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# Dublin City Foresight: a Scenario Approach

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# Dublin City Foresight
# A Scenario Approach

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# Abstract

As we begin a new Millennium, a subtle and positive shift is occurring in all segments of society: an increased emphasis on the future - what it might look like, what challenges and opportunities it might present, and in what ways we might be able to respond most positively. It is emerging at a time of national reflection for organisations and individuals alike - and perhaps none too soon as changes in our social fabric, resource base, business and political environments, and perhaps most importantly, the pace and extent of changes in science and technology, launch us into exciting but uncertain territory in the 21st century. Scenario Planning has been widely used by decision-makers in business, industry and government as a technique to learn about the future before it happens. This paper examines Scenario Planning with the aim of presenting the technique as one relevant to the study of future city planning. A scenario Planning Exercise was completed using Dublin City as a Case Study, and the step by step process of scenario building evaluated.

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# 1 Introduction

As we begin a new Millennium, a subtle and positive shift is occurring in all segments of society: an increased emphasis on the future - what it might look like, what challenges and opportunities it might present, and in what ways we might be able to respond most positively. It is emerging at a time of national reflection for organisations and individuals alike - and perhaps none too soon as changes in our social fabric, resource base, business and political environments, and perhaps most importantly, the pace and extent of changes in science and technology, launch us into exciting but uncertain territory in the 21st century.

This thesis concentrates on the field of Scenario Planning with particular emphasis on city planning. To begin in Chapter 1, this paper sketches the scenario planning practice in terms of the 'bigger picture' within the overall context of Future Studies.

Within Chapter 2 the researcher develops the reasoning behind the Futures Studies subject. Future Studies can be considered the umbrella under which various techniques exist. One such technique is the foresight principle which in turn can be sub-divided into many different outlined methodologies. This chapter answers such questions as, 'What is future studies and research?' and defines the foresight principle. The reasons behind the unpredictability of the future and an outline of various foresighting methods are documented. Importantly the limitations of foresighting are also discussed.

Chapter 3 is a literature review of scenario planning. This chapter traces scenario planning from its beginnings and historical development to its relationship with strategy. An in depth analysis is depicted of the approaches to Scenario Planning. The literature review also points to different approaches to scenario planning and the theory and methodology behind these various approaches. The characteristics of effective scenarios are also discussed, as too are the beginnings of an evaluation of the scenario planning method, developed and augmented in the evaluation chapter.

Chapter 4 describes the Dublin City Foresight project. This chapter further delves into the methods employed by the practitioners. The purpose of this chapter becomes a reference point for the reader to understand the practice, by way of elucidating the

processes and techniques used to create scenarios in practice. Moreover, this chapter refers to and delineates a scenario planning exercise undertaken by the researcher over an 18 month timescale during this research study. As methods are born from the values, perspectives and visions of those who create, use and adapt them over time, "How to" do something is indebted to and an embodiment of the culture of the social group creating the practice. Thus, it was felt that the best way to understand the practice of scenario planning and to fully appreciate its capabilities, ambiguities, attributes and functions would be to work through a scenario planning exercise from beginning to end.

The Dublin City Foresight scenario planning approach continues to follow one locus of scenario planning, that deemed the *Intuitive Logics* school (similar to the Global Business Network approach discussed in Chapter 3), which seeks to understand the environment in terms of "driving forces" and perception through "mental models" and then to produce multiple scenarios (in this instance four scenarios were created) that bridge the gap between the two. As demonstrated in Chapter 3 even within the scenario planning community and the modern day applications of the method, practitioners demonstrate numerous ways about what they are doing and how they are doing it. While categorisations and demarcations are made in this study and particularly in the Dublin City Foresight scenario planning exercise, it is important that the flexibility both in the representation and application of the methods is not obscured. These methods are contingent, which is to say they are implemented selectively and differently dependent upon the setting, the goal, the audience, the scope of the problem and the type of organisation/ society engaged. To begin it was necessary to explore background information regarding the participants, the setting and the role of the practitioner and continue with descriptions and commentary on the different methods involved in scenario planning the method selected in the case study and a presentation of the Dublin City Foresight scenario exercise.

Within Chapter 5 it is the researcher's intention to evaluate the scenario planning process and to communicate the knowledge gained within the Dublin City Foresight Scenario planning project. This chapter begins with an in-depth analysis of the limitations of scenario planning as discovered throughout the Dublin City Foresight exercise.

Following from this discussion, this chapter distils the lessons learnt from the Dublin City Foresight experience this distillation is intended to serve as a basis for the preparation and completion of a scenario planning project and to aid in more effective and productive decision making.

## 1.1. Hypothesis

The focus of this thesis is the practice of scenario planning which is growing in popularity as a way to solve problems, join stakeholders, create strategic plans, enlarge debate, and set priorities in both public and private sectors. As a method to engage a broad range of factors in a long term perspective, scenario planning is of relevance to issues of sustainability.

As time moves on the management of uncertainty and ambiguity in planning is becoming more and more important. The ability to create meaning in turbulent flows and bombardments of information has become big business.

Information technology has without doubt aided in categorising and collecting information, but has done little to help society, firms, governments or the individual determine priorities and values. Nonetheless, decisions are made which have long-term implications in conditions of considerable uncertainty, complexity, and discontinuity. The meaningful interpretation of the unknown, or the uncertain, or the future, has become a high stakes commodity. The demand for new voices that can speak to unprecedented change, the apparent complexity of our problems, to the changes engendered by mobility, globalisation and more intricate technology and who can join multiple stakeholders or social worlds in conversation is on the rise. New practices, like that of scenario planning, have emerged to fill this need. Convincing stories, whether they be based in the logic of science, drawn from meaningful metaphors, or set in the future are here used contribute to our understanding of the world.

Once mainly relegated to religion and literature, stories of the future have found their way into business and policy-making. This new take on prophesy is productive, generated through participatory measures and occupies professional and powerful socio-political milieus. These stories are known as scenarios and are considered a "tool"

of a larger practice known as scenario planning. While the most common description of scenarios is as a tool for decision-makers, this thesis attempts to look to the peripheral and unofficial uses and meanings of the "tool". One of the fascinating things that come to light about scenario planning is the multiplicity of supposed functions, diverse meanings, and ambiguous thinking underlying the practice. This paper looks at the intellectual and cultural history informing the practice, the methods employed, the type of work that is accomplished and finally questions the authority of the scenarios themselves. This paper focuses on epistemological distinctions (positivism and constructivism) that ambiguously thread from the thinking underlying the practice, to the design of the method, to the "flexible" work that is achieved.

The operation of the technology, or in this case, the methods of constructing scenarios, is involved in debates over best practices, but this project moves outside the debate of what constitutes a "good" methodology and instead attempts to understand why there is so much ambiguity in the practice and the political implications of such thinking.

In order to get the "insider's perspective" on the practice of scenario planning, an exercise was undertaken using Dublin City as the case study. The study provided a first hand look at the practice and greatly complemented the literature review of scenario planning, which spanned disciplines of sociology, humanistic and cognitive psychology, philosophy, political theory/critique, organisational learning, cultural theory/ critique, anthropology, future studies, economics, and history. Both corporate and public scenario planning exercises were drawn upon as other examples.

The whole of this thesis leads one to not take scenarios for granted as fictional accounts of what could happen, but to see scenarios as seriously productive stories that do work and influence how firms, governments, and individuals think about the future. The point becomes to recognise that their content will always be partial and contingent yet buttressed by certain measures of authority mustered from the context in which they are employed. The "political" content of scenarios should especially be recognised given their influence in both public and private settings. Many scenarios are created either by corporations or international alliances and then distributed to the World Bank, national governments, multi-national corporations, and the European policy-making community. It thus becomes important to ask critical questions about what is at stake in each message narrated in the scenarios.

Scenarios should thus be approached with an eye towards whose needs are being served by presenting futures in one way rather than another. What and who's political, economic, and ideological ends are being served by the stories that are being told. Each group of scenarios divide and order the world, in terms of "the future", in ways that will always account for certain conceptions of history and mechanisms of change and will frame people, events, and values in certain lights. Who uses the scenarios or scenario planning for what purpose should be a central question when examining any scenario. Work should be continued to see how values and politics could be made explicit and accountability can be built into the practice of scenario planning.

## 1.2. Aim

To explore, test and promote the practice of Scenario Planning. To formulate and evaluate the process using City Planning in Dublin as a case study.

## 1.3. Objectives

- To elucidate the area of Future Studies in particular the Foresight Principle and demonstrate the methods involved.
- To review the development of Scenario Planning as a process relevant to future orientated decision making.
- To demonstrate the need for a more forward looking approach towards research and practice in the field of city planning policy formulation.
- To explore the use of 'environmental scanning' as a means of assimilating the multifarious and interconnected driving forces of change at play in the built environment.
- To conduct a scenario planning exercise for Dublin to appraise the capability of the approach in future proofing present policy.
- To make recommendations as to how Scenario Planning could best be refined and promoted as an effective methodology for improving decision-making in city planning policy formulation and implementation.

