contributed to the ineffectiveness of the project

organisation structure. The Project Team monitoring the operation of Project 2 was clearly focused on this risk but this was as a result of its experiences on Project 1 rather than its specific attitudes to Project 2. Again, it is the difference in the PSO attitude that is a contributing factor as a high behavioural element score in Project 2 shows clear positive disposition to action on risk. Consequently, attitude is a factor in the difference in performance of the project teams. There is a clear difference in the attitudes displayed by the two PSOs to the host government authorities. On Project 1, the PSO displayed a highly focused commercial approach concentrating on its own objectives. In Project 2, the PSO's attitude was still commercial, but being within the context of working with the DOES on achieving project level objectives, the technical obsolescence risk transfer on general equipment is clearly defined. In Project 1, the responsibility for technical obsolescence risk that applies to specific equipment has been unclear from the beginning and has become a source of disagreement on a number of occasions.

There is a high level of partnering skill displayed by both parties on Project 2 and this is reflected in the transfer of technical obsolescence risk. The pragmatism that is displayed by both partners is a behavioural trait and the openness of the participants displays the comfort that they have with the process, indicating a strong cognitive element combined with a strong affective element. There is a strong commercial/contractual focus in Project 1 and partnering skills are not evident in the approach to technical obsolescence risk.

The CSSs concerned with sound technical solutions had an effect of the transfer of technical obsolescence risk. While there is a strong sense of ownership displayed by the project team in Project 2, the attitude measurement exercise did not pick up a significant enough difference in the public sector attitudes to show that the difference was caused by participant attitudes. The remaining CSSs (19 – 21) had an effect on outcome but the differences between the projects arose primarily from the learning that took place on Project 1.

This analysis shows that the Behavioural element of attitude displayed by the PSOs has influenced the outcomes relating to the transfer of general technical obsolescence risk on these projects.

f. Technical Obsolescence Risk - IT

Tables 9.9 and 9.10 examine risk difference f) which identified a difference in the transfer of technical obsolescence risk relating to IT equipment. Five subfactors were identified as potentially influencing the outcomes. Each of these will now be examined to locate the cause of the difference.

CSS	Details	Attitude Difference	Likely Cause of Outcome Difference
Effective Project Organisation Structure (CSS 22)	Project 1 – public sector team has not met for almost three years. No joint team structure for addressing this issue. Project 2 – joint project team meets every 10 weeks to deal with issues such as this.	Significant differences across all elements between public and private sector attitudes for both projects.	Would appear to have been caused by a lack of experience in the PPP process in Project 1 rather than the attitudes of the participants.
Strong and Reliable Project Team (CSS 23)	Project 1 - All expertise was from DOES. 5 principals had no construction or contractual expertise. PSO project team had extensive experience in UK PFI schools. Project 2 – Team members had extensive experience in Marine, Engineering, Law and Finance. PSO team was new to PPP.	Minimal public sector difference between projects. Significant private sector difference in behavioural element between projects.	Would appear to have been caused by a lack of experience in the PPP process in Project 1 rather than the attitudes of the participants.
Good Relationship with host government authorities (CSS 24)	Project 1 – Original IT maintenance contract has expired, no replacement contract in place. Project 2 – One year to go in IT maintenance contract. Discussions have begun on replacement contract.		High behavioural element score in Project 2 private sector attitude shows clear positive disposition to action on risk. Attitude is therefore a factor in the difference between projects.

Table 9.9: Isolation of Potential Effect of Attitude on Risk Outcome f

CSS	Details	Attitude Difference	Likely Cause of Outcome Difference
Partnering Skills (CSS 25)	Project 1 – No evidence of partnering approach to this issue Project 2 – Both partners working together to resolve this issue.	Significant differences across all elements between public and private sector attitudes for both projects. Minimal public sector difference between projects. Significant private sector difference in behavioural element between projects	Constant reference to pragmatism and openness of participants suggests difference in effectiveness of project management was influenced by participant attitudes.
Concession agreement (CSS 26)	Project 1 - Assembled late in the bidding process, (first such agreement for the provision through PPP of school buildings in the Republic of Ireland). Project 2 - Lessons learned were incorporated into Project 2 agreement. Draft of agreement available at ITT stage (M. Delaney, interview Appendix 6).		Would appear to have been caused by a lack of experience in the PPP process in Project 1 rather than the attitudes of the participants.
Supply agreement (CSS 27)	Original supply agreement was similar on the two projects. However, since the initial 3-year agreement ended on Project 1 there has been no discussion regarding the agreement that will replace it. In Project 2 the agreement has 6 months more to run and a number of options are being explored to establish a process for replacing the original agreement.		Would appear to have been caused by a lack of experience in the PPP process in Project 1 rather than the attitudes of the participants.
Operation agreement (CSS28)	As Concession Agreement		Would appear to have been caused by a lack of experience in the PPP process in Project 1 rather than the attitudes of the participants.

Table 9.10: Isolation of Potential Effect of Attitude on Risk Outcome f - continued

The relationship between the DOES and the PSO on Project 1 is such that the PSO will wait for the DOES to suggest the way forward and will then submit its price to comply with the suggestion made. On Project 2, the partners are working together to resolve the issue, with the PSO putting forward a number of options for the DOES to consider. Clearly, there are different relationships in place on these two projects. Project 1 shows two partners working to separate agendas, while Project 2 is an holistic approach based on partnering. These relationships have developed as a result of the attitudes of the participants, in particular the behavioural attitude of the PSO.

This analysis shows that the Behavioural element of attitude displayed by the PSOs has influenced the outcomes relating to the transfer of IT technical obsolescence risk on these projects.

9.3 VALIDITY OF PROPOSITION 3 TO RISK

Risk differences a, b and c have been shown to have been caused by factors other than the project participant attitudes. Table 9.11 summarises the specific CSSs that were affected by participant attitudes to risk. This table identifies the specific attitude elements (in italics) that influence specific differences in risk outcomes on the projects researched.

		Outcome difference		
		Effectiveness of transfer of 3 rd party income risk	Transfer of technical obsolescence risk, relating to general equipment	Transfer of technical obsolescence risk, relating to IT
<i>Risk Attitude Source Element (PSO/DOES)</i>				
Critical Success Subfactors	Effective Project Organisation Structure	<i>(CSS7) Affective (PSO) Behavioural (PSO)</i>	<i>(CSS14) Affective (PSO) Behavioural (PSO)</i>	<i>(CSS22) No link found</i>
	Strong and Reliable Project Team	<i>(CSS8) No link found</i>	<i>(CSS15) Behavioural (PSO)</i>	<i>(CSS23) No link found</i>
	Good Relationship with host government authorities	<i>(CSS9) Behavioural (PSO)</i>	<i>(CSS16) Behavioural (PSO)</i>	<i>(CSS24) Behavioural (PSO)</i>
	Partnering Skills	<i>(CSS10) Behavioural (PSO)</i>	<i>(CSS17) Behavioural (PSO)</i>	<i>(CSS25) Behavioural (PSO)</i>

Table 9.11: Summary of Effect of Project Participant Attitude on Risk Outcome

This analysis has therefore found that Proposition 3 is valid for risk, in that the behavioural element of the PSO's attitude can be seen to have an effect on the project outcome. This is manifested through the effectiveness of the project organisation, the strength and reliability of the project team, the relationship that the PSO has with the host government authorities and the extent to which partnering skills will be employed on the project. In this research, the differences in attitudes of the public sector partners between the projects were not found to be of such significance as to influence a difference in project outcome relating to risk.

9.4 VALUE OUTCOMES AND ATTITUDES

Table 8.2 in the previous chapter (page 208) outlined the following project outcome differences relating to value that had been shown to exist between the projects:

- g. There is a high level of co-operation in planning to generate 3rd party income in Project 2 with PSO taking responsibility for the management of the process. No visible evidence of such co-operation in Project 1;
- h. In monitoring the PSO's performance in Project 2, the DOES applies sanctions where appropriate in accordance with the PA. In Project 1, the level of monitoring of the PSO by the DOES is low resulting in the application of few, if any, sanctions for non-performance. This is contributing to higher than planned operating costs in Project 1;
- i. The PSO in Project 1 has adopted a highly commercial approach to the project. The approach of the PSO in Project 2 is based on co-operation and openness. This is resulting in the PSO concentrating wholly on its own value issues in Project 1, whilst the PSO on Project 2 is concentrating on reduction of whole-project value issues. In Project 2, the PSO is making visible efforts to reduce DOES costs. In Project 1, no such action is apparent;
- j. There is evidence of friction between PSO and school Principals/DOES in Project 1. An excellent working relationship is evident between PSO and College Management/DOES in Project 2. These relationships are contributing to differences in value outcomes.

Each of these differences in outcome must now be examined to determine its cause. To conduct this exercise, each difference is again related back to the success subfactors in the same manner as the risk outcome differences were examined above. The potential presence of each subfactor as a cause of the outcome is noted as either Yes (✓) or

No (x) in Table 9.12. Where the subfactor has a potential influence on the outcome, it is then further examined to assess the potential effect of the participant attitudes.

Critical success factor	Success subfactor	Value Outcome Difference			
		g	h	i	j
Favourable investment environment	1. Supportive and understanding community	✓	x	x	x
	2. The project is in the public interest	x	x	x	x
	3. Predictable risk scenarios	x	x	x	x
	4. Project is suitable for privatisation	x	x	x	x
Economic viability	5. Sufficient profitability to attract investors	x	x	✓	x
	6. Long-term cash flow that is attractive to lenders	x	x	✓	x
Reliable concessionaire consortium with strong technical strength	7. Leading role by a key enterprise or entrepreneur	✓	✓	x	x
	8. Effective project organisation structure	✓	✓	✓	✓
	9. Strong and reliable project team	✓	✓	✓	✓
	10. Good relationship with host government authorities	✓	✓	✓	✓
	11. Partnering skills	✓	✓	✓	✓
	12. Rich experience in international PPP projects	✓	✓	✓	✓
	13. Multidisciplinary participants	✓	x	x	✓
	14. Sound technical solutions	x	x	x	x
	15. Innovative technical thinking	x	x	x	x
	16. Cost-effective technical solution	x	x	x	x
	17. Low environmental impact	x	x	x	x
Sound financial package	18. Public safety and health considerations	x	x	x	x
	19. Sound Financial analysis	x	x	x	x
	20. Investment, payment and drawdown schedules	x	x	x	x
	21. Sources and structure of main loans and standby facilities	x	x	x	x
	22. High equity/debt ratio	x	x	x	x
	23. Low financial charges	x	x	x	x
	24. Fixed and low interest rate financing	x	x	x	x
	25. Long-term debt financing that minimises refinancing risk	x	x	x	x
Appropriate risk allocation via reliable contractual arrangements relating to:	26. Ability to deal with fluctuations in interest/exchange rates	x	x	x	x
	27. Appropriate toll/tariff level(s) and suitable adjustment formula	x	x	x	x
	28. Concession agreement	✓	x	x	x
	29. Shareholder agreement	x	x	x	x
	30. Design & construct agreement	x	x	x	x
	31. Loan agreement	x	x	x	x
	32. Insurance agreement	x	x	x	x
	33. Supply agreement	x	x	x	x
	34. Operation agreement	x	✓	✓	x
	35. Offtake agreement	x	x	x	x
	36. Guarantee/support/comfort letters	x	x	x	x
		9	7	8	6

Table 9.12: Potential effect of CSFs on project value outcome differences

In total, 30 CSSs are considered to be potentially influential on the value outcome differences. Those CSSs that remain are now examined in light of the recorded project participant attitudes, to establish the influence of the attitudes on each CSS.

g. Management of generation of 3rd party income

Tables 9.13 and 9.14 examines value outcome difference g) which identified a difference in the management of generation of 3rd party income. Nine subfactors were identified as potentially influencing the outcomes. Each of these is now examined to locate the cause of the difference.

CSS	Details	Attitude Difference	Likely Cause of Outcome Difference
Supportive and understanding community (CSS 29)	3 rd party income potential in Project 1 is from local social and leisure demands. Project 2 operates in a business environment.	Significantly stronger behavioural attitude to project value issues displayed by PSO in Project 2.	Community support differs as the community type differs between the projects.
Leading role by a key enterprise or entrepreneur (CSS 30)	Operation of Project 2 is influenced by the leading roles of CIT and INS. Project 1 does not have a key enterprise in a leading role.	Stronger attitude to project value issues across all elements of public sector attitude.	Cause arises from the nature of the projects.

Table 9.13: Isolation of Potential Effect of Attitude on Value Outcome g

CSS	Details	Attitude Difference	Likely Cause of Outcome Difference
Effective project organisation structure (CSS31)	Project organisation structure in Project 1 is fragmented and is represented by five different sites. There is no standard approach to 3 rd party income between the sites. Project 2 is based on one site and controlled by a small, dedicated team.	Significantly stronger behavioural attitude to project value issues displayed by PSO on Project 2. Stronger attitude to project value issues across all elements of public sector attitude	Cause arises from the fragmented location of the projects and the fact that that Project 1 was the first such project in Ireland. Differences in public sector affective element of value attitude contributed to this problem arising. Project 2 PSO behavioural element matches the PSO action in leading the promotion of opportunities to generate 3 rd party income.
Strong and reliable project team (CSS 32)	Project team in Project 2 is clearly focused on 3 rd party income objectives; Project 2 team has not met for almost 3 years.		Difference in public sector value attitude, particularly the affective element, is the likely cause.
Good relationship with host government authorities (CSS 33)	PSO waits for DOES to take the lead in developing 3 rd party income in Project 1. Joint action taken in Project 2.		Strongly reflects both the differences in behavioural element of PSO attitude and the differences across all elements of the public sector attitude
Partnering skills (CSS34)	Partnering skills in evidence in Project 2 with open book policy on 3 rd party income generation. Both organisations working separately in Project 1		Caused by a combination of difference in behavioural element of PSO attitude and differences across all elements of the public sector attitude

Table 9.14: Isolation of Potential Effect of Attitude on Value Outcome g – (continued)

The project organisation structure is less effective in Project 1 and this would have been partially caused by an uncertainty of the PPP process (affective element of attitude) at the outset. Differences across all elements of public sector attitude to value have contributed

to the development of a strong project team on Project 2 and this strength is a contributing factor in the progress to date in achieving the 3rd party income objectives on that project. There is a significant difference in the relationship between the PSO and the DOES team on these projects. This difference is mirrored both by the noteworthy difference in behavioural elements of the attitudes of the PSOs and the differences across all elements of the public sector value attitudes between the projects. This is particularly evident in the partnering type approach that has developed on Project 2.

CSS	Details	Attitude Difference	Likely Cause of Outcome Difference
Multidisciplinary participants (CSS 35)	DOES project team in Project 2 chosen on a disciplinary basis. DOES team in Project 1 chosen on the basis of location.	Significantly stronger behavioural attitude to project value issues displayed by PSO on Project 2.	Composition of project teams would appear to have differed as a result of developing experience in the PPP process rather than the attitudes of the participants.
Rich experience in international PPP projects (CSS 36)	Considerable UK experience in PPP schools in Project 1. PSO team in Project 2 has no previous PPP experience.	Stronger attitude to project value issues across all elements of public sector attitude	Likely to be a cultural issue in the difference between application of PPP in Ireland and UK
Concession agreement (CSS 37)	PA places responsibility for generation of 3 rd party income on PSO in Project 2. Joint responsibility in Project 1.		Would appear to have been caused by a lack of experience in the PPP process in Project 1 rather than the attitudes of the participants.

Table 9.15: Isolation of Potential Effect of Attitude on Value Outcome g (continued)

The remaining CSSs (35-37) that have influenced the outcome differences relating to 3rd party income are caused by a combination of differences in the nature of the projects, cultural differences in the application of PPP processes or the relative levels of experience in the use of PPP between the two projects.

h. Monitoring of PSO performance and application of sanctions

Tables 9.16 and 9.17 examine value outcome difference h) which identified differences in the monitoring of PSO performance and in the application of sanctions in accordance with the Project Agreement (PA). Seven subfactors were identified as potentially influencing the outcomes. Each of these is now examined to locate the cause of the difference.

CSS	Details	Attitude Difference	Likely Cause of Outcome Difference
Leading role by a key enterprise or entrepreneur (CSS 38)	Operation of Project 2 is influenced by the leading roles of CIT and INS. Project 1 does not have a key enterprise in a leading role.	Significantly stronger behavioural attitude to project value issues displayed by PSO on Project 2.	Cause arises from the nature of the projects
Effective project organisation structure (CSS 39)	Project organisation structure in Project 1 is fragmented and is represented by five different sites, thereby difficult to develop consistency. Project 2 is based on one site and controlled by a small, dedicated team. In is therefore easier to monitor and control.	Stronger attitude to project value issues across all elements of public sector attitude	Cause arises from the fragmented location of the projects and the fact that that Project 1 was the first such project in Ireland. Differences in public sector affective element of value attitude contributed to this problem arising.
Strong and reliable project team (CSS 40)	Project team in Project 2 is clearly focused on its objectives; Project 1 team has not met for almost 3 years and has no co-ordinated approach to monitoring. No DOES actions evident that will resolve Project 1 issues.		Difference in all elements of Public Sector value attitude is the likely cause.

Table 9.16: Isolation of Potential Effect of Attitude on Value Outcome h

CSS	Details	Attitude Difference	Likely Cause of Outcome Difference
Good relationship with host government authorities (CSS 41)	Relationship based on dealing with own issues first in Project 1, strong working relationship in Project 2.	Significantly stronger behavioural attitude to project value issues displayed by PSO on Project 2.	Strongly reflects both the differences in behavioural element of PSO attitude and the differences across all elements of the public sector attitude.
Partnering skills (CSS 42)	Project 2 team is monitoring and applying sanctions in accordance with PA, but in an open book fashion with considerable give and take in evidence. No such approach apparent in Project 1.	Stronger attitude to project value issues across all elements of public sector attitude.	Caused by a combination of difference in behavioural element of PSO attitude and differences across all elements of the public sector attitude.
Rich experience in international PPP projects (CSS 43)	Considerable UK experience in PPP schools in Project 1. PSO team in Project 2 has no previous PPP experience.		Likely to be a cultural issue in the difference between application of PPP in Ireland and UK
Operation agreement (CSS 44)	In Project 1, the PSO offsets unpaid claims against the DOES against charges due to the DOES. The DOES has not challenged this practice under the terms of the PA. In Project 2, the PSO does not attempt to use the PA in this way and would be unlikely to succeed if it attempted to do so.		The difference in PSO attitude to the PA between the projects is causing this difference in outcome. The PSO in Project 1 is aggressively commercial, whilst the PSO in Project 2 is much more whole-project focused.

Table 9.17: Isolation of Potential Effect of Attitude on Value Outcome h (continued)

As before, the lower effectiveness of the project organisation structure in Project 1 has been partially caused by an uncertainty (affective element of attitude) of the PPP process at the outset. This has resulted in a difficulty in achieving consistency in application of the PA across all five schools. Differences across all elements of public

sector attitude to value have contributed to the development of a strong project team in Project 2 and the corresponding absence of action in addressing the problems in Project 1. The data collected shows that the relationship between the public sector and the PSO on Project 1 exhibits a strong level of suspicion and a general atmosphere of mistrust (interview with Sean Slowey, 2006). A clear cause of this is the combination of the public sector affective attitude element, reinforced by the PSO behavioural attitude element, with each side concentrating on its own objectives rather than on project objectives. In Project 2, no such issues arise as the partnership is characterised by a partnering approach – this time reflected in the greater project focus of the attitudes of the participants. The application of the PA in relation to the operation of the facility is a clear difference in the two projects and is characterised by the commercial approach to the project. The PSO in Project 1 has taken an aggressively commercial focus characterised by low affective and behavioural elements of attitude to whole project issues, whereas the PSO in Project 2 has adopted a more whole-project focus in these attitude elements resulting in an atmosphere closer to partnering.

Again, the remaining CSSs that have influenced the outcome differences are caused by a combination of differences in the nature of the projects, cultural differences in the application of PPP processes or the relative levels of experience in the use of PPP between the two projects.

i. The commercial approach of the PSOs to the projects

Tables 9.18, 9.19 and 9.20 examine value outcome difference i) which identified differences in the commercial approach of the PSOs' performance on the projects. Eight subfactors were identified as potentially influencing the outcomes. Each of these is now examined to locate the cause of the difference.

CSS	Details	Attitude Difference	Likely Cause of Outcome Difference
Sufficient profitability to attract investors (CSS 45)	The PSO in Project 1 ran into financial difficulties shortly after Project 1 entered the operational phase. PSO was now required to convince lenders that the project was still viable. This required the ability to show that the project itself was clearly in a sound financial state.	Significantly stronger behavioural attitude to project value issues displayed by PSO in Project 2. Stronger attitude to project value issues across all elements of public sector attitude.	The behaviour of the PSO in adopting a highly commercial approach is in keeping with the need to demonstrate profitability to new investors. This is reflected by the behavioural attitude element that is focused on the organisation rather than on the project as a whole.
Long-term cash flow that is attractive to lenders (CSS 46)	Due to financial difficulties, PSO in Project 1 was required to demonstrate attractive long-term cash flow.		
Effective project organisation structure (CSS 47)	Project organisation structure in Project 1 is fragmented and is represented by five different sites. It is difficult to control the interaction between the public sector and the PSO. Project 2 is based on one site, is controlled by a small, dedicated team so interaction is easier to control.		Differences in project organisation structures allow a difference in commercial approach to exist. A lower affective element of public sector attitudes in Project 1 reinforces the fragmentation.

Table 9.18: Isolation of Potential Effect of Attitude on Value Outcome i

CSS	Details	Attitude Difference	Likely Cause of Outcome Difference
Strong and reliable project team (CSS 48)	Project team in Project 2 is clearly focused on its objectives; Project 1 team has not met for almost 3 years, resulting in a lack of consistency between sites. This leads to a lack of coherent agreed project level action across all sites. No DOES action evident that will resolve Project 1 issues.	Significantly stronger behavioural attitude to project value issues displayed by PSO on Project 2. Stronger attitude to project value issues across all elements of public sector attitude.	The stronger attitudes of the public sector team, particularly the affective and behavioural elements, in Project 2 sends a clear signal to the PSO that project level objectives must be addressed. This has an influence on the outcome.
Good relationship with host government authorities (CSS 49)	In Project 1, the quality of the relationship varies across the sites with considerable suspicion of the PSO from the public sector people at the different locations. There is a strong working relationship in Project 2.		The poor relationship on Project 1 has resulted from a combination of the lower affective element from both sectors and the lower PSO behavioural element in Project 1.
Partnering skills (CSS 50)	Project 2 is run in an open book fashion with considerable give and take in evidence. No such approach apparent in Project 1.		The stronger affective element from both sectors and the higher PSO behavioural element in Project 2 show that both parties are focused on working together to achieve project level objectives.

Table 9.19: Isolation of Potential Effect of Attitude on Value Outcome i - continued

CSS	Details	Attitude Difference	Likely Cause of Outcome Difference
Rich experience in international PPP projects (CSS 51)	Considerable UK experience in PPP schools in Project 1. PSO team in Project 2 has no previous PPP experience.	Significantly stronger behavioural attitude to project value issues displayed by PSO in Project 2. Stronger attitude to project value issues across all elements of public sector attitude.	Those who have worked in both Ireland and the UK will agree that there is a different approach to contractual dealings between the two countries and that what works in the UK does not necessarily work in Ireland. This suggests that the commercial approach of the Project 1 may have been influenced by the PSO's experience in UK PFI and that the attitudes developed in that environment may not have been suited to the approach required in the Irish PPP market.
Operation agreement (CSS 52)	In Project 1, the PSO is adopting a much more aggressively commercial approach and has successfully reached more favourable interpretation of sections of the agreement than the public sector had originally envisaged. In Project 2, there has been no such practice.		The difference in attitudes between the public sector participants ensured that the PA in Project 2 was clear and concise. The PSO behavioural attitude in Project 1 is organisation focused resulting in outcomes more favourable to the PSO on this project.

Table 9.20: Isolation of Potential Effect of Attitude on Value Outcome i - continued

Whilst the financial difficulties of Jarvis did not originate with the Grouped Schools project, the uncertainty that existed within the organisation at the time of bidding for the project would have ensured

that the approach to the project would have been focused strongly on the value to the PSO. As the project moved into the operation phase and new investors were being sought, the behaviour of the PSO in adopting a highly commercial approach is in keeping with the need to demonstrate profitability to new investors. The strong behavioural attitude element that is focused on the organisation rather than on the project as a whole is therefore appropriate to the circumstances that existed at that time. With this element of attitude being dominant, coupled with a low affective attitude element in the public sector, the fragmented nature of the project organisation structure in Project 1 allows a highly commercial focus to develop. The public sector attitudes in Project 2 are clearly more project focused and the clear focus of the team on project requirements ensured that this project level focus was maintained throughout the project.

In Project 1, the commercial focus of the PSO has resulted in issues arising from interpretation of the maintenance contracts and from the non-development of project level objectives, the relationship between the partners has deteriorated. In Project 2, no such issues arise as the partnership is characterised by a partnering approach – this time reflected in the greater project focus of the attitudes of the participants. In the application of the PA to the operation of the facility, the PSO in Project 1 has sought to define the terms of the agreement so that its interpretation is clearly to its advantage rather than being focused on an overall project approach. This arises for two reasons. Firstly, the details of the project agreement were not fully defined before project close – reflecting on the public sector's cognitive and behavioural elements of attitude and secondly, the PSO's need to display an attractive profitability to potential investors – reflecting on the PSO's behavioural element of attitude.

It is therefore found that all of the subfactors identified that had a bearing on the outcomes, were influenced by the participant attitudes, with the possible exception of the issue of previous international experience in PPP. This is an issue that has been raised by Eaton et

al., (2007) This subfactor is worth further investigation to determine both the effect on project outcome and the extent to which cultural issues could be a factor in the development of the attitudes of the participants. However, further investigation of this point is beyond the scope of this work (See Chapter 11, Conclusions and Recommendations for Further Research).

j. The Working Relationship

Tables 9.21, 9.22, 9.23 and 9.24 examine value outcome difference j) which identified differences in the working relationships between the partners on the projects. Six subfactors were identified as potentially influencing the outcomes. Each of these is now examined to locate the cause of the difference.

CSS	Details	Attitude Difference	Likely Cause of Outcome Difference
Effective project organisation structure (CSS 53)	Project organisation structure in Project 1 is fragmented and is represented by five different sites, thereby difficult to develop a coordinated approach between all of the participants. PSO does not have a full time presence on all sites. Project 2 is based on one site and controlled by a small, dedicated team.	Significantly stronger behavioural attitude to project value issues displayed by PSO on Project 2. Stronger attitude to project value issues across all elements of public sector attitude.	A lesser level of control exists in Project 1 and this is likely to have been influenced by the lower affective element of the public sector attitudes. This makes it more difficult for the PSO to build an effective working relationship. However, the low affective and behavioural elements of the PSO attitude in Project 1 suggests that the PSO would not have made a significant effort to build this relationship even if the project organisation structure was effective.

Table 9.21: Isolation of Potential Effect of Attitude on Value Outcome j

CSS	Details	Attitude Difference	Likely Cause of Outcome Difference
Strong and reliable project team (CSS 54)	The PSO and public sector teams in Project 2 have considerable respect for each other. Both realise that there will often be disagreements on a project but have learned to deal with such agreements in a pragmatic and business like manner. Project 1 public sector team is un-coordinated and the working relationship with the PSO team is weak.	Significantly stronger behavioural attitude to project value issues displayed by PSO on Project 2. Stronger attitude to project value issues across all elements of public sector attitude.	The public sector team in Project 2 displays a consistent strength and reliability in approaching issues that arise. This is reflected in the stronger public sector attitudes and was shown to be appreciated by the PSO. The Project 2 PSO's stronger behavioural attitude element reflects the disposition to the development of a strong project based focus. Attitude is therefore an influence on this subfactor.
Good relationship with host government authorities (CSS 55)	Friction between PSO and DOES in Project 1. High levels of suspicion between public sector and PSO. Excellent working relationship in Project 2.		The attitudes mirror the outcomes, with the PSO in Project 2 clearly working on the development of the relationship. The affective element of the public sector attitude and the behavioural element of the PSO attitude would appear to be influential on this subfactor.

Table 9.22: Isolation of Potential Effect of Attitude on Value Outcome j (continued)

With a low PSO disposition to action on project level objectives, coupled with a low affective attitude element in the public sector, the fragmented nature of the project organisation structure in Project 1 does not provide the correct environment for a strong working relationship to develop. On the other hand, the public sector attitudes in Project 2 are clearly more project focused and with a stronger project focus in the behavioural element of the PSO attitude, a strong

working relationship with a project level focus developed on this project. In fact, in every interview that concerned Project 2, the strength of the working relationship was emphasised, with both PSO and public sector giving credit to each other for the development of the relationship. The PSO was particularly complementary of the pragmatic and practicality of the DOES team. The DOES was complementary of the PSO's focus on the project as a whole rather than focussing solely on its own objectives. The affective element of public sector attitudes showed that there was a difference in approach to the projects with the idea of PPP being accepted more favourably from the outset of Project 2 than from the outset of Project 1. The behavioural element of the PSO attitude shows a significant difference between the project and the contribution of the Project 2 PSO to developing the strong working relationship is a direct reflection of this attitude.

CSS	Details	Attitude Difference	Likely Cause of Outcome Difference
Partnering skills (CSS 56)	Both PSO and DOES participants define themselves as a partnership to such an extent that their business cards state they work for NMCI rather than the organisations that have entered into partnership to deliver the project. They abide by their contractual responsibilities without being forced to do so and operate open book procedures in the management of the project. In Project 1, a series of contractual agreements both within the PSO and between the PSO and the public sector exists. The limits of these agreements are constantly being tested and, as a result, conflict occurs.	Significantly stronger behavioural attitude to project value issues displayed by PSO in Project 2. Stronger attitude to project value issues across all elements of public sector attitude.	The initial discussions that defined Project 2 took place between the DOES, CIT and the INS before the PPP process began. The DOES team therefore was a partnership itself from an early stage and this position was developed as the procurement stage proceeded. The strong project level attitudes in Project 2 reflect this. In Project 1, there was a variety of (affective elements) attitudes to PPP from the start with some participants focused on their objectives alone. Partnering skills did not exist within the DOES team at the outset and, as a result, never developed into the relationship with the PSO. Differences in the public sector affective element of attitude and the PSO behavioural element of attitude would appear to have influenced this subfactor.

Table 9.23: Isolation of Potential Effect of Attitude on Value Outcome j - continued

CSS	Details	Attitude Difference	Likely Cause of Outcome Difference
Rich experience in international PPP projects (CSS 57)	Considerable UK experience in PPP schools in Project 1. PSO team in Project 2 has no previous PPP experience.	Significantly stronger behavioural attitude to project value issues displayed by PSO on Project 2. Stronger attitude to project value issues across all elements of public sector attitude.	The difference in approach to contractual dealings between those working in Ireland is often underestimated suggesting a difference in affective element of PSO attitude may be influential. However, this is not conclusive.
Multidisciplinary participants (CSS 58)	DOES project team in Project 2 chosen on the disciplinary basis. DOES team in Project 1 chosen on the basis of location.		Composition of project teams would appear to have differed as a result of developing experience in the PPP process rather than the attitudes of the participants.

Table 9.24: Isolation of Potential Effect of Attitude on Value Outcome j - continued

The initial discussions that defined Project 2 took place between the DOES, CIT and the INS before the PPP process began. The DOES team therefore was a partnership itself from an early stage and this position was developed as the procurement stage proceeded. The strong project level attitudes on Project 2 reflect this. In Project 1, there was a variety of (affective elements) attitudes to PPP from the start with some participants focused on their objectives alone. Partnering skills did not exist within the DOES team at the outset and, as a result, never developed into the relationship with the PSO. A difference in the public sector affective element of attitude would appear to have influenced this subfactor. As noted in the commentary on Outcome i (above), the issue of previous international experience in PPP is worthy of further investigation to determine both the effect on project outcome and the extent to which cultural issues could be a factor in the development of the attitudes of the participants. However, the difference in PSO affective element of attitude between

the projects suggests that a different attitude existed between the two PSOs. The extent to which this is attributable to the previous international experience in PPP is beyond the scope of this research (See Chapter 11, Conclusions and Recommendations for Further Research).

The multidisciplinary skills of the participants may have had an effect on the outcome relating to the working relationship, but they do not appear to have been influenced by the participant attitudes. With this one exception, therefore it is found that all of the subfactors identified that had a bearing on the difference in working relationship between the projects, were influenced by the participant attitudes.

9.4.1 Validity of Proposition 3 to Value

Table 9.25 summarises the specific CSSs that were found to be affected by participant attitudes to value. This table identifies the specific attitude elements (in italics) that influence specific differences in value outcomes on the projects researched. This analysis has therefore found that Proposition 3 is valid for value, in that the elements of both public sector and private sector participant attitude can be seen to have an effect on the project outcome in twenty cases. This is manifested through the management of generation of 3rd party income, the monitoring of operator's performance and application of sanctions, the extent to which commercial approach is applied to the project and the strength of the working relationship that develops on the project.

In this research it was found that more positive outcomes occur when the behavioural element of the PSO attitude has a more project-oriented focus. All elements of the public sector attitude were found to have an effect but it was found that the affective element at project inception could define many of the structures and processes that will shape the project.

		Outcome difference			
		Management of generation of 3 rd party income	Monitoring of PSO performance and application of sanctions	The commercial approach of the PSO to the projects	The Working Relationship
Critical Success Subfactors	Value Attitude Source Element (PSO/DOES)				
	Supportive and Understanding Community	(CSS29) No link found	N/A	N/A	N/A
	Sufficient profitability to attract investors	N/A	N/A	(CSS45) Behavioural (PSO)	N/A
	Long-term cash flow that is attractive to lenders	N/A	N/A	(CSS46) Behavioural (PSO)	N/A
	Leading Role of a Key Enterprise or Entrepreneur	(CSS30) No link found	(CSS38) No link found	N/A	N/A
	Effective Project Organisation Structure	(CSS31) Affective (DOES) Behavioural (PSO)	(CSS39) Affective (DOES)	(CSS47) Affective (DOES)	(CSS53) Affective, (DOES) Behavioural (PSO)
	Strong and Reliable Project Team	(CSS32) Affective, (DOES)	(CSS40) Affective Behavioural Cognitive (DOES)	(CSS48) Affective Behavioural (DOES)	(CSS54) Affective Behavioural Cognitive (DOES), Behavioural (PSO)
	Good Relationship with host government authorities	(CSS33) Affective Behavioural Cognitive (DOES) Behavioural (PSO)	(CSS41) Affective Behavioural Cognitive (DOES) Behavioural (PSO)	(CSS49) Affective (DOES) Behavioural (PSO)	(CSS55) Affective (DOES) Behavioural (PSO)
	Partnering Skills	(CSS34) Affective, Behavioural Cognitive (DOES) Affective, Behavioural (PSO)	(CSS42) Affective, Behavioural, Cognitive (DOES) Behavioural (PSO)	(CSS50) Affective (DOES) Affective, Behavioural (PSO)	(CSS56) Affective (DOES) Behavioural (PSO)
	Rich Experience in International PPP Projects	(CSS35) No link found	(CSS43) No link found	(CSS51) No link found	(CSS57) Inconclusive
	Multidisciplinary Participants	(CSS36) No link found	N/A	N/A	(CSS58) No link found
	Concession Agreement	(CSS37) No link found	N/A	N/A	N/A
	Operation Agreement	N/A	(CSS44) Affective (DOES) Behavioural (PSO)	(CSS52) Affective (DOES) Behavioural (PSO)	N/A

Table 9.25: Summary of Effect of Project Participant Attitude on Valve Outcomes

9.5 SUMMARY

Proposition 3 of this research states that the project outcome differences can be attributed to the differences in participant attitudes. Using the outcome from the analysis of the data from the previous chapter, relating to Propositions 1 and 2, this chapter addressed Proposition 3. The outcome differences were highlighted and examined in relation to the differences in project participants' attitudes to establish the effect of the attitudes on the outcomes. This involved examining the outcome differences in terms of critical success subfactors (CSS). These CSS were examined in light of the recorded project participant attitudes, to establish the influence of the attitudes on each CSS. The analysis was conducted for risk and value only, as the previous chapter had established that there was no significant difference in outcome relating to innovation recorded between the projects.

The analysis showed that project outcome differences are affected by attitudes. Where there was a difference in the behavioural attitude of the PSO relating to risk, a number of project outcome differences relating to risk occurred. Each CSS was examined and 9 instances were found where the difference in risk outcome could be attributed to the difference in attitudes. However, it was in the area of value that the most significant findings emerged. In this area, there were differences in project outcomes and attitude differences between the projects in both the PSO and the public sector. Four areas of major difference were investigated through examination of several different CSS. In all, 20 instances were found where the value outcome could be attributed to the attitudes observed.

The following chapter carries out further testing to establish the construct validity, the internal validity, the credibility, the external validity, the transferability and the reliability of the findings. It then revisits the structure of the model.

CHAPTER 10: TESTING THE FINDINGS & REFINING THE MODEL

10.1 INTRODUCTION

The previous chapter showed that project outcome differences are affected by attitudes. Through analysis of the Critical Success Subfactors (CSS) that lead to an outcome, 9 instances relating to project risk outcomes and 20 instances relating to project value outcomes were found affected by the project participant attitudes.

This chapter carries out further testing of these 29 instances to establish the construct validity, the internal validity, the credibility, the external validity, the transferability and the reliability of the findings. The format for this test will be as follows. The findings of the cause of each outcome will be tested in turn. As each outcome was influenced by a number of CSSs, a table is constructed to test each separate CSS under each heading. Where the outcome of a test contradicts the finding, this will be addressed after the relevant table. The chapter begins with a summary of what is being tested under each heading. The final part of the chapter is concerned with the refinement of the model from its earlier conceptual state to the final analytical state.

10.2 TEST HEADINGS

10.2.1 Construct Validity

Yin (2003a) defines construct validity as "establishing correct operational measures for the concepts being studied" and suggests that this can be tested by establishing a chain of evidence that will lead from the concept to the knowledge being sought. This will require confirmation that the data being gathered can be relied upon to give an accurate finding and that the means of gathering the data was reliable.

To establish project outcomes, data were gathered from a number of documents and from interviews with key users of the facilities that were being provided. The outcome data were then assigned a value along a scale to indicate how well the facility has performed to date in terms of risk, value and innovation (RVI), from the perspective of the

project as a whole. Once these values had been assigned, the outcomes of the two projects were compared to establish the differences between them.

Concurrently, the attitudes of the project participants to RVI were measured. The individuals involved in this exercise included the DOES Project Manager, the PSO Project Managers, the key advisors to the DOES and the PSO Facilities Managers. As part of the data gathering, each of these people was required to place a relative importance value on their own attitude to risk, value and innovation. Again the level of concentration on a whole project approach was measured and the attitudes were separated into the constituent affective, behavioural and cognitive elements. The attitudes recorded were scaled and multiplied by the relative importance factors. This resulted in the value of the attitude of each participant to RVI. Public and private sector values were combined to show the attitudes of each sector on each project. The values for each project were compared to establish the differences between the projects.

In the tables that follow, a comment is included against each CSS, confirming the documents and the interviews from which the finding is drawn. Where the process outlined above was adapted, this is noted and, where necessary, a justification for an adaptation to the process is presented.

10.2.2 Internal Validity

Internal validity is defined as establishing that a casual relationship exists whereby a specific set of circumstances cause an outcome. In this research, the causal relationship between the participant attitudes and the project outcomes is being investigated. To test the internal validity of the findings, the previous chapter took a pattern matching approach to establish the pattern of outcomes that occur when specific attitudes are present. The logic behind each of the findings is outlined in this test.

10.2.3 Credibility

Following the pattern matching exercise, it is necessary to establish the other factors that could have produced the outcome. By examining each of these factors, the credibility of the finding will be challenged.

10.2.4 External Validity

External validity is concerned with the ability to generalise beyond the immediate case study. In this research, the external validity will centre on whether or not the results can lead to the assumption that the outcomes of all PPPs are influenced by the attitudes and if it will be possible to make this claim only for the projects that were studied in this research.

10.2.5 Transferability

This research is designed to give a result that will be generalised to theory. This means that the result of the research will be valid for the projects being studied, but as there are two such projects in the case study, there is an element of external validity between the two projects. The overall result of the research will provide a theory that can subsequently be tested over a longer period of time across several projects. Whilst this further research will not fall within the scope of this PhD, as it would require the use of a longitudinal study, a number of potential areas of transferability are suggested that could be the subject of investigation by future research.

10.2.6 Reliability

This test will assess the probability of following the same procedure again and arriving at the same result. To address this, the procedures used will be examined for consistency.

10.3 RISK

The previous chapter found that there were nine instances where a project outcome relating to risk was affected by the attitudes of one or more of the participants. The outcomes concerned the effectiveness of the transfer of the following risks:

1. 3rd party income risk;
2. Technical obsolescence of general equipment;
3. Technical obsolescence of IT equipment.

The manner in which the outcomes were influenced was observed through examination of the following critical subfactors:

- effectiveness of the project organisation structure;
- strong and reliable project team;
- relationship between the PSO and the government authority;
- the use of partnering skills.

Each of these outcomes will now be systematically tested.

10.4.1. Effectiveness of Transfer of 3rd Party Income Risk

10.4.1.1. Effective Project Organisation Structure(CSS 7)

Construct Validity	<p>Project outcome data gathered from structured review of data generated from the interviews with key users. Similar issues raised with each participant to ensure consistency. Attitudes were recorded through participant interviews. Standard consistent format followed throughout.</p> <p>Data gathering and analysis process used follows the procedure established. Construct validity therefore achieved.</p>
Internal Validity	<p>There is a pattern match between the differences in PSO affective and behavioural attitude elements and the inaction of PSO to becoming involved in a joint approach. The conclusion reached is that the attitude differences influence the difference in actions, which leads ultimately to the difference in outcomes. The conclusion is supported by the Project 1 PSO insistence that the DOES must first act and the PSO is then entitled to assess this action and react. This clearly shows the link between attitude and action. The finding therefore has internal validity.</p>
Credibility	<p>Other possible causes:</p> <ul style="list-style-type: none"> • Not enough thought given to Project 1 structure at inception <ul style="list-style-type: none"> ◦ Likely to have contributed to effectiveness of structure but unlikely to have had a significant effect on transfer of 3rd party income risk <p>The finding therefore has credibility.</p>
External Validity	<p>Due to the research only looking at two projects, the precise findings are only applicable in full to these projects. However, they show that, in this case, 3rd party income risk is influenced by the project organisation structure and that the effectiveness of this organisation was in turn influenced by participant attitudes. Consequently, the attitude of project participants will be a factor in determining project outcomes on other projects.</p>
Transferability	<p>Possible transferability to effect of attitude on project organisations' approach to transfer of other risks on different project types.</p>
Reliability	<p><i>Gathering of Project Outcome data for this finding</i></p> <ul style="list-style-type: none"> • Project 1 –Interview with S Slowey • Project 2 –Interviews with D Burke and M Delaney <p>Finding based on factual information on the make up of the project organisation rather than opinions, thereby maintaining reliability.</p> <p><i>Gathering of Participant Attitude Data</i></p> <p>Followed the same procedure for both projects. Interviews were conducted so that the interviewer was constantly moving back and forth between the projects and (between) the sectors, thereby ensuring that concentration on a project or a sector did not occur. All were recorded/transcribed/verified and analysed using the same procedure, thereby ensuring consistency and reliability.</p>

Table 10.1: Test of 1st Instance Finding

10.4.1.2. Strong and Reliable Project Team (CSS 8)

There was no link found in CSS 8, i.e. between the risk outcome relating to 3rd Party Income and the Strong & Reliable Project Team (See Table 9.4, Page 265). Consequently, no further analysis of this CSS will be carried out.

10.4.1.3. Relationship between the PSO and the Government Authority (CSS 9)

Construct Validity	<p>Project outcome data gathered from structured review of data generated from the interviews with key users. Similar issues raised with each participant to ensure consistency. Data taken from extra four questions on each section of the attitude interview provides triangulation. Attitudes were recorded through participant interviews. Standard consistent format followed throughout.</p> <p>Data gathering and analysis process used follows the procedure established. Construct validity therefore achieved.</p>
Internal Validity	<p>High behavioural element score in Project 2 PSO shows clear positive disposition to action at a project level on risk. This correlated with action taken to work with DOES on developing 3rd party income.</p> <p>The conclusion reached is that the attitude differences influence the difference in actions, which leads ultimately to the difference in outcomes. The conclusion is supported by the Project 2 PSO's clear view of the obligations that the project placed on it and the acceptance that this responsibility must be discharged. This clearly shows the link between attitude and action. The finding therefore has internal validity.</p>
Credibility	<p>Action was required, attitudes suggested that there was a positive disposition to action and action subsequently took place. The finding of attitude affecting action is therefore credible.</p>
External Validity	<p>The relationship between the partners had an effect on the transfer of 3rd party income risk. The building of the relationship was influenced by the attitudes of the participants. This finding is relevant to other projects as similar attitudes and project circumstances could exist again.</p>
Transferability	<p>Possible transferability to effect of attitude on relationships between public and private sector to transfer of other risks on different project types.</p>
Reliability	<p><i>Gathering of Project Outcome data</i></p> <ul style="list-style-type: none"> • Project 1 – Review of C& AG report, Interview with S Slowey • Project 2 – Review Project Agreement, Interviews with D Burke and M Delaney <p>C&AG report in Project 1 was critical of the project. No such document was available for Project 2. However, the data used concentrated entirely on facts rather than opinions thereby maintaining reliability.</p> <p><i>Gathering of Participant Attitude Data</i></p> <p>This followed the same procedure for both projects. Interviews were conducted so that the interviewer was constantly moving back and forth between the projects and (between) the sectors, thereby ensuring that concentration on a project or a sector did not occur. All were recorded/transcribed/verified and analysed using the same procedure. The attitudes recorded, consistently showed a stronger disposition to action on a project level from the PSO in Project 2.</p>

Table 10.2: Test of 2nd Instance Finding

10.4.1.4. Partnering Skills (CSS 10)

Construct Validity	Project outcome data gathered from a review of Project 2 PA and of interview generated data. Outcome records evidence of partnering skills in Project 2 but not in Project 1. Relationship between PSO and DOES differs between projects. Data taken from supplementary questions on each section of the attitude interview provides triangulation of findings. Attitudes were recorded through participant interviews and subsequently transcribed and analysed. Attitudes differences in Project 2 are confirmed by all participants through constant reference to the joint approach of the partners in Project 2.
Internal Validity	High behavioural element score in Project 2 PSO shows clear positive disposition to working with the public sector at a project level on risk. This correlated with action taken to work with DOES on developing 3 rd party income.
Credibility	A small, dedicated team was appointed to make executive decisions in Project 2. The diverse nature of the sites hindered this scenario in Project 1. However, as no attempt at partnering on any issue from the Project 1 PSO is evident, the project focused behavioural element of the PSO attitude in Project 2 is the most likely influence.
External Validity	The partnering skills evident in Project 2 had an effect on the transfer of 3 rd party income risk. The development of the environment whereby this could be effective was influenced by the attitudes of the participants. This finding is relevant to other projects as similar attitudes and project circumstances could exist again.
Transferability	The effect of attitude on the development of partnering skills is an issue to be considered in the finalising of risk transfer agreements on different project types.
Reliability	<p><i>Gathering of Project Outcome data</i></p> <ul style="list-style-type: none"> • Project 1 – Interview with S Slowey • Project 2 –Interviews with D Burke and M Delaney <p>The project agreement in Project 2 was consulted to find if specific reference had been made to partnering skills. No such reference existed. The interview data used concentrated entirely on instances of the use of partnering skills rather than opinions thereby maintaining reliability.</p> <p><i>Gathering of Participant Attitude Data</i></p> <p>Interviews were conducted so that concentration on a project or a sector did not occur. All were recorded/transcribed/verified and analysed using the same procedure. The attitudes recorded consistently showed a stronger disposition to action on a project level from the PSO in Project 2.</p>

Table 10.3: Test of 3rd Instance Finding

Under all six headings, this table shows that the link between outcomes and attitudes in this instance is valid. The diverse locations of the sites in Project 1 would have made development of partnership more difficult. However, the evidence shows that no attempt was made to explore this option. The conclusion that the attitudes in

Project 2 were the influencing factor on the development of partnering skills, and subsequently on the more successful transfer of 3rd party risk, is therefore a credible option.

10.4.2. Transfer of Technical Obsolescence Risk - General Equipment

10.4.2.1. Effective Project Organisation Structure (CSS 14)

Construct Validity	Project outcome data gathered from structured review of data generated from the C&AG report and the interviews with key users. Different sources provide triangulation of data. Attitudes were recorded through participant interviews. Standard consistent format followed throughout. Data gathering and analysis process used follows the procedure established. Construct validity therefore achieved.
Internal Validity	Project 1 PSO has achieved an interpretation of the PA that was not envisaged by the public sector. PSO in Project 2 has accepted the risk as originally envisaged. Differences in private sector affective and behavioural attitude elements provide a match with the difference in outcome. The conclusion is supported by the Project 1 PSO insistence that the DOES must first act and that the PSO is then entitled to assess this action and react. This clearly shows the link between attitude and action. The finding therefore has internal validity.
Credibility	Other possible causes: <ul style="list-style-type: none"> • Not enough thought given to Project 1 structure at inception <ul style="list-style-type: none"> ◦ Likely to have contributed to effectiveness of structure but unlikely to have had significant effect on transfer of 3rd party income risk. The finding therefore has credibility.
External Validity	Due to the research only looking at two projects, the precise findings are only applicable in full to these projects. However, they show that, in this case, transfer of technical obsolescence risk is influenced by the project organisation structure and that the effectiveness of this organisation was in turn influenced by participant attitudes.
Transferability	Possible transferability to effect of attitude on project organisations' approach to transfer of other risks on different project types.
Reliability	<i>Gathering of Project Outcome data for this finding</i> <ul style="list-style-type: none"> • Project 1 –Interview with S Slowey • Project 2 –Interviews with D Burke and M Delaney Finding based on factual information on the make up of the project organisation rather than opinions, thereby maintaining reliability. <i>Gathering of Participant Attitude Data</i> Followed the same procedure for both projects. Interviews were conducted so that the interviewer was constantly moving back and forth between the projects and (between) the sectors, thereby ensuring that concentration on a project or a sector did not occur. All were recorded/transcribed/verified and analysed using the same procedure, thereby ensuring consistency.

Table 10.4: Test of 4th Instance Finding

10.4.2.2. *Strong and Reliable Project Team (CSS 15)*

Construct Validity	Project outcome finding arose from detailed review of data obtained from the interviews with the key users. Attitudes measured from project participant interview data. Several instances of cross-reference and triangulation particularly in Appendices 7, 10, 11, 12, 13 and 14. Construct validity therefore achieved.
Internal Validity	In Project 1, it was the DOES that was driving the project and not the project team. In Project 2, the team exercised its full executive powers to run the project. The difference in approach is matched by the stronger public sector attitudes in Project 2. Several references to the strength of this team in the participant interviews provide internal validity.
Credibility	Other possible causes: <ul style="list-style-type: none"> • DOES inexperience in the PPP process at outset of Project 1 <ul style="list-style-type: none"> ◦ Likely to have contributed to strength and reliability of team but would in turn have been influenced by cognitive element of attitude of public sector attitudes. This provides credibility to the claim that the outcome was affected by the attitudes of the participants.
External Validity	Due to the research only looking at two projects, the precise findings are only applicable in full to these projects. However, they show that, in this case, effective transfer of technical obsolescence risk is influenced by the project organisation structure and that the effectiveness of this organisation was in turn influenced by participant attitudes. Consequently, the attitude of project participants will be a factor in determining project outcomes on other projects.
Transferability	Possible transferability in that effect of attitude on the project team approach should be considered when attempting to transfer risks on different project types.
Reliability	<i>Gathering of Project Outcome data for this finding</i> <ul style="list-style-type: none"> • Project 1 – C&AG Report, Interview with S Slowey • Project 2 – Project Agreement, Interviews with D Burke and M Delaney C&AG report does not highlight the issue but shows that the risk was planned to lie with the PSO. The interview data for Project 1 show that a reinterpretation has occurred. The PA for Project 2 clearly places the risk with the PSO. The interview data for Project 2 show that the PSO is carrying the risk. <i>Gathering of Participant Attitude Data</i> Followed the same procedure for collecting data from both projects. Interviews were conducted so that the interviewer alternated between projects, thereby ensuring that concentration on a project or a sector did not occur. All were recorded/transcribed/verified and analysed using the same procedure, thereby ensuring consistency.

Table 10.5: Test of 5th Instance Finding

10.4.2.3. Relationship between the PSO and the Government Authority (CSS16)

Construct Validity	Project outcome data gathered from structured review of documents and through interviews. Data taken from extra four questions on each section of the attitude interview provides triangulation of this finding. Attitudes recorded through participant interviews and subsequently analysed. Construct validity therefore achieved.
Internal Validity	Lower behavioural element score in Project 1 PSO shows a lower disposition to action at a project level on risk and a tendency to concentrate strongly on reducing its own risk. This provides a pattern match with action taken to redefine the level of risk transfer and force certain risks back on the DOES. The conclusion reached is that the attitude differences influence the difference in actions, which leads ultimately to the difference in outcomes. The conclusion is supported by the Project 1 PSO action in attempting to offset costs against money due to DOES. The finding therefore has internal validity.
Credibility	There are numerous references to the relative strengths of the relationships between the PSOs and the DOES. It is clear that the Project 1 relationship was poor whilst the Project 2 relationship was strong. PSO attitudes between the projects showed a clear difference in focus. Further data from the supplementary questions in the participant interviews gives credibility to the finding.
External Validity	The relationship between the partners had an effect on the transfer of technical obsolescence risk. The building of the relationship was influenced by the attitudes of the participants. This finding is relevant to other projects as similar attitudes and project circumstances could exist again.
Transferability	Possible transferability to effect of attitude on relationships between public and private sector to transfer of other risks on different project types.
Reliability	<p><i>Gathering of Project Outcome data</i></p> <ul style="list-style-type: none"> • Project 1 – Review of C&AG report, Interview with S Slowey • Project 2 – Review Project Agreement, Interviews with D Burke and M Delaney <p>C&AG report in Project 1 did not highlight this issue. It arose in the S Slowey interview. PA for Project 2 places this risk with the PSO. Raised and confirmed for Project 2 in interviews with D Burke and M Delaney.</p> <p><i>Gathering of Participant Attitude Data</i></p> <p>Data gathering procedure was consistent throughout thereby guarding against bias. The attitudes recorded consistently showed a stronger disposition to action on a project level from the PSO in Project 2.</p>

Table 10.6: Test of 6th Instance Finding

10.4.2.4. Partnering Skills (CSS 17)

Construct Validity	Project outcome data gathered from structured review of data generated from the interviews with key users. Attitudes were recorded through participant interviews. Standard consistent format followed throughout. Data gathering and analysis process used follows the procedure established. Construct validity therefore achieved.
Internal Validity	Project 1 shows the existence of a highly commercial approach from the PSO. Partnering skills evident in Project 2. Lower PSO behavioural element attitude score in Project 1 shows a lower disposition to project-focused action on risk. As this correlated with action taken by the PSO to attempt to transfer risk back to DOES, attitude can be accepted as a contributing factor in the difference between projects. This displays internal validity of the finding.
Credibility	A small, dedicated team was appointed to make executive decisions in Project 2. The diverse nature of the sites hindered this scenario in Project 1. However, as no attempt at partnering on any issue from the Project 1 PSO is evident, the project focused behavioural element of the PSO attitude in Project 2 is the most likely influence on the difference in project outcome.
External Validity	The partnering skills evident in Project 2 had an effect on the transfer of technical obsolescence risk. The development of the environment whereby this could be effective was influenced by the attitudes of the participants. This finding is relevant to other projects as similar attitudes and project circumstances could exist again.
Transferability	The effect of attitude on the development of partnering skills is an issue to be considered in the finalising of risk transfer agreements on different project types.
Reliability	<i>Gathering of Project Outcome data</i> <ul style="list-style-type: none"> • Project 1 – Interview with S Slowey • Project 2 – Interviews with D Burke and M Delaney The project agreement in Project 2 was consulted to find if specific reference had been made to partnering skills. No such reference existed. The interview data used concentrated entirely on instances of the use of partnering skills rather than opinions thereby maintaining reliability. <i>Gathering of Participant Attitude Data</i> Interviews were conducted so that concentration on a project or a sector did not occur. All were recorded/transcribed/verified and analysed using the same procedure. The attitudes recorded, consistently showed a stronger disposition to action on a project level from the PSO in Project 2.

Table 10.7: Test of 7th Instance Finding

Under all six headings, this table shows that the link between outcomes and attitudes in this instance is valid. The diverse locations of the sites in Project 1 would have made development of partnership

more difficult. However, the evidence shows that no attempt was made to explore this option. The conclusion that the attitudes in Project 2 were the influencing factor is therefore a credible option.

10.4.3. Transfer of Technical Obsolescence Risk - IT Equipment

10.4.3.1. Effective Project Organisation Structure (CSS 22)

There was no link found in CSS 22, i.e. between the risk outcome relating to IT Obsolescence and the Effective Project Organisation Structure (See Table 9.9, Page 275). Consequently, no further analysis of this CSS will be carried out.

10.4.3.2. Strong and Reliable Project Team (CSS 23)

Similarly, there was no link found in CSS 23, i.e. between the risk outcome relating to IT Obsolescence and the Strong & Reliable Project Team. Consequently, no further analysis of this CSS is required.

10.4.3.3. Relationship between the PSO and the Government Authority (CSS 24)

Construct Validity	Project outcome data gathered from structured review of data generated from the C&AG report, the Project 2 PA and the interviews with key users. Data also taken from extra four questions on each section of the attitude interview. Different sources provide triangulation of this finding. Attitudes were recorded through participant interviews. Standard consistent format followed throughout. Construct validity therefore achieved.
Internal Validity	Relationship between PSO and DOES differs between projects. Attitudes measured in Project 2 are confirmed through constant reference to the strength of the working relationship. No such reference in Project 1. Lower behavioural element score in Project 1 PSO attitude shows a lower disposition to action at a project level on risk and a tendency to concentrate strongly on reducing its own risk. This gives a pattern match with inaction of the PSO in seeking a solution to this issue. In Project 2, the two sectors are actively exploring options to resolve the issue of IT technical obsolescence risk. Higher Project 2 PSO behavioural score matches the outcome achieved. This confirms the internal validity of the finding.
Credibility	Action was required. Attitudes suggested that there was a positive disposition to action in Project 2 and action subsequently took place. The finding of attitude affecting action is therefore credible.
External Validity	The relationship between the partners had an effect on the transfer of IT technical obsolescence risk. The building of the relationship was influenced by the attitudes of the PSOs. This finding is relevant to other projects as similar attitudes and project circumstances could exist again. However, the DOES is now taking a different approach to this issue on new projects, an outcome driven largely by the negative experience in Project 1.
Transferability	This research shows that the success of risk transfer is influenced by the relationships between public and private sector, the effectiveness of which is in turn is influenced by the participant attitudes. This finding has implications for other areas of risk transfer on different project types.
Reliability	<p><i>Gathering of Project Outcome data</i></p> <ul style="list-style-type: none"> • Project 1 – Review of C&AG report, Interview with S Slowey • Project 2 – Review Project Agreement, Interviews with D Burke and M Delaney <p>Data gathered from Project 1 showed that the PSO kept the IT equipment working but had largely ignored this issue of updating. PA for Project 2 places this risk for 1st 3 years with PSO. Similar responsibility placed with Project 1 PSO (C&AG Report) and thereafter with DOES. Raised in Project 2 interviews with D Burke and M Delaney, which confirmed that maintenance and updates are being attended to as planned. Joint discussions taking place regarding the post-3 year situation. Outcome data is therefore reliable.</p> <p><i>Gathering of Participant Attitude Data</i></p> <p>Data gathering procedure was consistent throughout thereby guarding against bias. The attitudes recorded, consistently showed a stronger disposition to action on a project level from the PSO in Project 2.</p>

Table 10.8: Test of 8th Instance Finding

10.4.3.4. Partnering Skills (CSS 25)

Construct Validity	Project outcome data gathered from interview with S Slowey, D Burke and M Delaney. Data taken from supplementary questions on each section of the attitude interview provides triangulation. Attitude data were gathered from transcripts of participant interviews. Consistency is maintained across all interviews giving the finding construct validity.
Internal Validity	Outcome records evidence of use of partnering skills in Project 2. Project 1 shows the existence of a highly commercial approach from the PSO with reluctance to any level of joint action that might lead to a resolution of the issue. A pattern match for this behaviour is found in the lower behavioural element score in Project 1 PSO where the attitude recorded shows a lower disposition to project-focused action on risk. Internal validity is provided through the supplementary data gathered in the participant interviews, where the PSO attitude was commented on in relation to the approach taken.
Credibility	A small, dedicated team was appointed to make executive decisions in Project 2. The diverse nature of the sites hindered this scenario in Project 1. However, as no attempted use of partnering skills is evident on any issue from the Project 1 PSO, the project focused behavioural element of the PSO attitude in Project 2 is the most credible cause of the difference in project outcome.
External Validity	The partnering skills evident in Project 2 had an effect on the transfer of IT technical obsolescence risk. The development of the environment whereby this could be effective was influenced by the attitudes of the participants. This finding is relevant to other projects as similar attitudes and project circumstances could exist again.
Transferability	The effect of attitude on the development of partnering skills is an issue to be considered in the finalising of risk transfer agreements on different project types.
Reliability	<p><i>Gathering of Project Outcome data</i></p> <ul style="list-style-type: none"> • Project 1 – C&AG report, Interview with S Slowey • Project 2 – Interviews with D Burke and M Delaney <p>No reference to partnering was found in the documentation. The interview data used concentrated entirely on instances of the use of partnering skills rather than opinions thereby maintaining reliability.</p> <p><i>Gathering of Participant Attitude Data</i></p> <p>Interviews were conducted so that concentration on a project or a sector did not occur. All were recorded/transcribed/verified and analysed using the same procedure. The attitudes recorded, consistently showed a stronger disposition to action on a project level from the PSO in Project 2.</p>

Table 10.9: Test of 9th Instance Finding

Under all six headings, this table shows that the link between outcomes and attitudes in this instance is valid. The diverse locations of the sites in Project 1 would have made development of partnership more difficult. However, the evidence shows that no attempt was made to explore this option. The conclusion that the project-focused attitudes in Project 2 were the influencing factor in achieving a better project level outcome is therefore a credible option.

The testing of the findings relating to risk has therefore confirmed that participant attitudes have an effect on the outcome of a PPP project. These outcomes were found to be those that are influenced by the effectiveness of the project organisation structure, the strength and reliability of the project team, the extent to which good relationships are fostered between the PSO and the government authorities and the degree to which a partnering approach is adopted by the project participants.

10.4 VALUE

The previous chapter found that there were 20 instances where a project outcome relating to value was affected by the attitudes of one or more of the participants. The previous section of this chapter examined three outcomes relating to risk. This section examines a further four outcomes, this time related specifically to value, namely:

4. The management of the generation of 3rd party income;
5. The monitoring of the PSO performance and the application of sanctions for non-performance;
6. The commercial approach of the PSO to the project;
7. The working relationship between the PSO and the public sector.

The manner in which the outcomes were influenced was observed through examination of the following critical subfactors (Table 9.25, Page 297):

- sufficient profitability to attract investors;
- long-term cash flow that is attractive to lenders;
- effective project organisation structure;
- strong and reliable project team;
- relationship between the pso and the government authority;
- partnering skills;
- operation agreement.

Each of these outcomes, that showed an attitude effect under one or more of these critical subfactors, will now be systematically tested. The four value outcomes were also observed through the following critical subfactors:

- supportive and understanding community (CSS 29);
- Leading Role of a Key Enterprise or Entrepreneur (CSS 30, 38);

- rich experience in international PPP projects (CSS 35, 43, 51, 57);
- multidisciplinary participants (CSS 36, 58);
- concession agreement (CSS 37).

However, no conclusive links were found from the participant attitudes to these outcomes. Consequently these subfactors will not be analysed further. A number of further instances did not provide a link between attitudes and outcomes. These are noted where they arise.

10.4.1. Management of the Generation of 3rd Party Income

10.4.1.1. Sufficient Profitability to attract investors

No evidence of link

10.4.1.2. Long-term cash flow that is attractive to lenders

No evidence of link

10.4.1.3. Effectiveness of the Project Organisation Structure (CSS 31)

Construct Validity	Project outcome data gathered from interviews with key facility users. Different sources provide triangulation of findings. Attitudes were recorded through participant interviews, transcribed and subsequently analysed. Consistent procedure followed, giving construct validity.
Internal Validity	Outcomes recorded show a clear difference in the effectiveness of the project organisations and in their approach to management of generation of 3 rd party income. The Project 2 project organisation structure is clearly effective in the area of managing the generation of 3 rd party income. Differences between the projects in public sector affective element of value attitude match the difference in effectiveness of the project organisation. Project 2 PSO behavioural element matches the PSO action in leading the promotion of opportunities to generate 3 rd party income thereby giving internal validity.
Credibility	Other possible causes: <ul style="list-style-type: none"> • Fragmented location of the projects; • The fact that that Project 1 was the first such project in Ireland. Not enough thought given to Project 1 structure at inception. Both are likely to have contributed to effectiveness of structure. However, the Project 2 PSO action to take a leadership role in promoting 3 rd party income suggests that PSO behavioural element is the most credible influencing factor.
External Validity	In this case, 3 rd party income risk is influenced by the project organisation structure and the effectiveness of this organisation was in turn influenced by participant attitudes. Consequently, the attitude of project participants will be a factor in determining project outcomes on other projects.
Transferability	Possible transferability to effect of attitude on project organisations' approach to management of generation of 3 rd party income on different project types.
Reliability	<i>Gathering of Project Outcome data for this finding</i> <ul style="list-style-type: none"> • Project 1 –Interview with S Slowey • Project 2 –Interviews with D Burke and M Delaney Findings based on factual information on the make up of the project organisation rather than opinions, thereby maintaining reliability. Data also drawn from the supplementary questions on the participant interviews provides triangulation of data. <i>Gathering of Participant Attitude Data</i> Followed the same procedure for both projects. Interviews were conducted so that the interviewer was constantly moving back and forth between the projects and (between) the sectors, thereby ensuring that concentration on a project or a sector did not occur. All were recorded/transcribed/verified and analysed using the same procedure, thereby ensuring consistency.

Table 10.10: Test of 10th Instance Finding

10.4.1.4. Strong and Reliable Project Team (CSS 32)

Construct Validity	Project outcome finding resulted from structured review of interview-generated data. Different interview sources provide triangulation of findings. Logical approach used to measure outcomes shows a clear difference in the strength and reliability of the project teams. Attitudes were recorded through participant interviews and subsequently analysed. Consistent approach ensures construct validity.
Internal Validity	Differences in public sector affective element of value attitude matches the approach taken in the formation of the two project teams. Clearly, the DOES approached the formation of the project 2 team in a different way and the strong team in Project 2 matches the more focused promotion of opportunities to generate 3 rd party income. Attitudes measured are confirmed from data gathered from the supplementary questions on in project participant interviews, thereby giving internal validity.
Credibility	Other possible causes: <ul style="list-style-type: none"> • Fragmented location of the projects in Project 1 made the formation of a strong project team difficult to achieve; • Not enough thought given, at project inception, to the potential implications of the strength of the project team in Project 1. This probably arose because this was the first such project in Ireland. Both are likely to have contributed to strength and reliability of the project team. However, the public sector affective attitude element in Project 2 shows a significantly stronger project focus and this is judged to be the most credible influencing factor.
External Validity	In this case, management of the generation of 3 rd party income is influenced by the strength and reliability of the project team, which was in turn influenced by participant attitudes. Consequently, the attitude of project participants will be a factor in determining similar project outcomes on other projects.
Transferability	Possible transferability to effect of attitude on strength of project teams in achievement of project focused outcomes on other project types.
Reliability	<i>Gathering of Project Outcome data for this finding</i> <ul style="list-style-type: none"> • Project 1 – Interview with S Slowey • Project 2 – Interviews with D Burke and M Delaney Finding based on factual information on the manner in which the project team operated. Data also drawn from the supplementary questions on the participant interviews provides triangulation of data. <i>Gathering of Participant Attitude Data</i> Followed the same procedure for both projects. Interviews were conducted so that the interviewer was constantly moving back and forth between the projects and (between) the sectors, thereby ensuring that concentration on a project or a sector did not occur. All were recorded/transcribed/verified and analysed using the same procedure, thereby ensuring consistency.

Table 10.11: Test of 11th Instance Finding

10.4.1.5. Relationship between the PSO and the Government Authority (CSS 33)

Construct Validity	Project outcome data gathered from structured review of the Project 1 PA and from interviews with key facility users. Attitudes recorded through participant interviews and subsequently analysed. Data taken from supplementary questions on each section of the attitude interview provides triangulation. Consistency of data gathering throughout gives construct validity.
Internal Validity	Lower behavioural element score in Project 1 PSO attitude shows a lower disposition to action at a project level on value and the lower affective element score shows a tendency to concentrate strongly on its own value objectives. This provides a pattern match with inaction of the PSO in promoting a project level approach. Relationship between PSO and DOES differs between projects. In Project 2, the two sectors are actively and jointly exploring options to generate further 3 rd party income. Stronger project focused Project 2 PSO affective and behavioural scores match the outcome achieved. Data taken from supplementary questions on project participant interviews confirm the relative strengths of the relationships thereby providing internal validity.
Credibility	Other potential issues that could have affected the relationship are the delays that occurred in procurement and the level to which the public sector was prepared to undertake a PPP. In both projects there were delays in the procurement phase caused by the Department of Finance requiring further information prior to closing the contract. As this happened in both projects, it does not account for a difference in outcome. However, it is possible that such a delay could strain a working relationship in the future. The public sector was better prepared to enter a PPP in Project 2 and this may have had a bearing on the success of the working relationship. However, being better prepared is related to affective and cognitive elements of attitude and these elements score higher in Project 2 public sector attitudes. The deduction that attitudes influenced the effectiveness of the working relationship, which in turn influenced the project outcome, is therefore a credible conclusion.

Table 10.12: Test of 12th Instance Finding
(continued on following page)

External Validity	The relationship between the partners had an effect on the action taken to develop potential for 3 rd party income. The building of the relationship was influenced by the attitudes of the participants. This finding is relevant to other projects as similar attitudes and project circumstances could exist again.
Transferability	This research shows that success in generating further 3 rd party income is influenced by the relationships between public and private sector, the effectiveness of which is in turn influenced by the participant attitudes. This finding has implications for other value related areas on further project types.
Reliability	<p><i>Gathering of Project Outcome data</i></p> <ul style="list-style-type: none"> • Project 1 – Interview with S Slowey • Project 2 – Review Project Agreement, Interviews with D Burke and M Delaney <p>For Project 1 this issue arose in the S Slowey interview. Data gathered showed that the PSO had largely ignored this issue, relying on the DOES to take the lead in generating further 3rd party income. The data from the supplementary questions in the M Cherry interview (appendix 8) confirms this approach by the Project 1 PSO. PA for Project 2 places the responsibility for promotion of 3rd party income with the PSO working with the DOES. Confirmed in interviews with D Burke and M Delaney that this has been the outcome.</p> <p><i>Gathering of Participant Attitude Data</i></p> <p>Data gathering procedure was consistent throughout thereby guarding against bias. The attitudes recorded consistently showed a stronger disposition to action on a project level from the PSO in Project 2.</p>

Table 10.12: (continued) **Test of 12th Instance Finding**

10.4.1.6. Partnering Skills (CSS 34)

Construct Validity	Project outcome data gathered from interviews with S Slowey, D Burke and M Delaney. Data taken from supplementary questions on each section of the attitude interview provides triangulation. Attitude data were gathered from transcripts of participant interviews. Consistent interviewing and analysis procedures gives construct validity.
Internal Validity	Lower affective and behavioural element score in Project 1 PSO shows a strong tendency to concentrate on its own value objectives. This provides a pattern match with a highly commercial approach from the PSO and inaction of the PSO in promoting a project level approach. There is no evidence of partnering skills being used on this project. Data gathered on outcomes show evidence of use of partnering skills in Project 2. Here, the two sectors are actively and jointly exploring options to generate further 3 rd party income. Stronger project focused Project 2 PSO affective and behavioural scores, combined with stronger project focused public sector attitude across all elements, match the outcome achieved. Data from supplementary questions in project participant interviews provide triangulation and thereby internal validity.
Credibility	The questions being asked here are, firstly, are there are causes for the difference in use of partnering skills on these projects other than the participant attitudes, and secondly, how credible is the link between the higher level of use of partnering skills in Project 2 and the greater value being achieved through better management of the generation of 3 rd party income. In answer to the first question, no causes that could not be directly linked to attitude were uncovered by the research and the strong pattern match concludes that the link has credibility. In answer to the second question, the use of partnering skills in Project 2 does not allow either partner to develop a narrow agenda and keeps the project objectives clearly in focus. This link therefore has credibility.
External Validity	The use of partnering skills in Project 2 was influenced by the attitudes of the participants and this in turn influenced the approach to generating 3 rd party income. This finding is relevant to other projects where the generation of 3 rd party income is critical to the success of the project.

Table 10.13: Test of 13th Instance Finding
(continued on following page)

Transferability	The success in generating further 3 rd party income is shown to be influenced by the relationships between public and private sector, the effectiveness of which is in turn influenced by the participant attitudes. This finding has implications for other value related areas on further project types.
Reliability	<p><i>Gathering of Project Outcome data</i></p> <ul style="list-style-type: none"> • Project 1 – Interview with S Slowey • Project 2 – Interviews with D Burke and M Delaney <p>For project 1 this issue arose in the S Slowey interview. Data gathered from Project 1 showed that the PSO was relying on the DOES to take the lead in generating further 3rd party income. The data from the supplementary questions in the M Cherry interview (appendix 8) confirms this approach by the Project 1 PSO. Interviews with D Burke and M Delaney shows the Project 2 PSO and the DOES working jointly on this issue with the PSO taking a leading role.</p> <p><i>Gathering of Participant Attitude Data</i></p> <p>Data gathering procedure was consistent throughout thereby guarding against bias. The attitudes recorded consistently showed a stronger disposition to action on a project level from the PSO in Project 2.</p>

Table 10.13: (continued) **Test of 13th Instance Finding**

10.4.1.7. *Operation Agreement*

No evidence of link

10.4.2. *Monitoring of the PSO and Application of Sanctions*

10.4.2.1. *Sufficient Profitability to attract investors*

No evidence of link

10.4.2.2. *Long-term cash flow that is attractive to lenders*

No evidence of link

10.4.2.3. Effectiveness of the Project Organisation Structure (CSS 39)

Construct Validity	Project outcome data gathered from structured review of documents and through interviews. Different sources provide triangulation of findings. Attitudes were recorded through participant interviews, transcribed and subsequently analysed. Consistent approach throughout maintains construct validity.
Internal Validity	Outcomes recorded show a clear difference in the effectiveness of the project organisations between the projects, with the Project 2 project organisation adopting a clear strategy for the monitoring of the PSO and application of sanctions. A less effective approach is evident in Project 1. Differences in public sector affective element of value attitude between the projects match the difference in effectiveness of the project organisation. This match provides internal validity.
Credibility	<p>Other possible causes of outcome:</p> <ul style="list-style-type: none"> • Fragmented location of the projects; • The fact that that Project 1 was the first such project in Ireland. Not enough thought given to Project 1 structure at inception. <p>Both are likely to have contributed to effectiveness of structure. However, it is more likely that the public sector's higher affective element of value attitude in Project 2 shows that the public sector became more amenable to a project focus on value in this project. The subsequent action in development of an effective structure therefore gives credibility to the finding.</p>
External Validity	In this case, the monitoring of the PSO and the application of sanctions for non-performance is influenced by the project organisation structure and that the effectiveness of this organisation was in turn influenced by participant attitudes. Consequently, the attitude of project participants will be a factor in determining project outcomes on other projects.
Transferability	Possible transferability to effect of attitude on project organisations' approach to management of generation of 3 rd party income on different project types.
Reliability	<p><i>Gathering of Project Outcome data for this finding</i></p> <ul style="list-style-type: none"> • Project 1 – Interview with S Slowey • Project 2 – Interviews with D Burke and M Delaney <p>Finding based on factual information on the manner in which the project team operated. Data also drawn from the supplementary questions on the participant interviews provides triangulation of data.</p> <p><i>Gathering of Participant Attitude Data</i></p> <p>Followed the same procedure for both projects. Interviews were conducted so that the interviewer was constantly moving back and forth between the projects and (between) the sectors, thereby ensuring that concentration on a project or a sector did not occur. All were recorded/transcribed/verified and analysed using the same procedure, thereby ensuring consistency.</p>

Table 10.14: Test of 14th Instance Finding

10.4.2.4. *Strong and Reliable Project Team (CSS 40)*

Construct Validity	Project outcome finding resulted from structured review of data generated from the interviews with key facility users. Attitudes were recorded through participant interviews and subsequently analysed. Different interview sources provide triangulation of data. The data gathering consistently followed the established process throughout, thereby ensuring construct validity.
Internal Validity	Differences in public sector of value attitude match the approach taken in the formation of the two project teams. Clearly, the DOES approached the formation of the Project 2 team in a different way. The strong team in Project 2 matches the more focused application of the terms of the PA in monitoring the PSO and the application of sanctions for non-performance. The cognitive element difference matches the fact that Project 1 was the first such project undertaken by the DOES and due to this, there was a lack of experience and knowledge of the finer points of PPP in the DOES team. The difference in affective attitude follows this in reflecting the fact that PPP would naturally have been approached with considerable caution in these circumstances. The behavioural element difference matches the difference in the processes that exist on the projects for monitoring and managing performance. Together, these pattern matches provide internal validity.
Credibility	Other possible causes: <ul style="list-style-type: none"> • Fragmented location of the projects in Project 1 made consistency of action by the project team difficult to achieve; Difficult to assess the extent to which this contributed to strength and reliability of the project team. However, as the public sector attitude in Project 2 shows a significantly stronger project focus, this is judged to be the most credible influencing factor.
External Validity	In this case, management of the performance is influenced by the strength and reliability of the project team, which was in turn influenced by participant attitudes. Consequently, the attitude of project participants will be a factor in determining similar project outcomes on other projects.
Transferability	Possible transferability to effect of attitude on strength of project teams in achievement of project focused outcomes on other project types.
Reliability	<p><i>Gathering of Project Outcome data for this finding</i></p> <ul style="list-style-type: none"> • Project 1 – Interview with S Slowey • Project 2 – Interviews with D Burke and M Delaney <p>Findings based on factual information on the manner in which the project team operated. Data also drawn from the supplementary questions on the participant interviews provides triangulation of data.</p> <p><i>Gathering of Participant Attitude Data</i></p> <p>Followed the same procedure for both projects. Interviews were conducted so that the interviewer was constantly moving back and forth between the projects and (between) the sectors, thereby ensuring that concentration on a project or a sector did not occur. All were recorded/transcribed/verified and analysed using the same procedure, thereby ensuring consistency.</p>

Table 10.15: Test of 15th Instance Finding

10.4.2.5. *Relationship between the PSO and the Government Authority (CSS 41)*

Construct Validity	Project outcome data gathered from interviews with key facility users. Attitudes recorded through participant interviews and subsequently analysed. Data taken from supplementary questions from the attitude interview support findings and provide triangulation. Consistency ensures construct validity.
Internal Validity	There is a clear difference in the relationships between the PSOs and the DOES in the two projects. In Project 2, the PSO is satisfied to accept the terms of the PA in monitoring its performance and accepts sanctions applied in accordance with the PA. In Project 1, the PSO contests every potential sanction and attempts to offset the sanction amounts off against income due to the DOES. Costs that are clearly the responsibility of the PSO are often billed to the DOES and argued that they are DOES costs. The data gathered showed that the PSO is constantly pushing the limits of the PA and that the DOES had to spend considerable extra time in arguing issues that were covered by the agreement. Lack of resources in the DOES meant that some issues were not addressed and the situation is still not resolved. This has led to an atmosphere of suspicion and mistrust on the project, exacerbated by the DOES failing to take action to stop this behaviour. The most significant influence on this situation is the behaviour of the PSO and this is matched by an almost exclusive organisation focused attitude exhibited through the affective and behavioural elements. Differences in public sector of value attitude across all elements also match the difference in the relationship and, consequently, the difference in outcome. The extent of the data presented shows that this finding has internal validity.
Credibility	The amount of evidence available presents a credible case that the relationship between the parties is affected by the attitudes of the participants and that this relationship has in turn affected the effectiveness of the monitoring of the PSO and the application of sanctions.
External Validity	The relationship between the partners had an effect on the effectiveness of the monitoring of the PSO performance. The building of the relationship was influenced by the attitudes of the participants. This finding is relevant to other projects as similar attitudes and project circumstances could exist again.

Table 10.16: Test of 16th Instance Finding
(continued on following page)

Transferability	The effectiveness of the monitoring of the PSO performance is shown to be influenced by the relationships between public and private sector, the effectiveness of which is in turn influenced by the participant attitudes. This finding has implications for monitoring of service provision on further project types.
Reliability	<p><i>Gathering of Project Outcome data</i></p> <ul style="list-style-type: none"> • Project 1 – Interview with S Slowey • Project 2 – Interviews with D Burke and M Delaney <p>For Project 1 this issue arose in the S Slowey interview and the responses to the supplementary questions attached to the participant attitude interviews confirms this approach by the Project 1 PSO. Interviews with D Burke and M Delaney show that monitoring of Project 2 is being conducted amicably, accordance with the terms of the PA.</p> <p><i>Gathering of Participant Attitude Data</i></p> <p>Data gathering procedure was consistent throughout thereby guarding against bias. The attitudes recorded, consistently showed a stronger disposition to action on a project level from the PSO in Project 2.</p>

Table 10.16: (continued) **Test of 16th Instance Finding**

10.4.2.6. Partnering Skills (CSS 42)

Construct Validity	Project outcome data was gathered from interviews with key facility users. Data taken from supplementary questions on each section of the attitude interview provides triangulation. Attitude data were gathered from transcripts of participant interviews. Consistent approach ensures construct validity.
Internal Validity	Lower affective and behavioural element score in Project 1 PSO shows a strong tendency to concentrate on its own value objectives. This provides a pattern match with a highly commercial approach from the PSO and inaction of the PSO in promoting a project level approach. On Project 2, the two sectors are working closely together to the terms of the PA with evidence of a partnering approach in a number of areas, an example of which is the joint development of an energy use profile for the building. Stronger project focused PSO affective and behavioural scores in Project 2, combined with stronger project focused public sector attitude across all elements, match the outcome achieved and display internal validity.
Credibility	The credibility of the link between attitudes and use of partnering skills has already been established. From the evidence presented it is clear that Project 2 is run as a partnership and that partnering skills are to be found in most of the interaction between the partners. This is also true in the project monitoring and the PSO does not question the application of a sanction that is required under the terms of the PA. The opposite approach is taken in Project 1 where the DOES must raise and defend each issue with the PSO. This gives credibility to the finding.
External Validity	The partnering approach to Project 2 was influenced by the attitudes of the participants and this in turn influenced the effectiveness of the monitoring of the operation of the facility. This finding is relevant to monitoring of operation of other projects.
Transferability	This finding has implications for monitoring all types of service agreements on other project types.
Reliability	<p><i>Gathering of Project Outcome data</i></p> <ul style="list-style-type: none"> • Project 1 – Interview with S Slowey • Project 2 – Interviews with D Burke and M Delaney <p>Data gathered from Project 1 showed that the PSO was relying on the DOES to act first and would then react in a way to further the achievement of its own objectives. Alternatively, the PSO would attempt to apply a different interpretation to the PA and wait for the DOES reaction. The data from the supplementary questions in the D. Gordan interview (appendix 7) confirm this approach by the Project 1 PSO. Project 2 interviews with D Burke and M Delaney shows the PSO and the DOES working jointly on this issue with the PSO taking a leading role.</p> <p><i>Gathering of Participant Attitude Data</i></p> <p>Data gathering procedure was consistent throughout thereby guarding against bias. The attitudes recorded, consistently showed a stronger disposition to action on a project level from the PSO in Project 2.</p>

Table 10.17: Test of 17th Instance Finding

10.4.2.7. Operation Agreement (CSS 44)

Construct Validity	Project outcome data gathered from review of C&AG report, Project 2 PA and from interviews with key facility users. Attitude data were gathered from transcripts of participant interviews. Data taken from supplementary questions on each section of the attitude interview provides triangulation. Consistent data gathering throughout ensures construct validity.
Internal Validity	Lower PSO behavioural element score in Project 1 PSO shows a strong tendency to concentrate on its own value objectives. This provides a pattern match with inaction of the PSO in promoting a project level approach. Lower affective public sector element score in Project 1, shows more uncertainty with the PPP process than in Project 2 and corresponds with an uncertain approach in applying the sanctions for non performance. On Project 2, the two sectors are working closely together to the terms of the PA. Stronger project focused Project 2 PSO behavioural score, combined with stronger project focused public sector affective element attitude, matches the outcome achieved. Outcome records evidence of a disputed interpretation of the PA between the parties in Project 1, with agreement in Project 2. The strong pattern matching illustrates achievement of internal validity.
Credibility	In addition to the pattern matches found, the research confirmed that the level of resourcing required to monitor such a geographically diverse project as Project 1, has not been adequately provided. However, this in turn is a consequence of a lower affective attitude. The finding is therefore credible.
External Validity	The interpretation of the project agreement in Project 1 was influenced by the attitudes of the participants and this in turn influenced the effectiveness of the monitoring of the operation of the facility. This finding is relevant to monitoring of operation of other projects.
Transferability	This finding has implications for monitoring all types of service agreements on other project types.
Reliability	<p><i>Gathering of Project Outcome data</i></p> <ul style="list-style-type: none"> • Project 1 – Interview with S Slowey • Project 2 – Interviews with D Burke and M Delaney <p>Data gathered from Project 1 showed that, the PSO would attempt to apply a different interpretation to the PA and wait for the DOES reaction. The data from the supplementary questions in the D. Gordon interview (appendix 7) confirm this approach by the Project 1 PSO. Project 2 interviews with D Burke and M Delaney show the PSO and the DOES working jointly on this issue.</p> <p><i>Gathering of Participant Attitude Data</i></p> <p>Data gathering procedure was consistent throughout thereby guarding against bias. The attitudes recorded, consistently showed a stronger disposition to action on a project level from the PSO in Project 2.</p>

Table 10.18: Test of 18th Instance Finding

10.4.3. *The Commercial Approach of the PSO to the Project*

10.4.3.1. *Sufficient profitability to attract investors (CSS 45)*

Construct Validity	Project outcome data gathered from structured review of documents and through interviews with key facility users. Media reports on the financial difficulties of the Project 1 PSO were also examined to get an understanding of the context in which the company was required to respond to the difficulties. Different sources provided triangulation of data. Attitudes were recorded through participant interviews, transcribed and subsequently analysed. Construct validity is therefore achieved.
Internal Validity	Outcomes recorded show a clear difference in the commercial approach of the PSOs between the projects. Project 1 PSO adopted a highly commercial approach to the project, whilst Project 2 PSO’s approach was closer to a partnering approach. Attitude difference between the projects matched the outcomes with the Project 1 PSO having a low project focus on affective and behavioural value attitude elements. Project 2 PSO scored slightly higher on the affective element and significantly higher on the behavioural element, matching the recorded outcome. Whilst these attitudes existed and are matched with the outcomes, the Project 1 PSO began to experience financial difficulties shortly after the operational phase began and this undoubtedly influenced the attitude of the participants. Such difficulties would have put pressure on the PSO project team to display the project as being in a strong financial state and this would have translated into the development of a highly commercial approach to the project. The finding therefore has internal credibility.
Credibility	Did the commercial atmosphere exist because of the financial situation or would it have developed in this way if the financial circumstances had been different? Does this matter? There is evidence from the participant interviews that the commercial approach existed at the ITT stage (interview with P Clarke – appendix 10), but it is in the operational stage that it became very noticeable. We can conclude therefore that the PSO would have adopted a commercial approach regardless of the development of financial difficulties, but it may not have been as strongly organisation-focused if the financial circumstances had been different. In any event, the conclusion is that the outcome was caused by the attitudes although the probability is that these attitudes were strongly influenced by the existence of the financial difficulties. However, the cause does not matter, as the outcome data shows that the commercial approach was evident before the financial difficulties surfaced. The finding is therefore credible.