- ❖ To improve understanding of how fundamental cultural, demographic, economic, environmental, governmental and technological changes act and interact to affect urban, metropolitan and regional futures.
- ❖ To promote inter-disciplinary analysis of the sustainability of these changes.
- ❖ To build a dialogue, and develop an active research agenda, between all the major players concerned with the future of Dublin.

## *1.4. Synopsis*

The meaningful interpretation of the unknown has long been a task of religious stories and myths. Through mythical story telling, groups relay messages that answer the questions: Where did we come from? Who are we? What are we becoming? Where are we going? From ancient myths and legends, to the bards' song, to biblical stories, to epics being passed down through generations, to modern syndicated news, and Hollywood futures, we make sense of our world and conceptualise events and happenings within the context of a story. Disparate pieces of information are drawn into our story-making minds and ordered and filed according to our experience, beliefs and ways of knowing. Cognition, on the public and private level, works to order and make sense of information by creating and adapting stories. Convincing stories, whether they be based in religion, the logic of science, drawn from evocative metaphors, or set in the future help give meaning to our world.

These days, with all the abundance of information and competing versions of what's going on, how does one resolve the deluge into meaningful stories? What kinds of filters are appropriate? This problem is compounded in an era characterised by many as ravaged by uncertainty, discontinuity, complexity and rapid acceleration. These dynamics have many firms, governments and individuals wondering how to make sense of situations and find grounding from which to act. How can one make claims and formulate decisions when looming unknowns and indeterminate information ravage the operating environment?

The knowledge economy with its focus on not only the production of information, but also the rapid commercialisation of learning and knowledge, makes those who can order and give meaning to the abundance of data key actors. Managing uncertainty, ambiguity and creating meaning in turbulent flows and bombardments of information has become big business. The meaningful interpretation of the unknown is a high stakes commodity.

## 1.5. Scenarios

Once mainly relegated to religion and literature, stories of the future have found their way into business and policy-making as a means to manage the unknown and uncertain. This new take on prophecy is productive, often generated through participatory measures and occupies professional settings. Unlike many other traditions of speculative fiction, multiple stories of the future are told instead of just one utopic or dystopic vision. These stories are known as *scenarios* and are considered tools of a larger practice known as scenario planning. Prominent scenario practitioner Peter Schwartz contends, "Stories are an old way of organising knowledge; they defy denial by encouraging – in fact, requiring – the willing suspension of belief. Stories can express multiple perspectives on complex events; scenarios give meaning to these events." (Schwartz, 2000)

## 1.6. Methodology

### 1.6. 1 The Practice of Scenario Planning

Many scenario practitioners view scenarios as a means to deal with complexity and develop visions from which to act in uncertain times. "Scenario planning is a discipline for *rediscovering* the original entrepreneurial power of creative foresight in contexts of accelerated change, greater complexity and genuine uncertainty." (Wack, 1984). Within this rhetoric of accelerated change and uncertainty we see 'the future' (re)emerge as a cultural space from which we can try to work out our problems, make sense of our situations and find grounding from which to plan and act.

This thesis positions scenario planning as a *practice* where modern myths are manufactured, sense is made and importantly, minds, or *mental models*, are changed. Within the scenario planning community, it is thought that the current way of understanding reality, as perceived though mental models, is outdated, dangerous and blinding and does not grasp the complexity and "new dynamics" inherent in the environment and the "emergent reality" spurred by technological changes. The scenario practitioners' workspace is the future where the possibilities are opened and new versions of how the world works (or could work) are constructed. While this future space is considered open for creation, the scenario planner's future also unfolds within some very real constraints in the guise of "driving forces", or observable trends of structures of change in the environment.

The practice of scenario planning creates new images, metaphors and paradigms from which change, uncertainty, and certainty can be clarified. Using the setting of the future, *world versions* are constructed in order to bridge the gap between what is really happening and mental models (what is perceived to be happening). As alternative representations of future environments, scenarios and the methods from which they are created, are commonly characterised as *tools* to aid in decision-making, enhance creativity, open up mental models, learn, communicate, formulate strategic plans and clarify missions or identities. Following the lead of the practitioners and representations in most literature, this thesis also characterised scenario planning as a tool, a *technology*.

### 1.6. 2 Scenario Planning as a Technology

Technology usually conjures images of machines, tangible objects and instruments. However, it could be argued that the focal shift from the industrial age to the knowledge or information age brings new forms of technologies. Technology can be defined in reference to not only material artefacts and tools, but also in terms of knowledge's and technical skills born from a technologically mediated society. (Bijker, Wiebe and Law, 1992). Compared to the industrial economy with a focus on raw materials such as wood, bricks, silicon, wires, concrete, and tangible goods, the "new" economy's raw materials are then ideas, intelligences, intangible skills, and tacit knowledge's. *Perceptual technologies*, such as scenario planning emerge to order, build, construct,

filter, categorise, and interpret such raw materials. Such knowledge-based technologies are similarly referred to as tools, devices, and instruments. These tools, however, have lost their materiality and are used for rationalising and disciplining information and knowledge's instead of goods or tangible artefacts. These new technologies, like industrial age technologies, are not innocent, which is to say that they cannot be understood stripped from their context or solely in terms of their use.

As Langdon Winner posits, technologies are not mere tools to be used by society, rather they are created from meaningful and influential contributions from their creators, their users, their supporters and the actual environment where they are employed. Technologies are then powerful actors within society and serve to constitute and solidify social relations in discernible ways. Winner says, "At issue is the claim that the machines, structures and systems of modern material culture can be accurately judged not only for their contributions of efficiency and productivity, not merely for their positive and negative environmental side effects, but also for the ways in which they can embody specific forms of power and authority." (Winner, 1986). A perceptual tool, like a computer chip, is not merely an instrument to process information, but rather introduces new forms of power and new arrangements of society. To understand the chip, and the knowledge-based technology of scenario planning, one must interrogate the history, social structures and transactions, politics, cultural ideologies and operational imperatives associated with it. Scenario planning is thus not simply the creation of storied descriptions of the future, but rather is a phenomenon that is part of a larger context and symbolic ritual which influences how the "tool" is designed, conceptualised and employed.

While the most common description of scenarios is a *tool for decision-makers*, this thesis goes beyond the mere instrumentality of scenario planning and also attends to the peripheral and unofficial uses of the "tool". A resounding finding the multiplicity of supposed functions, diverse meanings, and ambiguous thinking underlying the practice. While the operation of the technology, or the methods of constructing scenarios, is heartily debated, this thesis also moves outside the contest over best practices and what constitutes a "good" methodology, and also attempts to understand ambiguity in the practice.

## 1.7. Ambiguity in the Practice of Scenario Planning

This thesis demonstrates that while the methods for constructing scenarios are flexible, there are philosophical thoughts and cultural beginnings that unify the scenario practitioners, yet these thoughts are necessarily riddled with ambiguity, in order to explore this dynamic this paper moves from histories to methods to practices to political implications.

This thesis draws upon the work of Pierre Wack, an influential leader in the field, and by some deemed the father of scenario planning and the *Intuitive Logics* school of practice. In addition to investigating the intellectual and cultural history of the practice, attention is granted to origin stories, certain rites of passage, traditions, rituals and common purposes or missions that are shared by the practitioners. What comes to the surface from this investigation are particular ways of knowing that ambiguously embrace two epistemological frames- that of positivism and constructivism. This ambiguity serves as a point of departure to interrogate the subsequent methods, products, and messages that emerge from the practice.

A detailed inquiry into the methods used to produce scenarios informs the reader of actual work process and strategies involved in scenario making. Drawing from interviews and literature about scenarios, case studies and the Dublin City Foresight Scenario Project the design principles and operational protocols associated with scenario planning are sketched out. This process demonstrates how the method is contingent depending on the practitioner, the situation, and the needs or desires of the participants.

## 1.8. Interviews and Methodology

Informal interviews have been conducted with scenario practitioners in Ireland in order to move beyond the representations portrayed in the literature to gain insight to the tacit assumptions they make. This kind of qualitative research focuses on "subjective meanings, definitions, metaphors, symbols and descriptions of specific cases. [The

author] attempts to capture aspects of the social world for which it is difficult to express in numbers." (Newman, 1997). Or as Clifford Geertz said, "The trick is to figure out what the devil they think they are up to."(Geertz, 1979). It was deemed important to learn from the scenario practitioners what they do, as well as how and why they do it. Whilst every effort has been made to establish the practitioners' meanings from the literature, value-based selections and omissions have been made along the way. This thesis does not seek a totalising, exacting explanation of what scenario planning is or what the practitioners are doing. Rather it takes a slice into aspects of the practice dealing with ambiguity and power that is guided by the researcher's perspectives.

Those interviewed already inhabited a particular social group as delimited by their work, therefore the boundaries of my subjects were set a priori. During the informal interviews, notes were taken and the structure of conversation was more loose and spontaneous. In order to take the implications of qualitative research seriously, a systematic scientific analysis of the interview data has not been made, but rather have introduced practitioners' words and thoughts throughout the thesis to establish their meanings when appropriate. The interview data has greatly complemented the literature review of scenario planning, which spanned disciplines from sociology, humanistic and cognitive psychology, philosophy, political theory/critique, organisational learning, business studies, cultural theory/ critique, anthropology, future studies, economics, and history.

## 1.9. Case studies

Scenarios seem to deal with every industry imaginable from, for example, insurance, health care, education, energy, to telecommunications. Scenarios have been produced by research institutes, national governments, multinational corporations, and from alliances fusing these groups. A list of some of the scenarios read in the course of the study to be found in Appendix A. Due to the aim of this thesis, the specific content of the scenarios is not dealt with, nor is a critique on the messages within them provided. This line of questioning does not require an examination of what the scenarios say, but rather how they say it and in what context. The purpose of Appendix A, therefore, is to give the reader a sense of the scope and issues dealt with in these professional scenarios.

# 2. Scenario Planning Within the Context of Future Studies – Futures Research Methodology

## 2.1. Introduction

As we begin a new Millennium, a subtle and positive shift is occurring in all segments of society: an increased emphasis on the future - what it might look like, what challenges and opportunities it might present, and in what ways we might be able to respond most positively. It is emerging as a time of national reflection for organisations and individuals alike - and perhaps none too soon as changes in our social fabric, resource base, business and political environments, and perhaps most importantly, the pace and extent of changes in science and technology, launch us into exciting but uncertain territory in the 21st century.

Within this chapter the researcher wishes to develop the reasoning behind the Futures Studies subject. Future Studies can be considered the umbrella under which various techniques exist. One such technique is the foresight principle which in turn can be sub-divided into many different methodologies outlined below. Also discussed within this chapter is the selection of the scenario planning methodology, as used in the Dublin City Foresight case study in Chapter 4?

## 2.2. Why Futures Studies?

The forces of nature, social and political dynamics, scientific discovery, and technological innovation largely determine the future. However, human choice increasingly shapes the future Had the United States ***not*** agreed that France could go back to Indochina after World War II, the Vietnam War would not have happened and hence, we would not have experienced all the war's resulting influences on world affairs today. The pace of technological and medical advancement was changed by President J.F. Kennedy's vision of landing a man on the Moon. A sequence of technologies were invented to accomplish this goal, for example: communications satellites, computers, and new materials: all of which have changed the human condition. Society cannot

completely control the future, but it can influence the course of history. This influence makes the effort to consider the balance between what we want, and what is possible, worthwhile (Astec, 1994).

The purpose of futures methodology is to systematically explore, create, and test both possible and desirable future visions. Future visions can help generate long-term policies, strategies, and plans, which help bring desired and likely future circumstances in closer alignment. Asking people to co-operate in building a better tomorrow is not reasonable without a shared, multi-faceted, and compelling image of the future. How such images are created influences the quality of the future. For example, the early inhabitants of what is now Switzerland held travelling conversations among the various ethnic groups to reach a multi-faceted and multi-language state that has become synonymous with peaceful co-operation. Because many different kinds of people were involved in the construction the future vision, a cross-section of interests were represented, unrealistic views were modified (Glenn, 1994). When people are not involved in the creative process, the absence of their views can lead to future problems. For example, indigenous Americans and African slaves were not part of the visioning team that created what became known as *Manifest Destiny* - the future vision of westward migration in the United States to create wealth. These two groups are still not well integrated into the affluent American society today. Positive visions, untested by futures analysis, can be destructive by leading people toward impossible goals or impossible schedules. For example, during the mid-20th century, many Africans believed that once decolonisation was complete, peace and plenty were sure to follow - quickly. This positive vision proved unattainable. Foresight studies might have identified factors that could frustrate the dream, thus illuminating policies, moderating expectations, and preventing the dashed hopes and cynicism that poisons the imagination of the next generation who might otherwise have built a better Africa.

If no general agreement exists about an organisation's a nation's or indeed a city's future direction, then how can what is useful or useless be established? To what end would co-operation and efficiency be required? Although, the application of futures methods to generate future visions will not eliminate conflict or competition, a people can have a shared future vision of economic competition toward a common goal. For example, corporations competed to get government contracts to help land a man on the moon.

This competition gave coherence to research and development and created the greatest synergy in history between research in biology and physics. The lack of vision promotes aimlessness and apathy, which in term erodes the human resource base and increases waste of all kinds. Intelligent visions provide the backdrop or criteria for deciding what is more likely to be useful or useless in the future.

The increasing complexity and acceleration of change decreases the lead-time for decisions and makes previous expectations less reliable. Traditional forecasting increases lead-time between potential events and current planning. Hence, the faster pace and complexity of change today increases the value of early warning, because it increases time-space for analysis to create more intelligent decisions.

Another reason to use a range of futures methods today is that the understanding of time is changing. In the Agricultural Age, the perception of time tended to be cyclical. An important use of future thinking was to predict when each part of the cycle would recur, i.e., when will the rains come or when was it time to plant/harvest? In the Industrial Age, the perception of time tended to be more progressive and linear. An important use of future thinking was to predict how technology would become more efficient. In the Information Age, the perception of time is more open. Hence, the contemporary focus on future thinking to determine what is possible and desirable, which is a far more complex task, requiring a range of methods.

Perhaps the most commonly understood reason for the use of futures methods is to help identify what is not known, but needed to be known, to make more intelligent decisions. For example, a scenario might be written to see how a particular future might occur. In the process of writing, it becomes clear that no easy transition from the present to the future exists for some developments (Glenn, 1994).

This difficulty focuses the mind on the important questions to resolve in order to design better policy. It forces thoughts and conversations about the future and helps identify assumptions to examine and change, if necessary.

In summary the answer to the 'why' question comes from an advertisement for the World Future Society, providing a succinct overview of reasons for thinking about the future:

- To Succeed in Your Career
- To Prepare for Change
- To Choose Your Future
- To Make Better Decisions
- To Help Your Children, and Grandchildren, etc.
- To Prevent Disasters
- To Seize Opportunities
- To Understand Today's World
- To Develop Self-Confidence
- To Expand Your Horizons

*(World Future Society, 2000)*

## 2.3. What is Future Studies and Research?

To study the future is to study potential change - not simply fads, but what is likely to make a systemic or fundamental difference over the next 10 to 25 years or more. Studying the future is not simply economic projections or sociological analysis or technological forecasting, but a multi-disciplinary examination of change in all major areas of life to find the interacting dynamics that are creating the next age (Coates, 1985).

As historians express what happened and journalists divulge what is happening, futurists communicate what could happen and aid in thinking about what might become.

Futurists do not know what will happen. No claim to prophesy is made; instead the focus is on strategic thinking and increasing knowledge on a range of possible and desirable futures and how these futures might evolve. Methods of futures research do not produce completely accurate or complete descriptions of the future, but they do help show what is possible, illuminate policy choices, identify and evaluate alternative actions, and, at least to some degree, avoid pitfalls and grasp the opportunities of the future. The purpose of future studies is not to know the future but to make better

decisions today. The papers on futures methods display a powerful set of methodologies to help understanding of the range of possible future worlds. Many of these methods are used in planning and policy activities by private corporations, non-governmental organisations, universities, governments, and international organisations.

Background reading for this thesis would suggest that a consensus on the name or definition of the activity has not been reached. Suggested appellations include "futures research" and by that purport the use of methods to identify systematically the consequences of policy options, and to identify alternative futures with policy implications for decision makers. Another terminology frequently referred to is "future studies" defined as any exploration of what might happen and what we might want to become. Still others, ostensibly in Europe, and Francophone Africa prefer "prospective studies" (Berger, 1957) and by that connote the study of the future to develop a strategic attitude of the mind with a long-range view of creating a desirable future.

This thesis discusses later the positioning of futures studies (particularly the scenario planning approach) as an art or science. At this point it is worth noting that this field is not yet universally recognisecl academically as an established field for doctoral research. Few universities offer advanced graduate futures degrees, the earliest noted began in 1969 a doctoral program for the study of the futures in education at the University of Massachusetts, though it closed in 1991. An eminent doctorial degree of prospective and strategic studies at the Conservatoire National des Arts et Metiers in Paris is offered.

It has always been known that it is smart to think ahead. But futurists do this as a profession, on a larger scale, and have methods and a body of writings to think systematically through the possibilities of tomorrow. One day, futures research may become an organised body of assumptions and methods with a more formal academic tradition; in the meantime, it can be thought of as an art in that it is creative and/or as a craft in that it applies knowledge with skill.

But unlike other crafts and arts, futures research and studies utilises information from all of the sciences. The empirical base of the "futures field of knowledge," writes reviewer Pentti Malaska, "is all sciences, whereas the empirical base of anyone science

is only that science's domain. A value of futures research is not discovering new factual knowledge as the sciences, but producing perceptions and insights to that body of knowledge. (Malaska, 2000)

To study the future, futurists scan the media to keep abreast of what is new that could indicate fundamental or systemic change. Keen attention is paid to a number of key individuals who are reliable sources of information about change in specific areas, make change themselves, and often have new ideas and insight into the processes of change. Futurists also apply a number of methods to explore the viability of current trends and, perhaps more important, future developments that could deflect those trends.

Futures research should be judged by its ability to help decision makers make policy now, rather than whether a foresight was right or wrong (Schwartz, 2000). Futurists can make a prophesy that is intended to be proven wrong. For example, foresights about the long-range economic impacts of the full Strategic Defence Initiative or "Star Wars" for both the United States and the former Soviet Union turned out to be wrong. Policymakers in the former Soviet Union and later in the United States realised that it was too expensive to complete. Hence, the foresight was wrong but useful to change policy.