Table 10.19: Test of 19th Instance Finding
(continued on following page)

External Validity	In this case, the commercial approach of the PSO is influenced by the PSO's attitude which was shaped by the PSO's financial circumstances. This finding is relevant to other PPPs where similar circumstances could arise.
Transferability	This finding raises the issue of the reasons that people have for holding certain attitudes. Further research, categorising various attitudes and identifying potential causes could result in earlier anticipation of outcomes arising from specific participant attitudes.
Reliability	<p><i>Gathering of Project Outcome data</i></p> <ul style="list-style-type: none"> • Project 1 – C&AG Report, Interview with S Slowey • Project 2 – PA, Interviews with D Burke and M Delaney <p>Documents examined to establish the relevant approaches taken to deal with PSO financial difficulty. Project outcome difference in terms of commercial approach established from interview data. Data also drawn from the supplementary questions on the participant interviews provides triangulation of data. Media reports used to establish factual information such as the nature and timing of emergence of Project 1 PSO financial difficulties.</p> <p><i>Gathering of Participant Attitude Data</i></p> <p>Followed the same procedure for both projects. Interviews were conducted so that the interviewer was constantly moving back and forth between the projects and (between) the sectors, thereby ensuring that concentration on a project or a sector did not occur. All were recorded/transcribed/verified and analysed using the same procedure, thereby ensuring consistency.</p>

Table 10.19: (continued) **Test of 19th Instance Finding**

10.4.3.2. Long-term cash flow that is attractive to lenders (CSS
46)

Construct Validity	Project outcome data gathered from structured review of documents and through interviews. Different sources provide triangulation of findings. Attitudes were recorded through participant interviews, transcribed and subsequently analysed. The consistent approach gives the findings construct validity.
Internal Validity	Outcomes recorded show a clear difference in the commercial approach of the PSOs between the projects. Both PSOs stated that success of these projects would have a bearing on the future of PPP in Ireland and, consequently, their long-term income from PPP. Financial difficulties experienced by Project 1 PSO has influenced the development of a highly commercial approach that is now attempting to present the project as being cash rich. Whilst both projects are maintaining a positive cash flow, the Project 1 PSO appears to be trying to bring in more cash than the PA allows. The difference in outcomes is matched by the difference in attitude of the participants in the projects. The strength of the pattern match of attitudes to outcome gives this finding internal validity.
Credibility	The references (S Slowey interview- Appendix 4) to the Project 1 PSO behaviour in attempting to offset costs against charges due to the DOES shows that the findings have credibility.
External Validity	In this case, the commercial approach of the PSO is influenced by the PSO's attitude which was shaped by the PSO's financial circumstances. This finding is relevant to other PPPs, where similar circumstances could arise.
Transferability	This finding is transferable to a situation where objectives are set at project inception but a change in circumstances of one of the parties results in a change in attitude. This will further result in a change in project outcome.
Reliability	<p><i>Gathering of Project Outcome data for this finding</i></p> <ul style="list-style-type: none"> • Project 1 – C&AG Report, Interview with S Slowey • Project 2 – PA, Interviews with D Burke and M Delaney <p>Documents examined to establish the relevant approaches taken to deal with PSO financial difficulty. Project outcome difference in terms of commercial approach established from interview data. Data also drawn from the supplementary questions on the participant interviews provides triangulation of data.</p> <p><i>Gathering of Participant Attitude Data</i></p> <p>Followed the same procedure for both projects. Interviews were conducted so that the interviewer was constantly moving back and forth between the projects and (between) the sectors, thereby ensuring that concentration on a project or a sector did not occur. All were recorded/transcribed/verified and analysed using the same procedure, thereby ensuring consistency.</p>

Table 10.20: Test of 20th Instance Finding

10.4.3.3. Effectiveness of the Project Organisation Structure (CSS

47)

Construct Validity	Project outcome data gathered from structured review of documents and through interviews with key facility users. Different sources provide triangulation of data. Attitudes were recorded through participant interviews, transcribed and subsequently analysed. The approach is consistent throughout, giving construct validity.
Internal Validity	Outcomes recorded show a clear difference in the effectiveness of the project organisations between the projects. The fragmented geographical nature of the Project 1 structure has resulted in a lack of consistency in the public sector approach to the project and allows the PSO ample opportunity to challenge the limits of the PA. This does not arise in Project 2 where the two sectors are together on one site. Differences in public sector affective element of value attitude between the projects, therefore, matches the difference in effectiveness of the project organisation, which in turn allows differences in PSO approach to exist. This match provides internal validity.
Credibility	Other possible causes of outcome: <ul style="list-style-type: none"> • Fragmented location of the projects; • The fact that that Project 1 was the first such project in Ireland. Not enough thought given to Project 1 structure at inception. Both are likely to have contributed to effectiveness of structure. However, it is likely that the public sector's higher affective element of value attitude in Project 2 is also an influencing factor.
External Validity	In this case, the commercial approach of the PSO is influenced by the project organisation structure and that the effectiveness of this organisation was in turn influenced by participant attitudes. Consequently, the attitude of project participants will be a factor in determining project outcomes on other projects. However, the fragmented location of the site in Project 1 and the relative inexperience in PPP are also important. Accordingly, it may not be valid to assume that a similar affective public sector element of attitude would result in a similar outcome on another project.
Transferability	Possible transferability to effect of attitude on formation of project organisations structure on different project types.
Reliability	<i>Gathering of Project Outcome data for this finding</i> <ul style="list-style-type: none"> • Project 1 – Interview with S Slowey • Project 2 – Interviews with D Burke and M Delaney Findings based on factual information on the manner in which the project team operated. Data drawn from the supplementary questions on the participant interviews provides triangulation. <i>Gathering of Participant Attitude Data</i> Followed the same procedure for both projects. Interviews were conducted so that the interviewer was constantly moving back and forth between the projects and (between) the sectors, thereby ensuring that concentration on a project or a sector did not occur. All were recorded/transcribed/verified and analysed using the same procedure, thereby ensuring consistency.

Table 10.21: Test of 21st Instance Finding

Under the credibility heading, it was found that there are other plausible reasons for this instance of the finding. However, it is credible that attitude did also have an influence on the outcome. Under the external validity heading, this instance of the finding was shown to be weak. This table shows that the link between outcomes and attitudes in this instance is valid when tested under the remaining headings.

10.4.3.4. Strong and Reliable Project Team (CSS 48)

Construct Validity	Project outcome finding resulted from structured review of interview-generated data. Logical approach used to measure outcomes shows a clear difference in the strength and reliability of the project teams. Attitudes were recorded through participant interviews and were subsequently analysed. Different interview sources provide triangulation of data and construct validity.
Internal Validity	Differences in public sector of value attitude match the approach taken in the formation of the two project teams. Clearly, the DOES approached the formation of the Project 2 team in a different way. The strong public sector attitudes in Project 2 match the more project-focused approach of the PSO. The difference in affective attitude reflects a greater ease with the PPP process as the DOES had learned considerably from Project 1 (confirmed in D Gordon interviews – Appendices 7 & 11). The behavioural element difference matches the difference in the dealings between the DOES and the PSO on the two projects. The strength of the pattern matches gives internal validity.
Credibility	No other obvious potential causes. The public sector attitude in Project 2 shows a significantly stronger project focus. This is judged to most credible influencing factor.
External Validity	In this case, the commercial approach of the PSO is influenced by the strength and reliability of the project team, which was in turn influenced by participant attitudes. Consequently, the attitude of project participants will be a factor in determining similar project outcomes on other projects.
Transferability	Possible transferability to effect of attitude on strength of project teams in achievement of project focused outcomes on other project types.
Reliability	<p><i>Gathering of Project Outcome data</i></p> <ul style="list-style-type: none"> • Project 1 – Interview with S Slowey • Project 2 – Interviews with D Burke and M Delaney <p>Finding based on factual information on the manner in which the project team operated. Data also drawn from the supplementary questions on the participant interviews provides triangulation of data.</p> <p><i>Gathering of Participant Attitude Data</i></p> <p>Followed the same procedure for both projects. Interviews were conducted so that the interviewer was constantly moving back and forth between the projects and (between) the sectors, thereby ensuring that concentration on a project or a sector did not occur. All were recorded/transcribed/verified and analysed using the same procedure, thereby ensuring consistency.</p>

Table 10.22: Test of 22nd Instance Finding

10.4.3.5. Relationship between the PSO and the Government Authority (CSS 49)

Construct Validity	Project outcome data gathered through interviews. Data taken from supplementary questions of the attitude interview support findings and provide triangulation. Attitudes recorded through participant interviews and subsequently analysed. Consistent approach in data gathering and analysis gives construct validity.
Internal Validity	The contrast between the commercial approaches the two PSOs was immediately obvious from the key user interviews. In Project 1, the approach was accompanied with a strained relationship between the partners. In Project 2, the partners worked closely to develop solutions to problems and would jointly monitor the implementation of the PA. Constant review and refocusing of action was the norm. The most significant influence on this situation is the behaviour of the PSO and this is matched by an almost exclusive organisation focused attitude exhibited through the behavioural attitude element. Differences in public sector of affective element of value attitude also match the difference in the relationship and, consequently, the difference in outcome. These pattern matches give internal validity.
Credibility	No other potential causes are obvious. Constant reference to the strength of the working relationship during the Project 2 attitude interviews adds further credibility to the finding.
External Validity	The relationship between the partners influenced the extent to which the PSO was allowed to take a strongly commercial approach to the project. The development of the relationship was influenced by the attitudes of the participants. This finding is relevant to other projects as similar attitudes and project circumstances could exist again.
Transferability	The extent to which the relationship between the partners influences the actions of the partners is an area that would benefit from further research.
Reliability	<p><i>Gathering of Project Outcome data</i></p> <ul style="list-style-type: none"> • Project 1 – Interview with S Slowey • Project 2 – Interviews with D Burke and M Delaney <p>Clear evidence of the difference emerged in the above interview and the responses to the supplementary questions attached to the participant attitude interviews</p> <p><i>Gathering of Participant Attitude Data</i></p> <p>Data gathering procedure was consistent throughout thereby guarding against bias. The attitudes recorded consistently showed a stronger disposition to action on a project level from the PSO in Project 2.</p>

Table 10.23: Test of 23rd Instance Finding

10.4.3.6. Partnering Skills (CSS 50)

Construct Validity	Project outcome data gathered from interviews with key facility users. Data taken from supplementary questions on each section of the attitude interview provides triangulation. Attitude data were gathered from transcripts of participant interviews. Data gathering and analysis remained consistent throughout, giving construct validity.
Internal Validity	Lower affective and behavioural element score in Project 1 PSO shows a strong tendency to concentrate on its own value objectives. This provides a pattern match with the highly commercial approach from the PSO and its inaction in promoting a project level approach. On Project 2, the two sectors are working closely together to resolve issues that might arise with evidence of use of partnering skills in a number of areas. Stronger project focused Project 2 PSO affective and behavioural scores, combined with stronger project focused public sector attitude across all elements, match the outcome achieved and provide internal validity of the finding.
Credibility	The credibility of the link between attitudes and use of partnering skills has already been established. From the evidence presented it is clear that Project 2 is run as a partnership and that partnering skills are to be found in most of the interaction between the partners. The use of partnering skills therefore defined the nature of the working relationship in Project 2. On Project 1, there is an absence of partnering skills that provides a pattern match with the very strong commercially focused approach of the PSO. The strength of the pattern matches gives credibility to the finding.
External Validity	The absence of joint action on all issues in Project 1 was influenced by the attitudes of the participants and this in turn had an effect on the development of a strongly organisation-focused approach by the PSO. This finding is relevant to other projects as similar attitudes and project circumstances could exist again.
Transferability	The extent to which the existence of strong partnering might influence the actions of the partners is an area that would benefit from further research.

Table 10.24: Test of 24th Instance Finding
(continued on following page)

Reliability	<p><i>Gathering of Project Outcome data</i></p> <ul style="list-style-type: none"> • Project 1 – Interview with S Slowey • Project 2 – Interviews with D Burke and M Delaney <p>Data gathered from Project 1 showed that the PSO was relying on the DOES to act and to then react in a way that would further the achievement of its own objectives. Alternatively, the PSO would attempt to apply a different interpretation to the PA and wait for the DOES reaction. The data from the supplementary questions in the D. Gordan interview (appendix 7) confirms this approach by the Project 1 PSO. It can therefore be reliably concluded that partnering skills were not in evidence in Project 1. Project 2 interviews with D Burke and M Delaney shows the PSO and the DOES working jointly on all issues and both sides taking cognisance of the concerns of the other party. This shows that partnering skills were evident in Project 2.</p> <p><i>Gathering of Participant Attitude Data</i></p> <p>Data gathering procedure was consistent throughout thereby guarding against bias. The attitudes recorded consistently showed a stronger disposition to action on a project level from the PSO in Project 2.</p>
-------------	--

Table 10.24: (continued) **Test of 24th Instance Finding**

10.4.3.7. Operation Agreement (CSS 52)

Construct Validity	Project outcome data gathered review of the C&AG report, the Project 2 PA and interviews with the key facility users. Data taken from supplementary questions on each section of the attitude interview provides triangulation. Attitude data were gathered from transcripts of participant interviews. Consistent methods of data gathering and analysis give construct validity.
Internal Validity	Outcome data show evidence of a strongly commercially focused PSO approach to Project 1 and a much more open, cooperative focus from the Project 2 PSO. The Project 2 PSO regularly takes action that will bring a gain to the public sector without significant gain to itself. The Project 1 PSO will only take action when the result is a gain for itself. The lower PSO behavioural element score in Project 1 PSO shows a strong tendency to concentrate on its own value objectives. This shows a pattern match with the inaction of the PSO in promoting a project level approach. On Project 2, the two sectors are working closely together to the terms of the PA. The stronger project focused Project 2 PSO behavioural score matches the outcome achieved. The difference in attitudes between the public sector participants ensured that the PA in Project 2 was clear and concise. The PSO behavioural attitude in Project 1 is organisation-focused, resulting in outcomes more favourable to the PSO on this project. The strong pattern matches give internal validity.
Credibility	The lack of experience of the DOES in PPP prior to Project 1 and the robustness of the Project 2 PA give credibility to this finding. This finding also supports previous research findings that the performance is affected by the robustness of the contract.
External Validity	The robustness of the PA allowed a commercial approach undesirable to the DOES to develop in Project 1. This situation was exacerbated by the behavioural attitude element of the PSO. Such circumstances could arise again making this finding relevant to further projects.
Transferability	This finding is transferable to other project types.
Reliability	<p><i>Gathering of Project Outcome data</i></p> <ul style="list-style-type: none"> • Project 1 – C&AG report, Interview with S Slowey • Project 2 – PA, Interviews with D Burke and M Delaney <p>Data gathered from Project 1 showed that, the PSO would attempt to apply a different interpretation to the PA and wait for the DOES reaction. The data from the supplementary questions in the D. Gordon interview (appendix 7) confirms this approach by the Project 1 PSO. Project 2 interviews with D Burke and M Delaney show the PSO and the DOES working jointly on this issue.</p> <p><i>Gathering of Participant Attitude Data</i></p> <p>Data gathering procedure was consistent throughout thereby guarding against bias. The attitudes recorded, consistently showed a stronger disposition to action on a project level from the PSO in Project 2.</p>

Table 10.25: Test of 25th Instance Finding

10.4.4. The Working Relationship between the PSO and the Public Sector

10.4.4.1. Sufficient Profitability to attract investors

No evidence of link

10.4.4.2. Long-term cash flow that is attractive to lenders

No evidence of link

10.4.4.3. Effectiveness of the Project Organisation Structure (CSS 53)

Construct Validity	Project outcome data gathered from interviews. Data taken from supplementary questions on each section of the attitude interview provides triangulation. Attitudes were recorded through participant interviews, transcribed and subsequently analysed. The consistent methods of data gathering and analysis provide construct validity.
Internal Validity	Outcomes recorded show a clear difference in the effectiveness of the project organisations, allowing a different working relationship to develop on the two projects. Differences in public sector affective element of value attitude, between the projects, match the difference in effectiveness of the project organisation. In addition, the two PSOs adopted different strategies. On Project 1, the PSO opted for a strategy that concentrated on boosting the return from the project. On Project 2, the PSO opted to work closely with the public sector on addressing issues from a project level approach. These differences in strategy are mirrored in the difference in the behavioural elements of the respective PSO value attitude giving internal validity.
Credibility	The fragmented location of Project 1 did not lend itself to building a working relationship such as that developed in Project 2. Nonetheless, there appears to have been no attempt to explore the development of a closer relationship in Project 1. Given that the DOES affective element would naturally be lower on its first PPP (due to uncertainty with the process), the finding reached has credibility. This is reinforced by the differences in behavioural element of the PSOs' attitudes.
External Validity	The finding showed that the working relationship of the partners was affected by the way in which the attitudes influenced the effectiveness of the project organisation structure. Consequently, the attitude of project participants will be a factor in determining project outcomes on other projects.
Transferability	The finding that effectiveness of the project organisation affects the working relationship is relevant to other project types.
Reliability	<p><i>Gathering of Project Outcome data for this finding</i></p> <ul style="list-style-type: none"> • Project 1 – Interview with S Slowey • Project 2 – Interviews with D Burke and M Delaney <p>Information used was consistent for both projects. Findings based on factual information on the manner in which the project team operated.</p> <p><i>Gathering of Participant Attitude Data</i></p> <p>Followed the same procedure for both projects. Interviews were conducted so that the interviewer was constantly moving back and forth between the projects and (between) the sectors, thereby ensuring that concentration on a project or a sector did not occur. All were recorded/transcribed/verified and analysed using the same procedure, thereby ensuring consistency.</p>

Table 10.26: Test of 26th Instance Finding

10.4.4.4. *Strong and Reliable Project Team (CSS 54)*

Construct Validity	Project outcome findings resulted from structured review of interview-generated data. Different interview sources provide triangulation of data. Logical, consistent approach used to measure outcomes shows a clear difference in the strength and reliability of the project teams. Attitudes were recorded through participant interviews and subsequently analysed. Construct validity is provided through the consistency of the approach to data gathering and analysis.
Internal Validity	<p>The Project 1 team was formed as a combination of DOES experts and the school principals. Decisions took into account the views of the principals but were driven by the DOES. The Project 2 team was a three-man unit with extensive executive decision-making powers. Differences in public sector value attitude provide a pattern match with the approach taken in the formation of the two project teams. The cognitive element difference matches the fact that Project 1 was the first such project undertaken by the DOES and due to this, there was a lack of experience and knowledge of the finer points of PPP in the DOES team. Having learned from its experience in Project 1, the DOES adopted a different approach in Project 2. The difference in affective attitude follows this in reflecting the fact that PPP would naturally have been approached in Project 1 with considerable caution in these circumstances. The same level of caution was not present in Project 2 as the process was no longer unknown and the public sector felt more comfortable exploring the possibility of developing a strong working relationship. Consequently, the behavioural element difference matches the difference in the working relationships.</p> <p>All of this allowed the Project 2 PSO to act on its behavioural element attitude and respond positively to the opportunity to develop a strong working relationship.</p> <p>The strength of the numerous pattern matches provide internal validity.</p>
Credibility	The data show that there were logical reasons for the differing strength and reliability of the project teams and that they affected the development of the working relationships on the projects. The analysis shows that attitudes were a factor in the different approaches to building the teams. The findings therefore have credibility.
External Validity	In this case, the development of the working relationship is found to have been influenced by the strength and reliability of the project team, which was in turn influenced by participant attitudes. Consequently, the attitude of project participants will be a factor in determining similar project outcomes on other projects.

Table 10.27: Test of 27th Instance Finding
(continued on following page)

Transferability	Possible transferability to effect of attitude on teambuilding and on building working relationships.
Reliability	<p><i>Gathering of Project Outcome data for this finding</i></p> <ul style="list-style-type: none"> • Project 1 – Interview with S Slowey • Project 2 – Interviews with D Burke and M Delaney <p>Finding based on factual information on the manner in which the project team operated. Data also drawn from the supplementary questions on the participant interviews provides triangulation.</p> <p><i>Gathering of Participant Attitude Data</i></p> <p>Followed the same procedure for both projects. Interviews were conducted so that the interviewer was constantly moving back and forth between the projects and (between) the sectors, thereby ensuring that concentration on a project or a sector did not occur. All were recorded/transcribed/verified and analysed using the same procedure, thereby ensuring consistency.</p>

Table 10.27: (continued) Test of 27th Instance Finding

10.4.4.5. Relationship between the PSO and the Government Authority (CSS 55)

Construct Validity	Project outcome data gathered through interviews. Relationship between PSO and DOES differs between projects. Attitudes recorded through participant interviews and subsequently analysed. Triangulating data taken from supplementary questions of the attitude interview support findings and provide construct validity.
Internal Validity	The attitudes mirror the outcomes, with the PSO in Project 2 clearly working on the development of the relationship. The affective element of the public sector attitude and the behavioural element of the PSO attitude provide a strong pattern match with the outcome and give internal validity to the finding.
Credibility	The data show a different approach between the two projects with a clearly more productive working relationship in Project 2. The difference in attitudes and the constant references to this in the interview data gives credibility to the finding.
External Validity	The building of the relationship was influenced by the attitudes of the participants. This finding is relevant to other projects as similar attitudes and project circumstances could exist again.
Transferability	The effectiveness of the working relationship between public and private sector was influenced by the participant attitudes. This finding has implications for team building for both the public and private sectors on further project types.
Reliability	<p><i>Gathering of Project Outcome data</i></p> <ul style="list-style-type: none"> • Project 1 – Interview with S Slowey • Project 2 – Interviews with D Burke and M Delaney <p>Data gathered in a consistent manner for each project show a clear difference in outcome.</p> <p><i>Gathering of Participant Attitude Data</i></p> <p>Data gathering procedure was consistent throughout thereby guarding against bias. The attitudes recorded, consistently showed a stronger disposition to action on a project level from the PSO in Project 2 and a stronger public sector affective element of attitude in Project 2.</p>

Table 10.28: Test of 28th Instance Finding

10.4.4.6. Partnering Skills (CSS 56)

Construct Validity	Project outcome data gathered from interviews with key facility users. Data taken from supplementary questions on each section of the attitude interview provides triangulation. Attitude data were gathered from transcripts of participant interviews. Consistent approach taken in data gathering and analysis provides construct validity.
Internal Validity	The initial discussions that defined Project 2 took place between the DOES, CIT and the INS before the PPP process began. The DOES team therefore was a partnership itself from an early stage and this position was developed as the procurement stage proceeded. The strong project level attitudes in Project 2 reflect this. On Project 1, there were a variety of (affective elements) attitudes to PPP from the start with some participants focused on their objectives alone. Partnering skills did not exist within the DOES team at the outset and, as a result, never developed into the relationship with the PSO. This was amplified by the Project 2 PSO taking a project wide view to the project and responding to the public sector's partnering type approach to the project. Differences in the public sector affective element of attitude and the PSO behavioural element of attitude would appear to have influenced this subfactor. Outcome records evidence of a partnering approach in Project 2 with evidence of an adversarial approach in Project 1. The clear pattern matches provide internal validity to this finding.
Credibility	The working relationship is radically different between the two projects and the openness of dealings in Project 2 is in stark contrast to the adversarial nature of the relationship in Project 1. Instances where the PSO has initiated action to reduce public sector costs add to the credibility of this finding.
External Validity	The partnering approach to Project 2 was influenced by the attitudes of the participants and this in turn influenced the effectiveness of the working relationship between the parties. It would be expected that similar attitudes would result in actions that would bring similar results on other projects.
Transferability	This has implications for the development of good working relationships on other projects.
Reliability	<p><i>Gathering of Project Outcome data</i></p> <ul style="list-style-type: none"> • Project 1 – Interview with S Slowey • Project 2 – Interviews with D Burke and M Delaney <p>Project outcome data gathered and analysed using same procedure for both projects ensuring reliability.</p> <p><i>Gathering of Participant Attitude Data</i></p> <p>Data gathering procedure was consistent throughout thereby guarding against bias.</p>

Table 10.29: Test of 29th Instance Finding

10.4.4.7. Operation Agreement

No evidence of link

10.5 OUTCOME OF TESTING

This chapter took the 29 instances of project outcome that were found to be affected by participant attitude and tested the findings for construct validity, internal validity, credibility, external validity, transferability and reliability. All of the 29 passed these tests and although some were found to be partially caused by other factors that originated from the nature of the project, in general these other factors were also heavily influenced by attitudes. The conclusion of these tests allows the following statements to be accepted as valid:

- a link was found to exist between the attitudes of the project participants in a PPP and the outcomes of the project;
- outcomes relating to both risk and value were found to be affected;
- the nature of the data gathered on attitudes did not facilitate further investigation of effect on attitudes on innovation outcomes;
- risk transfer outcomes were found to be affected more by private sector attitudes than by public sector attitudes;
- the strongest link relating to risk was found to be between the outcomes and the behavioural element of the private sector attitude;
- participant attitudes appeared to have a greater effect on value outcomes than on risk outcomes;
- the behavioural element was almost exclusively the strongest element of the private sector participants' attitudes that was linked to an outcome;

- the affective element, followed by a combination of the behavioural and cognitive elements of public sector attitudes was found to have a significant effect on value outcomes.

10.6 REFINING THE MODEL

This research set out to develop and refine a model that could be used to guide practitioners in the search for greater effectiveness in the use of PPP. Whilst Hebson, et al. (2003) suggested that the outcome of the project was only as good as the contract that existed between the parties, this did not explain why projects with similar contracts in place experienced different outcomes. A conceptual model that would recognise the other influencing factors was proposed (Figure 6.3, page 142). This section refines the model, taking into account the findings of this research.

The original model suggested that outcomes of a PPP were influenced by a variety of inputs, including the contract between the parties, and it set out to demonstrate that the attitudes of the project participants were one such input. The means by which this was demonstrated was to show the effect of the attitude on a number of Critical Success Subfactors and then show how these in turn defined the outcomes of the project through the PPP process. In the testing of the research findings, conducted in the previous chapter, the composition of the project as either a single facility or as a bundle of geographically diverse facilities emerged as another input factor that could affect the project outcome. This suggests that the nature of the project must also be considered as one of potentially many inputs input.

On this basis, given the diversity of PPP projects, it is increasingly obvious that a model that begins with inputs must be of a very general nature if it is to be applicable to all PPPs. However, the more general in nature the model is, the less use it will be in identifying specific issues that will need to be addressed on individual projects.

In the actual field research that was conducted, the approach taken was to begin with the outcomes that had been achieved and then

examine the process to establish the feasibility that the attitudes displayed were the dominant cause of the outcome. In this analysis, it became evident that an outcome will be the result of a variety of inputs, some of which will be more dominant than others. To use a model therefore that establishes a number of set inputs at the beginning and then manipulates a process to produce an outcome will require constant amendment of the process. This is precisely the course of action that is used at present. Ultimately, it leads to an over-regulation of the process until it becomes excessively cumbersome. The conceptual model could therefore be defined as an efficiency model, where the process is constantly refined with a view towards achieving perfection through a more efficient process.

As the outcomes of the project are the criteria by which its success will be judged, it therefore is logical to refine the model so that it concentrates on outcomes rather than inputs. This different approach would require the adoption of an effectiveness model as illustrated Figure 10.1.

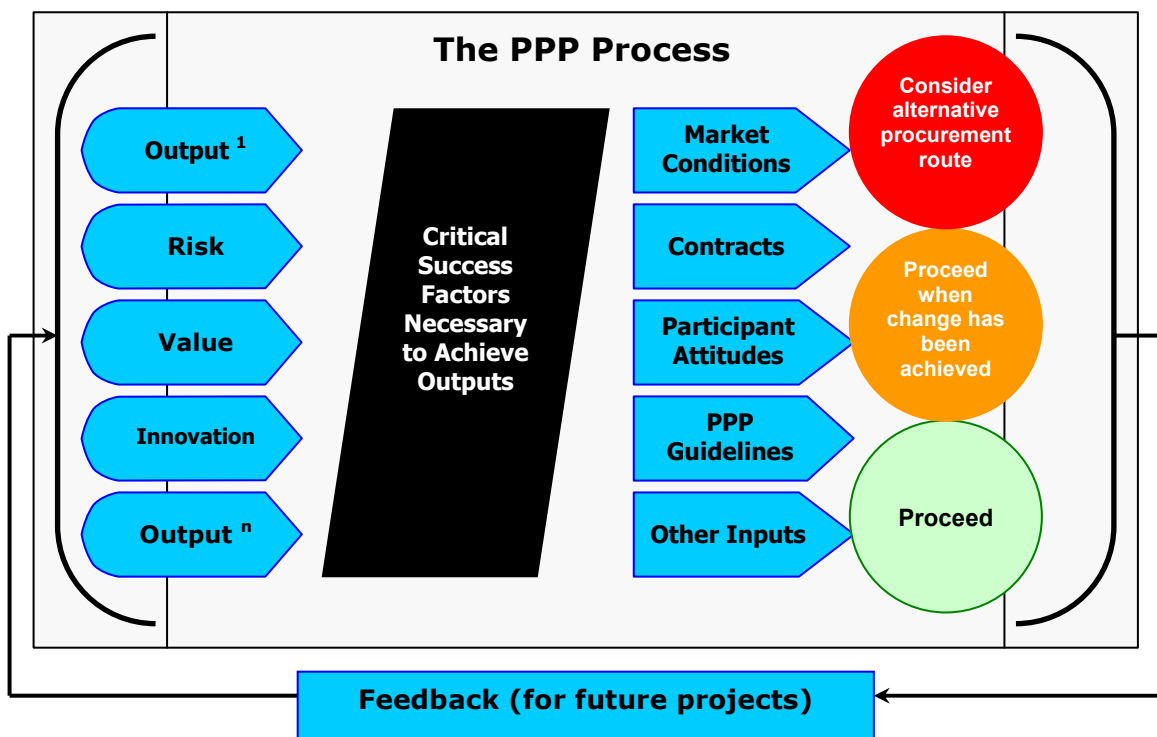


Figure 10.1: PPP Effectiveness Model

With such a model, the outcomes required are first defined. These outcomes will relate to risk, value, innovation and other factors that may be defined by the Sponsoring Authority. Then, the critical success factors relevant to the specific project are considered. The PPP process that will deliver the required outcomes is then developed and the inputs that are required by this process are established.

To use the model, the Sponsoring Authority must first clearly define what it requires from the project in terms of these and other relevant factors. For example, it may require the project to produce 3rd party income that will cover 30% of the cost that the state would have normally paid to the PSO for provision of the facility. In examining this requirement, the ability of the facility to provide will be examined in terms of the relevant critical success factors such as:

- the ability of the local market to generate the required of 3rd party income;
- the location of the facilities close to an appropriate market;
- the economic climate in which the facility is being provided;
- the level of profitability in the project that is necessary to attract investors;
- the project organisation structure;
- the attitudes that will be required of the public and private sector project participants
- the experience and skills that will be required of the PSO;
- the risks for all parties in the project;
- the requirements of the concession, operation and supply agreements;

- any other factors considered relevant.

By examining each of these issues, whilst staying within the accepted PPP process throughout, the inputs required to address each issue can be identified. On identifying the necessary inputs, some of these are listed in the model, one of three options will emerge. The first option (green) will arise if the conditions as they currently exist are appropriate and if the inputs necessary to achieve the required outputs are available. In these circumstances, the Sponsoring Authority will be in a position to proceed with the project and may develop a project plan. The second option (amber) will arise if the necessary inputs may not be available or if the current process may not be appropriate to allow the required outputs to be achieved. In such circumstances, the Sponsoring Authority may choose to promote the appropriate changes in the process to allow it to achieve its desired outcomes. Alternatively, it must reassess/redefine its required outcomes. The third option (red) would arise if it became obvious that it would not be possible to achieve the required outputs using PPP. In those circumstances, the Sponsoring Authority must consider a different procurement method that would be more appropriate to the achievement of the required outcomes. On completion of the application of the model, the lessons learned should be recorded and made available for those considering future projects.

The other stakeholders in the process can also use the model, again beginning with the outcomes required from the project and working through the model to define the suitability of the project as a means for contributing to the achievement of organisational objectives. The conclusion of the process will again bring one of three options. Proceed, reorganise and proceed or do not proceed.

10.7 SUMMARY

This chapter tested the construct validity, the internal validity, the credibility, the external validity, the transferability and the reliability of the research findings. The results showed that the following statements could be accepted as valid:

- a link exists between the attitudes of the project participants in a PPP and the outcomes of the project;
- outcomes relating to both risk and value were found to be affected;
- the nature of the data gathered on attitudes did not facilitate further investigation of effect on attitudes on innovation outcomes;
- risk transfer outcomes were found to be affected more by private sector attitudes than by public sector attitudes;
- the strongest link relating to risk was found to be between the outcomes and the behavioural element of the private sector attitude;
- participant attitudes appeared to have a greater effect on value outcomes than on risk outcomes;
- the behavioural element was almost exclusively the strongest element of the private sector participants' attitudes that was linked to an outcome;
- the affective element, followed by a combination of the behavioural and cognitive elements of public sector attitudes was found to have a significant effect on value outcomes.

The research also showed that a combination of inputs could together produce specific effects on the PPP process and that whilst these may have been influenced by attitudes, they might be exacerbated by the

specific nature of the project resulting in a specific outcome. This lead to the refinement of the PPP Effectiveness Model .

The following final chapter will draw conclusions from this research, make a number of recommendations and outline a research agenda that would expand and develop the outcomes of this research.

CHAPTER 11: CONCLUSIONS AND RECOMMENDATIONS FOR FURTHER RESEARCH

11.1 INTRODUCTION

In 1999, the Irish Government announced a pilot programme of Public Private Partnership projects. The primary aims of the pilot programme were to examine the value for money and risk issues around using PPP, whilst refining the procedures for use of PPP in the Irish context. The PPP model used in this pilot programme closely followed the UK PFI model. By 2004, when this research began, a small number of these projects had reached the operational stage and already there were reports in the media of significant differences in the effectiveness and efficiency of these projects. This research set out to develop a model that could be used to increase the effectiveness of the use of PPP in Ireland. A conceptual model was proposed that suggested that the inputs to the PPP process would determine the outputs from the project. Previous research had identified the contract between the parties as being the most defining input, but the differences in outcomes from projects that used a similar contract suggested that there were other factors that could influence differences in project output.

From previous work undertaken in the field of change management, the potential effect of participant attitudes, it was decided to examine the effect of participant attitudes on PPP project outcomes. If a link were found, then those planning and managing PPPs would, in future, have to be cognisant of the potential effects of the participant attitudes and to plan accordingly.

11.2 THE RESEARCH OBJECTIVES

The Research objectives for this work were established as follows:

1. develop an understanding of the differences between the roles of the participants in traditional projects and PPP projects;
2. carry out a critical appraisal of the use to date of PPP/PFI in the provision of educational facilities in Ireland and the UK;
3. establish the challenges facing the key participants within the Contracting Authority and the PSO in a schools PPP/PFI;

4. establish a means by which these challenges can be addressed;
5. develop a research strategy to test the model;
6. propose a conceptual model to be used as a basis for further investigation of a means of improving effectiveness of PPP;
7. carry out field research which will test the model;
8. refine the model into an analytical tool that will be used to increase the effectiveness of PPP.

To address Objective 1, a literature review was conducted using the online facilities of the University of Salford and of the Dublin Institute of Technology. As planned, two refereed academic papers were prepared and presented at the W92 conference in Las Vegas 2005, where a number of contacts were made with construction procurement academics from around the world. These people were later contacted and asked to clarify and/or verify claims made in the literature. Some of these contacts provided further leads for academic papers that were subsequently reviewed. In addition to this, a list of contacts of professionals working in PPP was developed. The preparation of the paper for the W92 conference had required the conducting of preliminary research with a number of public sector and private sector PPP professionals and these provided further information on the existence of documents that was to prove invaluable at a later date. The outcome that was required by Objective 1 was to develop an strong understanding of the differences between the roles of the participants in traditional and PPP procurement. This outcome was achieved.

In addressing Objective 2, the existing documentation on PPPs that have provided educational facilities was reviewed. Such documentation regarding the Irish experience was found to be limited but was supplemented by reports from the PFI experiences of the UK. From this review, the lessons learned to date were identified, thereby achieving objective 2.

Through a detailed examination of the application of these lessons to the Irish PPP process, the challenges facing the public and private

sectors were identified. In turn, these challenges were analysed and it was found that they manifested themselves through one of four factors, namely: risk, value, innovation and the disposition towards partnership. Identifying these challenges resulted in the achievement of objective 3.

In addressing objective 4, outcomes required to achieve the challenges identified were would established. Further investigation suggested that all three of risk, value and innovation appeared to be influenced by partnership. In exploring the issue of partnership, the differences between the public and private sectors kept emerging as a potential influence on the development of the partnership. This led to the investigation of the differences in organisational culture and the differences in attitudes between the people who worked in the two sectors. From here, the question of cause and effect began to arise where attitude could be a primary influence (cause) on the development of the partnership and the outcomes relating to risk, value and innovation were the effect.

By now, the level of understanding gained allowed the development of a conceptual model to proceed. Having identified that the PPP route had inputs, a process and a range of outcomes, the conceptual model was developed. This resulted in the achievement of objective 5. During this time, two further academic papers summarising the research findings to date were prepared and presented to the BEAR 2006 Conference in Hong Kong in April 2006. At that conference, the researcher continued to build a circle of contacts in the PPP/PFI Worldwide Community.

Once the framework of the model was established, Objective 6 was addressed through the development of the research strategy. Through establishing a clear research philosophy and developing a research framework, the research process was developed, establishing the types of data required and the means by which these data will be gathered, processed, analysed and tested. The actual research questions to be addressed were formulated and the research tools were tested. Once they were reviewed and refined, the data gathering

could begin. During this time, two local seminars, which brought together PPP practitioners from the public and private sectors in Ireland, were attended. These seminars presented a further opportunity to meet and converse with an increasing circle of local contacts.

Objective 7 concerned the actual field research, involving the data gathering, data processing, data analysis, establishment of findings and the testing of these findings to establish validity, reliability, credibility and transferability. The data gathering took place during the summer of 2006 and the processing began immediately thereafter. This resulted in the achievement of objective 7.

The analysis and testing process continued up until late February 2007 by which time the model had been verified and refined, thereby achieving objective 8.

11.3 CONCLUSIONS

11.3.1 The Link between Participant Attitudes and Project Outcomes

By examining two PPP schools projects in terms of Risk, Value and Innovation, three propositions were put forward:

- that there were differences in project outcomes;
- that there were differences in the attitudes of the project participants;
- that the attitudes influenced the outcomes.

An outcome that was judged to have achieved whole project aims was judged to be of a high value, whereas an outcome that achieved the outcomes of only one of the partners was given a low value. Similarly, an attitude that had a project focus was taken to have a high value, whilst a low value was assigned to an attitude that focused on one's own organisation.

Using a combination of research methods, the data were gathered and analysed. The first two propositions were proven for Risk and

Value but not for Innovation. To address the third proposition, a pattern matching exercise was first undertaken and a number of findings were reached. These were further tested to establish their validity, their credibility and their reliability. The results showed that the following statements could be accepted as valid:

- a link was found to exist between the attitudes of the project participants in a PPP and the outcomes of the project;
- outcomes relating to both risk and value were found to be affected;
- the nature of the data gathered on attitudes did not facilitate further investigation of effect on attitudes on innovation outcomes;
- risk transfer outcomes were found to be affected more by private sector attitudes than by public sector attitudes;
- the strongest link relating to risk was found to be between the outcomes and the behavioural element of the private sector attitude;
- participant attitudes appeared to have a greater effect on value outcomes than on risk outcomes;
- the behavioural element was almost exclusively the strongest element of the private sector participants' attitudes that was linked to an outcome;
- the affective element, followed by a combination of the behavioural and cognitive elements of public sector attitudes was found to have a significant effect on value outcomes.

The research also showed that a combination of inputs could together produce specific effects on the PPP process and that whilst these may have been influenced by attitudes, they might be exacerbated by the specific nature of the project resulting in a specific outcome. This lead

to the refinement of the PPP Effectiveness Model is shown in Figure 10.1 (Page 350).

11.3.2 Affective Element of the Public Sector Attitude

The influence of this element on the project outcome was found to be significant in this research, in that the higher level of comfort that the public sector displayed in the PPP process in the second project was matched with the empowerment of a local project team to make executive decisions that ultimately resulted in a higher level of achievement of project objectives. In Project 1, feelings towards the PPP process amongst the team ranged from informed acceptance on the positive end to outright philosophical opposition on the negative end. Because of this, there was a reluctance to release executive control to the team. This resulted in an overstretched DOES management team that didn't have the resources to react quickly enough to resolve emerging issues. Many of these issues still exist and are now evident in the operational phase.

For future projects, the implication is that the project team must approach the project in a positive manner, having been fully briefed and been made fully aware, both of the issues that are likely to arise and, of the strategies that will be required to deal with such issues. Procuring authorities should give serious consideration to the measurement of attitudes of the project participants prior to procurement to ensure that the project team attitude is favourable to a positive project outcome.

11.3.3 Behavioural Element of the Private Sector Attitude

In this research, this attitude element was by far the most significant in influencing project outcomes. The strong project focus of the attitude, in Project 2, provided a consistent pattern match with the actions of the PSO in promoting a project focused approach throughout the project. The match was found to be strong in outcomes relating to risk and value. In examining the existence of this strong attitude, the question arises as to why this attitude existed in the first place. Part of the answer emerges in the PSO participant

interviews where it was stated that the success or failure of PPP in the Irish market would be judged on the outcome of the first few PPPs and that it was very important that all concerned did everything in their power to ensure that they were a success. Another factor was the ability of the project team to relate to the PSO in such a practical fashion. However, one thing is clear. The strong attitude element was a major influence on the success of the project and every effort should be made to ensure that the PSO's behavioural element of attitude is as project focused as possible in future projects.

11.3.4 Attitude is one of many different causes of outcome

Previous research had shown the importance of the contract in determining the outcome of a PPP. This research showed the importance of participant attitudes. However, it also recognised that there were other issues and circumstances that have an influence on the outcome of a project. These may be stand-alone issues or may work with other issues to result in a specific outcome. In future, these issues must be examined at the outset of a project so that a strategy can be put in place to maximise their positive effects and minimise potential negative effects.

11.3.5 Knowledge of PPP Procedures

Reviewed research literature suggested that there were significant gaps in the public sector knowledge of the private sector and in particular of the financial intricacies of PPP. It had also been suggested that the private sector did not understand the issues that were important to the public sector. A surprising finding of this research was the strong project focused scores for the cognitive elements of both public and private sector attitudes to project focused outcomes. This suggests, that on these projects, the gaps in knowledge do not exist. In fact, this element of attitude scored consistently highly across all attitudes measured. This suggests that a considerable amount of effort has been invested in understanding the other partner's position.

11.3.6 Understanding the Partnership

There are two ways to view a partnership. On the one hand, it can be viewed as the agreement that binds the different organisations together. On the other hand, it can be viewed as the people that work together to achieve a number of objectives. In the case studies that were conducted in this research, the two projects approached this issue in different ways. Those in Project 1 viewed the contract as the defining element of the partnership whilst the participants in Project 2 defined **themselves** as the partnership. The business cards presented to the researcher clearly illustrated this different type of approach. Each of the Project 1 participants presented cards from an organisation that was contracted to the PSO. The Project 2 participants each presented a card which identified the individual as part of the partnership as a whole rather than as an employee of a constituent organisation. As a result of this approach, an entirely different working relationship existed on the two projects, with more positive outcomes being achieved in Project 2.

The implication here is that effort applied to building the partnership from the inception of the project will have a significant effect on the level to which project objectives are attained at a later stage. As previously noted in Chapter 2, partnership building is a three-stage process, beginning with familiarisation, proceeding to initial addressing of joint issues and maturing in the joint development of the rules that will govern the workings of the partnership. The interviews carried out with the key facility users of Project 2 showed that elements of stages one and two of this process took place. Corresponding Project 1 interviews suggest that all parties jumped immediately to stage 3 resulting in a partnership dominated by the contract and the limits to which it could be interpreted by each party.

The new procedure whereby all PPP procurement in Ireland is now processed through the Central PPP Unit in the Department of Finance does not lend itself to the building of partnerships and the project outcomes from these new projects should be closely monitored to record the implications for achievement of project outcomes.

11.4 ORIGINAL CONTRIBUTION TO KNOWLEDGE

This research set out to establish the requirements for change in public and private sector organisations brought about by the use of public private partnerships (PPP) as a vehicle for the delivery of public sector facilities and to develop and verify an analytical model that will be used to identify strategies which will lead to greater efficiency and effectiveness in future PPP. By establishing and addressing the research objectives, these aims have been achieved. In doing so, two different outcomes are evident from the research, which together constitute an original contribution to knowledge.

11.4.1 The PPP Effectiveness Model

The framework for this model was adapted from a basis process model and developed through the analysis of research data. It is original in that it recognises the very real problem of diversity of PPP projects and the need to focus on project outcome rather than input. It also draws together all previous research into one coherent model that can be used at the outset of a PPP. The use of this model will bring the Sponsoring Authority to one of three options:

- Green – proceed with the project as a PPP, having established the inputs necessary to meet the required outcomes;
- Amber – re-evaluate the required outcomes or seek an amendment to the PPP process prior to proceeding;
- Red – do not proceed as a PPP.

11.4.2 The Link between Attitudes and Outcomes

The research conducted in developing the model established a link between project participant attitudes and the project outcomes. As this link has not been recorded in previous research, it is an original contribution. The link was established for the projects researched and as this was a small sample, this output can be recorded as a generalisation to theory. This clearly establishes the theory that the

link exists. Further research would be required to establish whether or not it exists on all PPP projects.