Conversely, foresights can be made to become self-fulfilling. R. Buckminister Fuller prophesised that "doing more with less" through *design science* will create synergies in technology which will make the world efficient enough so to feed, clothe, and shelter itself. In summary, if we do not know the consequences of our choices, our freedom to choose is an illusion. Hence, no freedom exists without forecasting, as was well argued by Bertrand de Jouvenel in the *Art of Conjecture*. (de Jouvenel, 1967)

## 2.4. Futures Research for Policy V's Academic Future Studies

Futures research, when used to help improve decision making, is quite different than academic research in future studies. The following discussion is a fresh approach to this distinction and terminology.

Futures research is decision-oriented, i.e., it seeks to identify and describe current forces that should be understood in order to make more intelligent decisions (Glenn, 1994). For example, a decision maker might want to know what are the most likely changes in genetic engineering and biotechnology that could affect agricultural exports over the next ten years. In addition to forecasting the technological possibilities, the futurist might include market behaviour and possible reactions of other countries to determine the range of plausible futures that could affect export sales. In contrast, future studies are subject - or question - oriented, e.g., what are the critical technologies that will have the greatest influence over the next 25 years? A range of technologies would be identified and forecasted and their impacts assessed against a set of assumptions. The purpose of such an exercise is to explore all possibilities fully so that others can find specific insights to their needs. Future studies can also contribute to a specific field of study and/or body of information. This thesis and the methods that this paper introduces serves both orientations.

Futures research tends to create a broad set of issues and questions to address policy problems and to seek insight from an extraordinarily diverse section of sources using a broad set of methods. This breadth runs the risk of the researcher being superficial. Academic future studies tend to go much deeper into questions and, therefore, can become narrow and/or parochial in their result. When conducting futures research for policymakers, the futurist must continually ask the question "What difference does it make?" rather than "How well do you know it?" This is the core distinction. The complete economic, technological, cultural, etc. backgrounds that *might* be relevant to a policy decision are not possible to know in a short period of time, but the most critical factors are possible to know very quickly. Futures methods make that possible. Often leaders have to make policy decisions quickly and do not have time to wait for results from a more complete study (Gordon, 1994). They do *not* have to understand the subject, they just have to understand what to do and why. But if academic researchers are not thorough, who will be? Academic research has the responsibility to understand the issues as completely as possible. This responsibility means that pragmatic or applied futures research relies on judgement from more basic academic futures research. Applied futures research consumes the more broadly and rigorously processed basic future studies. And lastly, futures research often does its own "public opinion research"

by direct contacts, anecdotal information, and empathetic introspection. Decision makers may well cross-examine the futurist in person; they will want their conclusions based on firsthand experience as much as possible. Herman Kahn (the acclaimed futurist) preferred to fly over regions to see for himself and interview local taxi cab drivers to augment more conventional information sources.

## 2.5. Organisation of Futures Methods

Futurists distinguish normative forecasting from exploratory forecasting. Normative work is based on norms or values. Hence, normative forecasting addresses the question: what future do we want. Exploratory forecasting explores what is possible regardless of what is desirable. This general division of futures work into normative and exploratory can be misleading when applied to methodology. Many techniques can be used for both normative and exploratory forecasting. Some tend to be used more for one than the other. Futurists "tools" are often quite flexible and adaptable to specific purposes.

Normative uses of futures methods answer the questions: what is the desirable future; what do we want to become? Exploratory uses of futures methods answer the question: what are the possible futures - whether they are desirable or not?

No agreement exists on the proper way to organise futures methods, although enough experience has accumulated that this should be possible. There are a variety of taxonomies, none of which are completely satisfactory. Michael Marien organises methods in terms of the seven P's i.e. 1) Probable 2) Possible 3) Preferable 4) Presents (trends) 5) Past (retrospective) 6) Panoramic (systems); and 7) Participatory. This taxonomy is very instructive about the potential uses of methods, but most methods can be used in most of these categories. Another example is the Nordic Project of Futures Studies. The taxonomy offered in this paper for methods also has some shortcomings. It can be argued that even quantitative methods use qualitative assumptions, and a qualitative method can use numbers. By the same token, the normative/exploratory dimension refers to the purpose of the technique, which is not intrinsic to the technique itself. In short, the organisation of futures methods is an area for further research, beyond the scope of this thesis.

Futures techniques can also be used "for" or "with" the client. Futurists can work largely independent of those for whom the forecast is done. They can receive the requirements for a study and return the results. The other methodological tradition (and that demonstrated in the case study) involves the client, community, nation, or for whomever the study is done. The assumption of such participatory approaches is that client involvement is essential for understanding and acting on the results of the study. The methods overviewed in this chapter could be classified in Figure 1 – A Taxonomy of Futures Research Methods

| | By technique | | By Purpose | |
|---|---|---|---|---|
| **Method** | **Quantitative** | **Qualitative** | **Normative** | **Exploratory** |
| **Environmental Scanning** | X | X | X | X |
| **Cross Impact Analysis** | X | X | X | X |
| **Decision Analysis** | X | | X | |
| **Decision Models** | X | | | X |
| **Delphi** | | X | X | X |
| **Econometrics** | X | | X | X |
| **Futures Wheel** | | X | X | X |
| **Gaming and Simulation** | X | X | X | X |
| **Genius Forecasting** | | X | X | X |
| **Morphological Analysis** | | X | X | |
| **Participatory Methods** | | X | X | |
| **Relevance Trees** | | X | X | |
| **Scenarios** | X | X | X | X |
| **Statistical Modelling** | | | | X |
| **System Dynamics** | X | | | X |
| **Structural Analysis** | | X | | X |
| **Technology Sequence Analysis** | | X | X | X |
| **Time Series Forecasts** | X | | | X |
| **Trend Impact Analysis** | X | X | | X |

***Figure 1*** ***A Simple Taxonomy of Futures Research Methods*** *(Gordon, 1994)*

## 2.6. Related Issues

A variety of related issues should be considered part of the introduction to future studies and methodology. Illustrated herewith are the kind of issues which should be considered when developing futures research teams and applications.

### 2.6.1. Prediction vs. Forecast

A prediction is a statement that you believe will be true. "I predict there will be more futurist activity in 1999 than at any point in history." A forecast is a probabilistic statement that does not imply that you believe the forecasted event will occur. "The weather forecast for tomorrow is a 50 percent chance of rain." A noted previously, futures research should be judged by its ability to help decision makers make policy now, rather than by the forecast being right or wrong. Many of the forecasts of future studies are wrong but are useful to stimulate better planning.

### 2.6.2. Planners vs. Futurists

Planners tend to look at change in one particular phenomenon or subject area (e.g., urban or educational planning). Futurists tend to look at change in a variety of areas and are more multidisciplinary. Planners' time horizon tends to be shorter than futurists' - 3 to 5 years compared with 25 or more years for futurists. Futurists' output can be or should be input to improve planners' work. Futurists can give planners long-term opportunities to include in their planning and long-term problems to avoid. Futurists can give alternative futures, and decision makers can select one; then the planner can create plans to achieve that future. However, this process is not static. As new information and intelligence is identified by the futurist, forecasts should be changed and communicated to the decision maker and planner.

### 2.6.3. Reliability of Data

Only in the last generation have global standards in data been possible. The National Air and Space Administration of the United States (NASA is co-ordinating the Mission to Planet Earth that is standardising global environmental data; UNU's Food and Nutrition Program has standardised global data and computerised systems for data on food consumption and production used by the Food and Agriculture Organisation

(FAO) and the World Health Organisation (WHO). Many other examples exist. However, the data's sources and reliability must always be examined. Sometimes it is necessary to invent data to complete a futures exercise. Unfortunately, invented data can be passed on to others as if they resulted from actual research. Responsible futurists cite data that is invented in such a way to prevent this problem, e.g. different colours or fonts on charts, asterisk and footnotes, or clearly stating so in text.

### 2.6.4. Futures Research and Culture

If it is believed that the future is pre-determined by God, then the only way to know what will happen it to know God's plan. Many cultures believe this and see futures research as being irrelevant. But one purpose of futures research is to identify a range of possibilities to help in better decision making. How many different solutions are their to the traffic problems in Dublin? One, two, five? Futures methods can help forecast alternative futures for the traffic situation in Dublin but do not tell us what will happen. Other cultures believe the universe to be a dynamic self-creating God with humans as part of the process; hence, human activity in futures research has value. Futurists from many cultures believe that there are many possible futures, policies do make a difference, and the future is shaped through action or inaction. Since possible futures depend on what is done, participatory processes are critical. There are other beliefs that these futures also depend on chance and on the consequences of developments that initially seem unimportant and unconnected yet later through tenuous interlinkages become dominant in their effects. Chaos theory holds that slight variations in initial conditions can make enormous changes unbeknownst to the observer. Related to the research on chaos are theories of complexity and emergence that help patterns and principals of change form one condition to another be highlighted.