11.5 POTENTIAL BENEFITS AND APPLICABILITY OF THIS RESEARCH

The potential benefits and applicability of this research is summarised with reference to each stakeholder group. As noted in Chapter 1, the stakeholders considered are:

- sponsoring authorities;
- providers of the public service facility;
- staff working in the facility;
- users of the service;
- stakeholders of future projects.

11.5.1 Sponsoring Authorities

This model provides a mechanism for early identification of the issues that should be addressed to promote efficient and effective use of PPP. It is used to establish the inputs that necessary if certain project outcomes are to be achieved. It has the following benefits for sponsoring authorities:

- it will build up a better understanding of the PPP process;
- it will highlight deficiencies in the current the PPP process;
- it will dispel reluctance to explore the PPP route;
- tt will highlight projects not suitable for PPP.

Application by the sponsoring authority of the PPP Analytical Model could result in the reduction of unfavourable outcomes, thereby resulting in more efficient use of public funds. Greater efficiency by sponsoring authorities should also result in shorter procurement cycles, again saving public funds.

11.5.2 Providers of the Public Service Facility

Application of the model in the private sector should highlight the issues that would affect the outcome of the project. It draws particular attention to the potential effects of the attitudes of the

project participants and this will have implications for the process of assembling a successful team for the entire duration of the project.

11.5.3 Public Sector Staff who work in the Facility

The role of these people in identifying issues that may arise is critical to the success of any project as shown by the effect of public sector affective attitude elements. The nature of a PPP requires a clear understanding, at a very early stage, of the needs of those employed to work in the facility to provide the public service. The preparation of the Output Specification will capture most of the issues involving staff needs and involvement of the staff as much as possible in the preparation of the output specification will help develop the appropriate affective element of attitude.

11.5.4 Users of the Public Service Facility

These include as many as possible of those that make use of the facility for whatever purpose. The model can be used to show where and how intervention is needed to maximise the use of the facility being provided, thereby having implications for the efficiency and effectiveness of the provision of such facilities in the future.

11.5.5 Stakeholders on future projects

The use of PPP in Ireland is still in its infancy and consequently, most of those involved are still looking for ways to improve the process. The application of this model provides a framework for gathering the information on which future decisions will be made. The model has potential for application in other countries new to the PPP process.

11.6 EXCLUSIONS, LIMITATIONS, CONSTRAINTS, RESERVATIONS

11.6.1 Exclusions

This research has concentrated on the development and verification of a model that will identify and analyse the potential positive or negative outcomes of a PPP. In gathering data, the research has concentrated on PPP projects concerned with the provision of

educational facilities. It has not been intended to provide in-depth investigation into PPPs in other sectors. However, as the principles are common to all projects, the model can be used with any PPP. The key application of the model is to find possible causes for positive or negative project outcomes, concentrating on those that are related to the attitudes of the participants.

11.6.2 Limitations

One of the primary limitations on this research is that the projects studied (Grouped Schools Project and NMCI) were the only such projects of their type in Ireland that has reached the operational stage at the time this research commenced. However, as these were pilot projects, much of the Irish PPP documentation had been refined from the experiences of these projects. In addition, because they were the first such projects, the participants and the key users have been in constant demand to relay their experiences of the process to others. As a result, a wide range of interviewees was available. The availability of documentation varied between the projects and there were limitations to the comparisons that could be made as a result. For example, the C&AG report on Project 1 would refer to the project agreement but the agreement was not made available. In contrast, there was no report for Project 2 that was comparable to the C&AG report, but the project agreement was made available for that project. To address this problem, data from the interviews were used to clarify incomplete information from the documents.

11.6.3 Constraints

The extent of the research to be carried out was constrained by the time allowed. The entire process from registration to the transfer to the writing up register was 2 years and 11 months, with most of the primary research being carried out in a 3-month period during the summer of 2006. A further constraint was the fact that the Irish PPP process itself was going through a period of review whilst this research was being conducted. To address these issues, it was necessary to spend a considerable period refining the research

methodology so that it was robust enough to handle anything unexpected that might occur during the research. This ensured that the timescale needed to carry out the research could be adhered to. The time spent on the development of the research methodology was well invested as the documentation that was expected did not materialise in the format anticipated but the methodology was adaptable enough to cope. The review of the PPP process constrained the research to working on principles of the process, as the detail in the process itself was likely to change and potentially render the research obsolete before it was completed.

11.6.4 Reservations

There were two main reservations in this research. The first concerned the shortage of independent research that has been done on Irish PPPs. The literature available consisted of a very small number of refereed papers, a number of commissioned reports and a number of other documents produced by or commissioned by the Government. Some further reports, commissioned by the private sector, were also reviewed. Due to the fact that these were commissioned reports, rather than independent academic reports, there was a need to extend the literature review to the research that exists on PPP/PFI in the UK and in other countries. In doing so, it was noticeable that most of the Irish research displayed a strong knowledge of PPP experiences in other countries.

The second reservation concerns the applicability of the findings of this research to other PPPs. This research looked at two projects in one sector, and this in itself is a very small sample from which to draw major conclusions. However, because the research did not concentrate on the detail of the PPP process, the application of the findings is wider than the limited sample would suggest. In addition, the application is through generalisation to theory. Consequently, a theory has now emerged that participant attitudes have an effect on project outcomes. The research concerned itself with the differences between two projects and the attitudes that were present on these projects. It therefore could only concern itself with the differences. In

a case where the attitude was the same on both projects and a specific outcome occurred, there was no means in this research to establish whether or not the attitude was a contributing factor. There was also a concern that the attitudes of the participants had been shaped by the experience of the project rather than the other way around and this is an issue that would require further investigation in future research.

11.7 RECOMMENDATIONS FOR FURTHER RESEARCH

This section sets out a proposed research agenda that will bring this research to the next level. This is summarised as follows.

11.7.1 Short Term

1. In order to bring the model into use, it is now necessary to begin to apply the model to new PPPs. The public sector contacts that participated in this research are willing to use the model, as is one of the private sector contacts. Considerable interest has also been expressed in the model in the emerging EU 2005 accession countries. It is envisaged that application of the model could be combined with M.Phil or M.Res level research;
2. Whilst the tool used for measuring attitudes on this research was adequate for purpose for which it was intended, further research is required to develop a robust tool for the measurement of attitudes. It is envisaged that this could be combined with further PhD level research and would be conducted in collaboration with an expert in social psychology;
3. Similarly, the tool developed for the measurement of project outcomes would require further development. Again, this work could be the subject of PhD research;

11.7.2 Medium Term

4. One of the issues raised in this research was the possibility that the attitudes could have been influenced to some extent by the experiences of the projects. To address this issue, it would be

necessary to measure participant attitudes at the very early project stages and to monitor these attitudes throughout the phases of the project to establish the extent to which they change. This work could only take place when the further development of the tool for attitude measurement (recommendation 2 above) has taken place. Again, it can be combined with post-graduate research, the level of which would be determined by the extent to which the measurement is undertaken;

5. Once this research under recommendation 4 has been carried out, further development of the model can take place. Such development would address the issues raised earlier regarding the need to establish the effect of occupant attitudes and the issues arising when those with experience in PPP in one country attempt to use their experience to apply PPP in a different country. This would most likely be combined with PhD level research;

11.7.3 Long Term

6. The long-term aim of this agenda would be to establish a European centre for the study of Public Private Partnership. This would require the completion of recommendations 4 and 5 above and would involve the provision of research and consultancy services to the PPP sector across Europe. It would also partner with other similar centres in externally funded national and international projects. Such a centre would be staffed by a number of post-doctoral researchers who would supervise the research and would carry out the consultancy provided by the centre. It would also be envisaged that other outside experts would be invited to participate in the activities of the centre as appropriate. The research and consultancy function would be aided by appropriate administrative support.

11.8 SUMMARY

The aim of this research is to develop and verify an analytical model which will be used to achieve greater effectiveness in future PPP projects. This thesis is an account of how this aim was addressed. The research has been structured into two parts. The first part, comprising chapters 2 to 6, was exploratory and it investigated the first five of eight objectives. The result of this part was to present a conceptual model that was followed in the PPP process. This model was then used to guide the primary research in the further investigation of a means of improving effectiveness of PPP on future projects.

Chapter 7 set out the research methodology, clearly identifying three propositions that would be tested through the use of a multi-case embedded design case study. In chapter 8, the data gathering process was recorded and the data gathered was used to address the first two propositions. In this chapter, the data showed that the projects produced measurably different outcomes and that there were significant differences in the attitudes of the project participants. Chapter 5 was devoted to testing the third proposition, the result of which showed that there was strong evidence of differences in attitudes having a significant influence on the project outcome.

Chapter 10 further tested these findings for validity, credibility, transferability and reliability. It concluded that there is a link between project participant attitudes and project outcomes but different elements of the public and private sector attitudes affect the outcomes in different ways. It also concluded that the combination of a number of inputs can result in outcomes that may be relevant to a specific project. Having arrived at these conclusions, the original model was refined and made ready for use. This final chapter has outlined the implications of these findings; has outlined the exclusions, limitations, constraints, and reservations that apply and has set out a research agenda that will build on this research into the future.

APPENDICES

Appendix 1: Rating of Project Outcomes

Project:

Date Analysed: **Page**

RISK

Level of Risk Identified	Marks Available	Marks Allocated
Very Comprehensive Risk Identification & Analysis evident	10	
Major and Minor risks identified, Analysis evident	8	
Major risks identified, Analysis weak	6	
Some Risks identified, Minimal Risk Analysis evident	4	
Poor Risk Identification, no evidence of risk analysis	2	

Risk categories identified	Marks (Max 3 per category)	Clarity on how risk was to be allocated	Marks (Max 3 per category for planned allocation, 3 for successful allocation)
Total risk rating expressed as a mark out of 100			

Project:

Date Analysed: **Page**

VALUE

Value categories	Analysis of achievement of value	Marks (Max 20 per category)
Capital Cost		
Operating Cost		
Time		
Quality of the Facility		
Quality of Service		
Total value rating expressed as a mark out of 100		

Project:

Date Analysed: **Page**

INNOVATION

Degree to which Innovation was considered	Marks Available	Marks Allocated
Very comprehensive approach to Innovation evident	30	
Structured approach to Innovation	24	
Specific but limited targets for Innovation	18	
Some Innovation considered	12	
No evidence of Innovation Strategy	6	

Potential Innovation identified	Marks (Max 3 per category)	Benefits achieved	Marks (Max 4 per category)
Total innovation rating expressed as a mark out of 100			

Appendix 2: Relating the Project Outcomes Data to Proposition 1

Proposition 1	There are differences between the outcomes of the projects in terms of risk, value and innovation	
Outcome Difference - Risk	Project 1	Project 2

Outcome Difference - Value	Project 1	Project 2

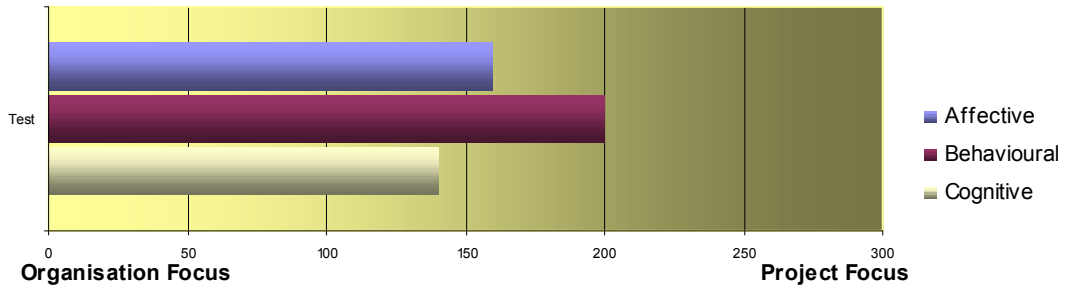
Outcome Difference - Innovation	Project 1	Project 2

Appendix 3: Illustrative use of analysis technique drawn from pre-test data

RELATIVE IMPORTANCE PARTICIPANT PLACES ON RISK, VALUE AND INNOVATION	
Given 60 points to divide up and use to rate the relevant importance of risk, value and innovation, how would you allocate the points?	
Risk	<input type="text" value="20"/>
Value	<input type="text" value="25"/>
Innovation	<input type="text" value="15"/>

To calculate the score of each of the Affective, Behavioural and Cognitive aspects of each factor, the rating given to the answers given in the interview are multiplied by the number of points allocated above to give the adjusted score.

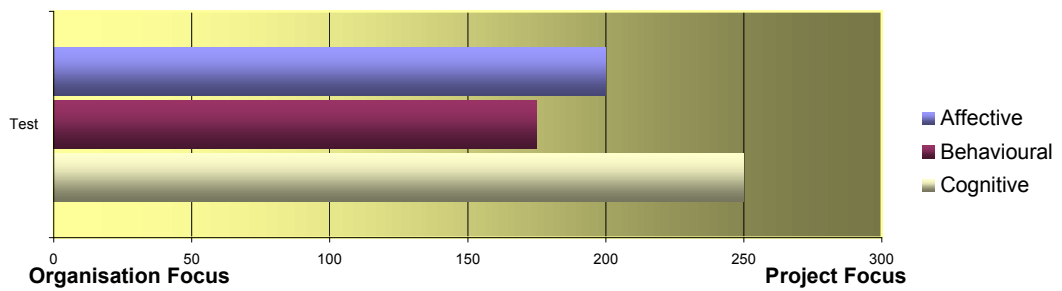
Risk Attitudes		INTERVIEW 1	Rating (x 20)	INTERVIEW 2	Rating (x --)	Total Rating
Cognitive	What were the objectives relating to risk?	Client dictated certain risks were to be transferred	3 (60)			60
	Which risks were identified?	Planning, Possession, Changes in law, Traffic volumes – all to be retained by client Investment, Design, Construction, Operation – all to be transferred to CJV	4 (80)			80
						Σ140
Affective	In your view, which risks were identified as critical to project success?	Construction risk in bridge over major river	4 (80)			80
	In what way were these risks critical?	Could delay the opening of the motorway and delay start of income	4 (80)			80
						Σ160
Behavioural	What processes were used to analyse risk on the project?	Use of Monte Carlo simulation by CJV	5 (100)			100
	What process was used to manage the risk allocation?	Managed within CJV – no obvious attempt to work jointly with client other than negotiate cost of risk transfer	5 (100)			100
						Σ200



Interviewee shows an attitude to risk that is relatively evenly spread between an organisation focus and a project focus.

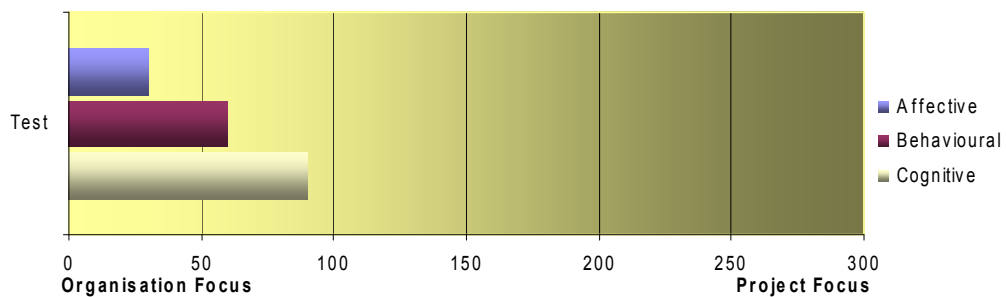
Value Attitudes		INTERVIEW 1	Rating (x 25)	INTERVIEW 2	Rating (x 25)	Total Rating
Cognitive	What were the objectives relating to value?	Client Objectives - Deliver motorway to standard spec at equal or lower price (VFM) - 10 year product life at end of concession - maintenance will not interfere with road use CJV - return on investment - maintenance will not interfere with road use	5 (125)			125
	How were these objectives arrived at?	Standard objective of National Roads Authority (NRA) CJV board level decision	5 (125)			125
Affective	Which objectives were identified as critical to project success?	Client – VFM CJV – finish construction on time	4 (100)			100
	In what way	Client – project	4 (100)			100
						Σ250

	were these objectives critical?	could not proceed until VFM was verified CJV – finish on time critical to return on investment				Σ200
Behavioural	How were the value related objectives analysed?	CJV invested in value engineering techniques	4 (100)			100
	How was the value management managed?	Separately by Client and CJV	3 (75)			75
						Σ175



Interviewee shows a clear understanding of project focused value issues (cognitive) and a relatively strong affective element. The behavioural element is relatively evenly spread between an organisation focus and a project focus.

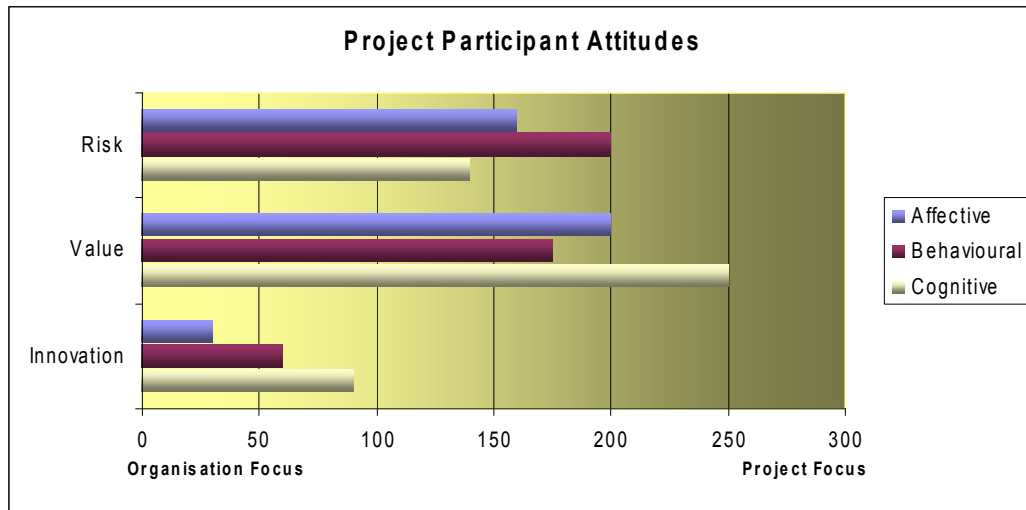
Attitudes to Innovation		INTERVIEW 1	Rating (x 15)	INTERVIEW 2	Rating (x 10)	Total Rating
Cognitive	What were the objectives relating to innovation?	Client - No specific innovation related objectives CJV - To make use of any emerging technology that would assist in the value objectives being achieved	3 (45)			45
	What potential innovations were identified?	CJV - to ensure greater return on investment	3 (45)			45
						Σ90
Affective	In your view, which innovation-related issues were identified as critical to project success?	none	1 (15)			15
	In what way were these issues critical?	none	1 (15)			15
						Σ30
Behavioural	What processes were used to identify potential for innovation on the project?	No formal analysis other than following potential innovations that emerged in value engineering	2 (30)			30
	What process was used to manage the use of innovation?	No formal management other than following potential innovations that emerged in value engineering	2 (30)			30
						Σ60



Interviewee shows a weak appreciation of project focused innovation issues (cognitive) an extremely weak affective element and a very weak behavioural element.

OUTCOME

	Affective		Behavioural		Cognitive	
	Score	Adjusted	Score	Adjusted	Score	Adjusted
Risk	8	160	10	200	7	140
Value	8	200	7	175	10	250
Innovation	2	30	4	60	6	90



The comparison across all three elements suggests that the participant will:

- Take an active role in risk management at both an organisation and a project level;
- Promote and initiate action to increase value at both levels;
- Be reluctant to act on innovation initiatives.

Other data gathered

a. Risk

Which risks were successfully transferred?	Each CJV partner bought out a contract within the concession that covered the risk
Why were these transferred successfully?	Investment, Design, Construction, Operationm
What key decisions were taken during the procurement phase in relation to risk?	Changed Archaeological risk requirement so that this was now retained by client A number of minor decisions regarding new surface products were approved
How were these decisions arrived at?	Archaeological risk decision Prompted by the number of delays resulting in litigation on other projects Minor decisions Proposal by CJV showing a saving to Client. Client made decision and approved, in some cases with minor conditions.

b. Value

Which objectives were achieved (and to what extent)?	All Motorway will cost the state less (figure not presented) Maintenance will be carried out between 10pm and 8am Min 10 year post concession life will be achieved Project will open 10 months ahead of programme
Why were these objectives achieved?	CJV invested in value engineering techniques and brought numerous value adding suggestions to client for approval
What key decisions were taken during the procurement phase in relation to value?	3 separate construction contracts each running simultaneously Austrian specialist bridge designer and contractor brought on board
How were these decisions arrived at?	CJV sought to maximise the use of available resources to minimise construction time

c. Innovation

Which objectives were achieved (and to what extent)?	Changes in NRA requirements for crash barriers at toll plazas required search for new solutions. These were already available abroad.
Why were these objectives achieved?	Required under a change in the contract
What key decisions were taken during the procurement phase in relation to innovation?	CJV decided to make road safety an issue in the bid and looked specifically at innovation in central median barriers and crash barriers at toll booths.
How were these decisions arrived at?	Public Opinion in relation to road safety was a major issue at the time and CJV anticipated that this issue would probably have to be addressed later in the design.

As the data gathered was from the pre-test interviews only, there was insufficient data to assess the effect of CSFs on the project. The analysis, therefore, is incomplete. The data gathered only relates to that gathered from one individual on one project in the private sector. It was not, therefore, appropriate to use it to generalise about the approach of either sector to a PPP. The graphs generated suggest that, whilst attitudes to risk and value are resulting in subsequent action being taken on this project, attitudes to innovation are not significantly strong to have a noticeable effect. Consequently, there will be no innovation of significance on this project.

Appendix 4: Interview with Seán Slowey – Grouped Schools

Role: Retired Principal Teacher of one of the schools procured under PPP as part of the Grouped Schools Project.

Interview Date: 13 July 2006

Background

In order to continually improve its approach to PPP projects, particularly in light of the release of the new PPP schools projects in early 2006, the DOES PPP Unit decided, in late 2004, to carry out research on the issues that arose during the construction and early operation of the Grouped Schools Project. The person interviewed was commissioned by the DOES to carry out this research and to brief the Department on his findings. The research was carried out during 2005 and the DOES PPP Unit was briefed on its completion.

Objective of the Interview

The objective of interview was to examine the findings of the research in order to determine the level of success of the Grouped Schools Project in relation to the factors of Risk, Value and Innovation.

Interview Procedure

The interview was conducted during July 2006 using the Strategic Conversation format and was recorded electronically. Supplementary notes were made during the interview. During the interview, the interviewee consulted his own research notes to ensure accuracy of the information given. The procedure for recording and verifying the accuracy of the interview were agreed and the following is a transcript of the interview.

The transcript has been edited to remove any comments that were made where the interviewee stated that he wanted to make a comment "off the record".

SS The three schools were chosen and then there was another one which pulled out – I don't know where it was – but they didn't like it. Ideologically they didn't agree with it. They put Shannon and ourselves (Ballincollig Community School) in, as an afterthought. That completed the list of five.

Then Gerry Murray came down from the Department to sell the idea to the board. The idea wasn't universally popular at all at the time. I thought it was a great idea from the start, but people said this is private sector creeping in to education – which it wasn't.

I got on well with Gerry Murray from the start and he would ring me. They were being advised by Farrell, Grant and Sparks (FGS) as they didn't have the expertise in the Department at the time and they were coming back and forth to me for about two years before the whole thing was sorted out.

So I was there from the very start. I knew all the problems. There were planning problems, for example in Tubbercurry, the land deal wasn't finalized and things like that. And when things started we had a good relationship with the Jarvis people as well. I mean I always got on well with them but I wouldn't turn my back on them. They're private sector and are out to make a buck and if you don't watch them they'll take advantage. That's common sense as much as anything else.

SS It only took them eleven months to build the school, which was extraordinary given the size of the project. Tubbercurry was only ten months and the others came on at the same time. And then when the thing was up and running, I stayed on for a year and half before retiring.

Then David Gordan asked me to investigate the start up and operation. I began in spring last year (2005). I went around all the schools and spoke to all of the Principals about all the issues. I knew what most of problems were anyway, but I went to each one and took down the details and I briefed the

Department in December (2005).

LG What were the main findings of the research that you carried out?

SS (Edited)

The Operator is not providing the services that should be provided;

The DOES does not have the resources to adequately monitor the performance of the Operator;

The takeover of the Operator (Jarvis) by Hochtief put pressure on the Operator to show as good a financial balance as possible. The Operator's attitude, therefore, has been to give the absolute minimum and to try to squeeze as much as possible out of the project. For example, the Operator tries to bill the schools for items that are to be provided under the project agreement and that when they are not paid an attempt is made to offset them against the amounts due to the DOES from catering and vending;

The Principals have not met as a group for two years and as they are not complaining as a group, the DOES are not reporting that there is anything wrong;

One of the Principals is ideologically opposed to PPP and is looking for every opportunity possible to blame the Operator for anything that can go wrong;

There is a very poor working relationship between the Principals and the Operator in all of the schools;

Any literature that I could find from the UK experience showed that they had similar problems in the start up as we have now had.

LG What was the structure of the briefing?

SS It set out to:

- establish the extent to which the Grouped Schools are

- meeting the original DOES objectives as a pilot project;
- examine the level to which the Operator is complying with the Project Agreement;
- establish the appropriateness of the existing project agreement for use in future projects;
- summarise the findings and make recommendations to the DOES that would be relevant in the further roll out of the Schools PPP programme.

SS

The four objectives that the department had were:

- a. To test the value for money (VFM) of using PPP. The C&AG had already looked at this but this briefing was to find out what did the Principals think;
- b. Obtain new ideas from the private sector on school design and the output based approach;
- c. Relieve the school principals of the responsibility for the management of the school buildings, and;
- d. To achieve better use of state investment in school buildings through better use of the facilities outside school hours.

SS Value for Money

The C&AG looked at the VFM and said the cost was eight to thirteen percent higher than planned. But the effectiveness and functionality cannot be judged for a number of years yet. In relation to VFM, the majority of Principals felt that PPP was producing a more favourable outcome than the one dimensional traditional financing model. One Principal disagreed. They all agreed that the new buildings were delivered on or before the scheduled dates without cost overrun because these risks had been transferred to the Operator. There is no second level school in the country that has been built within cost before this. The contractor gets extras to the contract agreement but here that didn't exist. The comparison that was used for the Ballincollig School was a school in Newcastle, County Wicklow. This school needed €400,000 extra in addition to the contract

price to be completed and this did not take in two things like the grounds and football pitches. So comparisons in the C&AG report were to tender prices for other schools, not to actual costs to finish the schools to the same standard.

The quality and robustness of the buildings are superb. There is no doubt but that they will last a long time. All the Principals agreed with that.

In relation to maintenance responsibility, what happened in a conventionally built school, under traditional procurement, you had to wait in line for maintenance if you had a problem. That could be three, or four, or five years. If you have a leak in a roof for that amount of time, the collateral damage done is huge. This is gone now. If there is a leaky roof now, it's not your problem. They have to fix it back to the standard that it was as part of their contract and that is a big plus. The C&AG never acknowledged the value of this.

SS New Ideas

The practice of bundling schools gives economies of scale. You could see that for example in computers. The operator bought their computers for the five schools and I found out what they paid for them. The price was less than half what the state was paying for computers in other schools. This is a problem with state policy. At present the school is given an allowance from the department for replacing computers. Each school then individually buys its own computers - they had not purchased centrally. This adds enormously to the cost of the computers. In the PPPs, they are brought in bulk.

All the roofs in the five schools are Kingspan, and when I saw it first I said that it looked like a factory. But in fact it looked well when finished and it's a very good roof because you don't hear any noise. The Architect also told me that it reflects the rays of sun so you don't get the build-up of heat that you would get with a normal roof. Again all the material for the roofs were

bought in one order from Kingspan and again this kept the cost down.

It is also generally accepted that well maintained school buildings improves student and staff motivation. During my inspection two years after the schools had gone into operation, there wasn't a single trace of graffiti anywhere. There were no broken chairs or any other signs of wear and tear that one would associate with a normal school. This was partly due to the input of the Principals in choosing the furniture. During procurement the Principals had an input into the choice of furniture. We were brought to a number of exhibitions and shown chairs with a continuous leg. These don't break, even if the students lean back on them, and the backs are low for their ergonomic reasons and the kids like them.

Design competitiveness between the bidders produced buildings, which are full of light well ventilated and spacious. When the three final bidders were announced, they came around to the schools to meet the staff and students. They asked what we wanted. I told them we wanted a school with space, wide corridors, light and good ventilation. Ventilation is very important in school particularly on a wet clammy day.

Because there was consultation there were a few simple things that worked very well. In one instance there were two science labs back to back, which both having the preparation area between them. We were allowed to suggest that the wall between the two preparation areas should be omitted and an island formed in the centre of a large preparation area, which would serve both science labs. This was done at no extra cost. This would not have been allowed under the conventional system for building schools as the department will not allow any deviation whatsoever from their designs.

The exterior designs have been very good as well. The architects obviously put some thought into this. They built the

schools initially with big open internal areas and then built the internal block walls, so that if they needed to change the interior of the building in the future, to cope with changes in curriculum or whatever, it could be achieved quite easily. So there are no load-bearing walls inside the building. This usually increases the flexibility of the future use of the building as they can be redesigned internally quite easily. This was part of the brief given to them by the Department. But in traditional building, this would not be allowed.

Another area where we were consulted was in the design of the toilets. We suggested that where possible everything should be behind a wall. The taps should be the push type taps – they can't be the kind that can be left on – and the toilets should be spacious. They followed our advice and in two years there is no example of vandalism in any of the school toilets. This is completely the opposite to experiences in other schools where vandalism of toilet areas was very common.

SS Role of the Principal

In the old system, the bane of the Principal's life is maintenance. If there was a week off at say, Halloween or Christmas, I would have to go down to the school two days before the end of the break and ensure that the heating was turned on, so that the school would be warm when the pupils and staff would return.

If there was a burglary in the middle of the night, I would be called. If the boiler didn't work, I had to arrange for it to be sorted out. So PPP certainly frees the Principal's time up.

Since the year 2000, that Principal is now project manager for all works carried out in his or her school. This involves several new duties for which the Principals have never been trained. This is not the case in the PPP school.

In a traditionally funded school, the Principal must ensure that all maintenance and cleaning staff are employed in accordance

with all current employment law. This has become very onerous in recent years with the new laws relating to hiring part time and temporary staff. In a PPP this becomes the responsibility of the Operator.

SS Use of the School outside School Hours

This is an area that is not working properly and there are a few reasons why this is the case. This whole area would be referred to as 3rd party income and concerns such things as they use of the gym by outside groups, for example. In three of the schools, there is very little 3rd party use, but that is not necessarily the fault of the Operator. Because there is no tradition, for example in Tubbercurry, of night classes. And that is something that must be built up, principally by the board of management because this is a job for a teacher. But teachers don't want to do this as it involves night time work even though there is an allowance for this. In Ballincollig, we had someone who would do this and he built up a programme of night classes with nearly 800 people attending. Every room in the school was used every night from Monday to Thursday. But not every school has someone like that and there is nothing like this in Shannon, Tubbercurry or Clones. In Dunmanway Comhaltas Ceoltoiri Eireann runs a number of music classes.

In Ballincollig, before PPP, we had an Astroturf pitch that was incorporated into the new facility, and that was hired out to the local community but since the Operator took over this has stopped. The operator doesn't appear to be concerned about making an income from this pitch.

Generally the operator doesn't appear to be interested in 3rd party income and is not doing anything to promote it. As well as that they are not tuned in to the culture of local organisations, for example, organisations local to the school were reluctant to ring a freephone number in Dublin to book a facility that was in their own locality. There was no emphasis being placed on 3rd party income by either the school or the Operator and there is

no onus on the schools and the Operator to work together to generate income from the increased use of the school.

There is also an issue regarding the charging of VAT to voluntary organisations. (Edited)

SS There seems to be an opinion in the Department that 3rd party income will happen automatically, but this is unrealistic and there needs to be a clause written into the contract to ensure that it is addressed.

SS Looking at the compliance of the Operator with the Project Agreement, the following areas were investigated:

- satisfaction with facilities;
- furniture and equipment;
- maintenance;
- catering & vending;
- 3rd party use;
- information technology;
- energy management;
- cleaning;
- waste disposal;
- insurance liability & vandalism;
- employee transfer issues.

SS *Satisfaction with the facilities*

The DOES PPP Unit did a survey of teachers and pupils about a year after the schools became operational to establish their satisfaction levels with the facilities provided. In relation to buildings and facilities, this survey showed that over 80% of pupils were satisfied with overall finish, general comfort, classrooms, outdoor facilities, etc. There is no doubt from this that the standard is very high and nearly everybody is very happy with them. Of the teachers, the views were even higher (interviewer showed figures in excess of 90% for teacher satisfaction).

SS *Furniture and Equipment*

Under the "old" system, there is a tender put out for the actual building. Then there is a tender to government suppliers, under limited competition, for chairs, tables, science equipment etc and there is only two or three of these suppliers in the country. This arrangement has been in place for years. But at one of the meetings, the advisors (FGS) asked if they could have the list of equipment that was standard for a second level school. It surfaced at this meeting that there were no such official list. There were sheets that had originally been prepared years ago on carbon copies and had not been updated since. This caused some embarrassment at the time but the department undertook to prepare updated lists. But what subsequently became available was a typed up list on a CD containing the same equipment. However many items on this list were no longer required as the curriculum had now change significantly. Other items that where now required were not on the list. The Operator was sent these lists and they set about supplying the equipment.

However, the Principals told the Operator that while they didn't want some of the equipment, they would accept delivery. An agreement was reached locally between the Operator and the schools that the unwanted equipment could be returned and a credit note would be given with which the equipment missing from the list could be purchased.

SS The credit notes that came back just gave a figure and did not detail what had or had not been returned. Consequently the Principals were never sure that they had received a credit note for the full value of the equipment that they did not require.

The situation regarding equipment was further complicated by there being three levels of equipment supplied to the schools. Equipment was either supply only, supply and maintain, or supply and maintain for three years. The supply and maintain

for three years category was computer equipment. As the initial equipment lists were inaccurate and incomplete, there was disagreement as to which of the first two categories the other equipment fell into. Six months into the operating contract, a number of equipment items required maintenance. When this maintenance was carried out by the Operator, a bill for the maintenance was subsequently sent to the school. As part of this briefing, I have now prepared a full list of supply only and supply & maintain equipment. This list has been agreed with the Operator and is now being used by the Principals.

Jarvis subcontracted the initial delivery of furniture and equipment to a one-person company and this was very unsatisfactory. There was equipment delivered to building sites with nobody there to check what did or did not arrive. As some of the equipment was in the form of tools, some went missing. This combined with the arrangement to get credit for unwanted equipment meant that it was very difficult to establish what had or had not been delivered or indeed who should have checked that it arrived. As it was the Operator's ultimate responsibility to look after the equipment until handover, the Operator reluctantly took the cost of this, but the schools were never happy that they subsequently got credit for all of the items that went missing.

The day the schools were handed over, a department official walked around the school for two hours and signed off that everything was in order. The Principals were of the view that it was not possible to fully inspect the equipment and to ensure that everything required was actually in place in that amount of time. This arose because there was no mechanism in place to carry out this procedure.

In addition, nobody from the school was allowed on site until the school was handed over. On the day before handover, they allowed the staff to enter the staff room only and this was for a

very short time. Because of this, the staff had no way of checking that everything was in order before the building was accepted.

The equipment was supplied from the usual department equipment suppliers with the exception of the furniture. It was surprising that they didn't use a wider range of suppliers. Some of the equipment supplied was of poor standard. There are two metalwork rooms in Ballincollig Community School and three lathes in each. As soon as the metalwork teacher saw the lathes, he said that they were not good enough. Within two weeks he was proved right when a gearbox went in one and something else went in another. They were replaced by Jarvis with bigger lathes from the same manufacturer but are still unreliable and prone to breakdown.

With lockers, we asked for bigger lockers, as what was proposed was unsuitable to a secondary school. The Operator supplied the bigger lockers at no extra cost.

SS *Maintenance*

All of the schools have had problems with the slow response to calls for maintenance and this wasn't expected. There is a helpdesk in Dublin and the Facilities Manager is based in Dublin – while the five schools are spread around the country and he only visits once a month. There were caretakers in each of the five schools and a caretaker position is a badly paid job. Because it is badly paid, it doesn't attract talented individuals (paraphrased). While the people who hold these jobs are able for the normal job, they are not usually able to take on much responsibility. However, when their employment was transferred to the Operator, they were given a supervisory role and made responsible for the supervision of the cleaning staff. This is not working well as they do not want to supervise.

With regard to service contracts on supply & maintain equipment, the Operator didn't want to put these in place and

instead stated that certain equipment would be supplied on a supply only basis. The maintenance on some of the equipment (such as the treadmills in the Gym), therefore now rests with the school and not the Operator. This is an issue that the DOES must take into account in future PPP.

LG Is this an issue that you found to be common to all five schools?

SS Yes. The DOES has underestimated the amount of management time that there is in monitoring these projects both in construction and in operation. They seem to be doing better in the Maritime College, but that is a one off and there are 750 second-level schools in Ireland. All of them are slightly different to each other and this makes looking after the detail even more difficult.

With the Helpdesk there were some difficulties, but that was caused more by the schools than the Operator. What was happening was that teachers were ringing the Helpdesk without going through the Principal but this was sorted quickly.

SS *Catering & Vending*

This is not normally done in second level schools but was done in the PPP schools. The Operator maintains that they are losing significant amounts of money on catering and vending. As this has never been audited, the schools are not satisfied that this is the case (paraphrased). There was due to be a guaranteed income from catering and vending to the schools each year. However this has never been fully paid, as the Operator uses this as a fund from which disputed invoices can be deducted. When you consider that the items sold through vending can have a 100% profit margin, it is difficult to see how a loss is being made. In addition to the guaranteed income, if they make a profit, that profit must be shared with the school. However there is no breakdown of sales or costs so nobody is sure how much money is being made. In the old Ballincollig Community school we were making approximately IR£20,000 (€26,000)

every year on this type of food. As the amounts now being sold are similar to what was sold in the old school, it is difficult to understand how a loss is now being made.

SS *3rd Party Use*

Generally there is little or no marketing of the facility to the community for the generation of 3rd party income.

LG Is that the external facilities or are the internal facilities included?

SS Both. As well as that there is an availability bank where each school is supposed to get so many hours per year outside school hours without paying extra for it. Except for Dunmanway and Ballincollig, this is not being used. Ballincollig is using it for night classes in fact that's one of the plusses. Prior to this you have to take the cost of the caretaker out of the money generated from the nighttime activity. Now the cost of the caretaker is carried by the Operator. Politically this could be a problem has PPP was sold to the local community on the basis that the facility would be available to the community and if that doesn't happen there will be political questions asked about it.

Another problem is that the pricing structure makes no allowance for different types of groups, for example between community groups and companies who want to hire facilities. The operator is too rigid in this.

SS *Information Technology*

The Operator provided large numbers of computers on a three year supply and maintain contract, but the three years are now up and the schools are left with no means of replacing the computers. The department doesn't want to know. They say they will ask the Operator to keep on the contract but nothing has been done. Many computers have been offline since last January and if the schools wish to get them fixed they must send for a local contractor. Of course this is an extra expense to

the schools. There is a way around this, as all schools get a donation of €15,000 - €16,000 per year that can be put to maintenance. However in another year or so the computers will begin to wear out completely and will need to be replaced. At present there is no contingency for the cost of this. Because of this, it is difficult to understand the logic behind the three year contract. In Ballincollig there were 300 computers and this is going to be a huge issue in the future.

Initially the operator billed the department for installing and testing software stating that they were entitled to this under the contract. However when they were challenged on this, it transpired that no such entitlement existed.

SS *Energy Management*

The electricity (ESB), telephone and waste disposal charges are paid directly by the school. In all schools the ESB bills were initially very high and this was happening for a number of reasons. Firstly the external lights were being left on all night, allegedly for security purposes, at the cost of the school but that was stopped relatively quickly. Secondly, there was the KVA rating. This is used to calculate the public service levy to be paid by an organisation. As the KVA rating was in excess of what was required by the school the public service levy being paid was much too high. In Ballincollig that KVA rating of the supply installed is 500. The actual KVA rating required is 120. The school therefore is paying four times the appropriate amount for the public service levy. When I checked with the architect he was unsure as to who specified that the KVA rating would be so high. The operator will not take responsibility for reducing the KVA rating and has stated that the cost of this, about €4,000, must be borne by the school. Again this is an issue for all of the schools and is one which must be taken into account in the future.

The contract places an obligation on the operator to cut down on

energy costs. But as there is no penalty for not carrying this out, it is not being done. One of the schools, (Shannon) on its own initiative changed electricity suppliers and made a saving of approximately 20%. Because the Operator is not responsible for paying electricity bill, there is no incentive to save electricity by doing such simple things as turning off the lights at night when the cleaners have finished.

The same situation arises with waste disposal. This is paid for by the school as well for most of the waste is generated by the Operator in the canteen. This is domestic waste whereas most of the waste generated by the school is recyclable.

SS *Cleaning*

The principals all agreed that the standard of cleaning of the schools is very good.

SS *Insurance Liability*

The Operator is required to take out insurance and issue for the construction phase and in operation for things like fire, security etc. They have an excess of €5000 which they have to pay on each claim. There was a fire in Ballincollig and a break-in in Shannon. The fire burned a shed but they left it almost a year before carrying out the remedial works. They carry out these works eventually and reluctantly. In Tubbercurry a lorry did some damage to a shed and again it took a long time to fix. In Shannon, there was money taken out of a safe during the break-in. Some time later an insurance company rang the Principal in Shannon and asked him if he received the cheque. Apparently the company had issued a cheque to cover the amount of money that had been stolen. The Principal had no idea that this cheque had been issued and had to contact the Operator and ask for the amount of money for which the cheque had been issued.

Again this led to mistrust and bad feeling between the school and the Operator.

LG What is the level of liability for damage that is retained by the school?

SS The school is not responsible for normal wear and tear that one would expect in educational establishment. The school is responsible for wilful damage caused by the users during school hours.

SS *Employee Transfer Issues*

There is a problem with the pension entitlements of the people whose employment was transferred to the Operator as part of the project agreement. There is a pensions agreement in the contract that has never been signed. This is the fault of the department and not the fault of the Operator. As there are only three or four people in all involved and no payments pension payments have been made for a year and half. The Operator has brought these people into its own pension scheme.

SS As well as that the benchmarking payments due to these employees have not been honoured. This situation continues to exist despite the fact that transfer of employees requires that existing terms and conditions of employment continue to be in place under the new employer. As the operator is a private sector organization, it has so far refused to pay the agreed public sector benchmarking awards. The employees concerned have been in contact with their unions but to date the matter remains unresolved. This has been held major issue under PFI in the UK.

Appendix 5: Interview with Donal Burke - NMCI

Role: Head of National Maritime College of Ireland
(NMCI)

Interview Date: 24th August 2006

Background

Prior to the opening of the National Maritime College of Ireland (NMCI), Donal Burke was Head of the Cork Institute of Technology (CIT) Maritime Training College at Ballincollig in Cork. As Head of this College, Mr Burke had a central role in the provision of the facilities that CIT requires to achieve its mission relating to maritime training. As the facilities in Ballincollig had become outdated and similar problems arising with the facilities of the Irish Naval Services in nearby Ringaskiddy, Mr Burke was acutely aware that Ireland no longer had a facility that could provide training to modern maritime standards. He was also aware that the CIT alone could not provide the new facilities required and that the only way to approach a viable solution was through a partnership between CIT and the Irish Naval Service (INS). Therefore, the matter of the NMCI being a partnership pre-dated the decision to procure through PPP. In taking the PPP route, the partnership ideal was extended to include a private sector partner. Throughout the procurement, design and construction phases of the project, Mr Burke was the chairperson of a three-person team empowered to make decisions on the suitability of the proposals from the bidders and to negotiate solutions to issues that arose. Mr Burke was appointed Head of the NMCI when it came into operation in October 2004 with responsibility for ensuring that the duties of the public sector partner, as defined by the Project Agreement (PA), are carried out. The three-person team that guided the procurement and construction phases continues to exist as part of the NMCI liaison group that manages the project at a partnership level.

Objective of the Interview

This interview is one of two such interviews that were conducted to gather data relating to the level of success or failure that has been experienced in the NMCI project in relation to the factors of Risk, Value and Innovation.

Interview Procedure

The interview was conducted using the Strategic Conversation format and was recorded electronically. Supplementary notes were made during the interview. The procedures for recording and verifying the accuracy of the interview were agreed and the following is a transcript of the interview.

The transcript has been edited to remove any comments that were made where the interviewee stated that he wanted to make a comment "off the record".