### 2.6.5. Plan "for" the Future vs. Plan or Invent the Future

Plan "for" the future carries a different assumption about the nature of the future and humanity's role in it than the assumptions behind the phrase: plan or invent the future. Including "for" implies that the future is predetermined and all that can be done about it is getting ready. Plans are made "for" the annual flood of the Nile. However, if the

belief is that the future can be shaped or influenced by human action, then the tendency is toward planning or inventing that future.

### 2.6.6. Utility and Pitfalls of Analogy as a Short Cut

If two conditions are similar in some ways, it can be reasoned by analogy that they are probably similar in other ways. In future studies, analogy applies to the dynamics of events in the past to help predict the future. Using analogy to short-cut more analytic methods is tempting. Sometimes, this is the most effective way to proceed, other times, it is folly. How to know which is which? Ted Gordon gives the example of forecasting how colour television will spread by reviewing how black and- white television spread: Suppose the market for colour television was to be forecast and in so doing the spread of black-and-white television as a basis for the analogy was planned. Viewed quantitatively, the price differences between the two and assessment of the percentage of families that might be excluded from the market because of the higher price would be considered. Estimates of the rate at which current black-and-white sets would wear out and, from this, the rate at which buying opportunities would arise in the future would also warrant due cognition. From a qualitative standpoint, we might also consider whether the impetus offered by colour TV would create two TV set owners and the effect this would have on the diffusion of the new technology.

Then to make the forecast, begin with the old curve depicting the sales of black-and white TVs and adjust that curve, sliver by sliver, to account for the new situation (e.g., price differences, existence of a working black-and-white set, etc.).

This example is more quantitative and rigorous than the way it is usually used. For example, in the 1960's it was argued that the United States was experiencing degeneration similar to Rome before its decline; therefore, the United States will soon fall from world prominence. Or just as the embryo naturally devours its environment before birth, the human species will naturally deplete its environment before its birth into the solar system and galaxies. Analogies are jocular to make and are often quite persuasive, but they may also have causal elements that are different, thus making the forecast wrong.

### 2.6.7. Accuracy vs. Precision vs. Utility

Accuracy and precision are separate concepts. Forecasts can be very precise, but quite inaccurate. Forecasts can be self-fulfilling or self-defeating. By forecasting the possible existence of a condition or technology, that condition or technology may become more likely. The mechanism is clear enough: others, reading about the possibility, work to bring it about. A forecast of famine may make the famine less likely if it triggers action. Thus, forecasting itself can have political implications. Furthermore, if a self-defeating forecast triggers action to avoid the forecasted problem, then the forecast may have been highly inaccurate, nevertheless, the forecast may have been extremely useful.

### 2.6.8. Correlations and Lead Indicators

Marvin Cetron, President of Forecasting International, uses the ratio of the number of people in the bottom 10 percent income in a country compared with the top 10 percent income to forecast likelihood of political stability. Four years before the fall of the Shah, Iran's ratio was 38 to 1. At the same time, it was 10 to 1 in the United States, while 2.5 to 1 in Scandinavia. Graham Molitor, President of Public Policy Forecasting, uses socio-political policy change in Sweden to forecast future change in the United States. Leading Economic Indicators of the U.S. government are used to forecast economic activity six months into the future. The identification of leading indicators is a normal practice of any business and should be included in any long term foresight study.

## *2.7. Frontiers*

Adaptive agent modelling is a new and promising approach to simulation being explored by economists at the Brookings Institution, Washington, D.C., and the Santa Fe Institute, in New Mexico, U.S.A. Imagine "populating" a screen at random with "agents" and "food." The agents behave according to simple and understandable rules. The agents can migrate, reproduce, eat, engage in commerce, accumulate wealth, and die. To eat, they must acquire food through harvesting or purchase. The market price is set according to well known rules of supply and demand. Once such rules are set, the agents are "turned loose" and their activities monitored as the markets form and prices fluctuate. The models produce surprising, unpredictable results: economic market

theories sometimes do not hold; populations grow and wane in unexpected patterns; wealth is accumulated by some agents, and others become poor. In other words, simple rules lead to complex behaviour that is unpredictable and yet seems quite realistic. By changing some of the rules slightly, the behaviour of the emerging societies that populate the computer screen can be explored; perhaps more importantly, some of our assumptions about how markets work and how societies behave can be examined in detail. This approach inverts the common approach to modelling in which real life-data is analysed to produce equations that represent reality. In agent adaptive modelling, the rules are assumed first, and the results are validated by comparing the output with reality.

Although much of the future studies' methodology and ideas have been institutionalised, relatively little documentation, evaluation, and agreement exists about how methods are successful under various conditions and requirements. Futures research and studies have not built on their past in any systematic fashion as have the hard sciences of medicine, and engineering. Arguments exists for futures research and studies as an art or science, it should be noted that they do have a body of assumptions that can be tested, edited, and made systematically available for critical evaluation to improve the quality of forecasting in general. Much of the necessary material exists, but in an unorganised fashion spread out through many entities around the world.

Another frontier is the systematic interaction between normative and exploratory future studies. For example, the value of the Dublin City Foresight scenario planning study will not be its predictions of Dublin demographics and technology use, but its bringing together of descriptive futures research and normative participatory processes to make good policy change obvious to all.

Concurrent interest is growing in the future, instantaneous and global communications, powerful new nondeterministic modelling techniques, sharing information, systematic questioning software, data bases, and knowledge visualisation. Now futurists, scholars, and others around the word can interact globally and take a fresh look at future possibilities, policies, and methodologies in ways not previously possible.

## 2.8. Futures Methods and Techniques

### 2.8.1. The Foresight Principle - Definition

Foresighting is the effort to assess future conditions based on current conditions and trends. Implicit in the term foresighting is the notion that the future is uncertain and not directly predictable, so the focus is more on general conditions rather than specific events.

According to one definition, foresighting is "a process by which one comes to a fuller understanding of the forces shaping the long-term future which should be taken into account in policy formulation, planning and decision making. Foresight involves qualitative and quantitative means for monitoring clues and indicators of evolving trends and developments and is best and most useful when directly linked to the analysis of policy implications." (Martin and Irvin, 1989).

Foresighting can be used to refer to very different kinds of analyses ranging from short-term, focused analyses of specific sectors to longer-term, broader assessments of social, economic or technological change. Foresighting can also include more "normative" assessments of how to reach a future state that is considered desirable (e.g., what will have to happen to allow a certain future state to occur).

Foresighting is generally considered to be distinct from two related concepts: forecasting and strategic vision-setting (ASTEC, 1994). While both foresighting and forecasting involve trying to assess future conditions based on the present, the latter term also includes the connotation of predictability: as the forecasting method becomes more and more developed, it is expected to become more and more accurate in predicting future states. By contrast, a strong theme in foresighting is that large aspects of the future cannot be predicted, and so "accuracy" becomes a less meaningful concept in relation to foresighting.

Similarly, while both foresighting and strategic vision-setting can involve trying to define a desirable future, there are some significant differences between them. Strategic vision-setting puts an emphasis on defining the internal interests and preferences of an organisation; foresighting maintains an emphasis on external, objective events that may

or may not support the desired future. As a result, foresighting is more encompassing and usually less value-driven than strategic vision-setting. However, foresighting findings are often used to inform the creation of strategic visions.

### 2.8.2. Why the Future is Unpredictable

Although popular perception is that the future will become more predictable as foresighting methods improve, experts involved in futures studies and foresighting have developed a perspective of the future as inherently "contingent;" i.e., not able to be directly determined by current conditions – regardless of how much more detailed and rigorous any foresighting method becomes.

Support for this argument is both empirical and theoretical (Central Planning Bureau, 1992). On the empirical side, evaluations of past efforts at long-term forecasting reveal that these efforts consistently have had very poor accuracy rates. Furthermore, accuracy tends to decrease with the forecast time horizon.

On the theoretical side, mathematical and other experts have deduced that human history acts like a complex, dynamic system that does not behave in a deterministic fashion. This means there is no ultimate "equation" for the future that we can reasonably expect to define and evaluate. While some elements of the future may be predetermined (such as the demographic truth that the children of today will become adults in the future), others are by their nature uncertain.

While the future is unpredictable, there is still evidence that systematic attempts to gain perspective on the present and on possible future states can be useful. In order to better deal with the contingent nature of the future, most futurists have adopted a two-part approach to foresighting. On the one hand, futurists attempt to better define which elements of the future are somewhat predetermined and which are not. Thus, for example, futurists have determined that short-term forecasts of very specific technology developments can be somewhat accurate; while long-term forecasts of general social conditions cannot. On the other hand, futurists focus on expanding people's mental models so that they can better interpret any future condition that may arise. Both of these approaches will be reflected in the foresighting methods detailed in the following section.

## 2.9. Foresighting Methods

There are literally dozens of methods for performing foresighting, ranging from "back of the envelope" approaches to highly structured methods. Experts often group foresighting methods into different categories according to various attributes.

This section will examine six major categories of foresighting methods and discuss their attributes and weaknesses. The first two categories – *expert opinion* and *scenario building* – emphasise human participation in the foresighting process. The second two categories – *modelling* and *morphological analysis* – emphasise the use of computer models or other analytic tools to provide analysis of future states. The third two categories – *scanning/monitoring* and *trend extrapolation* – emphasise the degree to which conditions of the future are based on conditions of the present.