LG The thing that I have been trying to get from Dave Gordon was a report on the National Maritime College but I found it didn't exist. But as there was a draft report for the Grouped Schools Project, he suggested that I talk to Sean Slowey and whatever I got from Sean, I would come back to you and go for the same format. Basically what Sean was looking at was the value of the project more than anything else. He was looking at things like the costs, the quality, the facilities management, the equipment, the relationship that existed while the facility was being built, the relationship that has continued to exist since operation began and any changes that have occurred in this relationship, things like 3rd party income – whether or not that has been achieved, the general level of co-operation that exists and how any hiccups in this were resolved or why they have not been resolved.

DB When this is written up, Michael Delaney (Head of Development at CIT) will need a copy as well to check to ensure that nothing was missed.

LG I need to interview Michael anyway and I will check it with him as part of that.

DB Ok, but I would like to have my check of it done first and let Michael see it then.

LG Agreed.

In relation to costs then, the site was already in state ownership, but in the construction of this facility, was the SPV paid part of the construction costs or is all of the SPV cost to be recouped during operation?

DB The site for the project was initially in the ownership of the Department of Defence, which was then transferred to the Department of Education and Science (DOES) so during the procurement process this site was under their control of the Minister for Education. Other than that we had got outline planning permission and obviously there were costs associated with that. We had a survey done on the site, borings and things like that, just to satisfy ourselves that we weren't going down an avenue that would lead to trouble. There was the acquisition of the foreshore license for building the jetty that was also part of our remit. But overall there was not a huge amount of money involved.

LG Great, I'm just trying to get a feeling for the structure of payments, for example, was there anything paid out as part of the construction such as has been done on some of the PPP roads projects?

DB No, none whatsoever.

LG So they have to recoup their investment over the duration of the contract?

DB Yes, over the 25 years.

LG And in relation to the time in which it was built, from your understanding of construction projects, do you think this came

faster or slower than would have been the case on and on PPP project?

DB There is no question whatsoever but that it was much faster - fully finished and fitted out. We signed the contract on the 13th of February, 2003 and we moved in here on the week of the 4th of October, 2004. The contract signing was on a Thursday and the bulldozers were on site the following Monday. They had carried out test borings prior to this, but in 18 months they not only finished the building but it was fully fitted out as well. You wouldn't achieve that in an exchequer funded project.

LG So from a time perspective, is it then your view would be that the PPP arrangement brought it in ahead of schedule than would have been achieved under the traditional building arrangement?

DB It's my belief that it did. Bearing in mind that this is that building of almost 14,000m² square meters, the capital cost of which was approximately €51.3 million.

LG Were you aware of size of the winning bid relative to the cost estimate for the project?

DB (Misunderstood the question – assumed that the estimate was the SPV's estimate)

No, because that was part of their risk. I suspect that in certain areas it cost more. The marine engineering workshop, which has a full engine room set out inside it, the people who were doing that went bust in the middle of it. But it was not our problem. Had it been an exchequer funded project we would have ended up carrying the cost for that. We simply asked them what were their plans for completing the marine workshop.

LG (Deciding to keep with this point now rather than raise it later)

I am aware from talking to the operator that some aspects of the project cost more than anticipated.

DB They obviously had to try to make savings elsewhere and try to

offset that. But it was not our risk. This is a good example because the marine engineering workshop is an expensive area. So from a risk point of view, PPP is a very good approach.

LG Continuing on the theme of risk, what were the risks that were retained by the DOES as opposed to those that were transferred?

DB The operator carried all of the risk (construction). In relation to the borings on the site, we did this to be aware of the level of risk that was involved and we made the information that we gathered available without prejudice to the bidders, but they carried the ground condition risk and had to carry out further investigation themselves.

LG In relation to other risks such as changes in legislation, who carries these?

DB That was carried by the DOES.

LG And risks relating to time, construction, availability?

DB All carried by the operator including the risk of running the facility for 25 years including the simulators. We obviously kept the damage caused by students, say to a lathe, we can't blame Focus for that, or vandalism by students – we have to take that one as well. So we kept very little risk other than the normal level of risk associated with using the college, for example, if a student was to damage a computer, we have to keep the risk on that - we can't blame Focus for that and there are procedures for sorting it out.

LG In relation to the quality of building, how satisfied are you, first of all, with the exterior design of the facility that you got?

DB We were very satisfied. There were three different designs. We wanted a very functional building and all of the bidders were made aware that functionality was very high on the list of priorities. The building delivered was one of the most functional of the designs presented. It's quite a simple building for access.

They have grouped external usage quite close to the lobby below. For example, the main lecture theatre is on your right as you come in the door, the multi purpose hall is on your left and the canteen is straight in front of you. Most people entering the building are going either to a lecture, to a sports activity in the hall or to a function in the canteen. We found their architectural firm BDP particularly helpful and they used a huge amount of common sense throughout. We were very impressed with their architects. We find the whole building to be very pleasing and have not had anyone say yet that something looked awful.

The ponds front and back are a lovely addition and the timber walkways around the front and the sides and all of these pieces set off the place well.

LG Did you have much interaction with the architects during the design?

DB Yes we had.

LG Normally in a PPP, a brief is given to the bidders and the bidders then ask questions of the client in order to prepare a design. Was this the way in which this project worked or were you more involved in the design?

DB Yes, there were three of us involved, myself, Commander Tom Touhy of the Naval Service and Michael Delaney of CIT and we acted as the local project team. Our attitude was to work as a small group. I was engineering, Tom was navigation and Michael was legal and financial. We acted as a team, having our own internal discussions which we would agree and that would be the policy which we took forward to the meetings we had with the operator. One of the main things that we were given was the budget and we were not to exceed that.

LG So did you have to revert back to the Department for a decision if the decision was within the budget?

DB No. That meant that we could do deals locally making savings

where we could and spending money in appropriate areas. We were able to discuss openly with the operator the areas where savings could be made and the amount that was now available to do other things. We had an excellent relationship with the operator.

LG As this was a PPP, was there anything about the way in which you dealt with the operator that made you particularly wary?

DB Not particularly. It was our duty to get the best possible deal with the best quality and finish that we could get within the budget that has given. The Operator had to decide what to put into the building but if we weren't happy we would point out that it didn't meet the fitness for purpose requirements.

In the procurement stage, there were three meetings with each of the groups (bidders) and we would meet them for a period of about two hours where they would raise questions about the project. The first meetings were very exploratory but they had very comprehensive information from the Invitation to Negotiate document. This was quite detailed – for example, it contained room data sheets that showed what was required in the room – so they knew what was needed. In most cases we had also done adjacencies so that they knew what had to be grouped together. They then had to put all of this together in a building. We weren't concerned with the corridor areas or the shape of the building – we just wanted to ensure that we had the facilities that we required. In the first meeting they gave us their thoughts including their layouts and asked us if these met our requirements. The next meeting was a technical meeting where they would propose much more detail and it was here that we had to be careful that anything we said could be interpreted as an instruction as this would involve us taking on risk that we shouldn't take. We would have to phrase questions in such a manner as "why have you chosen to do it that way?" and let them justify the design.

LG Who advise you of the need to ask questions in this way?

DB Dave Gordan and Gerry Murray had experience of this from the (Grouped) Schools Project and they were aware of the risk issues. Deloitte were also involved but we worked out our own way of dealing with it within our own group. We would always be clear as to the questions that we wanted to ask before we went into a meeting and how best to ask them. Of course, they (the operator) were also trying to read through our questions and to find out why the question was being asked in the first place. They would watch for the body language in the discussions and would pick up on this very quickly.

They (the winning bidder) would suggest that they would show us examples of the detail that they proposed and we took them up on this – as if you are not dealing with construction all the time you weren't fully aware of what the finished product looked like. This helped us understand the bids better.

The third meeting was to deal with a nearly finished design and all of the organisations involved were represented at all meetings.

LG Are you happy that you got a building that was fully fit for purpose?

DB While hindsight is a great thing, and you would always like to have got a few more things, I think that we got it as near to right as we could. You also need to keep in mind that this was a pilot project, so we were all learning as we went along. But under the circumstances I think we did well.

LG In relation to use of space, how well do you think that they have done?

DB I think that they have done well. The winning bid made better use of space than the others particularly in the positioning of the cylindrical drum for the 360⁰ simulator, but also in the positioning of the simulation equipment within the teaching

block with corridors on both sides and classrooms outside that. This allowed them to have all of the simulators in rooms with no windows – an essential issue as total darkness is necessary for effectiveness of the simulation equipment.

LG Were there any surveys carried out with the staff in relation to their satisfaction with the building?

DB No, prior to choosing a preferred bidder, but all of the drawings from all of the bids were shown to the staff. So they were consulted in the design phase and everyone had an input before agreement was reached. Informal reaction from the staff suggests that they are very pleased with the building, but no formal survey has been carried out.

LG In relation to the general equipment, how would you rate the quality of the equipment that was delivered?

DB It is very good. We could not say that we wanted a specific item but we had to word things in a way that was loose enough to give them an indication of how it would perform. So it was specified by performance rather than by description. For example we said that we wanted lathes that would be of the size of and give the output of a Harrison M390 or equivalent. We couldn't say we wanted Harrisons as we would then have taken an unnecessary risk - say for example if Harrisons went out of business. When a different lathe was suggested, we took advice from others as to their quality and satisfied ourselves that they were equivalent.

LG In relation to furniture, how suitable is the equipment delivered?

DB It is of a high quality and again, we were asked to look at samples of what was suggested before they bought it. I was impressed with the strength of the chairs and when we tested them we found that they were practically unbreakable.

The tables that were first suggested were square tables but we indicated that rectangular tables were more suitable.

LG In relation to maintenance of the equipment, how has this been conducted to date?

DB There is on-going maintenance with everything. With the lifeboats, this is on-going as they are in use all of the time and they also need to be serviced regularly. With the simulation equipment, there is a maintenance contract that covers the updating of the software and already a number of updates have been carried out. Because the software is constantly getting more sophisticated, 39 computers have been replaced already.

LG What is the speed of general maintenance?

DB It is very good and there is a set time for getting it done. If they don't get it done in time, there is a penalty for that. However, if a room is out of action and another suitable one is available, we will use the second room.

LG And how would you rate the quality of maintenance?

DB It is very good. Pat Mitchell (Focus) has some excellent staff here. I'm having difficulty in thinking of an example of a problem as we speak. That doesn't mean that things don't break down – but they are fixed without delay and to the standard that you expect.

LG How do you rate the cleaning of the building?

DB The building is cleaned each evening and there are three people here during the day to clean up as necessary. They are very quick to sort out anything during the day and the standard of the cleaning at night is very high.

Recording stopped at this point due to a fault in the recording device. The remainder of this transcript is reconstructed from notes taken by the interviewer.

LG What are the procedures for reduction of energy costs in this building?

- DB** The operator is required to compile an energy profile of the building over the first 18 months of use. The data for developing this profile has now been gathered. From this profile, an agreed target annual energy use for the building will be developed. Once the targets are set, the operator will be allowed to deviate by a few percentage points above the targets without penalty. Savings (below a few percentage points) are shared.
- LG** Was there a problem with the initial KVA rating of the electrical installation in this building?
- DB** Yes, there was. It was initially too high. However, the operator contacted the ESB and got the rating reduced. The cost of the reduction was recouped within a year due to lower charges from the ESB.
- LG** Who is responsible for the costs of waste disposal from the building?
- DB** Waste disposal is part of the Operator's remit under the project agreement. They employ a person full time on the project whose brief it is to manage waste disposal and cost saving initiatives such as recycling.
- LG** Has the income flow from catering that is due to NMCI begun yet?
- DB** Some income has been received. However, as the building is operating at 40/50 wholetime equivalent students below its capacity. The income is not up to full targets yet. This is an issue that is being jointly reviewed between CIT and the Operator. CIT has full access the Operator's figures on this.
- LG** How is the potential for 3rd party income being pursued?
- DB** There is a requirement in the project that CIT and the Operator will examine all avenues for potential income and take whatever practical steps necessary to realise this income. Meetings of the Liaison Committee every 3 months address this issue.

To date a number of potential markets have been identified, including:

- Room hire to local companies (as the facility is located in an industrial area;
- Use of simulators in general management training;
- Use of simulators in harbour and berth design (using mathematical tidal models);
- Other offshore services.

As there is considerable potential, negotiations are underway with the operator to set up a separate (but jointly owned) company to set up and run the activities that would realise this income.

LG Were there any Staff Transfer issues (to the private sector) that caused difficulty?

DB No staff were transferred.

LG In relation to partnership, how was the concept of partnership viewed by those involved in the project.

DB The establishment of a small team who had the authority to make decisions locally was a key factor in the success of this project. It was also important that that team had the skills necessary to run the project. The members of this team were conscious from the beginning that they had only one opportunity to get this project right. Consequently, they remained fully focused throughout the procurement and construction of the project. Issues that arose were considered fully and a practical, pragmatic approach was taken throughout to resolve these issues.

The approach of the Operator was also a key factor in the project's success. They viewed the project as a true partnership and consistently worked with CIT to deliver the best facility that they could. There were disagreements, as would be expected in

a project environment but all parties worked together to find solutions to these difficulties, while maintaining a very positive working relationship.

The mix of personalities between the partners worked very well and was a major factor in delivering a first class project while maintaining a very positive working relationship.

Appendix 6: Interview with Michael Delaney - CIT

Role: Head of Development at Cork Institute of Technology

Interview Date: 24th August 2006

Background

Cork Institute of Technology (CIT) is one of the partners in the National Maritime College of Ireland (NMCI). As Head of Development at CIT, Mr Delaney has a central role in the provision of the facilities that CIT requires to achieve its mission. When this project was first mooted, it was proposed as a partnership between CIT and the Irish Naval Service (INS). Therefore, the matter of the NMCI being a partnership pre-dated the decision to procure through PPP. In taking the PPP route, the partnership ideal was extended to include a private sector partner. Throughout the procurement, design and construction phases of the project, Mr Delaney was one of a three-person team empowered to make decisions on the suitability of the proposals from the bidders and to negotiate solutions to issues that arose. This team's role in the project continued into the operation phase. The team is now a part of the Liaison Group that manages the NMCI at a partnership level in accordance with the Project Agreement (PA).

Objective of the Interview

This interview is one of two such interviews that were conducted to gather data relating to the level of success or failure that has been experienced in the NMCI project in relation to the factors of Risk, Value and Innovation.

Interview Procedure

The interview was conducted using the Strategic Conversation format and was recorded electronically. Supplementary notes were made during the interview. The procedures for recording and verifying the accuracy of the interview were agreed and the following is a transcript of the interview.

The transcript has been edited to remove any comments that were made where the interviewee stated that he wanted to make a comment "off the record".

LG Looking firstly at the make up of the Project Board that was set up to procure this project, what were the areas of expertise that needed to be covered by this Board and how well were they covered?

MD We needed knowledge in two aspects, the first being the technical knowledge of the facilities that were required and the second being the knowledge of the process of PPP.

Donal Burke was very aware of this and he said from the start that what he wanted from me was the knowledge of the process. But while both and himself and Tom Touhy from the navy were very strong on the technical requirements, they also made it their business to understand the nature of PPP and the mindset that you must have to make it work. It is very important to understand the technicalities of what you want, but you are in danger of going too far in specifying too much if you don't understand the process.

In doing this, we never named the actual equipment that we wanted, but what we did do was to specify the performance that was required. We knew a particular piece of equipment that would meet this and we would specify the output that this equipment would give. For example, with the lathes that we needed, we knew that there were some makes on the market that were of a higher quality than others and even though there is a 25 year supply and maintain contract on them, that is only one aspect of them. Their functionality is another aspect and the way we defined that was by taking two lathes that we knew would meet the requirements and writing a generic specification that we gave to the bidders. The bidders then had to do their homework to find something that would meet the specification.

We couldn't specify one because they had to carry the risk for 25 years and if the manufacturer of one we specified went out of business, the risk would fall back on us.

The key thing is that you have to have the technical knowledge to know what you need but you also need the knowledge of the process so that you can get it within the rules of PPP. If you don't specify your requirements at the outset, you can't blame anyone else afterwards if you didn't get what you need. The user requirements are everything, the building and what you are going to do with it, the room data sheets etc, which should go as an appendix to the contract, these will capture everything to do with the equipment, the fit-out and so on.

That is the area that most of the bidders struggle most with. Once you get the design of the building, you can envisage the building, but it is the technologies going into it that they have difficulty with, particularly if they are unfamiliar with the technology.

The lathes were one example. Another example was the main propulsion engine. The specification said that we needed a marine engine of modern design for teaching purposes. The first question that we were asked was if this could be a 2nd hand engine. We said that it could but it would be theirs to maintain for 25 years. They proposed one engine and asked our opinion. We were aware that this particular type of engine was known to be troublesome and we alerted them of this stating that we had no objection to its use but again pointed out that they would have an obligation to maintain it in working condition for 25 years. So they sourced another engine. This one had been used as a back-up engine to the generator in Harrods in London. It was quite old, but there was only 20 or 30 running hours on it. While they were keen on using this engine, the staff of the college were not satisfied that it could meet the teaching requirements and as it was not an engine of modern design. We

also had concerns that they might not be able to get parts for this engine in the future as it was quite old. They went back, relooked at their lifecycle over 25 years and decided that the best course of action was to buy a new engine as they wouldn't have to do a major strip down of the engine during the 25 year life of the project.

LG This brings us to the area of risk and how well the risk transfer was managed. How aware was the Project Board of the risks specific to a PPP?

MD The Operator carried the construction risk. They also carried planning risk. This is an area where they really have to do their background work. They have to consult with the planners in the local authority to find out what the issues will be in getting planning permission. They have to be thorough on this and this involves spending time and money to get it right. So with PPP, when you appoint a preferred bidder, they are within weeks of being able to submit a full planning application, because they have put a lot of work into developing it at bid stage. Of course, in doing it this way – while they still carry the risk – they can eliminate a lot of the risk by having detailed discussions with the planners. In particular, they would then have avoided the risk of the planning failing – for whatever reason – after being selected as preferred bidder.

There was an example of a change that was required in the planning permission in that the design that was accepted by the planners used the concept of open access to the grounds and the car park at the front of the building. The operators were aware that they were carrying the risk for security and vandalism that would be caused to the building by a 3rd party. We did question them on this at bid stage, as we wanted to see any design that there might be for gates or fencing that they may have. It wouldn't affect the functionality of the building but we wanted to be satisfied that they were in keeping with the

facility as a whole.

However, as the project progressed, a number of stories emerged in the press regarding traders setting up in open areas and they became increasingly aware that having such an open unrestricted space so close to the ferry port could lead to unwelcome use of the parking areas that might lead to availability issues that might affect the whole facility. But the main issue that came to the fore was the potential insurance implication that unauthorised use might bring. The insurers insisted that there would be a fence and that there would be a temporary fence in place until the permanent fencing would be erected. This involved the going back to the local authority, getting planning permission for the fence and erecting the permanent fence. Under a traditional procurement contract that would have been our risk and at our expense.

Under construction risk, they had to build a facility that was fit for purpose. Their engineering consultant was very insistent on a very highly quality specification for the slipway. This was a result of passing down the risk to their designers. Consequently, the engineering consultant would not accept the risk unless it was built to the high quality specification and this resulted in higher construction costs than they had budgeted for.

If we were doing this under a conventional contract, it would result in a cost overrun to us. So planning risk and construction risk was passed down as well as the operation risk.

LG How was it decided which risks were to be transferred?

MD There was a risk matrix that was prepared by Deloitte at the start of the project. These risks were graded from unlikely to occur at the low end up to highly likely. In addition, we did a number of site condition surveys to be aware of the likelihood of risks before the procurement began. These were given to the bidders without prejudice. It is important to do this, because the more of it that is done the more certainty that there is on the

actual risks that will exist and the lower the cost that they will charge for taking the risk. So you end up paying less in the long run.

Of course, the bidders will still carry out their own surveys but these will be done at their own cost and at their own risk.

LG Did they carry the archaeological risk?

MD Yes – though this isn't always the case in PPP. Of course, they evaluated the possibility of such a risk and built it into their price.

One of the mindsets that you get with those who have a principled objection to PPP is that money paid to carry risk is a waste when the problem does not occur. I disagree with this because you are just insuring against a possible delay or loss. If the loss or delay doesn't occur there should be no more of an issue about it than with any other insurance where the event you are insuring against doesn't occur.

LG At the outset of the project, did you go through the risks with the bidders and point out specifics that they had to be particularly aware of?

MD Yes we did.

LG Rather than to try to transfer the risk, did you work in any way with the private sector to try to reduce the risk?

MD The principle that we took was that anything relating to the curriculum was our risk. Some risks were shared. For example, if there was an accident when the jetty was being used during a training exercise, it would be an issue for the operator if the accident was caused by a malfunction of the equipment. In that case they would be liable. If it were caused by misuse or lack of knowledge of the correct use of the equipment, the operator would not be liable.

This came up when we were insuring the building, because we carry insurance there as well. While it might be argued that

responsibility for providing public liability insurance is all theirs, it may not be. For example, suppose a visitor to the building slipped on a wet floor. In theory, we would say that it is their job to ensure that the floor would be clean and dry. However, if they had taken reasonable measures and there had been some people throwing water around a few minutes before, it might be argued that it was unreasonable to expect that the operator would have had time to clean it up – so there are areas of shared risk and these need to be fully thought out at the start.

One area that they don't carry the risk on is in the obsolescence of the IT. The reason for this is that it would be impossible to predict how IT will develop over the next 25 years and it would cost too much to transfer this to the operator. So we went for a 3-year supply and maintain contract. So if hardware becomes problematic after 3 years, the College is carrying the risk.

LG So it was up to the College to come up with a further agreement after the 3 years?

MD Yes or to take it on directly themselves. There are two issues with IT equipment after 3 years. Firstly, unless they are really misused, they have a life beyond 3 years. In this project, we have just over one year to go in the 3-year contract and we then have to decide if we want to maintain them directly or do we sign a further maintenance agreement. Secondly, the computers become ours after the 3 years and we would need some type of phased replacement plan so we have an opportunity to stagger the replacement so that we are not facing a big replacement bill every 3 years. But we are beginning to address this now so that a structure is in place when the 3 years are up.

LG What other areas of risk were identified?

MD We carry the risk of the misuse of the building, but normal wear and tear stays with the operator. We made it clear early on that we would need to see their preventative maintenance plan for

both the building and the equipment.

So overall then we knew what we could handle ourselves, and what the operator was better placed to handle. We put a lot of thought into it and it worked well.

LG Do you think that the operator would agree that the risks were well allocated?

MD One of the areas that they probably got caught for is that the building is designed for a certain amount of students and the catering income is not as high as they expected. As we were already providing the equipment and the power to run the kitchens and the operator is charging for the food, we made a deal whereby we would get a guaranteed income from the catering and vending service. Because their income is lower than expected they are losing money on this. But clearly, there are areas that they are doing better than the expected so it balances out.

The level at which students spend on their lunch is very cost sensitive and they have had to adjust the type of food they serve and the prices to compete with other local outlets where food can be purchased.

LG Was there anything else related to risk, that was considered during the early stages of the project, that had an effect later in the project?

MD We had the benefit of learning from the schools project (Grouped Schools Project) that had been carried out before the NMCI project. One thing that became clear was that we needed a system for checking that we had received all of the equipment that we needed to carry out the training that would take place in the college. It was clear to me that there was a significant amount of equipment on our project and that we needed a system to control it. While Donal Burke and Tom Touhy did check the equipment, we needed a written record that everything had been accounted for and we needed an asset

register to ensure that we continued to have everything we needed.

To action this, we hired a local firm with experience in this sort of work to carry out an audit of the equipment before handover. I suggested that they begin with the two Computer Labs so that they could get a feel for the building and to establish their methodology for carrying out the remainder of the work.

They picked up a few small things in the task – but nothing major – but it was very reassuring for us to be confident that it had been thoroughly audited at the start. The things that were picked up related to decisions that we had made during the project such as the types of tables that would be used in rooms that were designed for 40 students. Some chart work would be carried out in these rooms so we decided to put in a slightly bigger table in some of these rooms. As a result we got 37 tables in these rooms. When the auditors checked they picked up that there was a smaller number of tables in these rooms but we had a paper trail through the change mechanism that we had in place to show when and how this had been agreed with the operator.

On the cost side, the bigger tables were slightly dearer, but the fact that there were less of them balanced the cost out so there was no cost implication. It was a boost to us to see that we could account for these changes as an independent audit might query them in the future.

Another thing that came to light was that there wasn't a computer in every classroom. What had happened was that there were a few excess workstations in the computer labs and the staff had moved some of the computers from the classrooms to the extra workstations in the computer labs. What this highlighted was that we needed a control system that would record that a computer had been moved from a room and to where it had been moved.

In another case we had agreed with the operator that a small amount of equipment for one on the rooms would not be provided immediately and that an appropriate amount of money would be held in reserve to buy it some months later. When it had been picked up by the audit, it provided the impetus to the relevant people to decide on the actual equipment required and gave the operator the chance to close this issue out.

LG Were there any things that others could learn from your experience, just as you learned from the schools project?

MD There were a number of things.

One thing was that everyone should be clear who has the authority and the responsibility to sign off on each aspect of the building. It is equally important to make sure that one of the public sector team who does not have such authority, does not unwittingly make any suggestion that something will be accepted or that any aspect of the work should be carried out in a certain way.

A second thing was to be conscious of the contractual relationships. The client only has a contractual relationship with the SPV. It is up to the SPV to communicate with the contractor – even if the contractor is part of the SPV.

A third thing is to understand the relationship that the contractor has with the SPV and the level of risk that has been passed down to the contractor. For example, does the contractor have responsibility for design through a Design & Build contract or is the design a separate package? This relationship can define whether decisions are driven from a design perspective or from a financial perspective. It is therefore very important to understand the objectives that could have the biggest influence on decisions in the project.

A fourth thing that should be asked how they are going to manage the installation of specialist equipment. It is important

to know how they will handle this and the level of expertise they have in dealing with specialists. It is also important to know how much influence the FM partner has in the design and the level to which the FM people are involved in procurement. A high level of FM influence at that stage could produce a tendency to influence decisions from the lifecycle cost aspect of the project to the detriment of the performance requirements aspect of the project.

LG Was there any issue that arose during the procurement process that changed the way in which risk was allocated?

MD The only thing that comes to mind was that we set up a Health & Safety committee to ensure that there is H&S compliance in the use of the building. In that way, some risk was shared but it wasn't a change that had any consequence on the contract.

LG Looking then at value as a product of time, cost and quality, to what extent were the value objectives met?

MD The project was delivered comfortably within the dates agreed and I think that we would have struggled to get it in that time with a conventional contract. There is a different approach from the builder when you have a PPP because it means that you are completing the building with a full fit out and it has to be ready for operation from the handover date. Slippage is therefore not an option.

There was a good example of this in the installation of the two training engines. They had arranged that the engines would be lifted into place on a particular Monday morning. The suppliers were so anxious to meet their part of the contract that the engines arrived on site on two low-loaders from Germany on the Thursday evening of the previous week. The site manager told the drivers that the crane was hired to lift the engines into place at 10am on Monday morning and told the drivers that it could not be rescheduled earlier. The drivers were allowed to park their trucks on the edge of the site on condition that they would

indemnify the contractor from any damage that might occur to the engines in the interim. The drivers took shifts minding their lorries until the following Monday when the crane duly arrived. At precisely 10am, the first of the engines was being lifted into place and the entire operation had been completed by 11.30am. The crane then moved an oil tank from one location to another and was gone off site by 12.30pm.

What was so impressive about this was that the bund walls had been built around the tank and the pipe fitters were reconnecting the tank by 4pm that evening. The level of planning in that day's work alone was exceptional. If the project had been done by a conventional contract, the coordination of the delivery of the engines with the construction work would be very difficult to achieve as they would be separate contracts and the amount of red tape that would have been involved in the hiring of the crane would have been phenomenal. Yet in a PPP contract, it all happened like clockwork simply because the responsibility rested entirely with the SPV to meet the finish date. The SPV will not get paid anything for a delay, so there is an onus on them to make sure that they don't occur.

The other thing that is relevant is that the PPP contracts in Ireland now have a mechanism that would allow the building to be handed over early. This would result in an earlier start to the income stream, so the SPV is incentivised to finish even earlier than the contract handover date. This also leads to planning for greater efficiencies in the construction process. The DOES shares in the benefit through a reduced monthly payment up to the original start date – so everyone gains.

From a cost perspective, we had a target cost that we had to stay within and we achieved that. From the quality, we were very clear on what would meet fitness for purpose and we achieved that.

LG With innovation, there are two elements namely Cost Saving

and Product Enhancing. What innovations were achieved on this project?

MD One thing that comes to mind is the provision of a dedicated maritime studies library. This was a new thing, because they never had a separate library before but they had access to the general CIT library. We were aware of the costs involved in manning a separate library and we asked the bidders to come up with ideas for how the service could be provided. They examined the potential use of the library and the times of day that the high or low demand would occur. They looked at a self-regulating system where a student could check a book out him/herself and there were proposals for cameras on the exits.

The bidders were made aware that they would be responsible for the stock of the library and while there is normal levels of wastage, they would be liable for security and a level of wastage through pilferage or other damage that would be higher than average. They came back with a proposal for providing a loan facility at certain times of the day and routing the traffic to the library by the desk of the computer laboratory supervisor. The person that processed the loans also supervised the computer laboratory area and was also trained to work on the switchboard. Since the college opened, she has also been involved in the development of the website. This was where the innovation of using the private sector came in, because in the public sector, we would not have been able to combine services in this way. So we ended up with the library at a much lower cost than we could have achieved if we provided the service directly ourselves.

The procurement and classification of the books would still be done through the main CIT library in Bishopstown and this ensured that the chief librarian had a level of control that was necessary for the NMCi library to be classified as part of the CIT library system. As CIT provided the software that manages the

borrowing from the library, the NMCI person was provided with training in the use of the software at the main library. So every book that is held in the NMCI library is listed on the CIT Millennium software system and its status as to where it is and whether it is on loan or not is shown in the same way as a book in the main library. Similarly, books that are held in the main CIT library are available to staff and students in NMCI. That way they can go online, view what is available and get a book sent out to them at the NMCI library.

This was a new way of doing things and it was viewed initially with some reservations by the CIT library staff, but these concerns have diminished now that the system is in use and people see that it is not a threat to the way in which the main library is run.

LG Was there anything in the project where you set out deliberately to do something differently?

MD The simulation system is completely different to anything that was available before. We wanted a system that was entirely integrated and what we got was seventeen simulators that could work in any combination either separately or together.

So for example, you could be in one of the simulators piloting a tug while another person is on an engine simulator that controls your engine and you could have someone else on the main simulator that is controlling a tanker. All of these could be sailing into or out of the same port at the same time. This means that students of different levels of skills can be challenged in different ways using the simulators. So this was something completely different.

This is provided to us under a contract that runs for the full 25 years of the project agreement with all software upgrades that become available during that time. We found a facility that was somewhat similar to this but not as advanced in Canada and we took a lot of advice from them in writing the output specification

for what we wanted. Based on the Canadians' experience we stated that running such a system typically required two major hardware upgrades timed at eight to ten years apart and that this must be provided for in the bid. In addition, if the software required increased processing power, this had to be provided between the major hardware upgrades. Indeed, as a fairly major software upgrade has already become available, a fairly significant upgrade of the processors has already taken place.

LG The other innovation that has been commented on by other interviewees is the energy efficiency of the building. How well has this worked in practice?

MD This is something that is being reviewed at present. An energy monitoring process is being carried out at present and based on the outcome of this; we will be able to see how energy efficient it actually is.

But a number of interesting issues have arisen relating to energy.

For example, relating to the survival pool there was a lot of debate as to what the temperature of the water should be. In a normal swimming pool the water is kept up to about 29°C. In some training facilities the temperature of the water is set at 9-11° C to replicate actual temperatures in the sea, but when we checked with people who have been a long time training in survival techniques, they said that these temperatures are all right for people that are in and out of the water fairly quickly, but if you are instructing in the water – even in temperatures up to 15°C, your body will begin to react to the low temperatures after a period of time. First a person will begin to shiver, their teeth will start to chatter, and then their concentration will begin to go.

The discussions that we were having prompted a lot of debate on this subject and as a result, best practice internationally is now that the temperature in a survival training pool should be

between 19 and 23°C. One of the surprising things that we found was that when the temperature was brought up to that level, the energy needed to keep it at the correct level was negligible.

Another design innovation from the point of view of energy use is that the facility is designed as three blocks, each with a different function. Block A would be the wet and dirty area. The front end of it is the engineering area and the back end is the survival pool. That area is no different than a conventional factory building and uses energy in that way. On the other hand, the part of the building that houses the IT and simulation equipment needs very little light and generates a lot of heat. Because of that, this block is in the middle of the building. This results in a very efficient use of energy in the building. In addition, the design of the ceilings uses coffers that retain heat and allow it to dissipate back to the room when the temperature of the room begins to drop. As well as that, the design of the building was such that, natural lighting was maximised in the teaching areas and the siting of the roof lights was designed to suit the amount of light needed for the different functions that would be performed in different parts of the building.

Yet another innovation was where they stacked the 270° and 360° simulators one above the other and then added the chart room on top. This resulted in the chart room giving a panoramic view of the harbour, which is a stunning effect.

LG Why do you think that these innovations were achieved?

MD When you have three different bidders, each with a different design, the designers have to work very hard to give their bid the edge that could be the clinching issue that wins the bid. This particularly true in a PPP, when the designers are tied into the overall structure of the SPV and have the opportunity to refine the design through a series of clarification meetings with the client. By the time that they have reached the bidding stage,

the designs are well developed – they are no longer just concepts – and they have cost a lot of money. The further they go in the bidding process, the greater the need to win the bid so that they will cover their costs. This heightened level of design competition is not in place in a conventional contract.

LG From either the value or innovation were there any issues that changed during the procurement process that affected the process?

MD There was no change from our side, but I think that the winning bidders had to work very hard to achieve their own targets. But this was achieved by their approach to innovation. You have to remember that we were all learning on this project – even though the schools had gone before it – there were still new things happening here.

LG How would you rate the level of quality that this project delivered?

MD It is of a high level and that is a reflection of the approach of the SPV to running the building. The simulators I mentioned earlier have already had an upgrade. They have a full time IT technician on site and this ensures that there is very little downtime with any of the computers because they keep a few spare computers available at all times. The cleaning and house keeping is very impressive. They have just undergone what they call the “deep cleaning” and in a place like the kitchen area, they literally take the place apart during this. In a conventionally run building, this simply wouldn’t be done. So the quality is excellent.

LG Are there any other lessons that could be passed on to others from this project?

MD Yes. The client side should be very clear on what they actually need rather than what they would like to have. If you start talking about “state of the art” buildings, the bidder will take you at your word and you will be asked for a price that reflects

this. The other thing is that you must be careful about risk, because the higher the risk and the greater the penalty for failure, the more you will pay for it.

Appendix 7: Interview with Dave Gordan (1)

Project Role: DOES Project Manager on Grouped Schools Project

Interview Date: 27 June 2006

The procedures for recording and verifying the accuracy of the interview were agreed. The interview was recorded using a digital voice recorder. The interviewer took a number of handwritten notes during the interview. The following is a transcript of the strategic conversation that took place. The transcript has been edited to remove any comments that were made where the interviewee stated that he wanted to make a comment "off the record".

LG We will begin with the risk on the project and at the ways that the public and private sectors would have approached the risk. In that context, what were the main objectives in relation to risk?

DG There were specific reasons for going into PPP such as innovation, taking the school principals away from the running of school buildings, etc – there were 4 or five reasons - and these are outlined in the C&AG report (Comptroller & Auditor General 2004).

Also, we knew very little about PPP at the time. It was the first time PPP was done in Ireland for an accommodation project and also for a project where there were no user charges. So it was the first non-user charge project and the education projects still are the only accommodation projects that are non-user charge.

The whole question of risk for the unit was a learning curve. So we hired consultants that had experience in PPPs.

One of the first things that we wanted out of the process was that it was done quickly. There was no point in going through the process unless it showed a benefit related to time. What we have discovered is that it takes us half the time to procure

under PPP than under traditional procurement. That can vary down to a third of the time but in the Grouped Schools we worked out roughly half the time. We had a timetable set out for the procurement process to bring it to preferred bidder stage and we met all of the output time scales that we had set. Roughly it took 9 months to a year to evaluate the projects. So the first risk objective was to deliver on time.

Other than that, the risks were the normal PPP risks that are identified in the C& AG Report, such as the construction and planning risks.

LG Who decided the risks to be considered?

DG They are standard PPP risks but we were advised on them. There were other risks that we took on that we didn't transfer, such as the Demand risk. We took this on because we should know best, from our own data, how many pupils will use the school. If the private sector were taking that risk they would have to provide a school that could accommodate whatever number of pupils that came to it over the years. While the private sector will do that, they will charge a fortune for it. So it shouldn't be a risk that you transfer.

LG What were the criteria that you used to decide which risks were transferred?

DG We needed to look at a number of things under PPP. We first looked at the data that we had such as the size of the existing schools. We also had to look at the cost of running a school and the standards to which they would be run. Of course, the existing schools had funds raised by the parents to assist in the running of the schools and this wouldn't happen in PPP. This means that there would need to be a price paid to allow the private sector to full provide the school.

What the public sector needs to accept is that the private sector organisation must make a profit if it is to survive. Our function is to make sure that they don't make super profits. There is a

feeling (in the public sector) that because PPP involves the private sector there is something wrong. So the mindset needs to change. For example, if a bank can outsource its FM, why can't a school do the same thing? They outsource because they get better value for money and the standard of service is set. So should we. The public sector mindset needs to change to accept this.

LG So some risks were retained and some were transferred.

DG Yes, and these were in the risk register. They were allocated to the party that could best carry them. For example, construction and availability were carried by the private sector because they are in the best position to design, construct and run the building. On the other hand the risk relating to the level of VAT was carried by the State. If the private sector had to carry that they would have raised the level to cover themselves against any future increase in VAT over the next 25 years. So trying to transfer certain risks does not make sense.

So we would have gone through the risks with our advisors and taken a view to what should be allocated and where.

LG How was the planning risk allocated?

DG We took the risk on the outline planning and they took the risk on the full planning. In traditional procurement we don't go for outline planning – we just go for full planning. But with PPP the work that needs to be done before you go to the market means that you need some level of planning. By having outline planning, a bidder knows that a school can be built on the site. However, the details of the school would be a matter for full planning. Using this process we could give the project funders certainty that a school building would be allowed on the site. Without this, the uncertainty in the process, particularly in relation to the time taken to get planning would deter some bidders from entering the bidding process and would result in higher costs through bidders pricing in a greater level of risk.

LG Which were the most critical risks?

DG All of the risks were important. To the department, the most important thing was getting the schools up and running within the agreement.

LG Were the risks successfully transferred?

DG Yes, the buildings were provided on time and there is no major problem in the operation of them.

LG Was there any element of the risk transfer that didn't work successfully?

DG No, but there was a 3 month delay in the decision from the Department of Finance in getting their final approval to enter the Project Agreement. This was due to the fact that this was the first PPP to get to this stage and they wanted to examine every minor detail of the deal before approving it. This resulted in the schools being handed over at the end of the 2001 calendar year which is half way through the academic year. This resulted in the school staff moving equipment from the old school in order to be ready to start classes after Christmas. This should have been done by the operator but we agreed to it in order to avoid disruption in the operation of the schools. In hindsight this was a mistake because there was confusion as to what should have been supplied new and what was actually supplied by the operator. Some items had been delivered and signed for but were missing and some were sent to the wrong places. It took a huge amount of effort to resolve and it was a lesson that we learned for future projects.

LG How were the risks analysed on the project?

DG We had meetings with our advisors to examine risk and get this right prior to the ITN (Invitation To Negotiate).

LG How was the risk allocation managed?

DG What we did do at the beginning of the process was to issue a

draft of the Project Agreement (PA) to all six bidders and asked for their comments for improvements in the PA. When we got these comments we held meetings with 6 bidders covering the headings of Legal, Financial, Design and Operation and redrafted the PA. When we then gave the PA back out to the 3 ITN bidders they had to sign up to accept it and they couldn't deviate from it. So we couldn't get into further discussions about mitigating risk. We had an agreement that we all signed up to and had to abide by at ITN stage.

However, at the earlier stage when we were discussing risk with our advisors we considered each risk in depth. For example, with insurance we took the view that the school had to take on the vandalism risk within the school by the occupants during the school day. However, the onus is on the operator that the issue has occurred as a result of vandalism and not something else. Outside of this the risk reverts back to the operator.

LG Which risks were successfully transferred?

DG All the planned risk transfers were successful

LG Why were these transferred successfully?

DG There are certain risks that the operator is better able to control and some that are better left with the state. Generally, the transfer was successful because the risks were allocated to the party that could best carry them

LG What issues relating to risk arose during the procurement phase?

DG None, these had been resolved before ITN. As it is now 5 years ago, there may have been issues that were discussed but I can't recall anything significant that resulted in a change.

LG How were these issues resolved?

DG Mostly, if a bidder proposed a design we would ask them how it would work and then judge it on fitness for purpose rather than on the process.

Value

LG Leaving risk aside for the present and looking instead to Value in terms of Cost, Time and Quality, what were the objectives on this project relating to value?

DG In relation to cost, what you do in a PPP is prepare a Public Sector Benchmark (PSB). This shows what it would cost to the public sector to provide the school to the same standard of service as that being provided by the bidders. This is then compared to the bid cost and if the bid cost is lower, then the cost element of value will be achieved. The difficult part of the comparison is deciding how the risk factor is priced in. In normal public sector projects, the risk is not priced in. The other issue is that the schools are being maintained to a different standard to the traditional schools and the cost of this will need to be benchmarked after five years to get an accurate figure of the actual costs. Another issue is the state of the buildings after 25 years. In some cases the schools that were replaced in this project were less than 25 years old. We assume that the PPP schools will last at least 10 years beyond the end of the contract because of the higher standard of maintenance but we will not be certain until the initial 25 years are up. It is also true that major works are sometimes carried out during the life of a traditional school and the cost of these is not included in the original costings. In PPP all of these costs are included at the start, so it is difficult to compare like with like. One of the problems with this project is that it was the first PPP and while we learned a lot from it, there were lots of things that we were doing for the first time. The PSB was one of them. The other thing is that the Government Guidelines for PPP were only being developed at the time and indeed many of them were written based on the experience of the Grouped Schools Project – so we didn't even have the benefit of clear guidelines at the time.

In relation to time, we wanted to get the project completed

earlier and in quality, we wanted modern buildings that were fit for purpose.

LG How were these objectives arrived at?

DG These were decided within the Department before the project began.

LG Which objectives were identified as critical to project success?

DG All three were critical. But everyone was aware that as a pilot project, we were doing this project partly to learn about the PPP process.

LG In what way were these objectives critical?

DG Politically, if these went badly wrong they would be held up as a negative example of PPP for years.

LG How were the value related objectives analysed?

DG Internally by the DOES, having taken advice from the consultants.

LG How was the value management managed?

DG We consulted widely within our own engineering section on the different aspects of the bids as they developed. Where we didn't have the expertise in house we sought it elsewhere.

We also used the school boards in this process and we consulted with them every 7 or 8 weeks. This gave us the requirements of the school and clarified issues like the use of the existing school outside of normal school hours. On the basis of these discussions we allowed 300 hours for extra use for such things as supervised study, etc.

LG Which objectives were achieved (and to what extent)?

DG The time and quality objectives have been achieved. Time will tell the extent to which the cost objective has been achieved.

LG Why were these objectives achieved?

DG With time, the process proved faster and with the construction

risk being transferred, there were no construction delays. The quality objective was achieved partially due to the requirement of the operator to maintain the building for 25 years.

LG What issues relating to value arose during the procurement phase?

DG There were no major issues, but there were minor issues. None of which had a serious effect on the project.

LG How were these issues resolved?

DG Issues that arose were dealt with in accordance with the contract. The Operator took a very commercial approach to the project and there was little or no give and take on the project. Their attitude seemed to be that they were prepared to fight through each problem rather than to propose a compromise.

Innovation

LG If we define Innovation as a combination of Cost Saving and Product Enhancing, what were the objectives on this project relating to innovation?

DG We wouldn't get involved in Cost Saving Innovations as they would be an issue for the Operator. If we began to specify these we would end up taking back some of the risk. Effectively the Operator presents a final figure. How they have got to that is their concern provided we are happy with the design that they present. The Operator uses this type of innovation to keep their costs in maintenance down. An example of how we dealt with this was the chairs. They asked us to pick a suitable chair for the classrooms. We said no and told them that they had to pick a chair that was fit for purpose. This was an issue for the Operator to ensure that facility is delivered as fit for purpose while reducing running costs over life of the project. It becomes a saving for the DOES where the saving is used to contribute to generating a lower tender price.

LG So from a product enhancing perspective, what were the

objectives?

DG One of the reasons for doing a PPP was to gather information on building design and the use of buildings with a view to modernising the specification of traditionally procured schools. What we have found is that PPP produces a better product up front and as a result we have now reorganised our post-primary building unit and our professional teams are now focussing more on the life cycle element of the buildings in procurement, purely based on what happened in PPP. So the knowledge gained in PPP is being transferred back into the traditional building programme.