It should be noted that boundaries between the categories are not necessarily firm, and that methods can merge from one category into the next. For example, scanning present conditions can merge into trend extrapolation, while trend extrapolation can merge into modelling. Methods can also be combined; for example, modelling and scenario building can be combined, with models being used as the basis for scenarios.

### 2.9.1. Delphi Method - Expert Opinion

Expert opinion can be defined as the assertion of the future "derived from information and logic by an individual who has extraordinary familiarity with the subject at hand" (Millet, 1991, p. 43). While such a definition includes intuition theory as well as the "hunches" of a "futurist guru" there is a more structured expert opinion-based method that has long been used for foresighting: the Delphi method. The Delphi method calls upon a number of experts on the technology under investigation, asking them when they expect a certain important breakthrough to occur or other such questions (Wissema, 1982). The method follows a protocol of questioning which gives the experts objective feedback from the group's responses to a first round of questions, and then asks them the same questions again. This pattern is repeated until a general consensus of the outcome is developed.

Using expert opinion has the obvious weakness of being idiosyncratic, there being no way to evaluate and compare the various approaches and perspectives of the "experts" in question. While the Delphi method seeks to make the process of soliciting expert opinion more structured, it is subject to a further, more practical problem: to perform the method requires a great deal of time and effort. Moreover, while there is care given to maintain objectivity in the questioning, there is no control over the time and consideration taken by the participants in answering the questions. Ultimately, the quality of the Delphi method, and of all expert opinion methods, is fundamentally based on the quality, experience, and knowledge of the participants.

### 2.9.2. Scenario Planning and Learning

Scenarios are descriptions of a possible future through the development of a logical flow of "cause and effect" steps toward the outcome. The term "scenario" originated from theatre as an outline of the plot, sequencing the action in the order of its development (Porter, 1991). For foresighting, scenarios are outlines of the future, based on some schematic descriptions of certain key variables. Scenarios can be developed through "brainstorming" (relying in this case solely on expert opinion), or can be based on a computer model of how certain key variables might interact through time. Scenarios are distinct from many of the other methods because they do not suggest a single future but several possible futures, depending on how strongly the variables are allowed to influence each other. Other foresighting methods that follow the general principle of the scenario method include simulations and relevance trees. Simulations are game-like methods in which various events are played out. Relevance trees follow a process in which the participants imagine a given future state, and then work back through all the conditions that would need to occur to result in that state.

The scenario method has the advantage of being multi-dimensional, since it allows for as many variables to be considered as desired. This method also avoids the problem of trying to specifically predict the future, since the method outlines several "options" for the future. However, scenarios are still subject to the biases or idiosyncrasies of the experts used to brainstorm the future, as well as the limitations of any computer model used.

### 2.9.3. Modelling

Modelling involves the use of formal analytic techniques to develop pictures of the future. In this context, modelling can be defined as any foresighting that uses some sort of equation to relate variables together, along with some estimation of what the variables will be in the future. A famous example of this type of foresighting is the system dynamics model used to support the Club of Rome's "limits to growth" analysis, now known as WORLD3. In the WORLD3 model, a general relationship is specified between various key variables such as world population, industrial output, pollution, resource availability, and food production. As these variables are changed and allowed to evolve in time, a picture of the future is developed.

One advantage of modelling is that it forces the participants to systematically and explicitly consider the interaction of key variables that lead to future conditions. However, a disadvantage is that models are necessarily unable to reflect all the complexity and contingencies of the real world, so that at best they can only provide thought experiments about the future, although often they are mistaken for providing certainty.

### 2.9.4. Morphological Analysis

Morphological analysis is a foresighting method that creates a list of all of the possible combinations of the characteristics or "shapes" of a given object (e.g., a new material) in order to determine different categories of application or effect. This method is another lateral thinking method for identifying future possibilities. For example, even though cardboard was developed as a material for packaging, a morphological analysis would evaluate that given its strength, density, and other properties it could also be used for sound insulation, heat insulation, and other applications (Wissema, 1982).

The limitation of morphological analysis is that while it examines the possible applications and developments of an object, it cannot address the likelihood of these futures based on current realities, such as funding resources or markets.

### 2.9.5. Scanning/Monitoring

Although monitoring is more generally thought of as a method to assess current conditions rather than future states, systematic monitoring of current events for

precursors of breakthroughs can serve as an "early warning" system to eventual developments in the future (Martino, 1983). Monitoring is the examination of current data using a system that includes four steps: collecting, screening, evaluating, and threshold setting. When taken together, these steps allow the analyst to extract the meaningful "signals" from otherwise irrelevant events. Some examples of scanning and monitoring include patent analysis, research and development funding analysis, and business licensing tracking. Monitoring can also simply involve a close examination of current conditions: consumer demands, existing infrastructure, demographic trends, and so forth.

The limitation of monitoring is that it gives little indication of the time frame for any future development. It also does not necessarily clarify how different, disparate conditions might affect each other.

### 2.9.6. Trend Extrapolation

Trend extrapolation is the simplest form of foresighting (Millet, 1991). This method is based on an assumption that patterns in the past will continue into the future. To perform this method, information is collected about a variable over time, and then extrapolated to some point in the future. This analysis can be either qualitative or quantitative. In the simplest form, trend extrapolation can be based on linear or other straightforward projections. Other foresighting methods that are more elegant variations of simple trend extrapolation (and that can be considered a subset of modelling) include system dynamics, s-curves, regression analysis, and substitution analysis. All of these methods hold a common assumption that the future will follow some pattern based on the past.

This method has two major weaknesses. First, it is often a fallacy to assume that the future will follow the pattern of the past. While people often make such assumptions due to a lack of better information, any picture of the future that is developed on this basis can be inaccurate. The second weakness of this method is that it typically provides information on only a single variable. Especially in current world conditions, it is rare for any variable to act independently. More often, the influence of outside forces can dramatically alter the future of any one event or condition.

## 2.10. Limitations of Foresighting

Ultimately, the opinions of people form the basis of all foresighting methods. The expertise and perspective of the persons involved significantly affect the outcome of any effort, whether the effort is based solely on expert opinion, or on a computer model, or even on a trend extrapolation. As a result, there are some common tendencies towards bias that reduce the effectiveness of all forms of foresighting. It is important to recognise these biases and account for them when selecting and using a foresighting method.

### 2.10.1. Human Perception Issues

There is a significant body of research on the limitations of people's ability to assess future (or generally uncertain) events. Human decision making is known to be affected by our ability to process information as well as by a general preference for a "sure thing" over a less certain but better outcome (Slovic et al., 1982). These factors can be seen in several decision phenomena:

- People make probability judgements in part based on the ease with which they come to mind. This would suggest that people doing foresighting are likely to overestimate the future impact of well-publicised trends or those that are in vogue, such as the proliferation of the Internet as a communication medium. At the same time, they might tend to underestimate the future impact of less well-publicised trends.

- People tend to overestimate the likelihood of low probability events and underestimate the probability of very likely events. This would suggest, for example, that people would substantially overestimate the likelihood of a low probability event such as the advent of a new commercially developed energy technology in the next ten years, when the basic principles have not yet been demonstrated. Conversely, they might overlook the advent of a well established alternative energy source and its coming impact on energy markets, e.g., solar energy.

- People tend to distort the representativeness of events, by focusing on irrelevant but "catchy" details. For instance, a participant in a foresighting exercise who has heard

an anecdotal account of a terrorist event affecting an oil shipment may recall that incident foremost in estimating future volatility in world oil markets in coming years.

### 2.10.2. Other Personal Factors

Additional factors affect a person's ability to perform foresighting. The perspective and opinions of peers, subject expertise, personal characteristics, and physical or emotional state may affect a person's decision making ability, and, consequently, ability to estimate future events.

### 2.10.3. Group Dynamics

There are other factors that operate on a group level. For example, a consensual foresighting process, which is typically used in group exercises, has a bias toward the centre. Outliers – ideas which are at the extremes – tend to be dropped, in order to arrive at a position that everyone can agree with. There is therefore a built-in bias against ideas which are at the cutting edge.

### 2.10.4. Zeitgeist

On a broader social level, foresighting efforts are inclined to reflect the popular dominant thought of the times. In other words, foresighting is less a prediction of the future than an implicit description of the social paradigms of today. This tendency, called the Zeitgeist ("spirit of the times") concept by Schnaars (1989) means that different foresighting efforts occurring at the same time are inclined to foresee the same events. Very likely we currently are unable to know what will be the critical social and economic concerns of the future, and thus must acknowledge that our foresighting efforts will largely be based on the concerns and other cultural perspectives of the present.

### 2.10.5. Lack of Context

A common source of error in many foresighting efforts originates from a tendency to focus on one topic area while neglecting to address other factors that can significantly affect the outcomes being predicted. For example, there is a common tendency for people performing technology foresighting to become enthusiastic about the novel technologies they are evaluating, and forget to consider the social, economic, environmental and infrastructure factors that will affect technology development and deployment. There is also a tendency to discount the "staying power" of existing technologies. These errors reflect the fact that the foresighting efforts are often performed in a vacuum without attention to the complex, interconnected forces that affect future states.