LG What potential innovations were identified?

DG There were several such as new building practices, use of new materials and use of school furniture and equipment. Examples would include roof finishes and blockwork. The result is that our traditionally procured schools are now being future-proofed in terms of life cycle.

LG One product enhancing innovation that you did take on was the increase in circulation space. What was the reasoning behind that that decision?

DG We wanted to look at the effect of the increase in space. I'm not sure if we did the right thing in bringing this into this project. We used the PPP process to look at a number of things. We had been getting complaints from Principals that corridors were not wide enough. Because the Operator also controlled the design and would be responsible for running the school, they were given the option of increasing the circulation space within the design by 5%.

Another thing that we learned was about the IT. We put in the IT and gave the Operator a 3-year contract to look after them because you couldn't foresee the IT requirements over 25 years. But to be honest this hasn't worked well as some schools have sophisticated systems that now have no backup. So under the

new PPPs coming on stream now, the PPP contract will include the cabling and the maintenance of the cabling but the provision of the computers will be done the same as the traditionally procured schools.

On the positive side, fitness suites are provided in all of the PPP schools and it has resulted in increased fitness levels particularly among the female students. A survey by the DOES Physical Education (PE) inspector has confirmed a much higher uptake in the level of participation in PE is apparent in the PPP schools. Consequently all new schools will have fitness suites specified as standard in future.

The other positive was playing pitches. PPP schools had the pitches provided as part of the package. In a traditional school, the pitches would be completed some time later subject to the land being available and the availability of grant aid from the DOES. This has now changed and the traditional school now gets its pitches as part of the package.

LG At any stage, did a bidder come to you and suggest that they could provide something extra and outline the cost for such a service. For example, was it a bidder that raised the issue of extra circulation space?

DG No. This was in the output specification. But what we really should be doing in PPP, is clustering services such as schools and libraries together and run them with commercial facilities so that they bring in an income.

LG In your view, which innovation-related issues were identified as critical to project success?

DG Cost saving objectives had to meet fitness for purpose requirements. If there was a problem we would ask the operator a question that would prompt them to re-examine the design.

Product enhancing innovations was important but not critical

LG In what way were these issues critical?

- DG** If fitness for purpose was not met, the school would be unsuitable and the DOES would not pay for such a facility.
- LG** How were the innovation related objectives analysed?
- DG** Product enhancing innovation was openly examined due to the pilot nature of the project. This allowed the DOES to deviate from the standard internal schools specification.
- LG** What process was used to manage the use of innovation?
- DG** Increased school size (by 5%) was a requirement in the tender documentation. Other innovation related issues were evaluated by the DOES against the standard technical specification for a school. DOES did not specify specific innovations as the Operator carried the risk of ensuring that the facility met the fitness for purpose requirements.
- LG** Which objectives were achieved (and to what extent)?
- DG** The issue of increased circulation space has resulted in positive feedback. The materials will lead to increased lifecycles of the buildings – particularly in the roofs. There is a higher standard of furniture and equipment and there is an increased fitness levels in female students due to the provision of fitness suites
- LG** Why were these objectives achieved?
- DG** These mainly arose from cost saving innovations that keep costs down. It is in the interest of the Operator to keep these costs down.
- LG** What issues relating to innovation arose during the procurement phase?
- DG** There were no specific issues relating to innovation that surfaced during the procurement phase.

At the end of the interview, Mr. Gordan was asked to carry out the exercise below.

He allocated the points as shown.

RELATIVE IMPORTANCE PARTICIPANT PLACES ON RISK, VALUE AND INNOVATION	
Given 60 points to divide up and use to rate the relevant importance of risk, value and innovation, how would you allocate the points?	
Risk	<input type="text" value="25"/>
Value	<input type="text" value="20"/>
Innovation	<input type="text" value="15"/>

Appendix 8: Interview with Mark Cherry

Project Role: Project Consultant with Farrell Grant Sparks –
Advisor to DOES on Grouped Schools Project

Interview Date: 21 December 2006

The procedures for recording and verifying the accuracy of the interview were agreed. The interview was recorded using a digital voice recorder. The interviewer took a number of handwritten notes during the interview. The following is a transcript of the strategic conversation that took place.

LG I am looking at the circumstances at the beginning of this project and trying to establish the attitudes that the participants had at the outset. In establishing these attitudes we will concentrate on the elements of Risk, Value and Innovation.

MC Can I just give a broad indication of what defined the risk factor of the project? There were no guidelines coming from the Department of Finance at the time, this was the first PPP project in Ireland. It was at a time when the construction market was at total capacity and the DOES were looking for other ways to deliver projects. Construction inflation was rampant, running at over 1% per month.

When we were appointed advisers, our objective was to make sure that the risk profile on this project was no different to the risk profile on schools projects that have been recently completed in the UK and in Northern Ireland at that time. In addition to that we sought to improve the area of refinancing, as the private sector was making large amounts of money by refinancing projects immediately out of construction. We brought in the split of the financial gains from refinancing on this project.

LG So the two main objectives that you had to were, firstly; to

ensure that the risk profile was the same as for schools projects in the UK and, secondly; to ensure that the DOES benefited from the financial gains of refinancing.

MC Correct, they were the two we specifically tried to tighten up on.

LG Was there a view that as much risk as possible should be transferred to the private sector?

MC Risk there should only be transferred to the parties that are best able to manage it. If you trying to transfer risk that the private sector is not best able to manage, you will pay for it in the unitary charge. So it will cost you more if you try to transfer our risk that you are better able to manage. So the whole area of risk is trying to strike a balance with what the private sector is prepared to manage. Risk should not be transferred to the private sector if it is best managed by the public sector.

LG Which risks were identified?

MC We made out a broad risk matrix at the start of the project, but because this was the first PPP in Ireland there were issues with it. Because we were trying to better what was happening in other jurisdictions, the main risk occurred through the Project Agreement. The risk matrix that was agreed in the project agreement is shown in the C&AG report. In this project, all the design risks were transferred, all the construction risks are transferred, except anything to do with the local authority charges - mainly capital contributions. One of the risks that we tried to transfer but couldn't was the ground condition risk because of the foot and mouth outbreak. This stopped us going onsite to do any site investigations because of the Department of Agriculture wouldn't allow it at that time. We had to take that risk back ourselves and the bidders has to assume that they were working in normal ground conditions. This led to problems in two of the schools; in one case the ground conditions were very poor and, in the second case, there was rock in the ground just under the surface. In that case, there was a significant

amount of work in channelling the rock to get drainage runs. So we got caught for extra costs in those cases.

In normal circumstances the ground risk would be assessed by the bidders on the basis of a topographical survey and geotechnical survey. This information would be made available to each of the bidders and then they would take any further risk associated with the ground conditions.

It's important to transfer all of the risks that the private sector can manage, such as design, construction, service, operational risks. One of the other key risks that we were able to manage was the refinancing risk and the gains that we were we achieved in refinancing.

- LG** Which risks were critical to the success of the project and why?
- MC** The whole project was critical as this was the first PPP in Ireland and the use of PPP would be judged on its outcome. The project agreement was the first of its kind in the Irish marketplace and all of the bidders were looking at this agreement and deciding on this agreement as to whether or not they would want to continue to bid for such projects. The entire credibility of the PPP programme was effectively riding on this project and due to the closeness to capacity of the Irish construction industry many of the construction firms' future involvement in PPP could be influenced by their experience in bidding for this project.
- LG** What processes were used to analyse risk on the project?
- MC** This was primarily the identification of headline risks and where they were allocated. There no need to get down into the detailed risk.
- LG** What process was used to manage the risk allocation?
- DG** Risk is assigned through market acceptance. For example, it is difficult to transfer planning permission if you haven't got some sort of outline planning approval. With the ground conditions the bidders had been told that a geotechnical survey would have

been carried out. They would not take on the ground condition risk without this survey. Construction inflation was another example. At the time construction inflation was running at about 15% per year, so asking them to hold a fixed price on their bid for six months, while the public sector decided to proceed, was unrealistic. The percentage cost increase was therefore negotiated.

So all risk allocation was effectively decided by negotiation. The general principles of this procedure were agreed with all of the bidders at the start and the details were worked out individually with each of the bidders during the bidder liaison meetings.

LG Were the risks successfully transferred?

DG The standard core principle PPP risks were transferred. In addition to refinancing risk was successfully managed and will have a positive impact on future PPP projects.

LG What issues relating to risk arose during the procurement phase?

MC The ground condition risk issue arose due to the Foot and Mouth crisis and the discussions regarding refinancing continued on through the procurement phase.

LG How were these issues resolved?

MC The issues were resolved through negotiation.

Value

LG If we look at Value as a combination of Time, Cost and Quality, what were the objectives relating to value?

MC The first element of value in the project is that the bids would be comparable to the basic building costs that the DOES would have for building conventionally procured schools. Attached to that, the quality was significantly better because, if you're taking the life cycle risk on a building for 25 years, it does not pay you to use the cheap materials. You need to use good

materials because they will last. And every time that you incur expenditure in your financial model, therefore, the higher your net present value (NPV) becomes and the less competitive you are. This is because the NPV is the core principle that is used to measure the values of each of the bids that is submitted. So what you get is a spend-to-save approach by the bidders. So they will use good quality materials and they will look for better warranties from the suppliers. There was an example of this in this project, where the bidders wanted to change the roofing supplier because they got a better warranty from the second supplier.

In addition at the end of 25 years the building still had to be in a good usable standard and this further added value to the project. It is also important to know that two of the schools been demolished to make way for the new buildings were less than 25 years old. One was nineteen years old and the other was twelve years old. So these two schools had not reached the minimum life that was being proposed for the schools which would replace them.

LG So there were clear quality object objectives. What were the objectives in relation to time and cost?

MC There were clear time periods established for the production of the schools and these were shorter than conventional a procured schools.

In relation to cost, there has to be demonstrative advantages in going the PPP route.

LG How were these objectives arrived at?

MC They are standard objectives for a PPP.

LG Which objectives were identified as critical to project success?

MC The DOES wanted to ensure that the capital costs were approximately in line with those for conventionally procured schools. There was a slight margin by which they would accept

an increase.

LG In what way were these objectives critical?

MC The DOES was accountable to the Department of Finance for the costs.

LG Which objectives were achieved (and to what extent)?

MC Time, cost and quality objectives were achieved. The C&AG Report on Value for Money in the schools does not fully agree with this, but the C&AG came at this from a different perspective. For example, it doesn't acknowledge that there were no Department of Finance PPP guidelines in place at the time. We were also instructed to take the residual value risk into account, we would not normally be required to do. The Report also commented on a number of aspects that were outside its remit. For example, it was critical of the agreement to allow contractors on site before financial close. This criticism came despite the fact that the contractor agreed to fully bear the risk of the project not progressing. As a result of this criticism, Departments will not now allow contractors to proceed at their risk in advance of the financial goals on further PPP projects. This is clearly a negative outcome of the report as an early start could mean that the facility comes available earlier.

LG How were the value related objectives analysed?

MC A cost analysis was prepared as a PSC. But we didn't have any guidelines to prepare this to. So it was really a headline PSC for this project. We were reluctant at that stage to produce anything substantial, as the UK experience was moving away from using a PSC.

The service requirements were included as part of the output specification.

Time objectives were set by the DOES Planning and Building Unit.

LG How was the value management managed?

MC All of these were further negotiated during the procurement process as different bidders came up with their own approaches to the project. We didn't get involved in Value Engineering or anything like that as it was up to the bidder to come up with a financially sound bid. If we got involved, we would have taken some of their risk.

LG What issues relating to value arose during the procurement phase?

MC The Department of Finance caused a delay in the procurement process of five months as they wanted to deliberate on the financial aspects of the bid.

LG How was this issue resolved?

MC We negotiated an increased cost with the bidder, based on the construction inflation figures at that time.

Innovation

LG What were the objectives relating to innovation?

MC The main objective was to produce something better than the DOES was producing at that time. In addition to that the department took a decision to increase circulation space up to a maximum of 30%. Traditionally it's below that, in some cases as low as 18%. The impact of this is that corridors are narrower and therefore require more maintenance. Corridors become grubbier, they are darker and the building feels inferior as a result. When you increase the circulation space slightly, you get lower maintenance costs because there are less pupils and bags hitting off the walls. Where there is lower circulation, toilets are smaller and there is more damage in the toilets.

So the innovation in this project revolved around the quality of the build and the circulation which was increased up to 30%. Most of the bidders increased the circulation space by 28-29%.

The width of the corridors changed from 1.8m to 2.4m.

LG How were these objectives arrived at?

MC The guidelines for corridor space and circulation space were given to us by the DOES Planning and Building Unit (PBU). At that time, the PBU was reviewing its guidelines on circulation space and this was an obvious project on which to try out something different.

LG If we look at innovation has been either product enhancing (for which the department is prepared to pay more for a higher quality product) or cost saving (where the quality remains the same but the cost of providing it is lower), the innovations you described are clearly product enhancing. Were there any specific objectives in relation to cost saving innovations?

MC No, the DOES did not prescribe anything like that at any stage. This is an issue for the operator and to do so would take back the risk. It would mean taking an input approach in the specification whereas we took an output approach.

However, it is important to allow the private sector to innovate so that they can control their life cycle costs.

LG Was there anything else in relation to innovation that the DOES wanted out of this project?

MC Yes, they wanted to get a high standard of IT into the schools.

LG Were any of the innovation-related issues identified as critical to project success?

MC No, they were important but not critical.

LG In what way were these issues important?

MC It was important to show that using the PPP process could bring a benefit.

LG How were the innovation related objectives analysed?

MC The Innovation related objectives arose from question and

answer sessions with the bidders and through the bidder liaison meetings.

- LG** What process was used to manage the use of innovation?
- MC** The DOES architects would examine the proposals and satisfy themselves that they were happy with what was proposed.
- LG** Which objectives were achieved (and to what extent)?
- MC** The designs of the buildings were very good. Very good quality buildings were produced. The increase in circulation space was achieved.
- LG** Why were these objectives achieved?
- DG** Jarvis had a very good design team that, internally, worked hard to produce a top class design (edited).
- LG** What issues relating to innovation arose during the procurement phase?
- DG** There were a number of small issues that were discussed and resolved but none of them were major issues.
- LG** How were these issues resolved?
- DG** The bidders started with the generic output specification. When their final bid was accepted the output specification was changed to reflect what was agreed during the procurement process. So it was an on-going developing process.

At the end of the interview, Mr. Cherry was asked to carry out the exercise below.

He allocated the points as shown.

RELATIVE IMPORTANCE PARTICIPANT PLACES ON RISK, VALUE AND INNOVATION	
Given 60 points to divide up and use to rate the relevant importance of risk, value and innovation, how would you allocate the points?	
Risk	<input type="text" value="25"/>
Value	<input type="text" value="25"/>
Innovation	<input type="text" value="10"/>

Appendix 9: Interview with John Farrell

Project Role: Head of Jarvis Workspace FM on Grouped Schools Project. (Currently Project Director with Hochtief FM)

Interview Date: 20 June 2006

The procedures for recording and verifying the accuracy of the interview were agreed. The interview was recorded using a digital voice recorder. The interviewer took a number of handwritten notes during the interview. The following is a transcript of the strategic conversation that took place. The transcript has been edited to remove any comments that were made where the interviewee stated that he wanted to make a comment "off the record".

LG As Hochtief has now taken over Jarvis' interest in the Grouped Schools Project, I need to clarify what your role was with Jarvis on the project.

JF My role was as Head of Jarvis Workspace FM, which is the FM on the operational phase of the Bundled Schools project. I was involved during the construction phase – the way Jarvis teamed up was that they allowed FM to take a hands-on role during the construction phase so that we can identify issues that may affect us long term. The FM company takes the risk for the life cycle. We are then in a position when we go to the construction meetings to say whether or not we agree aspects of the design from a lifecycle perspective. For example, with painting – we didn't want the corridors painted in the schools and the type of block that was selected would allow us not to paint the corridors. That was a huge issue architecturally and building wise. The architects felt that it was taking away from their artistic expression in that we were saying that we wanted grey walls. The particular block that we picked had a yellow hue in it, so it wasn't a plain grey block. We wanted the architect to use his judgement. As the blocks had to come from Northern Ireland, the

contractor on the Cork schools was finding that they were getting between 5% and 7% damage during transportation of the blocks over such a long distance. Eventually they went to a local manufacturer who produced a series of blocks from which we selected one. From then on, this manufacturer made all of the blocks locally to that specification and the architect handled quality control during construction. None of those walls have been painted and we are now 3½ years into the project. We did have some initial objections from the end users. In one school, where the teachers had been very negative about the block walls, after a year, the Principal asked the teachers what colour they wanted to paint the walls. They responded that they now didn't want them painted and this, I felt, justified the position that we had taken from the start. This resulted in a lower maintenance cost on the walls over the life cycle of the school, which in turn resulted in a lower cost to the public sector for the school.

LG At the outset of the project, what were the specific objectives relating to risk that you were aware of?

JF The Department (DOES) dictated that certain risks were to be transferred through the Invitation to Tender (ITN) documents.

LG Which risks were identified?

JF The risks that are passed to us are the Planning Risk and the programming risk because we had to complete the project and it had to open on time. These risks are obviously passed down to the builder, but the SPV ultimately carries the risk. For example, in Dunmanway, the planners insisted that a certain bridge had to be built before the school could be completed. The bridge was not on our property, so we had no control over it and we couldn't build the bridge. The location of the bridge was in a site owned by a local developer who was building houses in the area. The planners put a condition in both the developer's planning permission and our planning permission that the bridge must be built. We had to negotiate and coordinate with the developer to ensure that the

bridge was completed before the date that the school was to open. In the interim, access to our site was non-existent, so we had to make an agreement with another landowner to get access to the site so that we could begin construction works while the bridge was being built.

Then the construction programme that we agreed needed to be maintained. For example, the issue of the blocks could have been a problem if we couldn't reach agreement on the block and has stuck with the specification. Sisk would have had so much spoilage that it would have delayed their construction and that would have been a big risk for them, if they couldn't get the walls built on time and couldn't progress the works as quickly as planned.

LG Those were risks at the design and construction phase. Were there any other risks that were identified?

JF In relation to the operational phase, if you take it that the building is constructed correctly. The type of door selected, the roofing membrane, the door handles, the windows – all of the items that break down during the 25 year life, the wear and tear of the building. These are all risks. So if the door that they select isn't suitable or robust enough for a school situation, then we could object and say that it is not secure enough, not robust enough. This was passed down to the builder and they signed up to a 25-year lifecycle. So if we wanted it replaced, it didn't cost us anything extra. So what we did in the schools was that we have no door handles on the outside – there is just a push plate. But there is a door handle on the inside so that you can pull the door open. You don't need to pull the door closed because it is self-closing. So they are decisions that by taking away the handle on the outside, there is no maintenance on the handle. It is not going to break down; you were always going to have a door closer. So it's looking at it in minutiae at every aspect of operation.

LG What risks do the DOES retain?

JF There are some risks that we would have no control over, such as

demographic changes. The DOES would retain those.

LG Who takes the residual value risk?

JF It has to be handed over at the end of 25 years as a building that they can still operate, so there is a risk there that we have to maintain it correctly. For example, in two of the schools that we built, existing schools that were less than 25 years old were demolished to make way for the new schools. Our schools will still have life left in them at the end of 25 years. If not, we will be building new schools for the DOES! So in the contract, they said that the roof had to last 40 years and the other elements were given a similar lifetime. So we have to give a working school back to the DOES at 25 years. Part of our strategy and our cost model shows what we would estimate would be the cost to maintain the school for 5 years after the 25 years. So we have done a cost model for 30 years and have determined the money that we will spend each year up to year 25. And the cost model shows the DOES what they should be spending in each year over the next 5 years to maintain the school to the proper standard.

I'm sure that in year 21 or 22 the DOES will get a dilapidation survey done on the schools and will tell us to carry out certain repairs. We have allowed in our lifecycle fund for this so that we can hand over the school at the agreed standard. For example, we couldn't hand over the school with it needing a full redecoration, so we have planned our works so that our lifecycle shows a high level of spending in the last 5 years.

LG At any stage, did the DOES and Jarvis jointly examine all of the risks on the project and look at a way of reducing risk?

JF I'm not aware of that happening. They would have transferred it and it was up to us, through the way we designed, built and operated the buildings, to reduce it.

LG In your view, which risks were identified as critical to project success?

JF The planning permission was critical – particularly with the issue of the bridge that had to be built by the other developer. Once the planning was secured, the construction was critical and then the availability became critical once the job was handed over.

LG In what way were these risks critical?

JF All three would affect income. The planning permission determined when we would start to build the school and the finish of construction was critical for Jarvis' income from the schools to begin. The availability is an issue for the 25 years. If part of a school is not available the ongoing income is affected.

LG Which risks were successfully transferred from DOES?

JF All of the risks that were planned to transfer were transferred - Planning Permission, Design, Construction, Availability and Operation.

LG Why were these transferred successfully?

JF PPP is all about the risk being carried by the party that is most suited to carry the risk. Within the SPV, each partner bought out a contract within the concession that covered the risk.

LG How were the risks analysed?

JF This would have been done within the SPV by brainstorming with the other partners. We would have brought our experiences from the PFI schools in the UK to the table. Jarvis has been building and operating PFI schools for a good number of years and that knowledge was transferred. For example, the idea of not painting corridors came from the PFI schools. Also the floor finishes such as the marmoleum we used – this was introduced into the design from our experience of using it in the UK. In the classrooms we went for a high-end carpet that we would get 8 years life from. So there are three replacements over the 25-year life of the school. Another example of a decision relating to risk is the big plant items like the boilers. The difference between taking a 15-year lifecycle and a 12½-year life cycle – even though it is only 2½-year time difference

– is that you end up replacing the boiler twice with the shorter lifecycle instead of once and the cost difference to the project is significant. If these decisions are made at the costing stage and the FM people are not present at the meetings, it makes life very difficult over the 25-year operation period.

LG How was the risk allocation managed?

JF Within Jarvis, there would be different agendas between FM and the builders because while we both have to get the job built, we both have to make money and for me that means getting the life cycling right and getting a product that lasts. So these issues would be sorted out in internal meetings within the SPV where the different partners took on the risk appropriate to their part of the job. This would then be costed into each element and formed part of the overall bid. In that way the cost of risk transfer became part of pre-contract negotiations with the client.

LG What issues relating to risk arose during the procurement phase?

JF There were no major issues. During the latter stages of the procurement phase, the SPV decided to use a different roofing contractor in order to reduce costs in order to give a saving to the DOES. That caused use some difficulties but we got over them because the supplier bought out the risk over 25 years.

LG How were these issues resolved?

JF We investigated alternatives available and made decision based on the information available. The fact that the supplier carried the risk made the issue easier to deal with.

Value

LG Looking at Value as a combination of Time, Cost and Quality, what were the objectives of this project relating to value?

JF There were no joint objectives set with DOES. But you can only look at value over the 25 years. As I said earlier, we demolished schools that were less than 25 years old to make way for two of these

schools. These schools had been built and maintained by the DOES. Clearly, those schools did not represent value and the schools that would replace them had to be of a different class.

What the DOES effectively wanted here was a school that would be fully functional, well maintained and clean for every day of the 25 years. Because they had transferred the risk, they were prepared to pay more for this and depending on how we priced that risk had a big bearing on whether or not we got the project.

LG So from the perspectives of time, cost and quality, what were the objectives?

JF From a time perspective, the objective was to bring the facility to the operation stage as early as commercially feasible and this was achieved. With cost, it was essential that we would identify life cycle costs and structure the price to meet these costs. This would allow us to make a commercially viable profit. It would also help to cover our bidding costs from this project and other projects where Jarvis was not successful. From a quality perspective, we wanted to produce a building of such quality that later savings due to reduced running costs would justify initial costs. And we wanted to give the client a potentially value-added product thereby bringing the benefits of UK PFI experience in schools to Ireland.

LG How were these objectives arrived at?

JF These are standard objectives that an SPV would have when bidding for a project such as this.

LG Which objectives were identified as critical to project success?

JF Time and cost were critical. The need to produce the quality that would result in lower running costs was also critical. The objective to give a value-added product was desirable.

LG In what way were these objectives critical?

JF Time and cost were critical because together they dictate the start of the income stream. Producing a level of quality that would lower lifecycle costs was essential for the long-term profitability of the

project.

LG Which objectives were achieved (and to what extent)?

JF The buildings were delivered on time, so the time objectives were achieved. As the schools are only 3½ years in operation it is difficult to judge how well the cost objectives have been achieved. However, the life cycle costing appears accurate with slightly less wear and tear occurring than anticipated and the overall profit targets are being achieved, although some areas such as catering are not meeting income levels envisaged. The bidding costs are very high and a lack of deal flow is restricting the ability to adequately cover bidding costs on unsuccessful projects. From our own perspective, there were 3 projects bid at the same time. There was this one, the National Maritime College and the Cork School of Music. We had bidding costs on all three. We were successful on two of these projects so that covered our costs to a certain extent but the deal flow that is needed to continue to bid for these projects is not yet in the market. Jarvis came into the market on the basis that the PPP market was going to be much more active than it has been.

Early indications are that quality objectives have been achieved.

LG Why were these objectives achieved?

JF We were clear from the start on what we wanted from this project as we had considerable experience in the UK PFI schools market.

LG How were the value related objectives analysed?

JF Jarvis invested in value engineering techniques at the financial close with the builders, the engineers and ourselves (FM).

LG How was the value management managed?

JF This was an internal exercise, managed by the SPV. The client was not involved.

LG What issues relating to value arose during the procurement phase?

JF Again there was nothing that stands out. We made a number of decisions as I said in relation to blockwork, furniture, floor coverings

– the materials and equipment generally – but this was part of the bidding process. Also there was the issue of the use of the circulation space and the DOES decided to take our advice to increase these area.

LG How were these issues resolved?

JF The suggestion on circulation space was put to DOES on circulation space and they decided to accept it as part of our bid. The internal bidding decisions were made on the basis of value engineering exercise and on previous experience

Innovation

LG Moving to Innovation and looking at this from the perspectives of two different types of innovation, namely Cost Saving (where you do something new that will reduce the life cycle costs of the project) and Product Enhancing (where you provide an extra value added element at an extra cost to the client), what were the objectives relating to cost saving innovations on this project?

JF We used Cost Saving innovation over the whole life of the project rather than the initial cost. This is what brought about the decisions on the blockwork, on the use of marmoleum and on not polishing the marmoleum. We looked at the furniture and what was chosen was initially more expensive that the standard furniture. The chairs were designed to distribute the load across a bar and this prevented the students from balancing on the two back legs of the chair. In turn this led to a reduction in the wear of the carpets and less breakages on the chairs. In 5 schools with a total of over 3,500 chairs we have had to replace less than 10 of them in 3½ years. So a slightly more expensive chair produced a saving overall. In the science rooms we went for an iroko type finish on the benches. It's resistant to acid spill and other damage, so it won't need to be replaced during the life of the school. So we used cost saving innovation throughout the project to reduce running costs over life of the project.

LG Were there any objectives relating to product enhancing innovation?

JF We suggested that the circulation space should be increased from the norms used by the DOES. Jarvis was not the cheapest bid for the schools, so when we put the bid together we wanted to present the DOES with a better product based on our experience of several years involvement in the provision of schools through PFI in the UK. I would think that the innovative design that we produced was what won the project for us. In the schools, we have wide corridors and the corridors are not straight – so you are not looking down a long bottleneck. Also there are breakout areas off the corridor to the classrooms. So the pupils can queue for their classes without standing on the corridor. Traditionally, the doors open straight onto the corridors and the movement along the corridor is restricted whenever the classes are starting and finishing.

Also in the corridors, we had to get natural light into the corridors and we achieved this by cutting away the upper corridor and we put large rooflights over the stairs. This brought more natural light into the stairwell and created a more pleasant atmosphere in the building.

LG How were these objectives arrived at?

JF With the cost saving innovation, the involvement of FM right through the bidding process kept the life cycle costs on the table as an issue all of the time.

The product enhancing innovation was brought to the DOES during the bidding process to see what they would accept and what they were prepared to pay for. The key thing here was to show that we could produce a better, higher quality school. It was a difficult call, because there was no public sector comparator (PSC) and while we knew that the DOES were prepared to pay for something new, it was difficult to judge how far they were prepared to go. One of the reasons that we were able to do this was that we were prepared to go directly to suppliers and bring them in as partners in the project. This way they bought directly into the project rather than supplying

to us through a 3rd party supplier.

LG Is there anything that didn't go well in relation to innovation?

JF It's too early in the life cycle to judge this yet. One of the things that we had planned was the breakfast club, where the pupils could get a substantial meal before school each morning. We wanted to provide this because some pupils are dropped to school very early and with the way people are rushing around these days they might not have had a meal before they got to the school. By 11am these pupils are not able to concentrate. This has been introduced in one of the five schools and is reasonably successful. We may yet roll it out in the other schools.

Our catering outlet provides a snack at 10 or 11am depending on the school and a hot snack at lunchtime. There are also vending machines that are timed to function only at class change times. We don't sell carbonated drinks in the vending machines – only unbranded water and juice-based drinks – in agreement with the schools.

It's common knowledge that we are losing money on the catering. We are competing with the high street and while it looks like a captive audience, the pupils don't have to buy the products. The reason that it hasn't worked is that Jarvis looked at the UK model when it was being priced. There, the pupils are confined to the school from 9 to 4 and as they must eat, the caterers must provide between 500 and 600 meals every day. In Ireland that doesn't happen. The pupils bring their own lunches or they eat elsewhere or they get a half-day to go off to a match. So the culture is different and we got this wrong as a result.

LG Which objectives were identified as critical to project success?

JF From our perspective the product enhancing innovations were critical.

LG In what way were these objectives critical?

JF Because that would decide the outcome of the tendering process as

most bids would be similar on price.

LG Which objectives were achieved (and to what extent)?

JF Apart from the profitable introduction of the catering, the innovation objectives were achieved. The cost saving innovations to maximise life cycle, minimise breakages and wear and tear and to maximise the advantages of our purchasing power by using the same materials and equipment in each school, were all successful.

The other objectives to achieve greater circulation space, provide alcoves outside the classrooms, get pupils off the corridors, enhance the environment in the school through better use of natural lighting have all worked. And even though we are losing money on it we provide a hot meal at lunchtime and this is an innovation in an Irish school.

LG Why were these objectives achieved?

JF Cost saving innovations kept the tender price down and we worked well as a bidder to achieve this. The other innovations were explored because we had experience in the UK PFI schools market and the DOES was prepared to deviate from its standard specification as this was a pilot project.

LG How were the innovation related objectives analysed?

JF We used our experience in the UK when looking at innovation. As noted with the hot food, this did not always work to our advantage because of a cultural difference between Irish and UK schools.

LG How was the use of innovation managed?

JF There were no formal innovation meetings. But the value engineering exercises did throw up the potential for innovation.

LG What issues relating to innovation arose during the procurement phase?

JF There were no major issues. But we put a number of suggestions to the DOES particularly the one on the use of greater circulation space.

- LG** How were these issues resolved?
- JF** Any of the suggestions that we raised were assessed independently by the DOES. In the case of the circulation space, we presented proposal to the DOES who decided independently to accept the proposal.

At the end of the interview, Mr Farrell was asked to carry out the exercise below.

He allocated the points as shown.

RELATIVE IMPORTANCE PARTICIPANT PLACES ON RISK, VALUE AND INNOVATION	
Given 60 points to divide up and use to rate the relevant importance of risk, value and innovation, how would you allocate the points?	
Risk	<input type="text" value="20"/>
Value	<input type="text" value="25"/>
Innovation	<input type="text" value="15"/>

Appendix 10: Interview with Philip Clarke

Project Role: SPV Project Manager for Jarvis on Grouped Schools Project. (Currently Project Manager with Hochtief PPP Solutions)

Interview Date: 03 October 2006

The procedures for recording and verifying the accuracy of the interview were agreed. The interview was recorded using a digital voice recorder. The interviewer took a number of handwritten notes during the interview. The following is a transcript of the strategic conversation that took place. The transcript has been edited to remove any comments that were made where the interviewee stated that he wanted to make a comment "off the record".

LG We have agreed that we are going to talk about Risk, Value and Innovation in relation to the Grouped Schools Project and what I want to find is how well the Department (DOES) and Jarvis worked together on this project and how much did they work to their own objectives.

PC It is described as a Public Private Partnership, but it only works if it is a partnership. It is difficult to get these projects to financial close, but the only way you will ever get there is with a partnership arrangement. This involves building up trust and until you get that, it cannot move as quickly as it should. But there are also limitations to that, in that we are given an output specification to match. If they tell us that this is the intention to negotiate, then that is what you have to provide against the Public Sector Comparator (PSC). To my knowledge with the Bundled Schools, we didn't have the PSC until very late in the day, so with your development designs you have to rely on your architects although you do know the amount per square metre that it is supposed to cost. But you will also find in the ITN

document that there are references to things like innovation and we wanted to be innovative so that we could provide schools for the future. You want them to have the right adjacencies and to be efficient in their use. A lot of work has to go into it to get it right.

LG You mentioned building the trust as an important factor. How did everybody go about building that trust?

PC We had our team consisting of our architects, building contractor, quantity surveyors, etc and we qualified initially as one of the three bidders. We have a selection of meetings with the department team, which consisted of their architects, their legal advisors and their other specialist advisors. It is through the exchanges at these meetings that the trust builds. During these meetings you are trying to bring the design forward – it's principally design driven initially, as you can't get into costs at that stage until you have something that you can discuss and agree on. The trust is built up through these open forum type meetings even though you can have a lot of people at these meetings. Then you also have the user group meetings where you get more selective with moving the design forward.

LG And who would be on the user group?

PC The user group would consist of the DOES architect, the DOES specialist advisors and the school principals. But that is where the real exchange takes place to move the design forward. Of course with the schools principals themselves, the process is new to them. They have an option of taking the traditional route or they can take the PPP process. They will have to decide how risky is this, and how quickly will they get their new school. Even at preferred bidder stage, there is no planning permission for the school and the principal may want minor changes. So they have to be able to engage with us, be confident that the process will get the school built and that they can work with our FM partner for the next 25 years. This takes a lot of discussion,

but it is in these discussions that the trust builds up.

LG Looking specifically at the whole area of risk, the DOES had an objective to transfer some of the risk to the private sector. At any stage in this trust building exercise, did the DOES and yourselves have a meeting devoted to risk?

PC No, there was never a meeting that was headed "risk". But the DOES, through their financial advisors, had a target figure that they expect the project to come in at. Everybody is trying to exchange risk and you end up with a very detailed document called the Project Agreement (PA). This document goes into risk in fine detail and defines exactly which risk lies with whom.

Once this agreement is signed, it copper fastens where everybody's risk lies. So here was no specific meeting about risk, but the solicitors were constantly bringing up risk so we were discussing it all the time until a final decision was made on transfer and agreed through the PA.

LG How was actual risk allocation managed prior to finalising the PA?

PC There was a draft PA in place during the bidding process with the three companies that pre-qualified. It was there for you to benchmark your design against. Once you get to be appointed as preferred bidder, the key thing that you need to address is getting planning permission. In the meantime there are parallel meetings running regarding the PA. All issues need to be resolved such as TUPE transfers, pension rights, what the FM responsibilities are, etc. The FM responsibilities would have been known in broad terms but it now needs to be looked in fine detail. For example, what are the response times to solve problems and the sanctions for not meeting the response times? This can range from a science lab being unavailable to a piece of litter that needs to be removed from the courtyard. The decisions taken will deal not just with the wishes of the school but the practicalities of the agreed response times. In these

discussions, the fine detail of the risk transfer is worked out, while continuing to build the trust that we talked about earlier.

Another area where we need to build up trust is in the way the TUPE of the caretaker will be handled. We would be conscious of their close relationship with the school principal. They are transferred to us on the same conditions that they had previously and as developers we would give the caretakers access to opportunities for further development. Of course we could end up with a new caretaker and the trust must then be rebuilt between the new caretaker and the principal.

So in arriving at the PA we are conscious of market position and we have to work to that.

LG What were the Jarvis objectives relating to risk on this project?

PC As Hochtief, we are in the accommodation business for its longevity, for the 25 years, and the Jarvis position would have been the same during the bidding process. Jarvis are not in the business anymore but what they did was to set up the SPV to run the project and this still exists. You now have the equity partners, Hochtief and the banks. The SPV is set up in isolation and the money flows through this vehicle and the life cycle costs are all in that. So it is a separate entity and even though Jarvis are not now in that business, the SPV is still running and will be for the next 21 years. So the security is there and this demonstrates that PPP works because, even though Jarvis as an entity is gone, the framework to run the project is still intact and the schools are still getting service. It may have changed hands to some degree, but the financial structure to give it the 25 year life is still there.

LG You mentioned planning permission as one of the risks. What other risks did you have to take on the schools?

PC On the schools at preferred bidder stage you have Design Risk. We had to get planning so we carried the Planning Risk. Of course we also had to take Financial Risk. We would have said

at the negotiation interviews that we could do it for X amount of money, i.e. a unitary charge of a certain figure. This would be tied into when the school would open. Another factor that could affect financial risk would be inflation. Also there is risk in the TUPE say for example, if these people were to get a big increase in wages by the government; we would have to pay it.

So the main risks are Planning, Financial, Design, Construction and Inflation

LG Which of these risks would you see as being the most critical for the success of the project?

PC The Financial Risk. Everyone is driving different factors of the project. For example, the financial element would not be uppermost in the minds of the school principals. They are only going to get one shot at the chance of a new school. They want the best design that they can get. They are not as concerned at how much it will cost or whether it's affordable or not. But they are becoming more conscious that you can have a lot of aspirations for what you want in a school, but it has to be within the affordable target.

LG So for commercial reasons, the financial risk is the most critical.

PC Yes, but they are marketed that way. There is a scoring mechanism for ITNs and it emphasises finance with design, sustainability and other factors being scored lower.

LG Construction companies have now become used to systems for identifying hazards and risks in relation to safety, where risk is defined in terms of a combination of its consequences and its likelihood. Such a system is used to produce a safety risk matrix. Companies are now using such systems for the identification of business risks. Did Jarvis use any such process for identifying risks on this project?

PC There is a risk register, relating to such things as ground conditions or for example, asbestos, that forms part of the bid.

But the way PPP works is that we have a construction partner and at financial close, the design team novates to the construction partner. The construction partner then carries the design risk and the construction risk including the safety risk as this partner is best placed to take these risks. Within that there are also the issues of building on existing sites and communication with the school, so that the school can be run in a safe manner while the new school is being built. So the risk is carried by the people on the ground that are best placed to carry it.

LG Do you prepare a risk matrix that defines the overall or major risks on a scale so that a cost can be allocated to them?

PC No. But there are risks that are specific PPP risks and you are in competition for 6 months during which you are trying to get to an equal or lesser figure than the PSC. You need to be careful not to put things in that are not on the PSC as the DOES will prepare the PSC by doing a shadow Bill of Quantities and you want to be sure that you are pricing the same items.

LG In some of the roads projects, there were reports that the private sector was being asked to take on risk that they could not carry. Were there any risks that the DOES wanted to transfer that you felt were not appropriate for transfer?

PC There were risks that we didn't particularly want to take, for example, the pensions. Agreement on this came very late in the negotiations. With this, the DOES was unsure how to tie the transferred employees into our pension scheme. It hadn't been fully resolved up to financial close but was resolved later. But that was a small matter in the overall scheme of the project.

LG Do you feel that the risks, that Jarvis was to take, were generally transferred successfully?

PC Yes, the schools were built within the costs that we had, we agreed the unitary charge, the schools were delivered within the programme – in fact they were delivered earlier. All in all – from

a construction point of view – it was hugely successful. Then it moved into the FM element and generally that has been pretty good as well – there are issues that have arisen on and off, but the structure is there to manage them and has managed them successfully. So Jarvis would have considered it successful.

Different principals had different views on this.

LG How did you deal with the fact that the group of principals had widely differing individual views on the PPP process?

PC During the ITN stage, each of the bidders went through their designs with the group of principals. There was a limited level to which you could build the relationship at that stage. It doesn't develop much over the six month period that you are putting together the bids. Once we were appointed as the preferred bidder, the relationship begins to develop as you meet to try to refine your design to meet specifics that they require. At this stage, changes that are cost neutral can generally be accommodated but the design is now 95% complete. However, we had to bear in mind that, while the principal was in charge of the school at that point in time, we would be running the school for a 25 year period during which that principal would retire and be replaced by another person, you couldn't design the school to suit his vision of the world. But you had to take the view that they were partners and they had to be involved with what the school looked like and how it is going to work.

LG But if someone is blatantly opposed to PPP, how do you deal with them?

PC They probably don't tell you that at the outset but there was one of the principals like that and what he saw was that this is a way of getting a new school in 18 months time. After that, he seemed to want to run it in the traditional manner and this would cause problems (paraphrased).

But it is not us as developers that should be selling this idea to the principals; this is a management issue for the DOES. But if

someone is diametrically opposed to the idea, there isn't much we can do other than get on with it.

LG Were there any major decisions that were taken during the procurement phase, either by the DOES or by Jarvis, that affected the way in which the risk was transferred?

PC No. All of the discussion took place before the preferred bidder stage. By then we had the draft PA, the draft building contract, and we had a good idea of what they wanted to deliver as regards fixtures, furniture and equipment. There was nothing that dramatically changed during the procurement. There was a fair amount of tweaking in putting together the final PA, but these were details rather than major changes.

LG And how was this tweaking, as you call it, carried out?

PC By discussion and negotiation. In the Dunmanway school the planning wasn't initially signed into the file as the planning was tied in with another developer who had to build a bridge across a stream. As it happened, the bridge was outside the boundary of our site and was in the planning requirements placed on the other developer. He was building houses there at the time. Until he had built that bridge, we couldn't sign off on the PA for that school because the building of the bridge was not in our control.

LG Was this problem handed to you to solve?

PC The developer was keen to move forward with his project and I met with him on a number of occasions to discuss his programme. As he was a local builder and having the school open was in his interest (paraphrased), he was quite helpful. He stuck to his programme and got the bridge built. We could then sign off on the last bit of the PA.

LG Did you carry the risk on this issue?

PC No, we couldn't take it on. The banks would not take it on until the bridge was in place as it was completely outside our control. For example, if the developer had gone bust, there would be no

bridge and no school.

There was also another issue regarding sightlines where hedgerows were required to be cut to give the school its planned sightlines but one landowner didn't want his hedgerow cut back and we couldn't go onto his land to cut the hedgerows. We eventually sorted it by meeting and agreeing between ourselves what to do.

- LG** Leaving Risk for the moment and moving to the issue of Value. If we define Value as a combination of Time, Cost and Quality, what were the objectives in relation to value, in relation to the project as a whole?
- PC** Hochtief's raison d'être is as accommodation providers working with the banks and FM over a period of 25 years. The time objectives in design and construction were to get the facility up and running within programme. This was achieved and the project will continue in operation for the 25 years.
- LG** In relation to Quality?
- PC** We spent a great deal of time in deciding on the quality of the school, e.g. the quality of the fixtures and fittings, the floor coverings, the brickwork, the roofs and so on, because we take risks on all of these over the 25 years. So you find with PPP, there is a high standard of quality that goes into these, primarily there is less life cycling then involved. If you are going to use something that is not a high standard, you could end up replacing it every two years and that gives you poor value for money. We also have to put money into a fund in the SPV to cover lifecycling, so this means that we would probably have a higher quality in a PPP than traditional schools. If, for example, we had to replace a roof in year 24, and we haven't life cycled for it, that's an extra cost. In principle, we have to hand back the school in the same condition as it was 25 years earlier.
- LG** And, of course, this affects your cost, which is the third element of quality. How do you reconcile the issues of getting the right

quality within the projected costs?

- PC** This is a specialist area, for example, trying to assess how often a section of linoleum is walked on and how often it should be replaced. But then FM **is** a specialist area and we would pride ourselves on getting this right through involvement of our FM partners throughout the design cycle. Like the financial modelling, this is a specialist area that you cannot afford to get wrong as it would eat into your margins and you could run out of money 15 years into the project.
- LG** When dealing with the DOES, they would have standard specifications from which you were now digressing. Did this cause any issues in your discussions with the DOES at design stage?
- PC** We weren't looking at a dramatically different specification, but if they got involved in the detail of what we were supplying outside of the aesthetic framework, they would run the risk of taking back some of the risk that they wanted to transfer. So while they wanted to know what we were providing, there was an appreciation that we had to provide it, we were responsible for it, we had to life cycle it and it was entirely our risk.
- LG** Was there any time where they said "no, we don't want it that way"?
- PC** Yes, for example, they had views on particular types of roof. But we accommodated them as much as we could. As this is a partnership, there was no point in providing something that they didn't like.
- LG** In relation to the Value, which of the objectives were the most critical?
- PC** They were all critical in their own way. Take time scale for example, at the start of the process, the timescale for delivering a traditional school was 5 or 6 years – this was back in 2000/2001 and PPP was highlighted as being a way to get

through the process in about 3½ to 4 years. The ITN came out in early 2000 and the schools were delivered in December 2002. So it took 2½ - 3 years which was very important for the idea of using PPP in providing schools.

And as I said earlier, without getting the quality right, you run the risk of the life cycling being wrong and this will cut into your margins.

LG Was there any value management carried out jointly with the DOES during the project?

PC We would have done our own value engineering on an ongoing basis to get the project economically delivered, as efficiently as possible at a cost within the PSC. The DOES did not come to us at any stage and ask us to jointly look at value engineering although we would have been open to it. We did re look at elements of our design at the request of the DOES but this is part of the process of the design development in getting to financial close rather than value engineering. For their own part, they had spent a year and a half producing the ITN. They had spent 6 – 9 months in working with us to get to financial close and a lot of the decisions regarding designs and adjacencies would have been had before financial close.

LG How were the discussions conducted in finalising the design?

PC At ITN stage you are in competition and you are having regular meetings – maybe every 3 weeks – putting forward your proposed design and you are adding to it and changing it as necessary at this stage as they steer you towards one view or another view. There's ongoing discussion to get you to preferred bidder, so there is a lot of discussion about the layout, the design, whether it should be single storey, whether the music department should be in isolation and so on. That's ongoing with all bidders for 4 or 5 months before they must select the preferred bidder.

But even after the further 6 months up to financial close, there

is still an ability to change things if needs be, provided it is in a cost neutral manner and possible. But if there is a cost, it can still be done provided they are prepared to accept the cost.

LG How well do you think that the objectives relating to value have been achieved?

PC I think that it has been recognised that the project has been very successful.

LG Were there any aspects of the project that were not successful?

PC There were things that in hindsight could have been done better. There is a new bundle of schools now coming out and I would have a different view of how to do things if we get to preferred bidder. But that is just because we have wider experience now. The DOES definitely have a different view this time about what they want. They have different views now on what they think innovation is.

LG Having spoken to your Facilities Manager on the project, I am aware for example that the catering is something that wasn't as successful as was hoped.

PC The catering element in the design effectively amounted to a space that should be allowed for catering. The DOES brief just stated that the food should be nutritious, but they didn't really develop their requirements further and because of that the catering never really developed beyond the provision of a tuck shop type of arrangement. That is an area that probably has scope for generating 3rd party income which would be shared with the DOES.

LG From the perspective of 3rd party income generally, was there much thought or discussion put into how it could be developed?

PC Third party income worked quite well in some of the schools where there was a likelihood that it could develop. For example, in Ballincollig, there was a strong night class programme, so they were already using the schools after 6pm.

LG Do you (Jarvis) get an income from that or was that just something that they already did that was now written into the documentation?

PC We didn't get an income from that. All we were doing was transferring that to the new school system but as our caretaker had to be there until 8.30 – 9pm, our costs were structured to cover that. But there is a structure whereby we can share profits from running events outside of school hours. Hochtief/Jarvis would not be relying on this income in its cost model for the project.

LG Was there any deliberate effort made to come up with a defined strategy for developing and exploiting the income potential from 3rd party use?

PC There were some areas where this was done. It's more difficult in some of the schools. For example the Tubbercurry school is a few miles outside the town and it will be difficult to develop it there. On the other hand, the gym facilities in Shannon are used extensively as there is not another facility in the vicinity. The Clare Hurling team are one of its regular users. The 3rd party income issue is one that relies on the people in the community – they are Community Schools after all - and we would be happy to facilitate anyone who wants to use the school.

LG Were there any key decisions that were taken during procurement that affected value in any way?

PC Again there was nothing major, but everything about the process of procurement will affect value in small ways. There was an issue about the size of the site in Clones, but the DOES resolved that themselves as it was their responsibility. Nothing that came even vaguely close to being a deal breaker.

LG In relation to Innovation, the DOES were keen to get new ideas to bring back into their traditional school building programme, but were there any objectives relating to innovation that Jarvis

had itself?

PC From the design perspective, we were keen to maximise corridors and circulation areas and maximising the effectiveness of adjacencies. We tried to extract the maximum amount of available that could be used in the footprint of the building.

LG Why did you choose these objectives?

PC Because it is crucial to how a school works that big numbers of people can move around in an orderly fashion.

LG Did you pick this up from your experiences of PFI schools in the UK?

PC Partially, but the school designers that were on our team were tuned in to what is needed in a school and designed accordingly. With a PPP we had more of an ability to design this way than in an ordinary school. We still had to make it work with different footprints and it's only how you layout the blocks within the building that you can create the space that you require.

LG Were you aware that the DOES were looking at this for examples of how they could change the schools of the future through adapting the innovation on this project for use in traditional procurement?

PC The document had words in it saying that they were looking for innovation but it would be interesting to see if they built it into their PSC.

LG When you were looking at the wider corridors and other design innovations, how did you assess whether or not these would be an issue for the DOES?

PC We would regularly consult experienced educationalists on our designs and from that we would be aware of the issues that we were raising and the likely reaction from the DOES.

LG Would you see any of the innovation objectives as being critical to the success of the project?

PC Yes. They are scored as part of the evaluation of the bid, as are affordability and legal issues, etc. The DOES dictates the value that they apply to innovation in the bid and this reflects their own view of how critical it is.

LG How was innovation managed?

PC The design team approached this project with a brief to be innovative and the solutions that arose were arrived at through their application of their experience to the development of the design.

LG How well do you think that you achieved your innovation objectives?

PC The schools are different and everyone agrees that they are quite impressive. We achieved the wide corridors and the adjacencies. We extracted as much as we could out of the footprint.

LG Was there anything that changed during the procurement process that impacted on innovation.

PC No, there were no changes.

LG And is there anything that you learned in relation to innovation that you would use differently on future projects?

PC Not really. But we have to be aware that the needs of the users will change over time and in new projects, the DOES will be looking for different things. We just have to continue to be aware of these needs so that we can continue to produce what the DOES requires.

At the end of the interview, Mr Clarke was asked to carry out the exercise below.

He stated that the three issues were so interlinked that he found them difficult to separate. Consequently, he agreed to score all of the values equally.

**RELATIVE IMPORTANCE PARTICIPANT PLACES ON RISK, VALUE
AND INNOVATION**

Given 60 points to divide up and use to rate the relevant importance of risk, value and innovation, how would you allocate the points?

Risk

20

Value

20

Innovation

20

Appendix 11: Interview with Dave Gordan (2)

Project Role: DOES Project Manager on National Maritime
College of Ireland Project

Interview Date: 27 June 2006

The procedures for recording and verifying the accuracy of the interview were agreed. The interview was recorded using a digital voice recorder. The interviewer took a number of handwritten notes during the interview. The following is a transcript of the strategic conversation that took place. The transcript has been edited to remove any comments that were made where the interviewee stated that he wanted to make a comment "off the record".

LG In relation to the Maritime College, what were the main objectives in relation to risk?

DG The Maritime College Project was a €50 million capital cost project about 5 – 6 million of which was for the simulation equipment. However the effect of this equipment on the availability of the college would be enormous as the use of the simulation equipment is an essential part of the maritime training. So from that perspective it was a different project in that a relatively small proportion of the capital outlay involved a considerable amount of the risk. So when we began to discuss this project with the bidders they were honing in on the use of the simulation equipment and issues such as the downtimes they would be allowed. We would have taken the view that the downtimes should be very short and the penalties for non-compliance would be quite severe because it impacts hugely on the operation of the college. Similarly the availability of the Training Pool and the Jetty would have a huge impact of the effectiveness of the college. On the other hand, if a lecture theatre is not available, while it is still an issue, the implication

is not as severe on the Operator.

LG Other than the Availability Risk, what were the main risks that were identified?

There was a comprehensive risk register prepared outlining all of the risks and showing who was to carry out each risk. The general high-level risks that were identified were almost identical to those in the (Grouped) Schools project other than the operation of the specialised equipment. For example, they took the planning, design, construction, operation and availability, while we took the demand. The Operator also took on a risk of guaranteeing income to the DOES from the catering in the college and the indications are that they are finding that difficult to achieve.

LG Which were the most critical risks?

DG All of the risks were important but the risks relating to the specialised equipment, the Simulator, the Jetty and the Training Pool were the most critical.

LG Why were these critical?

DG Because the international standards for maritime training requires the use of all of them. If they weren't available, the college would not be fit for the purpose for which it was built.

LG Were the risks successfully transferred?

DG Yes, the facility is now up and running and the critical elements are functioning as planned.

LG What processes were used to analyse risk on the project?

DG Our advisors, Deloitte, carried out the analysis.

LG What process was used to manage the risk allocation?

DG We looked at each risk and allocated it according to where it could best be carried. We also took advice on this from our consultants.

LG Which risks were successfully transferred?

DG All the planned risk transfers were successful.

LG Why were these transferred successfully?

DG The allocation was well thought out and worked well because of this.

LG What issues relating to risk arose during the procurement phase?

DG None that come to mind.

Value

LG If we look at Value as a combination of Time, Cost and Quality, what were the objectives relating to value?

DG In relation to time, we wanted to provide the college in a shorter time period than under traditional procurement. This was achieved.

In relation to cost, we aimed to provide the college at the same or lower cost to that which could be provided by the public sector assuming the actual buildings provided by both sectors would be identical. In addition the buildings to have a life of 10years + at the end of the concession period.

In relation to quality there were two aims, firstly to provide a world class facility for the education and training of Navy and merchant seaman personnel and secondly, to find better ways of building third level colleges and to reuse this knowledge in the provision of further 3rd level college accommodation

LG How were these objectives arrived at?

DG We had learned a lot from the (Grouped) schools but these objectives were based on standard objectives of a PPP. With the NMCI everyone involved knew that there was only one shot at the project and we had to get it right. The aim of learning from the project and bring the knowledge back into the traditional

procurement process was taken from our experiences in the (Grouped) Schools project. It was clear early in the project that it would be a potential added value outcome of the project.

LG Which objectives were identified as critical to project success?

DG The entire project would define whether or not there was a future for maritime education in Ireland. Because of this we had to produce a world-class facility. At the early stages the time and cost issues were also critical.

LG In what way were these objectives critical?

DG The existing facilities for provision of this training were outdated and had to be replaced as a matter of extreme urgency. The required quality was critical as this was to be a shared facility and only one of the highest standards would convince those using the facility that procurement through PPP was a success.

LG Which objectives were achieved (and to what extent)?

DG The building was built in the timescale allowed and opened on time. This was a boost for the use of PPP.

The cost achieved is within that in the PSB but it is difficult to judge the precise level to which value for money will be achieved over the life of the project as it is less than two years in operation. This is the first 3rd level college built through PPP in Ireland and it is unclear as yet how well the residual value will hold up.

The quality of the facility is beyond question. It is clearly a world-class facility and the people who use it are very happy with it. Several lessons have been learned, concerning the layout of the facilities and the structure of the building, that will be brought back into the traditional 3rd level building programme and will have a significant effect on quality in this programme over time

LG Why were these objectives achieved?

DG DOES and the Operator worked closely to ensure objectives were met. Problems encountered were discussed openly and resolved quickly in an amicable and businesslike manner. There was a very good attitude displayed by the Operator and it was a real atmosphere of partnership from the start.

LG How were the value related objectives analysed?

DG We used internal DOES expertise to examine technical aspects of each of the bids. Where internal expertise was not available external experts were consulted on specialist areas. There was a strong Project Board in Michael Delaney, Donal Burke and Tom Touhy and they had the authority to make decisions at a local level, provided these decisions would not change the risk allocation or increase costs. This group worked very well.

LG How was the value management managed?

DG The DOES (through the local Project Board) and the Operator developed a strong working relationship that was used in addressing value management issues. All issues were dealt with openly. An example of this was a request from the Operator to change from the use of timber of the ceiling of the entrance of the building. The Operator couldn't source the timber that he had specified and wanted to omit the timber. He pointed out that this would result in a saving and offered to reroute the funds to any other part of the project of the DOES's choice.

LG What issues relating to value arose during the procurement phase?

DG The Navy announced during the procurement phase that it needed the facility for weekend training a number of times a year. A decision had to be made to include this as a requirement in the preferred bidder's tender at a very late stage in the contract negotiations.

LG How was this issue resolved?

DG There was no choice but to include the provision of the facility

for weekend training. However, the cost of this provision was negotiated in a spirit of partnership and was acceptable to both parties.

Innovation

LG Again looking at Innovation as a combination of Cost Saving and Product Enhancing, what were the objectives relating to innovation?

DG As with the schools, the cost saving was an issue for the Operator to ensure that facility is delivered as fit for purpose whilst reducing running costs over life of the project. This would translate back into the bid as a lower bid price.

In relation to the Product Enhancing, there were two main objectives. In the first case we needed to procure a world-class state of the art facility for the education and training of Navy and merchant seaman personnel. This had to be done by bringing together the CIT and the Irish Naval Service (INS) and getting a facility that would meet both of their specifications.

The second objective was to gather information on new building practices, materials, equipment, and so on, with a view to finding better ways of providing further 3rd level accommodation.

LG What potential innovations were identified?

DG The main innovation that we identified early on was the potential to make this an energy efficient building.

LG In your view, which innovation-related issues were identified as critical to project success?

DG It was essential that the Cost Saving objectives must meet fitness for purpose requirements. If they didn't there was no point to having them.

From the DOES perspective, the need for a world-class facility was the most critical. The need to gather information and learn

from the process was also important, as we had learned a lot from the schools and we needed to look specifically at 3rd level colleges. However, this wasn't critical to the project.

LG In what way were these issues critical?

DG If fitness for purpose was not met, the college would be unsuitable and the DOES would not pay for such a facility.

If the facility provided was not world class it would be difficult to persuade the Navy and the Merchant Seamen that a jointly occupied facility was a success.

LG How were the innovation related objectives analysed?

DG This was addressed as part of analysis of risk and value and agreed within the Project Team. The Project team worked closely with the bidder to make sure that they were clear on the DOES/INS needs.

LG What process was used to manage the use of innovation?

DG Innovation related issues were evaluated by the DOES against the standard technical specification for a 3rd level college. The DOES did not specify specific innovations as the SPV carried the risk of ensuring that the facility met the fitness for purpose requirements.

LG Which objectives were achieved (and to what extent)?

DG The building meets its Fitness for Purpose requirements, so the Cost Saving innovations that were used have worked. The facility is clearly world-class, so that objective was also achieved. We have also gained a significant amount of knowledge to take into the DOES and use in the provision of other new 3rd level accommodation.

LG Why were these objectives achieved?

DG The Project Board and SPV worked very well as a partnership to deliver the project. Once the SPV became the preferred bidder, the partnership really took off. The positive attitude of the SPV

was one of the major reasons why the objectives were achieved.

LG What issues relating to innovation arose during the procurement phase?

DG There were no major issues as they were all resolved before they became crucial. There were a number of simple issues that needed to be sorted, but they were always prepared to sit down and look for the best solution for everyone. Most of the issues were small, but they could have been complicated if the SPV was not as cooperative.

LG How were these issues resolved?

DG The DOES, the Project Board and the SPV worked closely together to resolve emerging issues and reach outcomes acceptable to all parties

At the end of the interview, Mr. Gordan was asked to carry out the exercise below.

He allocated the points as shown.

RELATIVE IMPORTANCE PARTICIPANT PLACES ON RISK, VALUE AND INNOVATION	
Given 60 points to divide up and use to rate the relevant importance of risk, value and innovation, how would you allocate the points?	
Risk	<input type="text" value="25"/>
Value	<input type="text" value="20"/>
Innovation	<input type="text" value="15"/>

Appendix 12: Interview with Ferga Kane

Project Role: Deloitte – Advisor to DOES on National Maritime College of Ireland Project

Interview Date: 6 July 2006

The procedures for recording and verifying the accuracy of the interview were agreed. The interview was recorded using a digital voice recorder. The interviewer took a number of handwritten notes during the interview. The following is a transcript of the strategic conversation that took place.

LG What was the role of Deloitte in this project?

FK Initially, our role was as Financial Advisor in the project working with the Legal Advisor on what were the best contractual routes to choose. From there, we prepared the Public Sector Comparator (PSC) as it was known at that time. (It is now restructured and is called the Public Sector Benchmark). We prepared that in conjunction with the Technical people. It was the first PSC that had been prepared for a PPP in the Irish market. After that we set up the tender evaluation criteria and did the financial evaluation of the bids.

Then, as Project Managers, we were overseeing the organisation of the different types of advisors and the interaction between the advisors and the DOES. The Planning and Building unit of the DOES in Tullamore were also involved in this. Then when the bidders became involved, we managed their interaction with the public sector.

I became the client point of contact and every document came through me including all e-mails and correspondence that would affect the project. Effectively, I acted as the information hub and ensured that I was aware of everything that was happening.

We set up a filing system that controlled the documents and had version control of all documentation.

LG Where did the expertise come from in Deloitte to do this work?

FK A lot of the work that we do is with other advisors. I'm in the specialised finance team so we do a lot of project finance transactions and in all of those transactions you have legal advisors, technical advisors and the banks. So there is always a lot of correspondence and we generally tend to be the lead advisor because generally the finance advisor takes that role.

LG In relation to the Maritime College, what were the main objectives in relation to risk?

FK The Grouped Schools project hadn't gone as well as the DOES had hoped. The DOES had learned a lot from the project and had improved their approach. We knew that the quality of the schools was what they had asked for but was probably overkill in relation to what they really needed. There was a realisation that the preparatory steps needed to be done properly. A detailed PSC was needed early in the process to be aware of where cost would arise and there needed to be a risk register that would very clearly itemise out each element of risk.

So the DOES took extensive advice from consultants, set out the types of risks associated with the project and decided which risks should be carried by which party.

LG Which risks were identified?

FK The standard risks such as design, construction, availability and operation risk were carried by the operator. In addition time the provision and operation of the simulation equipment was carried by the operator. They also took the risk of getting full planning permission for their design. These are the risks that are traditionally transferred to the private sector because they are better able to manage them.

The DOES had already got outline planning permission and had

obtained the foreshore license. The DOES retained the site acquisition risk, as the site was already in the possession of the Department of Justice. (At this stage, the interviewee produced a full Risk Matrix showing the full identification and allocation of Risk – a copy of which was later provided to the interviewer.)

LG What processes were used to analyse risk on the project?

FK We worked with DOES, CIT and INS to identify all of the potential risks that could occur on a project like this. We brainstormed to produce a draft register showing all of the risks and whether they were public, private or shared and what the probability was of them occurring. We then developed this showing detail behind each line. This was then discussed by the group and refined using the input and experience of all concerned. A percentage possibility of each risk occurring and the cost impact was agreed. This was then written into the PSC and the output specification.

LG What process was used to manage the risk allocation?

FK Risk Allocation was written into the output specification and bidders were required to address risk through their bids.

LG Which were the most critical risks?

FK Completion of construction phase and the availability of the simulation equipment were the main risks.

LG Why were these critical?

FK Completion of construction dictated when the college would open and was required to be ready in advance of the new academic year.

The availability of the simulation equipment was essential if the college was to function as a naval training facility.

LG Were these risks successfully transferred?

FK Yes.

LG Which risks generally were successfully transferred?

FK Project Financing, Full Planning Permission, Design, Construction, Availability and Operation – all were successfully transferred to the operator.

LG Why were these transferred successfully?

FK There was a sensible approach to the planning of risk transfer on the project. All risks that were transferred to the private sector were bankable and would not have been transferred if the Operator's bankers would not accept the risk.

LG What issues relating to risk arose during the procurement phase?

FK There were no major issues. Anything that arose was of a minor nature.

LG How were these issues resolved?

FK Anything that occurred was resolved through negotiation.

Value

LG If we look at Value as a combination of Time, Cost and Quality, what were the objectives relating to value?

FK From the perspective of time, it was important to have the facility ready at the time most appropriate to the college. If you miss that date you then have a situation where you are bringing in students during the academic year and that is very disruptive. So there was a specific timescale laid out by the DOES.

The cost of the facility was determined in the PSC and it had to come in at or below the PSC figure.

The quality of the facility was extremely important to both the INS and CIT because they wanted this to be a landmark college building that would be known through Europe. In that way, they felt that they could get people from around Europe to come and use the facilities. They wanted a world-class facility that would be a feature of the maritime world. They also wanted a

controlled environment for hands-on training because, in the past, all hands-on training was done at sea. This required extensive simulation equipment to bring training standards up to the highest standard available in the world.

LG How were these objectives arrived at?

FK The time and cost objectives were standard for a PPP. The quality objectives were set by CIT & INS - in particular Donal Burke and Tom Touhy. They worked with us and the DOES technical people to come up with the output specification. There was a very good team working on this. The CIT and INS had a very good understanding of what they wanted even in terms of such things as room adjacencies. This helped in setting out the objectives at an early stage.

LG Which objectives were identified as critical to project success?

FK The time and cost objectives were critical in the initial stages of the project, but the quality objective was the most critical objective to the users.

LG In what way were these objectives critical?

FK The existing facilities for provision of this training required the hands-on training to be carried out at sea. This was not the way such training was being done in a modern facility. The new facility also had to be of the highest standards to attract business from other places.

LG Which objectives were achieved (and to what extent)?

FK The time objective was achieved with the building opening on time. The facility was delivered within the costs set out in the PSC and to the world-class requirements that were set out at the beginning.

LG Why were these objectives achieved?

FK There was an excellent working relationship between all of the parties on the project. The PSC was done very well and this

stood to the project at a later stage. The Operator was willing to openly discuss alternative ways around any problems that arose. The fact that some of the members of the Project Board had military training promoted a very open and pragmatic approach.

LG How were the value related objectives analysed?

FK At the start of the project, the CIT and the INS told the DOES what they would like to have in the facility. This was open to negotiation and was discussed openly in relation to the funding that was available for the project. That resulted in the building up of the Output Specification and the PSC. As the procurement stage progressed the DOES, the PM Team and the bidders used a brainstorming approach to establish, promote and review objectives.

LG How was the value management managed?

FK DOES, PM Team and the preferred bidder developed a strong working relationship which was used in addressing value management issues. Debriefing sessions followed discussions, to ensure all information arising was fully recorded and communicated appropriately. In addition, Dave Gordan would approach each decision with a commercial realism. He was aware of the needs of the private sector and he would take advice if there was anything that he was unsure of. When required, he would make an informed decision.

LG What issues relating to value arose during the procurement phase?

FK The only thing that comes to mind was change in requirements for terrorism insurance in the aftermath of 9/11.

LG How was this issue resolved?

FK It was a requirement of DOES insurance advisors. It was resolved by getting in an insurance advisor for the public sector and the bidder brought in their own advisor. The two advisors

were required to negotiate and come up with an answer that was acceptable to the DOES and the Operator.

Innovation

LG If we look at Innovation as a combination of Cost Saving and Product Enhancing, what were the objectives relating to innovation?

FK The main objectives relating to innovation centred around the provision of a world-class training facility at a price that the public sector. At the time it was done the STCW 95, the new training requirements for seamanship had come in and there was no place in Ireland to provide training to this standard. So if the country wanted to continue training seafarers and mariners in this country, then a new world-class facility was required. At the time the capital to develop such a facility was not available so PPP was seen as an alternative to providing the facility.

The DOES also wanted to use this project to learn about life cycling in a third level college.

From a cost saving perspective, the DOES did not set any specific objectives for the SPV in relation to Cost Saving Innovation, as it was an issue for the SPV to ensure that facility is delivered as fit for purpose whilst reducing running costs over the life of the project.

LG What potential innovations were identified?

FK The main innovation that we identified early on was the potential to make this an energy efficient building.

LG How were these objectives arrived at?

FK Decided by the management of the DOES PPP Unit in consultation with the PM Team and proposed users of the facility. During the procurement process, in final bid stage, there was close co-operation between the bidder and the DOES on the

means by which the objectives would be achieved.

Second product enhancing objective set by DOES

LG In your view, which innovation-related issues were identified as critical to project success?

FK The issue of it being a world-class facility was critical.

Cost Saving objectives had to meet fitness for purpose requirements.

LG In what way were these issues critical?

FK If the facility provided was not world-class it would not meet the new training standards.

LG How were the innovation related objectives analysed?

FK It was addressed as part of the analysis of risk and value. There were no specific meetings devoted to innovation. The technical people in the department were aware of the various different standards of materials and of machinery that could be installed in the building. When they were compiling the output specification and the PSC, these standards would have influenced the information used to build of these documents. It would also have come to the fore during the clarification meetings with the bidders when they would put forward various different alternatives for us to consider.

LG What process was used to manage the use of innovation?

FK Innovation objectives were embedded in the project documents and issues arising during the project were evaluated by the DOES against the standard technical specification for a school. The SPV carried the risk of ensuring that the facility met the fitness for purpose requirements.

LG Which objectives were achieved (and to what extent)?

FK The project has achieved fitness of purpose while delivering a high quality green building. A world-class facility has been delivered catering for the training needs of naval and merchant

seamen. The lessons learned will be brought back into the traditional 3rd level building programme.

- LG** Why were these objectives achieved?
- FK** There were clear project objectives established at the outset of the project. The Project Board and SPV worked very well as a partnership to deliver the project.
- LG** What issues relating to innovation arose during the procurement phase?
- FK** There was nothing in particular that arose. Different bidders had different approaches to resolving some of the problems that the project presented.
- LG** How were these issues resolved?
- FK** The DOES, the Project Board and the SPV worked closely together. Nothing became a big issue as everything was discussed openly and resolutions were found through negotiation and co-operation.

At the end of the interview, Ms. Kane was asked to carry out the exercise below.

She allocated the points as shown.

RELATIVE IMPORTANCE PARTICIPANT PLACES ON RISK, VALUE AND INNOVATION	
Given 60 points to divide up and use to rate the relevant importance of risk, value and innovation, how would you allocate the points?	
Risk	20
Value	30
Innovation	10

Appendix 13: Interview with Iain Salley

Project Role: Director Bovis Lend Lease Ireland – Project
Director on National Maritime College of Ireland
Project

Interview Date: 29th June 2006

The procedures for recording and verifying the accuracy of the interview were agreed. The interview was recorded using a digital voice recorder. The interviewer took a number of handwritten notes during the interview. The following is a transcript of the strategic conversation that took place.

Risk

LG What were the objectives relating to risk?

IS The Department (DOES) dictated that certain risks were to be transferred through the project agreement.

LG Which risks were identified?

IS The usual risk profile of a PPP was used with a few things that were specific to this project. The normal things that were retained by the client included such risks as changes in the law, demographic changes, etc. The standard PPP risks such as planning permission, investment, design, construction, availability and operation were transferred to the SPV.

The specific risks were the simulation equipment and the requirement to keep the IT provision in the facility up to modern standards throughout the duration of the operating contract. With the simulation equipment, this is one of the largest simulation contracts in the world, when you capitalise it over 25 years.

For Bovis Lend Lease itself, procurement was a risk issue, as we did not have a base in Cork. A number of the larger construction

companies in the Cork region were tied into other bidding consortia at that time and there was a limited number of companies in Cork that would be capable of carrying out the construction work for us at that time. We went with a Dublin-based contractor who had been carrying out work in Cork for 5 or 6 years and had built up a good knowledge of the local sub-contract market. The related risks for us then were the ability of this company to deliver, their ability to control their costs, their ability to negotiate a price that would allow us a level of comfort within the development.

Under a PPP, the project has to be ready to go to planning within 4 to 6 weeks of naming the preferred bidder. This worked well as we were congratulated by the DOES for the level of detail that we had gone into when the bid was submitted. However there was still a lot of work and development to do and we had a framework around managing the design to ensure that it was achievable within the time and budget that we had planned. The way we did this was by keeping the design & build responsibility but sub-letting the construction down to Pierse. We didn't pass down the design but we got the contractor involved right at the start of the bid process so that they were centrally involved in the design development.

The project included the provision of other specialist equipment – not just the simulators – but others such as the survival pool, the most sophisticated marine engineering workshops in the country and a lot of equipment that we as individuals were encountering for the first time. This involved a huge learning process and that was a great risk.

- LG** Which risks were identified as critical to project success?
- IS** Construction as just outlined, and availability – in particular the availability of the simulation and specialist equipment.
- LG** In what way were these risks critical?
- IS** Any failure in either would lead to the imposition of financial

penalties. Delays in construction could delay the opening of the facility and delay the start of income. Availability problems would affect ongoing income.

LG Which risks were successfully transferred from DOES?

IS Planning Permission, Investment, Design, Construction, Availability and Operation. All of those that had been planned were transferred.

LG Why were these transferred successfully?

IS The risks were transferred successfully because they were allocated correctly. We were in a position to carry the risks. Had we not been in such a position, we would have walked away early in the process.

Each SVP partner bought out a contract within the concession that covered the risk. For example, Klonsberg Maritime Simulation Systems (KMSS) had direct responsibility for the simulators while within the SPV we had a number of cross-cooperation agreements to ensure that we all worked together. However, it was all about interaction and getting the people on board right at the start so no one had any surprises and everyone had an impact on the design.

In addition, the interaction with Tom Touhy and Donal Burke meant that they would provide clarification on the output specification for the various pieces of machinery that you wouldn't find in a normal project.

LG Was there anything that didn't work out?

IS We often came out of site meetings, thinking that everything was going too well and that eventually something would go wrong. The truth is that nothing did go wrong. Yes, there were some relatively small issues, in the archaeology dig on the foreshore for example – that cost us more than we anticipated – but in general this project went very well.

LG What processes were used to analyse risk on the project?

IS Tom Touhy, Donal Burke and Michael Delaney managed this very well from the client side. They had consulted widely with the stakeholders across CIT and INS and had produced their output specifications for delivery to the Invitation to Tender (ITN). So risks were analysed at project level before the ITN by DOES and the Project Board.

Once this was decided there were no changes from their side. So from there, we concentrated on the inputs that were required to get to the outputs that they had specified. We had a single point of contact through Donal Burke with this group. So if we had an issue there was one point of contact where we could raise the issue and get a decision. This made it a very interactive, give and take arrangement and that's largely why it was such a successful project. The SPV risks were analysed by brainstorming within SPV partners and use of consultation with Project Board. It worked well within the SPV because each partner had a specialism – for example KMSS with the simulators. Each partner had to be capable of taking on the risk that was going to be demanded of them. We would have had an understanding of what that brief was because the output specification was what defined the ITN and what was required over the 25 years. We would also have to satisfy ourselves that the other partners were, if fact, able to deliver on their risk.

LG What process was used to manage risk allocation?

IS This was done through the Project Agreement (PA). The DOES issued the draft PA to the bidders, who were given an opportunity to comment on all aspects of the agreement including risk allocation. The comments were taken on board in the PA used for the project. The process was managed by the Project Board, which was very effective in using one point of contact throughout the process to analyse issues and arrive at a quick decision.

LG What issues relating to risk arose key during the procurement

phase?

IS The maintaining of terrorism insurance requirements within the PA following the events of September 11th 2001 became an issue. All of the bids were submitted in January 2002 and we were appointed preferred bidder. In our submission we had included an insurance premium that had been given to us during the bidding process. However, the insurers subsequently re-evaluated their position as regards terrorism and terrorism cover became almost impossible to get. This brought us into heated discussions with Dept of Finance, who said it was our risk and that we must carry it. This was somewhat unreasonable as it was an unusual situation.

LG How were these issues resolved?

IS We resolved it through negotiation whereby we got cover and carried some of the extra premium. This imposed significant cost premium on the SPV however somewhat mitigated through the negotiations.

Value

LG If we look at Value from three different perspectives, time, cost and quality, what were the objectives relating to value?

IS From a time, cost & quality perspective along with the constraints contained within the PA, the value objectives were firstly to bring the facility to the operation stage as early as commercially feasible but ultimately by the availability date as dictated by the PA. From a cost perspective, we had to identify life cycle and capital expenditure costs, creating the best balance and value to maximise the efficiencies of the financial model. This had to result in the SPV making a commercially viable profit. Quality was a huge issue for us, as we were going to own the building for 25 years. Because we had to rely on a local contractor rather than providing the construction service

from within the SPV, the project is more difficult to manage, as you don't have full control of the site. Consequently, we had to work with Pierse on an on-going basis to ensure that the quality was right as we couldn't have a situation where the building would not be ready after the 18 month construction period. From a quality perspective, we were required to produce a building of such quality that later savings due to reduced running costs would justify the initial costs.

LG How were these objectives arrived at?

IS These are standard business objectives for a PPP.

LG Which objectives were identified as critical to project success?

IS Time and cost were critical. The quality objective would dictate levels of running costs throughout the life of the project.

LG In what way were these objectives critical?

IS Time and cost were critical in order to bring forward the start of the income stream. The quality objective would dictate levels of running costs throughout the life of the project.

LG Which objectives were achieved (and to what extent)?

IS Procedures for PPP were still in development at the time of procurement and some delays were experienced, however any additional costs incurred were contained within the overall project costs. It's difficult to judge the precise level of achievement of cost objectives as the college is less than 2 years in operation. To date life cycle costing appears accurate and the overall profit targets are being achieved although some areas such as catering are not yet meeting income levels envisaged

Early indications are that quality objective will be shown to have been achieved.

LG Why were these objectives achieved?

IS SPV partners were clearly focused on the objectives, having had

considerable experience in the UK PFI market in addition to a very proactive approach by the DOES, CIT and the INS.

The NMC was a project that emanated from Tom Touhy and Donal Burke. Because they had ownership of the project for a number of years before it got to site they were totally focused on making it happen. Because of that, if there was a place where we were high on our price and low elsewhere, there was give and take. We could go to the client and say “we have a problem here – but we can help you over there with the problem that you have”. It was very much a case of using the project to make everything work rather than using a contract solely to defend your own position.

- LG** How were the value related objectives analysed?
- IS** SPV consulted amongst each other and with the Project Board to analyse objectives.
- LG** How was the value management administered?
- IS** Internally managed by the SPV.
- LG** What issues relating to value arose during the procurement phase?
- IS** There were no major decisions that affected the achievement of value objectives.
- LG** How were these issues resolved?
- IS** Internal SPV decisions were made on the basis of consultation between SPV partners.

Innovation

- LG** If we look at innovation as being either cost-saving or product-enhancing, what were the project objectives relating to innovation?
- IS** Given that the shell of the building was relatively unsophisticated, it was difficult to come up with ways in which

we could be innovative in the structure of the building. However, we were required to produce a building that would have a low impact on the environment and to reduce energy costs to the client. The other cost saving objective would be to use an innovative approach to achieving savings in lifecycling costs through the use of high quality materials.

No particular examples of objectives relating to Product Enhancing innovation come to mind at present.

LG What potential innovations were identified?

IS The architects, BDP, have a great deal of experience in the design of green buildings, so this building was designed as a naturally ventilated building. It has very little air-conditioning except in the boardroom and a small number of the offices. That brings problems in that certain windows cannot be closed and there is a certain regime that has to be adhered to in leaving windows open and closing others so that the natural ventilation continually occurs.

That is the main innovation that we used on the project.

The other life cycle cost saving objectives are standard to a PPP.

LG Which objectives were identified as critical to project success?

IS Both green building and cost saving objectives were critical.

LG In what way were these objectives critical?

IS Green building design was a choice made to deliver an environmentally sustainable building in addition to being cost efficient. It was a requirement to address this issue in the ITN.

Controlling the life cycle costs was critical as it would dictate the tender price and the profitability of the project to the SPV.

LG Which objectives were achieved (and to what extent)?

IS The building is functioning as a naturally ventilated building and data is being gathered at present to establish the energy usage profile of the building. In most cases, the materials and

equipment used have been the most appropriate to minimising life cycle costs. Some materials used were in hindsight probably not the most suitable – but we have learned from that.

LG Why were these objectives achieved?

IS The ongoing discussion with the Project Board and the DOES ensured that the SPV was always aware of the needs of the users and designed solutions that would meet these needs while simultaneously addressing the SPV objectives.

LG What processes were used to identify the potential for innovation on this project?

IS Clarification was sought from the Project Board where necessary. Internal SPV discussions took place in order to bring suggestions back to the Project Board.

LG What process was used to manage the use of innovation?

IS This was done through discussion with the Project Board through the single point of contact arrangement that had been established at the beginning of the ITN process. The way in which the Project Board operated meant that a real partnership could develop in which any issue could be raised and resolved without anyone taking up a defensive position. The relationship continued to develop throughout the procurement and construction of this project.

LG What issues relating to innovation arose during the procurement phase?

IS No major decisions come to mind at this time.

LG How were these issues resolved?

IS N/A

At the end of the interview, Mr. Salley was asked to carry out the exercise below.

He allocated the points as shown.

RELATIVE IMPORTANCE PARTICIPANT PLACES ON RISK, VALUE AND INNOVATION	
Given 60 points to divide up and use to rate the relevant importance of risk, value and innovation, how would you allocate the points?	
Risk	<input type="text" value="30"/>
Value	<input type="text" value="15"/>
Innovation	<input type="text" value="15"/>

Appendix 14: Interview with Patrick Mitchell

Project Role: Facilities Manager with Vita Lend Lease on National Maritime College of Ireland Project

Interview Date: 13 July 2006

The procedures for recording and verifying the accuracy of the interview were agreed. The interview was recorded using a digital voice recorder. The interviewer took a number of handwritten notes during the interview. The following is a transcript of the strategic conversation that took place.

Risk

LG What were the objectives relating to risk?

PM The DOES dictated certain risks were to be transferred through the project agreement. These were then passed down to the various private sector partners.

LG Which risks were identified?

PM Risks such as Planning Permission, Investment, Design, Construction, Availability and Operation were all to be transferred to SPV. The risk that was of most concern was that associated with the installation and running of the simulation equipment. This risk was obviously transferred to the SPV and was further allocated to the company involved in providing and maintaining the training simulator. Within the SPV, there was a direct agreement between the SPV and the provider Klonsberg Maritime Simulation Systems (KMSS) for managing this risk. Vita LendLease has agreements with both of these parties whereby we employ the simulation technician. KMSS reports directly to the SPV on the running and maintenance of the equipment. The SPV also has the IT risk for three years.

The client retained risks involving changes in law and

demographic changes.

LG Which risks were identified as critical to project success?

PM The first critical risk was the Construction Risk. Once the handover had been achieved, the Availability Risk became critical – particularly the availability of the simulation equipment.

LG In what way were these risks critical?

PM Any delay in construction could delay the opening of the facility and delay start of the income stream. If the facility, or part of it, were unavailable, there would be a loss of ongoing income.

LG What processes were used to analyse risk on the project?

PM This was analysed at project level by DOES and Project Board at the start of the project and the outcome became part of the conditions of the Invitation to Tender (ITN). Within the SPV, the FM bid, as part of the SPV bid, analysed risks during the operation stage. The other SPV partners, as part of their bids, also had to address risk. This was often arrived at by brainstorming within the SPV followed by consultation and discussion with the Project Board

LG What process was used to manage the risk allocation?

PM The DOES allocated the risk as laid out in the ITN documentation. The Project Board managed this. The Project Board was very effective in using a single point of contact throughout the process to analyse issues and arrive at a quick decision.

LG Which risks generally were successfully transferred?

PM All of the risks, that were to be transferred, were transferred in accordance with the ITN documentation.

LG Why were these transferred successfully?

PM The SPV worked well internally to ensure that the appropriate partner within the SPV carried the appropriate transferred risks.

LG What issues relating to risk arose during the procurement phase?

PM No major issues arose. There may have been minor issues but they were so small that they made no impact on the project.

LG How were these issues resolved?

PM Anything that occurred was resolved through negotiation.

Value

LG Looking at Value from the perspective of three different aspects, namely, time, cost and quality – what were the objectives relating to time that were set for this project?

PM The project started in February 2003 and was handed over 18 months later on 4th October 2004 and these dates were as planned. On 11th October, the students arrived. They could have been here on the 4th but the college decided to wait until the 11th.

LG Had the academic year started at this stage and did they move from another facility?

PM The academic year had started in September and they moved at that point.

LG How was the date of 4th October determined?

PM It was written into the Project Agreement and was determined by the agreed project start date. As PPP was a new thing in Ireland at the time, the procurement probably took longer than it should. Otherwise a date before the start of the academic year would probably have been decided.

LG Did moving at that point cause any extra difficulty?

PM We spoke to all of the staff at the time. I explained to everyone how the building worked and issued keys to everyone. The Naval staff were quite used to this. We needed to issue keys

because people needed to be able to open rooms and lock them when they are finished. The situation is that we have to keep the classrooms, laboratories and other facilities available. We need to know who is using a room at any time, if anything is broken or needs attention and we need to be able to ensure that the rooms are given back to us in good order. This is particularly important if the room is being hired out to a third party as it could make a room unavailable the following morning. Thankfully there has been no vandalism that has resulted in anything like that happening here.

LG So the agreed handover date was achieved?

PM Yes, it was. We even had our catering up and running on the day. It wasn't quite where we wanted it to be, but we wanted to send out a signal that we were operational – we were eating in the canteen, using the offices, the telephones, the PCs and it was no longer a building site. It was now a building that was in use.

LG So in your view, then, were the time objectives achieved?

PM Yes, they were.

LG Moving to the cost, what were the main objectives for the project?

PM We had to provide the facility at a cost that would generate a commercially viable profit and we were required to work with the client to promote 3rd party income.

LG How were these objectives established?

PM It's the standard way that a PPP works. The service level that you are to provide is laid out in the ITN and your bid defines how you will achieve the levels required by what you will provide. This then becomes part of the contract and is tied down through the payment mechanism. There are two ways in which we can have deductions from our payment – one is unavailability, where a class can't take place because some

facility is unavailable, and the other is performance where the service is not being delivered due to a fault. For example, if the place isn't cleaned, or the grass isn't cut or if there are weeds growing up in the paved areas. Under the contract we cannot scrimp on these. So our challenge is to deliver the service within our budget. We are tied to the bid.

When we made the bid, some aspects of maintenance costs were underestimated, but that was our risk and we have had to be innovative to find ways of delivering the standard without losing money. It is essential that we deliver to the agreed standard because the company's reputation is on the line and for that alone, the standards agreed must be met. So they were standard business objectives as far as we were concerned.

LG Was there anything specifically requested by the client that would impact on your costs?

PM The project agreement was very detailed and allowed for variations. But we've never had a variation during the project. There haven't been any extras purchased from us by the client. It is part of the partnership that we resolve issues together. At times we have even contributed financially to things that maybe could have been argued were outside the agreement – but we did it for the sake of the partnership.

LG Lets talk briefly about this issue of partnership on this project. How do you think that the partnership developed the way it did on this project?

PM It really developed through the vision of the people that were there at the beginning like Tom Touhy, Donal Burke and Michael Delaney. These people were prepared to embrace the idea of PPP. They had to cope with the fact that it was all new. They had to look to examples from the UK and get consultants to draw up the documentation. So they had an input into developing the whole process and they were outstanding in that they knew exactly what they wanted. They were a small team

and they were empowered to make decisions and to negotiate. This meant that we all worked together to arrive at solutions and this often doesn't happen on other projects or in other cultures where an approach of "it's your problem!" becomes the norm.

The partnership attitude from both sides has always been very positive. In the case of the SPV, one of our team – early in the project – was not buying into the partnership and this was causing a problem for the client. When it was raised with Focus, the individual was moved to another project. Similarly, in the recent advertisement for the person who will replace Donal Burke as the Head of the College, one of the criteria for selection for the post was that the individual could work well with the Facilities Manager in a PPP. So clearly, both sides value the partnership relationship of this project.

- LG** Why do you think that the CIT/INS team gelled so well?
- PM** They informed themselves well and they were a balanced group – each had his own strengths. From a personality perspective, they are all very practical.
- LG** Do you think that their Naval training that they had was a factor?
- PM** I think that it probably was. Teamwork is ingrained in those with military training. Seafarers in general and ships officers in particular are trained to be part of and lead teams. As well as that, being pragmatic in reaching solutions is particularly important. If you are on a ship, for example, there is no fire brigade to call when there is a problem. You must solve the problem and get on with the other people that are there. You must work with people who do different jobs, have different types of education and that come from different backgrounds. That's how the attitude was, and still is, here. We all know our own jobs but we are all in this together and we found that if we worked with each other it was easier to meet most of everyone's

objectives.

LG In relation to the Quality, what were the objectives that were set for this project?

PM There were clear performance objectives defined in the contract such as the service requirements that I mentioned earlier. We had to ensure that we met these quality standards.

LG How was the objectives arrived at?

PM The performance standards were identified in the ITN and the client team was very focused on getting the requirements that they wanted.

LG How were the value objectives analysed?

PM We consulted amongst each other and with client team to make sure that we fully understood the objectives.

LG What value management processes were used to ensure that the project delivered value?