### 2.10.6. Institutional Issues

Finally, any foresighting effort is not only affected by the inherent limitations of foresighting methods, but by certain external conditions as well. An important potential external issue is the organisation's ability to define the objectives and focus for its effort. Using a given foresighting methodology with full attention to inherent limitations will not necessarily provide useful information if the method does not match the needs of the organisation. Likewise, the usefulness of any particular foresighting effort depends upon the ability of an organisation to act on the information generated in a timely and effective manner. Without attention to issues of purpose and implementation, an organisation's success at foresighting will likely be limited.

## *2.11. Conclusion*

This review of limitations and error tendencies is not meant to suggest that foresighting cannot be a useful exercise indeed quite the opposite is advocated in the general findings and evaluation of the process, the aim has been to identify the issues and limitations that any new foresighting effort will have to address. If appropriate methods are chosen, with adequate understanding of what they can and cannot do, foresighting can provide valuable information to decision makers – as illustrated by the selected scenario planning methodology examined in the following chapters.

# 3. Scenario Planning Literature Review

## *3.1. Introduction*

Chapter 2 introduced the concept of future studies or research; it explored the reasons for thinking about the future, the benefits, and indeed has touched on some of the limitations. Also delineated was a range of methods which are used in the future study field. This Chapter focuses on one such method, that of Scenario Planning. Herewith, this method is detailed from its origins and history, to its relationship with planning and strategy. The literature review also points to different approaches to scenario planning and the theory and methodology behind these various approaches. The characteristics of effective scenarios are discussed, also the beginnings of an evaluation of the scenario planning method, developed and augmented in the evaluation chapter.

Michelle Godet postulates that all who claim to foretell the future are inevitably liars, for the future is not written anywhere - it is still to be built. This is fortunate, for without this uncertainty, human activity would lose its degree of freedom and its meaning - the hope of a desired future. If the future were totally foreseeable and certain, the present would become unliveable. Certainty is death. Because the future has to be built, it cannot be conceived as a simple continuation of the past.

As the world moves farther and farther into the knowledge age, as the speed of change ever increases, as economies crash and boom, as technology overtakes and surpasses itself, there is an ever present need for society to respond with equal speed to these wide variety of changes. This wide reaching uncertainty about the future is becoming an increasingly important factor for world leaders, business professionals, governments and indeed any planner to consider. In such a rapidly changing environment, the ability to adapt quickly to major changes is extremely important.

A method for attempting to cope with future changes has historically been strategic planning. Strategic planning is a process to provide direction and meaning to day-to-day

activities. It examines values, current status, and environment, and relates those factors to the desired future state, usually expressed in five- to ten-year time periods.

If society existed in a static environment in which no change was necessary or desired, there would be no need for strategic planning. But, environments are changing, thus strategic planning is both a reaction to, and a tool for adapting to, those changes and creating a future within the context of change. Its purpose is to help capitalise on strengths while minimising weakness, to take advantage of opportunities and defend against threats. Set within a business context, Tregoe and Zimmerman's definition begins with a vision of what the organisation should be. In their view, strategic planning provides a framework that guides choices; the choices in turn will determine the future nature and direction of an organisation (Tregoe & Zimmerman, 1980). While the strategic planning approach has yielded some insight about how organisations can anticipate and cope with change, it has not proven its ability to inform about massive governmental, economic and environmental changes.

Another method of anticipating how to react to different future changes has become prevalent in recent years. A growing body of planners and futurists today reject the idea that planning should be conducted against a single "most likely" image of the future. Rather, sets of scenarios should be used in planning; if the sets encompass a broad span of futures and plans are generated to cope with their eventualities, then the plans will be robust and the future can be met with some degree of confidence. As the participant is exposed to a variety of occurrences often contradictory to current consensus, an encouragement exists to think the unthinkable.

This chapter is intended to describe the current status of the body of knowledge surrounding scenario planning. Within this literature review are highlighted some aspects of scenario planning that appear to require further research, these areas include theory and methodology, the limited expertise available for conducting scenario planning, scenario planning's impact on decision-making capabilities, and the long- and short-term impacts.

## 3.2. What is Scenario Planning?

### 3.2.1. Definition

Scenario planning has been defined in several ways. 'Scenario planning is a discipline for rediscovering the original entrepreneurial power of creative foresight in contexts of accelerated change, greater complexity, and genuine uncertainty.' —*Pierre Wack, Royal Dutch/Shell, 1984.* Schwartz (1991) defined scenario planning as "a tool for ordering one's perceptions about alternative future environments in which one's decisions might be played out". Ringland (1998) defined scenario planning as "that part of strategic planning which relates to the tools and technologies for managing the uncertainties of the future". Schoemaker (1995) described scenario planning as "a disciplined methodology for imagining possible futures in which organisational decisions may be played out".

The term 'Scenario Planning' should not be confused with the term 'Scenario(s)' the latter being used to describe the stories written within the Scenario Planning process to describe each different future. A Scenario is a rich and detailed portrait of a plausible future world, one sufficiently vivid that a planner can clearly see and comprehend the problems, challenges, and opportunities that such an environment would present. A scenario is not a prediction of specific forecast per se; rather, it is a plausible description of what might occur. Scenarios are narrative descriptions of the future that focus attention on causal processes and decision points (Kahn, 1967). No scenario is ever probable; the probability of any scenario ever being realised is minute. Accuracy is not the measure of a good scenario; rather, it is:

- • Plausibility (a rational route from here to there);
- • Internal consistency;
- • Description of causal processes; and
- • Usefulness in decision making.

It is important to observe at this point that, the distinguishing factor for the scenario stories is that they are not predictions. Scenarios are not concerned with getting the

future "right", rather they aim at challenging current paradigms of thinking and broadcast a series of stories in which attention is directed to aspects that would have been otherwise overlooked (Schoemaker, 1995).

### 3.2.2. Literature Themes

An analysis of scenario planning literature has revealed several themes and objectives. Major themes include the history of scenario planning, scenarios as stories, the theory of scenarios, scenario methodology, the effects of scenarios on decision-making capabilities, creating "future memory" from scenarios, scenarios as tools for organisational learning, and the evaluation of scenario projects. The intent of this chapter is to examine these themes in as detailed a manner as the literature provides.

## *3.3. History of Scenario Planning*

Scenario planning first emerged for application to businesses in a company set up for researching new forms of weapons technology in the RAND Corporation. Kahn (1940) of RAND Corporation pioneered a technique he titled "future—now" thinking. The intent of this approach was to combine detailed analyses with imagination and produce reports as though they might be written by people in the future.

Kahn then adopted the name "scenario" when Hollywood determined the term outdated and switched to the label "screenplay". The term "scenario" comes from the dramatic arts. In the theatre, a scenario refers to an outline of the plot; in movies, a scenario is a summary or set of directions for the sequence of action. The initial process of creating a scenario has been compared with writing a movie script (Schwartz, 1992). Often in creating a scenario, a team of people consider such questions as: What are the driving forces? What is uncertain? What is inevitable? Similarly, scriptwriters formulate an idea and develop characters. Schwartz describes characters as the building blocks of scenarios.

Herman Kahn further popularised the concept in the 1960s as director of the Hudson Institute, a private non-profit research centre devoted to issues related to U.S. public

policy, international development, and defence. He gained most notoriety around the idea that the best way to prevent nuclear war was to examine the possible consequences of nuclear war and widely publish the results (Kahn, 1963).

In a parallel advancement, the Stanford Research Institute (SRI) began offering long-range planning for businesses that considered political, economic and research forces as primary drivers of business development. The work of organisations such as SRI began shifting toward planning for massive societal changes (Ringland, 1998). When military spending increased to support the Vietnam War, an interest began to grow in finding ways to look into the future and plan for changes in society. These changing views were largely a result of the societal shifts of the time.

The Hudson Institute also began to seek corporate Sponsors, which exposed companies such as Shell, Corning, IBM and General Motors to this line of thinking. In 1967, Kahn along with Anthony Weiner examined the future possibilities of world order, describing potential power alignments and international challenges to American security in a book entitled *Toward the Year 2000*. One of the worlds depicted in the book describes an arms control agreement between the United States and the former Soviet Union; another assumed the former Soviet Union would lose control of the Communist movement; a third projected construction of new alliances among countries. In the book, Kahn and Weiner also described the technology "hardware" of the future, which included centralised computer banks with extensive information on individuals as well as parents able to select the gender and personal characteristics of their children through genetic engineering.

The Stanford Research Institute was concurrently developing scenarios for the US education system they set the time line for this project at the year 2000. Five scenarios were created which in today's terms could be considered to be a high number. In this scenario project an official future was selected and the other stories discarded. However, it was not long before it became apparent that the selected 'official future' was incompatible with the values that were advocated by the US president (Nixon) and the scenario was deemed impossible (Ringland, 1998). The SRI then moved on to work with Willis Harmon, Peter Schwartz, Thomas Mandel and Richard Carlson constructing the scenarios for the Environmental Protection Agency.