PM Our payment was for specific services and we had to be innovative in delivering the service. In a general way, this was initially managed internally by the SPV. During operational stage, the SPV and the Client Liaison Committee must meet every 3 months to look at ways of generating income and reducing costs. On-going value management is an issue that is discussed at these meetings. Within the SPV we have introduced a number of measures to reduce our own costs such as self-delivery of some of the services that were originally to be outsourced. This meant that we kept the entire margin on a service, where we would have lost some of it through outsourcing.

LG Which objectives were achieved (and to what extent)?

PM The DOES time, cost and quality objectives were all achieved. The time and quality objectives of the SPV were also achieved. The SPV under-bid a number of the maintenance elements

which meant that achieving our cost objectives has forced us to manage the project differently than we had planned.

LG Why were these objectives achieved?

PM The Project Team had clearly defined their needs and was empowered to make decisions locally. They were also able to give us a clear understanding of their needs. This in turn resulted in an excellent working relationship, as we fully understood their objectives.

LG What issues relating to value arose during the procurement phase?

PM There were no obvious major issues.

LG How were minor issues resolved?

PM Anything that arose was discussed openly and resolved quickly.

INNOVATION

LG If we look at Innovation as a combination of Cost Saving and Product Enhancing, what were the objectives relating to innovation?

PM The building itself is a low energy building and this was one of the objectives relating to innovation. This was a cost saving objective.

There are also objectives relating to 3rd party income and it is a requirement for both sides to work together to achieve this. This requires us to explore all potential that could bring in income, develop a business case and possibly require further investment by both sides to achieve something totally new.

LG What potential innovations were identified?

FK The main innovation that we identified early on was the potential to make this an energy efficient building. The ECON19 standard (that for open plan office space) was to be used but was to be adapted for type of building being built. There was an

innovative solution proposed for the setting of targets in that the first year and nine months of operation of the building would be a data collection period. From this data we would agree an energy usage profile and try to benchmark against similar facilities. However, there are no similar facilities so we had to develop an algorithm to predict the use of electrical power consumption. In terms of heat, it was a bit more straightforward. We used degree-day data to create a graphic representation of the energy usage profile. Once we stay within a + or - 5% bandwidth of this the costs of the energy continues to be paid by the DOES. If we exceed the bandwidth margin, without reasonable explanation, then we carry the extra cost. If we are below the bandwidth, then we share the savings.

This will work to everyone's advantage as the Minister of Education & Science gives the college a devolved budget for utilities, so the college is incentivised to save energy, as this releases more of the budget to be spend elsewhere, if it makes savings on energy costs.

From the Product Enhancing perspective, we are investing in a website that will advertise the potential of the facility. We are exploring a number of other options. One is the provision of a simulator for the training of crane operators. Another is Dynamic Positioning - the development of software that would allow one joystick to control all of the functions of a ship. We are constantly looking at areas like these.

LG How were these objectives arrived at?

PM The low-energy building objective originated in a need to comply with new EU directives relating to the use of energy in public buildings. The emissions harmful to the environment coming from buildings are very high and the EU wants it reduced. This is now becoming a common issue in PPP/PFI projects across Europe.

The objective relating to 3rd party income was written into the

ITN and became a central part of the project agreement.

LG In your view, which innovation-related issues were identified as critical to project success?

PM The achievement of a low energy building was critical. The achievement of 3rd party income was also critical.

LG In what way were these issues critical?

PM The DOES needed to show that low energy usage standards could be achieved, as it is becoming a feature of PPP internationally.

The achievement of increased 3rd party income would increase the attractiveness of PPP as a procurement method.

LG What processes were used to identify potential for innovation on the project?

PM The DOES included the requirements for innovation in the ITN. Where there was clarification required it was sought from the DOES during the procurement process. During operation, there is a liaison committee that meets every 3 months and this is the forum that manages the project agreement. It is attended by the management of Focus Education (Iain Salley), Vita LendLease (myself and my deputy), Tom Touhy, Donal Burke and Michael Delaney (Chair). Innovation is on the agenda of this meeting; in particular the 3rd party income strategy is developed and actioned.

LG What process was used to manage the use of innovation?

PM During Design and Construction there was a single point of contact on the Project Board that the SPV used to clarify issues that arose. In operation, the Liaison Committee monitors the operation of the project agreement, discusses any issues that arise and puts the necessary solutions in place. For example, at the recent meeting we found a more workable way of processing energy bills that was acceptable to all parties. At this meeting, we also reach agreement on costs and the sharing of profits

from 3rd party income.

LG Which objectives were achieved (and to what extent)?

PM The energy use data has been gathered and the energy profile will be developed over the next 3 months.

A certain amount of 3rd party income has been generated and plans are in place for increasing this further

LG Why were these objectives achieved?

PM The nature of the project agreement encourages everyone to get around the table and work together. In relation to 3rd party income, the payment mechanism is structured so that there is a cap on the amount of income that would accrue to the college. Above the agreed figure, the money would be used to reduce the unitary payment, resulting to a direct saving to the DOES.

Working as a partnership, we are developing the NMCI brand and are now going to set up a separate company called NMCI Services to further develop the 3rd party income stream.

LG What issues relating to innovation arose during the procurement phase?

PM There were no major issues that come to mind. I'm sure that there were minor issues.

LG How were these issues resolved?

PM There was nothing that couldn't be resolved through open discussion. Anything that arose was addressed quickly and resolved without delay.

At the end of the interview, Mr. Mitchell was asked to carry out the exercise below.

He allocated the points as shown.

**RELATIVE IMPORTANCE PARTICIPANT PLACES ON RISK, VALUE
AND INNOVATION**

Given 60 points to divide up and use to rate the relevant importance of risk, value and innovation, how would you allocate the points?

Risk

20

Value

20

Innovation

20

REFERENCES

- AECOM CONSULT TEAM (2005) Synthesis of Public Private Partnership Projects for Roads, Bridges & Tunnels from around the World – 1985-2004. Washington DC, US Department of Transportation, Federal Highway Administration.
- AKBIYIKLI, R. & EATON, D. (2005a) Risk Identification and the Impact on PFI Project Success. *2005 CIB W92/T23/W107 International Symposium on Procurement Systems, The Impact of Cultural Differences and Systems on Construction Performance*,. Las Vegas, NV, 8th to 10th February 2005.
- AKBIYIKLI, R. & EATON, D. (2005b) Theoretical Risk Identification within the Private Finance Initiative (PFI) Concession Period *2005 CIB W92/T23/W107 International Symposium on Procurement Systems, The Impact of Cultural Differences and Systems on Construction Performance*,. Las Vegas, NV, 8th to 10th February 2005.
- AKINTOYE, A., HARDCASTLE, C., BECK, M., CHINYIO, E. & ASENOVA, D. (2003) Achieving best value in private finance initiative project procurement. *Construction Management and Economics* vol 21:, pp 461 - 470.
- AL-SEDAIRY, S. T. (2001) A change management model for the Saudi construction industry. *International Journal of Project Management*, 19, pp 161-169.
- ALLAN, J. (1999) PublicPrivate Partnerships: A Review of Literature and Practice - Public Policy Paper No.4,. Saskatchewan, Saskatchewan Institute of Public Policy.
- ALLCHORNE, T. (2003a) PPP Global Review. *Infrastructure Journal*, Infrastructure Review 2003:, pp 54 - 59.
- ALLCHORNE, T. (2003b) A Need for PPPs, The situation in Germany - a new market for 2004. *Infrastructure Journal*, Infrastructure Review 2003, pp 65 - 73.
- ARTHUR ANDERSON AND ENTERPRISE LSE. (2000) Value for Money Drivers in The private Finance Initiative. London, Treasury Task Force.

- AUDIT COMMISSION (2003) PFI in Schools, The quality and cost of buildings and services provided by early Private Finance Initiative schemes. London, Audit Commission.
- AUDIT SCOTLAND (2002) Taking the initiative, Using PFI contracts to renew council schools. Accounts Commission.
- BALDWIN, E. (2003) The Private Finance Initiative - What opportunities for facilities management. *Journal of Facilities Management*, 2, pp 54 - 67.
- BATES, M. (1999) Second Review of the Private Finance Initiative. London, Her Majesty's Stationary Office.
- BELOUT, A. & GAUVREAU, C. (2004) Factors influencing project success: the impact of human resources management. *International Journal of Project Management*, 22, pp 1 - 11.
- BENNETT, J. & JAYES, S. (1998) *The Seven Pillars of Partnering*, Reading, Thomas Telford.
- BENNETT, J. & PEACE, S. (2006) *Partnering in the Construction Industry: A Code of Practice for Strategic Collaborative Working*, London, Butterworth - Heinemann.
- BOHNER, G. & WANKE, M. (2002) *Attitudes and Attitude Change*, Hove, Psychology Press.
- BRESNEN, M. & MARSHALL, N. (2000) Partnering in Construction: A Critical Review of Issues, Problems and Dilemmas. *Construction Management & Economics*, 18, pp 229-237.
- BREWER, G. A. (2003) Building Social Capital: civic attitudes and behaviour of public servants. *Journal of Public Administration Research and Theory*, 13, pp 5-26.
- BROADBENT, J. & LAUGHLIN, R. (2002) Accounting choices: technical and political trade-offs and the UK's private finance initiative. *Accounting, Auditing and Accountability Journal*, 15, pp 622-654.
- BRYMAN, A. (1988) *Quantity and Quality in Social Research*, London, Unwin Hyman.

- BUTTON, M. (Ed.) (2006) *A Practical Guide to PPP in Europe*, Woking, City & Financial Publishing.
- CENTRAL PPP UNIT. (2004b) Central Guidance 3: Guidelines for the Reporting Arrangements, Role and Function of a Process Auditor in a Public Private Partnership Project. Dublin, Government Publications Office.
- CENTRAL PPP UNIT (2006) PPP Projects, November 06.
www.ppp.gov.ie/projects/PPP%20ProjectsNov%2006.xls, (accessed 27th February 2007).
- CHI, K. S., ARNOLD, A. A. & PERKINS, H. M. (2003) Privatization in the State Government. *Spectrum: The Journal of State Government*, Fall 2003
- CHUA, D., KOG, H. & LOH, P. K. (1999) Critical Success Factors for Different Project Objectives. *Journal of Construction Engineering and Management*, 25, pp 142 - 150.
- COMMISSION ON SCHOOL ACCOMMODATION. (1998) Criteria and Procedures for the Recognition of Primary Schools,. Government Publications Office, Dublin.
- COMMISSION ON SCHOOL ACCOMMODATION. (2001a) Amalgamation of First-Level Schools,. Government Publications Office, Dublin.
- COMMISSION ON SCHOOL ACCOMMODATION. (2001b) Amalgamation of Second-Level Schools,. Government Publications Office, Dublin.
- COMMISSION ON SCHOOL ACCOMMODATION. (2002) Planning School Provision - Three Praxes,. Government Publications Office, Dublin.
- COMPTROLLER AND AUDITOR GENERAL (2001) Managing the relationship to secure a successful partnership in PFI projects - HC 375 Session 2001-2002. London, The Stationary Office.
- COMPTROLLER AND AUDITOR GENERAL (2004) The Grouped Schools Pilot Partnership Project - Report on Value for Money Examination. Government of Ireland.
- CONSTRUCTION INDUSTRY COUNCIL (1998) *Constructors' key guide to PFI*, London, Thomas Telford.

- CONSTRUCTION INDUSTRY COUNCIL (2000) *The Role of Cost Savings and Innovation in PFI Projects*, London, Thomas Telford.
- CONSTRUCTION INDUSTRY INSTITUTE (1991) *In Search of Partnering Excellence*, CII Special Publication, Austin, Texas, Construction Industry Institute.
- DAVIDSON, G. W., SEATON, M. A. & SIMPSON, J. (1988) *Chambers Concise Dictionary*. Cambridge, Chambers.
- DE LEMOS, T., EATON, D., BETTS, M. & DE ALMEIDE, L. T. (2003) The Nature of PFI. *Journal of Structured and Project Finance*, 9, pp 59 - 76.
- DELL, J., KUNKLE, J., STEERER, W., CHAMPEAU, D. & HUNTER, R. (2001) *Project Finance Special Report - Ratings Approach to Project Finance*. New York, Fitch IBCA, Duff, and Phelps.
- DEPARTMENT OF EDUCATION AND SCIENCE (2003b) *School Building Programme 2004*. Government Publications Office.
- DEPARTMENT OF EDUCATION AND SCIENCE (2004b) *General Design Guidelines for Post-Primary Schools*. Government Publications Office.
- DEPARTMENT OF ENVIRONMENT & LOCAL GOVERNMENT (2000a) *Introduction to Public Private Partnerships (Guidance Note 1)*. Dublin, Government Publications Office.
- DEPARTMENT OF ENVIRONMENT & LOCAL GOVERNMENT (2000b) *Financial Context (Guidance Note 2)*. Dublin:, Government Publications Office.
- DEPARTMENT OF ENVIRONMENT & LOCAL GOVERNMENT (2000c) *Legal Context (Guidance Note 3)*. Dublin, Government Publications Office.
- DEPARTMENT OF ENVIRONMENT & LOCAL GOVERNMENT (2000d) *PPP Assessment (Guidance Note 4)*, Dublin, Government Publications Office.
- DEPARTMENT OF ENVIRONMENT & LOCAL GOVERNMENT (2000e) *Statutory Process Assessment (Guidance Note 5)*. Dublin, Government Publications Office.
- DEPARTMENT OF ENVIRONMENT & LOCAL GOVERNMENT (2000f) *Procurement Selection (Guidance Note 6)*. Dublin, Government Publications Office.

- DEPARTMENT OF ENVIRONMENT & LOCAL GOVERNMENT (2000g) Project Management (Guidance Note 7). Dublin, Government Publications Office.
- DEPARTMENT OF ENVIRONMENT & LOCAL GOVERNMENT (2000h) Stakeholder Consultation (Guidance Note 8). Dublin, Government Publications Office.
- DEPARTMENT OF ENVIRONMENT & LOCAL GOVERNMENT (2000i) Procurement Management (Guidance Note 9). Dublin, Government Publications Office.
- DEPARTMENT OF ENVIRONMENT & LOCAL GOVERNMENT (2000j) Output Specification (Guidance Note 10). Dublin, Government Publications Office.
- DEPARTMENT OF ENVIRONMENT & LOCAL GOVERNMENT (2000k) Risk Assessment (Guidance Note 11). Dublin, Government Publications Office.
- DEPARTMENT OF ENVIRONMENT & LOCAL GOVERNMENT (2000l) Payment Mechanisms (Guidance Note 12). Dublin, Government Publications Office.
- DEPARTMENT OF ENVIRONMENT & LOCAL GOVERNMENT (2000m) Key Contractual Issues (Guidance Note 13). Dublin, Government Publications Office.
- DEPARTMENT OF ENVIRONMENT & LOCAL GOVERNMENT (2000n) *Accounting Treatment* (Guidance Note 14). Dublin, Government Publications Office.
- DEPARTMENT OF ENVIRONMENT & LOCAL GOVERNMENT (2000o) Contract and Performance Management (Guidance Note 15). Dublin, Government Publications Office.
- DEPARTMENT OF ENVIRONMENT HERITAGE AND LOCAL GOVERNMENT (2003) Policy Framework for Public Private Partnership in Ireland - Project Implementation in the Local Government Sector Dublin, Government Publications Office.
- DEPARTMENT OF ENVIRONMENT HERITAGE AND LOCAL GOVERNMENT (2005) Guidelines for the Appraisal and Management of Capital Expenditure Proposals in the Public Sector Dublin, Government Publications Office.

- DEPARTMENT OF ENVIRONMENT HERITAGE AND LOCAL GOVERNMENT (2006) Guidelines for the Provision of Infrastructure and Capital Investments through public Private Partnerships: Procedures for the Assessment, Approval, Audit and Procurement of Projects. Dublin, Government Publications Office.
- DEPARTMENT OF ENVIRONMENT HERITAGE AND LOCAL GOVERNMENT. (2004) *Water Services DBO Contracts - Site Staff*.
- DEPARTMENT OF FINANCE (1999) National Development Plan 2000 - 2006, Government Publications Office, Dublin.
- DEPARTMENT OF FINANCE (2003) Interim Guidelines for the Provision of Infrastructure and Capital Investment through PPPs.
http://www.ppp.gov.ie/UploadedFiles/CG2_Interim_Guidance_PPP_07.07.03.doc (accessed 8th April 2004).
- DEPARTMENT OF FINANCE (2006) Guidelines for the Provision of Infrastructure and Capital Investments through Public Private Partnerships: Procedures for the Assessment, Approval, Audit and Procurement of Projects. Dublin, Government Publications Office.
- DEPARTMENT OF THE TAOISEACH (1996) Delivering Better Government: Second Report to Government of the Co-ordinating Group of Secretaries - A Programme of Change for the Irish Civil Service Dublin, Government Publications Office.
- DICTIONARY.COM. (2005) Public sector. *The American Heritage® New Dictionary of Cultural Literacy*,
[http://dictionary.reference.com/browse/Public sector](http://dictionary.reference.com/browse/Public%20sector) (accessed: February 27, 2007). 3rd ed., Houghton Mifflin Company.
- DIX, A. (1999) Private Eye. *Health Service Journal*, pp 9-11.
- DOMBERGER, S. & JENSEN, P. (1997) Contracting Out by the public sector: theory, evidence, prospects. (Contracting out in the United Kingdom and elsewhere). *Oxford Review of Economic Policy*, 13 pp 67 - 79.
- EATON, D. (2006) Quantifying Quality - A Report on PFI and the Delivery of Public Services. London, RICS.

- EATON, D. & AKBIYIKLI, R. (2005) An Evaluation of the Risk Management within PFI Projects. *Construction Management & Economics, (Submitted 20 September 2004)*
- EATON, D., AKBIYIKLI, R., DE LEMOS, T., GUNNIGAN, L., OZEN KUTANIS, R., CASENSKY, M., LADRA, J. & EL SAWALHI, N. (2007) An Examination of the Suitability of a UK PFI Model within the Czech Republic, the Republic of Ireland, Palestine (Gaza-West Bank), Portugal and Turkey *International Journal of Construction Innovation, Vol 7, No 1*
- EATON, D., AKBIYIKLI, R. & DICKINSON, M. (2005) Evaluating the Stimulants and Impediments to Innovation within PFI/PPP Projects. *2005 CIB W92/T23/W107 International Symposium on Procurement Systems, The Impact of Cultural Differences and Systems on Construction Performance*,. Las Vegas, NV, 8th to 10th February 2005.
- EGAN, J. (1998) Rethinking Construction, Report of the Construction Task Force to the Deputy Prime Minister. DETR, London.
- EL-HARAM, M., MARENJAK, S. & HORNER, M. (2002) Development of a generic framework for collecting whole life cost data for the building industry. *Journal of Quality in Maintenance Management, 8*, pp 144 - 151.
- ENGLISH, L. M. & GUTHRIE, J. (2003) Driving privately financed projects in Australia: what makes them tick? *Accounting, Auditing and Accountability Journal, 16*, pp 493 - 511.
- ERICKSON, F. (1986) Qualitative Methods in Research on Teaching. IN WITTRICK, M., . (Ed.) *Handbook of Research on Teaching*. New York, Macmillan.
- ESA 95 (1995) Manual on Government Debt and Deficit. European Commission.
- EUROSTAT PRESS OFFICE (2004) New decision of Eurostat on deficit and debt treatment of public-private partnerships (18/2004),. Eurostat Press Office, .
- FERNIE, S., WELLER, S. & GREEN, S. (2004) Aspirations of Collaboration: Integrated procurement and the mediating effects of context. *World Building Congress*. Toronto, Canada, May 2-7 2004.

- FILKIN, G. (1997) Best Value for the Public, Briefing and discussion papers. *Municipal Journal*, 10
- FISCBACHER, M. & BEAUMONT, P. B. (2003) PFI, Public-Private Partnership and the Neglected Importance of Process: Stakeholders and the Employment Dimension. *Public Money and Management*, July 2003 pp 171 - 176.
- FITZPATRICK AND ASSOCIATES (1998) Filling the Gap: The Nature and Costs of Ireland's Infrastructural Gap. Dublin.
- FORRER, J., EDWIN KEE, J. & ZHANG, Z. (2002) Public Finance Initiative: A Better Public-Private Partnership. *The Public Manager*, Summer 2002, pp 43-47.
- FOX, J. & TOTT, N. (1999) *The PFI Handbook*, Bristol, Herbert Smith - Jordan Publishing Limited.
- GALLIMORE, P., WILLIAMS, W. & WOODFORD, D. (1997) Perceptions of risk in the Private Finance Initiative. *Journal of Property Finance*, 8, pp 164 - 176.
- GERRARD, M. B. (2001) Public-Private Partnerships. *Finance and Development*, 8
- GILLHAM, W. E. C. (2000) *Developing a Questionnaire (Real World Research)* London, Continuum International Publishing Group.
- GOVERNMENT OF HONG KONG EFFICIENCY UNIT. (2003) *Serving the Community by using the Private Sector - An introductory guide to Public Private Partnerships (PPPs)*. Hong Kong, Government of Hong Kong Special Administrative Region.
- GRIGGS, F. E. (2002) Analytical Modelling: Its Beginning to 1850. IN DENNIS, B. G., KAPSCH, R.J., LOCONTE, R.J, MATTHEISS, B.W., PENNINGTON, S.M., (Ed.) *4th National Congress on Civil Engineering History and Heritage*. November 2-6, 2002, Washington, D.C. USA.
- GRIMSEY, D. & LEWIS, M. K. (2002) Evaluating the risks of Public Private Partnerships for infrastructure projects. *International Journal of Project Management*, 20 pp 107 - 118.

- GUNNIGAN, L. (1999) Management of Change in the Irish Construction Industry. *Department of Civil, Structural & Environmental Engineering*. Dublin, University of Dublin.
- GUNNIGAN, L. (2003) Survey of use of Performance Based Building in Ireland. *Meeting of Domain 9 of the Performance Based Building Thematic Network*. Glasgow, June 2003.
- GUNNIGAN, L. & EATON, D. (2005) An examination of the effect on organisational culture of the implementation of Public-Private Partnership (PPP) in Ireland. *2005 CIB W92/T23/W107 International Symposium on Procurement Systems, The Impact of Cultural Differences and Systems on Construction Performance* Las Vegas, NV, 8th to 10th February 2005.
- GUNNIGAN, L. & ORR, T. L. L. (1998) Euroconstruction Report 1, Paper on project management education in Ireland prepared as part of the Euroconstruction Leonardo De Vinci project Dublin, University of Dublin.
- HANAFIN, M. (2007) *Press Release - Minister Hanifan welcomes extra funding provided for Education in Revised Estimates (22 February)*, Dublin, Government Press Office.
- HDR (2005) Creating Effective Public-Private partnerships for Buildings and Infrastructure in Today's Economic Environment.
<http://www.hdinc.com/Assets/documents/services/p3whitepaper.pdf>
(accessed 5 March 2007).
- HEBSON, G., GRIMSHAW, D. & MARCHINGTON, M. (2003) PPPs and the changing public sector ethos: case-study evidence from the health and local authority sectors. *Work, employment and society*, **3**, pp 481 - 501.
- HERNE, R. (2006) Neo-liberalism, Public Services and PPPs in Ireland. *Progress in Irish Urban Studies*, **2**, pp 1-14.
- HM TREASURY (1995) Private opportunity, public benefit: progressing the private finance initiative. London, Her Majesty's Stationary Office.
- HOUSTON, D. J. (2000) Public-Service Motivation: A Multivariate Test. *Journal of Public Administration Research and Theory*, **10** pp 713-727.

- HUBERTS, L., KOLTHOFF, E. & VAN DEN HEUVEL, H. (2003) The Ethics of Government and Business: What is Valued Most. *EGPA Study Group "Ethics and Integrity of Governance"*. Oeiras, Portugal September 2003.
- HURST, C. & REEVES, E. (2004) An Economic Analysis of Ireland's First Public Private Partnership. *The International Journal of Public Sector Management*, 17, pp 379-388.
- INGRAHAM, P. (1993) Of Pigs in Pokes and Policy Diffusion: Another Look at Pay-for-Performance. *Public Administration Review*, 53, pp 348 - 356.
- INTERDEPARTMENTAL GROUP ON PUBLIC PRIVATE PARTNERSHIPS (2000) Framework for PPP Awareness and Training. Dublin, Department of Finance.
- INTERNATIONAL PROJECT FINANCE ASSOCIATION (2007) UK PFI Projects Top £8bn in 2006 as PPP elsewhere in Europe Gathers Momentum. www.ipfa.org/cgi/news/news.cgi?t=template.htm&a=1309 (accessed 5th March 2007).
- JACKSON, P. M. (2004) The Private Finance Initiative - From the foundations up. The David Hume Institute.
- JAPAN PFI ASSOCIATION (2003) Japan's Private Finance Initiative on the Move. http://www.usajapan.org/PDF/private_finance_initiative.pdf (accessed 6 March 2007).
- JEFFERIES, M., GAMESON, R. & ROWLINSON, S. (2002) Critical Success Factors of the BOOT procurement system: reflection from the Stadium Australia case study. *Engineering, Construction and Architectural Management*, 9, pp 352-361.
- KASHIWAGI, D. T., AND BYFIELD, R., (2002) State of Utah Performance Information Procurement System Tests. *Journal of Construction Engineering and Management*, 128, pp 338-347.
- KASHIWAGI, D. T. & SAVICKY, J. (2003) State of Georgia Test with Performance Information Procurement System (PIPS) *31st Annual Conference of the Canadian Society for Civil Engineering (CSCE) 2003*. Moncton, New Brunswick.

- KELLOUGH, E. & LU, H. (1993) The Paradox of Merit Pay in the Public Sector: Persistence of a problematic Procedure. *Review of Public Personnel Administration*, 13, pp 45 - 64.
- KELLY, J., MALE, S. & GRAHAM, D. (2004) *Value Management of Construction Projects*, Oxford, Blackwell Science.
- KERR, D. (1998) The Private Finance Initiative and the changing governance of the built environment. *Urban Studies*, 35.
- KUMARASWAMY, M. A. & MORRIS, D. A. (2002) Build-Operate-Transfer-Type Procurement in Asian Megaprojects. *Journal of Construction Engineering and Management*, March/April 2002, pp 93 - 102.
- LATHAM, M. (1994) *Constructing the Team*. London, Her Majesty's Stationary Office.
- LEE, J. J. (1989) *Ireland 1912-1985: Politics and Society*, New York & Melbourne, Cambridge University Press.
- LI, B., AKINTOYE, A. & HARDCASTLE, C. (2004) VFM and Risk Allocation Models in Construction PPP Projects. *Arcom 04*.
- LIKERT, R. (1932) A Technique for the Measurement of Attitudes. *Archives of Psychology*, 19, pp 44-53.
- MARTIN, M. (1999) Government Press Release from Minister of Education, 10th January 1999. Dublin, Department of Education.
- MAWJI, A. (2004) Management Accounting: re-engineering for risk. *Balance Sheet*, 12, pp 42-45.
- MINISTER FOR ECONOMIC AFFAIRS (2001) *Public/Private Partnerships and Urban Regeneration*. Brussels, Preparatory Report of Recommendations for Submission to the Informal EU Council of Ministers in Charge of Urban Policy.
- MULCAHY, D. G. (1981) *Curriculum and Policy in Irish Post-Primary Education*, Dublin, Institute of Public Administration.

- MURRAY, P. (2005) Performance Based Procurement in Ireland - An holistic perspective. *2005 CIB W92/T23/W107 International Symposium on Procurement Systems, The Impact of Cultural Differences and Systems on Construction Performance* Las Vegas, NV, 8th to 10th February 2005.
- NATIONAL COUNCIL FOR PUBLIC-PRIVATE PARTNERSHIPS (2003) Critical Choices: the Debate Over Public-Private Partnerships and What it Means for America's Future. Washington, National Council for Public-Private Partnerships.
- NATIONAL TREASURY PPP UNIT (2004) PPP Quarterly, Public Private Partnerships - Dec 2004. Pretoria, Government of South Africa.
- NEDO (1991) Partnering: Contracting without Conflict. London, Her Majesty's Stationary Office.
- NEWBERRY, S. & PALLOT, J. (2003) Fiscal (ir)responsibility: privileging PPPs in New Zealand. *Accounting, Auditing and Accountability Journal*, 16 pp 467 - 492.
- NSW CONSTRUCTION POLICY STEERING COMMITTEE (2001) Working with Government: Guidelines for Privately Financed Projects. New South Wales Government.
- O'ROURKE, C. (2003a) Public Private Partnerships: A Catalyst for an Irish Bond Market? . Report commissioned by the Construction Industry Federation, March 2003. .
- O'ROURKE, C. (2003b) Public Private Partnerships in Ireland: how they can be streamlined. Report commissioned by the Construction Industry Federation, June 2003. .
- OPPENHEIM, A. N. (1992) *Questionnaire Design, Interviewing and Attitude Measurement*, London, Continuum International Publishing Group.
- OPPENHEIM, A. N. (2000) *Questionnaire Design, Interviewing and Attitude Measurement*, London, Continuum International Publishing Group.
- PALLISTER, J. & LAW, J. (2006) *A Dictionary of Business and Management*, Oxford, Oxford University Press.
- PIERCE, J. & LITTLE, I. (2002) Taxpayers need value from partnerships. *Australian Financial Review*, 8 April

- PINTO, J. T. & PRESCOTT, J. E. (1988) Variations in the critical success factors over the stages in the life cycle. *Journal of Management*, 14, pp 5-18.
- POLLOCK, A., PRICE, D. & PLAYER, S. (2004) Public Risk for Private Gain - The public audit implications of risk transfer and private finance. London, Unison.
- PORTER, M. E. (1980) *The Competitive Strategy*, New York, The Free Press.
- PRATCHETT, L. & WINGFIELD, M. (1996) Petty Bureaucracy and Woolly Minded Liberalism? The Changing Ethos of Local Government Officers. *Public Administration*, 74, pp 639-656.
- PRICEWATERHOUSE COOPERS (2001) Review of PPP Structures in Ireland. Dublin, Department of Finance, Government Publications Office.
- RATCLIFFE, A. (2004) The real benefit of the PFI. *Public Money and Management*, June 2004
- RATCLIFFE, J. (2002) Scenario Planning: Strategic Interviews and Conversations. *FORESIGHT - The Journal of Future Studies, Strategic Thinking and Policy*, 4, pp 19 - 30.
- REEVES, E. (2003) Public-Private Partnerships in Ireland: Policy and Practice. *Public Money and Management*, July 2003, pp 163 - 170.
- RICHMOND, D. (2006) Private Sector Investments in Public Infrastructure. *Metropolis Conference, 15 June 2006*. Toronto, Ontario.
- ROBERTSON, P. J. & ACAR, M. (1999) Concentrated Hopes, Diffused Responsibilities: Accountability in Public-Private Partnerships. *58th annual conference of the American Society for Public Administration*. Orlando, Florida.
- RUANE, S. (2000) Acquiescence and opposition: the private finance initiative in the National Health Service. *Policy and Politics*, 28, pp 441-424.
- SABATINE, F. J. (1999) Creating A New Government Culture: The Search For Champions. *The Journal of Leadership Studies*, 6, pp 34 - 49.
- SCRUTON, R. (2004) *Modern Philosophy, An Introduction and Survey*, London, Pimlico.

- SEADER, D. L. (2004) The United States Experience with Outsourcing, Privatisation and Public-Private Partnerships". *http://www.ncppp.org* (accessed 29th May 2004).
- SHAOUL, J. (2003) A Financial Analysis of the National Air Traffic Services PPP. *Public Money and Management*, pp 185-194.
- SILVERMAN, D. (2001) *Interpreting Qualitative Data*, London, Sage.
- SMITH, N. J., MERNA, T. & JOBLING, P. (2006) *Managing Risk in Construction Projects*, Oxford, Blackwell Science.
- SNELSON, P. (2006) *Best International Practices in Public Private Partnership with Regard to Regional Policy Issues*, Birmingham, Atkins - on behalf of the European Bank for Reconstruction and Development.
- SULLIVAN, K., EGBU, C. & KASHIWAGI, D. (2005) Sustainability of the Facility Manager: Movement from Management to Leadership *CIB W92/T23/W107 International Symposium on Procurement Systems, The Impact of Cultural Differences and Systems on Construction Performance, February 8-10, 2005*, Las Vegas, NV; USA.
- TECHSTAFF (2007) 2007 Salary Survey. *http://www.techstaff.ie* (accessed 22 February 2007).
- TREHARNE, T. (2003) Financing and PFI. *PFI and PPP: Client and Practitioner Perspectives. Proceedings of 21st Annual Conference of the Major Projects Association, September 2003*.
- TSUI, A. (1997) Defining the activities and effectiveness of the human resources department: a multi-constituency approach. *Human Resources Management*, 26, pp 35 - 69.
- UNMACK, N. (2003) The Protection Business. *Structured Finance International*, November/December 2003, pp
- WATER SERVICES NATIONAL TRAINING GROUP. (2002) Performance Management System for Service Phase and Operational Contracts in the Water Sector. Department of Environment and Local Government.
- WEBB, R. & PULLE, B. (2002) Public-private partnerships: An Introduction. Research Paper No.1 2002-03. Australia, Information and Research Services, Department of the Parliamentary Library.

- WILKINSON, R. (2002) Monitoring and evaluation of public policies for educational infrastructure. *OECD Programme on Educational Building, International Seminar on Educational Infrastructure*. Mexico.
- WOODS, M. (2002) Minister of Education's Speech. *Annual Conference of the Association of Community and Comprehensive Schools*. Tralee.
- YIN, R. K. (2003a) *Case Study Research - Design and Methods, 3rd edition*, Thousand Oaks, California, Sage Publications.
- YIN, R. K. (2003b) *Applications of case study research*, Thousand Oaks, California, Sage Publications.
- ZHANG, X. (2005) Critical Success Factors for Public-Private Partnerships in Infrastructure Development. *Journal of Construction Engineering and Management*, 131, pp 3 - 14.
- ZIKMUND, W. G. (1997) *Business Research Methods - 5th Edition*, Orlando, Dryden Press.

BIBLIOGRAPHY

- ALLEN, S., ABBOTT, C. & LENARD, D. (2003) Private Finance and Public Private Partnerships - A Review. Centre for Construction Innovation.
- ANNESLEY, B., HORNE, M. & COTTAM, H. (2002) Learning Buildings. *School Works*
- BELBIN, R. M. (2003) *Management Teams -Why they succeed or fail*, Butterworth Heinemann,
- BREALEY, R. A., COOPER, I. A. & HABIB, M. A. (1997) Investment Appraisal in the Public Sector (United Kingdom public sector debate on efficiency and the public sector). *Oxford Review of Economic Policy*, 13, pp12 - 27.
- BROADBENT, J., AND LAUGHLIN, R., (1999) The Private Finance Initiative; Clarification of a Future Research Agenda. *Financial Accountability and Management*, 15 pp 95 - 114.
- BROADBENT, J., AND LAUGHLIN, R., (2003) Public private partnerships: an introduction. *Accounting, Auditing and Accountability Journal*, 16, pp 332 - 341.
- CABINET COMMITTEE ON HOUSING INFRASTRUCTURE AND PPPS (2006) Cross Departmental Team Annual Progress Report 2005. Dublin, Government Publications Office.
- CAMERON, K. S. & QUINN, R. E. (1999) *Diagnosing and Changing Organisational Behaviour: Based on the Competing Values Framework*, Massachusetts, Addison-Wesley.
- CANADIAN COUNCIL FOR PUBLIC-PRIVATE PARTNERSHIPS (2007) PPP Project Tracker. <http://www.pppcouncil.ca/pdf/tracker.pdf> (accessed 7 March 2007).
- CENTRAL PPP UNIT (2003a) Interim Guidelines for the Provision of Infrastructure and Capital Investment through PPPs, Government Publications Office, Dublin.

- CENTRAL PPP UNIT (2004a) PPP Newsletter - March 2004. Government Publications Office, Dublin.
- CENTRAL PPP UNIT (2003b) Seminar Notes. *Seminar on PPP*. 3rd June 2003, Dublin, Department of Finance,.
- CHASE, G. & REVEAL, E. (1983) *How to Manage in the Public Sector*, Boston, McGraw-Hill.
- CHEGE, L. W. & RWELAMILA, P. D. (2001) Private Financing of Construction Projects and Procurement Systems: An Integrated Approach,. *CIB World Building Congress*. Wellington, New Zealand, April 2001.
- CLARK, D. (2000) Public Service Reform: A Comparative West European Perspective. *West European Politics*, 23, pp 25 - 44.
- CLIFFORD CHANCE (2003) Public Private Partnership Newsletter.
- CLIFFORD CHANCE (2004a) Public Private Partnership Newsletter.
- CLIFFORD CHANCE (2004b) Public Private Partnership Newsletter.
- DE LEMOS, T., EATON, D., BETTS, AND DE ALMEIDE, L.T., (2004) Risk management in the Lusoponte concession - a case study of the two bridges in Lisbon, Portugal,. *International Journal of Project Management*, 22, pp 63 - 73.
- DELOITTE AND TOUCHE. (2001) National Maritime College of Ireland - Online Information Memorandum. Department of Education and Science.
- DEPARTMENT FOR EDUCATION AND SKILLS (2004) How School Funding Works. Available at <http://www.teachernet.gov.uk/doc/5278/How%20School%20Funding%20Works%20Version%202.ppt>.
- DEPARTMENT OF EDUCATION AND SCIENCE (2002) School Building Programme 2003. Government Publications Office.
- DEPARTMENT OF EDUCATION AND SCIENCE (2003a) Annual Report 2002. Government Publications Office.
- DEPARTMENT OF EDUCATION AND SCIENCE (2004a) Annual Report 2003. Government Publications Office.

- DEPARTMENT OF EDUCATION AND SCIENCE (2004c) School Building Programme 2005. Government Publications Office.
- DLA GROUP (2004) European PPP Report 2004. London.
- EATON, D. & O'CONNOR, C. (2002) PFI/DBFO - Roads to the Future. *Journal of Structured and Project Finance*, 8
- EDWARDS, P. & SHAOUL, J. (2003) Partnerships: for better, for worse. *Accounting, Auditing and Accountability Journal*, 16, pp 397 - 421.
- FITZGERALD, E. & MELVIN, D. (2002) The UK private finance initiative and Glasgow schools. *Facilities*, 20 pp 119 - 126.
- FITZPATRICK AND ASSOCIATES (1998) Filling the Gap: The Nature and Costs of Ireland's Infrastructural Gap. Dublin.
- FORRER, J., EDWIN KEE, J. & ZHANG, Z. (2002) Public Finance Initiative: A Better Public-Private Partnership. *The Public Manager*, Summer 2002, pp 43-47.
- FOX, D. (2005) Patchy PPP. *Construction*.
- FRANK, M. & MERNA, T. (2003) Portfolio analysis for a bundle of projects. *Journal of Structured and Project Finance*, 9, pp 80 - 88.
- GHERE, R. K. (2001) Probing the Strategic Intricacies of Public-Private Partnership: The Patent as a Comparative Reference. *Public Administration Review*, 61, pp 441 - 456.
- GREENAWAY, J., SALTER, B. & HART, S. (2004) The Evolution of a "Meta-Policy": The Case of the Private Finance Initiative and the Health Sector. *BJPIR*, 6, pp 507-526.
- GUERBER, J. (2004) Innovation Financing. *10th EIB Forum - Investing in the New Member States*. Warsaw, 14-15 October 2004.
- HALL, M. & HOLT, R. (2000) New Approaches to UK Public Sector Procurement - The need for critical culture. *CIB W092 Procurement Systems Symposium*,. Santiago, Chile, 24-27 April 2000.
- HANAFIN, M. (2005) Major School Building Projects - Minister for Education and Science Press Release, 10 Jan 2005,. Dublin, Department of Education and Science.

- HANAFIN, M. (2007) *Press Release - Minister Hanifan welcomes extra funding provided for Education in Revised Estimates (22 February)*, Dublin, Government Press Office.
- HDR (2005) *Creating Effective Public-Private partnerships for Buildings and Infrastructure in Today's Economic Environment*.
<http://www.hdinc.com/Assets/documents/services/p3whitepaper.pdf>
(accessed 5 March 2007).
- HM TREASURY (2003) *PFI: meeting the investment challenge*. Her Majesty's Stationary Office. London.
- HODGES, R. & MELLETT, H. (2004) *Reporting PFI in Annual Accounts: A User's Perspective*. *Public Money and Management*, June 2004
- HUBERTS, L., VAN DEN HEUVEL, H. & PUNCH, M. (2000) *Public and Business Ethics: Similar or Different? "Ethics in the New Millennium - Bridging the Public and Private Sectors" - Year 2000 Conference of the International Institute for Public Ethics*. September 24-28, 2000, Ottawa, Canada.
- KLIJN, E.-H. & TEISMAN, G. R. (2003) *Institutional and Strategic Barriers to Public-Private Partnership: An Analysis of Dutch Cases*,. *Public Money and Management*, July 2003, pp 1-9.
- LI, B., AKINTOYE, A., EDWARDS, P. J. & HARDCASTLE, C. (2005) *Critical Success Factors for PPP/PFI in the UK Construction Industry*.
Construction Economics & Management, 23, pp 459-471.
- MERNA, A. & SMITH, N. J. (1999) *Privately financed infrastructure in the 21st century*. *Proceedings of the Institution of Civil Engineers*, 132 pp
- MERRIFIELD, A., MANCHIDI, T. E. & ALLEN, S. (2002) *The Asset Procurement and Operating Partnership system (APOPS) for prisons in South Africa*.
International Journal of Project Management, 20, pp 575 - 582.
- MUSTAFA, A. (1999) *Public-Private Partnership: An Alternative Institutional Model for Implementing the Private Finance Initiative in the Provision of Transport Infrastructure*,. *Journal of Project Finance*, 5
- PARHIZGARI, A. M. & GILBERT, G. R. (2004) *Measures of Organizational Effectiveness: private and public sector performance*. *OMEGA - The International Journal of Management Science*, 32 pp 221 - 229.

- PETERS, T. & WATERMAN, R. (1982) *In Search of Excellence: Lessons Learned from America's Best-Run Companies*, New York, Harper and Row.
- PROJECT FINANCE MAGAZINE. (2004) Jarvis sells PFI bidding operations.
- QIAO, L., WANG, S. Q., TIONG, R. L. K. & CHAN, T. (2002) Critical success factors for tendering BOT infrastructure projects in China. *Journal of Structured and Project Finance*, 8, pp 40 - 53.
- REIN, C., GOLD, M. & CALPIN, J. (2004) The Role of the Private Sector in the US Toll Road Market. *The Journal of Structured and Project Finance* Winter 2004
- ROYAL INSTITUTION OF CHARTERED SURVEYORS. (1995) *The Private Finance Initiative - the essential guide*, London, RICS Business Services Ltd.
- RUTHERFORD, J. (2003) PFI: The only show in town. *Soundings*, 24, pp 41-54.
- SAUSER, W. I. & SAUSER, L. D. (2002) Changing the Way We Manage Change. *SAM Advanced Management Journal*, 67 pp 34 - 39.
- SCHARLE, P. (2002) Public-Private Partnership (PPP) as a social game. *Innovation*, 15, pp 227-252.
- SCHOOL OF CONSTRUCTION AND PROPERTY MANAGEMENT. (2004) MERIT Research Methodology Module, Learning Package 4: Methodological Techniques. University of Salford.
- SERVICES INDUSTRIES BRANCH (2001) Public-Private Partnerships: A Canadian Guide. Industry Canada.
- SHAOUL, J. (2003) A Financial Analysis of the National Air Traffic Services PPP. *Public Money and Management*, pp 185-194.
- SMITH, A. (1999) *Privatized Infrastructure: The Role of Government*, London, Thomas Telford.
- SPAKMAN, M. (2002) Public-private partnerships: lessons from the British approach. *Economic Systems*, 26, pp 283-301.
- TEISMAN, G. R. & KLIJN, E. (2002) Partnership Arrangements: government rhetoric or governance scheme? *Public Administration Review*, 62, pp 197 - 206.

- TIONG, R. L. K. (1996) CSFs in Competitive Tendering and Negotiation Model for BOT Projects. *Journal of Construction Engineering and Management*, 122, pp 205 - 211.
- TRICKEY, K. (2003) When "best value" may not quite say what it means: a reflection on measuring quality in public services in the United Kingdom. *The Australian Library Journal*, May 2003, pp 179 - 184.
- UTT, R. D. (1999) How Public-Private Partnership can facilitate Public School Construction. IN THE DOMESTIC POLICY STUDIES DEPARTMENT (Ed.) Washington DC., The Heritage Foundation,.
- WOLCOTT, H. F. (2001) *Writing Up Qualitative Research*, Thousand Oaks, Sage Publications.
- ZHANG, X. Q. & KUMARASWAMY, M. A. (2001) Procurement protocols for public-private partnered projects,. *Journal of Construction Engineering and Management*, 127, pp 351-357.