In the corporate world, Scenario planning at Shell was developing into what was to become one of the best known examples of Scenario Planning. Ted Newland and Pierre Wack suggested in 1967 that thinking six years ahead was not allowing enough lead time to effectively consider future forces in the oil industry (Wack, 1985a). Shell began planning for the year 2000. When the Yom Kippur war broke out and oil prices plummeted, Shell was prepared. The ability to act quickly has been credited as the primary reason behind the company's lead in the oil industry (van der Heijden, 1997).

Shell's success with the scenario planning process encouraged numerous other organisations to begin thinking about the future. Because the oil shock was so devastating to views of a stable future, by the late 1970's the majority of the Fortune 1000 corporations had adopted scenario planning in one form or another (Ringland, 1998).

The success of scenario use was short lived. Due to the major recession and corporate staffing reductions of the 1980's, scenario use began to decline. It is also speculated that planners over-simplified the use of scenarios, confusing the nature of story telling with forecasting (Ringland, 1998; Godet and Roubelat, 1996). According to Kleiner (1996), the time had come for managers to realise that they did not have the answers.

Michael Porter (1985) led a "back to the basics" approach, suggesting that corporations use external forces as a platform for planning. In this time of evaluating how planning happens, many consulting firms began developing scenario planning methodologies. Huss and Honton (1987) describe three approaches of the time; 1) intuitive logics, introduced by Pierre Wack 2) trend-impact analysis, the favourite of the Futures Group and 3) cross-impact analysis, implemented by Battelle. Shell continued to have success with scenarios through two more oil incidents in the 1980's and slowly, corporations cautiously began to re-integrate the application of scenarios in planning situations. Scenario planning has been adopted at a national level in some cases, and its methods have been successful in bringing diverse groups of people together (Kahane, 1992; van der Merwe, 1994).

## 3.4. Scenario Planning & Strategy

### 3.4.1. Introduction

The purpose of strategy is to create a good fit between the characteristics of the organisation for which the strategy is designed and the business environment. The strategist needs to consider both parts of the equation. This task needs to be carried out in a situation which is uncertain and ambiguous. The higher the uncertainty and the more dynamic the situation, the more problematic is the idea of 'the best strategy'. What seems best today may be far from ideal tomorrow. The key to success becomes the ongoing process of strategic evaluation and action. This uncertain environment can be studied by means of the scenario technique. Uncertainty means that there are multiple equally plausible futures to be reckoned with. This is captured in a number of scenarios. Vygotky's theory of proximal development helps to understand the critical parameters for a successful scenario project.

As scenarios are closely related to the strategy process, it is necessary to outline the prevailing strategic views. In order to place scenario planning in context, it is important to consider the backgrounds of each of these views. Van der Heijden (1997) identifies three overarching paradigms of strategic management and planning: the rationalist, evolutionist and processural.

### 3.4.2. The Rationalistic Approach

One approach to developing strategy is "rationalistic" decision making. The strong rationalistic tradition essentially involves the decision maker in the following steps:

- Predicting the future environment (assigning probabilities, if appropriate). Identifying the basic aims of the "self" (individual or organisation), and related measures of success.
- Mapping the capabilities of the "self".
- Developing a list of optional strategies, based on these capabilities.
- Evaluating the performance of each option in terms of the established measure of success, in the predicted environment. Selecting the highest scoring option.

- ❖ Implementing the selected strategic option. This approach is known as the hard rationalistic paradigm. It is fundamentally based on two assumptions:
- ❖ There is ultimately one and only one best answer to any strategy question
- ❖ Implementation follows the discovery of strategy, i.e. action follows thinking.

(van der Heijden, 1997).

The majority of practitioners and available literature on strategy are of the rationalist perspective. Although it is becoming clear that this view is limited, and as the belief in one correct solution wanes, the rationalist perspective is still currently alive and well.

The idea of scenario thinking cannot be combined with the strong rationalist approach to strategic decision making (van der Heijden, 1996). It fits in a different thinking paradigm, which defines strategy making not as a one-time decision, but as an ongoing process. This is the logical consequence of the introduction of unknowable uncertainty, which invalidates the first of the two basic assumptions underlying the rationalistic approach. Therefore at this point this assumption needs to be dropped and with it the idea of a "best" strategy. What may seem "best" today may be far from the optimum tomorrow. Therefore scenario thinkers are never finished with a strategic decision. They are continuously aware that when action is taken the outcome is unpredictable.

### 3.4.3. The Evolutionary Approach

Quinn (1980) observed that the full strategy is rarely written in one place. The processes used to arrive at the total strategy are typically fragmented, evolutionary and largely intuitive. Although one can frequently find embedded in these fragments some very refined pieces of formal strategy analysis the real strategy tends to evolve as internal decisions and external events flow together to create a new widely shared consensus for action among key members of the team.

Due to the premise that organisational behaviour is complex by nature, the evolutionary school suggests that a successful strategy can only be articulated in retrospect (Mintzberg, 1990) Thus systems can develop a memory of successful previous strategies. In the Evolutionary approach, strategy is thought to be 'a process of random experimentation and filtering out of the unsuccessful' (van der Heijden, 1997). This

school of though is of little value however, when considering alternative futures.

### 3.4.4. The Processural Approach

Lindblom (1959) observed that strategy seemed to differ from the rationalist model in important respects, including:

- Executives spend their time in trying to avoid trouble rather than to pursue goals
- Objectives are mostly not articulated clearly
- Decision making moves between multiple ever changing decision centres
- People adjust positions through bargaining and compromise
- High value is being placed on consensus seeking behaviour
- Consequently policy making becomes a serial process, in small incremental steps, often disjoined.

The articulation of this different perspective is known as the processual school of strategy making. This school sees managers putting high priority on the importance of engaging in a superior process of strategic discussion. It has relatively little to say about the strategy itself. For example, one of the most well known representatives of this school of thought is Tom Peters (1982), whose messages since many years emphasise process skills, including:

- Bias for action
- Closeness to the customer
- "Being big, yet acting small
- Developing productivity through people
- Sticking to the knitting
- Simple form, lean staff
- Simultaneous loose/tight, minimal but effective control.

Other proponents of the processual school include Colin Eden (1992), who has written about strategic management as a social process. This connects to a long established tradition in the literature known as "The Management of Change".

The Processural School asserts that, although it is not possible to deliver optimal strategies through rational thinking alone, organisation members can instil and create processes within organisations that make it a more adaptive, whole system, capable of learning from its mistakes (van der Heijden, 1997, 2000). Incorporating change management concepts to influence processes, the processural school supports that successful evolutionary behaviour can be analysed and used to create alternative futures.

Van der Heijden (1997, 2000) offers the following examples of metaphors for explaining the three strategic schools:

- The rationalistic paradigm suggests a machine metaphor for the organisation
- The evolutionary school suggest an ecology
- The processural school suggests a living organism.

Because van der Heijden views scenarios as a tool for organisational learning, he advocates the integration of these perspectives. "Organisational learning represents a way in which we can integrate these three perspectives, all three playing a key role in describing reality, and therefore demanding consideration" (van der Heijden, 1997). It is widely accepted that effective scenario building incorporates all three of these perspectives (Ringland, 1998; Georgantzas and Acar, 1995; Schwartz, 1991).

## 3.5. Approaches to Scenario Planning

There are many approaches to scenario building and development, both qualitative and quantitative in nature. In its early beginnings, there was an emphasis on the application of reasoned judgement and intuition as a qualitative approach to scenario planning (Kahn and Weiner, 1967).

As the application of Scenario Planning became more popular in the business world and was being promoted as a management tool it developed into a quantitative approach that was labelled operational research/management science (OR/MS) using structural algorithms and mathematical modelling (Amara and Lipinski, 1983). The process quickly became computer driven, and a number of companies now specialise in

scenario planning software applications. Procedural scenarios have also been generated which incorporate both intuitive and quantitative techniques (Millet and Randles, 1986)

## 3.6. Kees van der Heijden - Theory and Methodology

In principle scenario planning is always appropriate as every decision is affected by uncertainty. However the degree to which uncertainty affects decisions can vary considerably. Ackof introduced a useful concept which he calls 'futurity' of decisions, meaning the degree of which the decision affects how the future will unfold (Ackof, 1978). The further we look into the future the more uncertainty enters into our consideration. Much predictability in the world is due to inertia, in fact apart from the laws of nature it is the most important source of predictability (van de Heijden, 1997). As the effect of inertia wears off with time, decisions with high futurity have to be taken in the light if high uncertainty.

These decisions are the strategic decisions; they effect the direction the future will take. Scenario thinking is a useful tool in dealing with uncertainty; it is most useful in dealing with strategic decisions. The idea of scenario thinking cannot be combined with the rationalistic approach to strategic decision making (van der Heijden, 1996). It instead fits in a different thinking paradigm, which defines strategy making not as a one-time decision, but as an on-going process. This is the logical consequence of the introduction of unknowable uncertainty. Therefore at this point the idea of a best strategy needs to be dropped, as what may seem best today may be far from optimum tomorrow. Thus strategic thinkers are never finished with a strategic decision. They are continuously aware that when action is taken the outcome is unpredictable. A point to make when considering questions of strategy is the need to distinguish these from tactics and operations. Strategy is connected with long term direction and high futurity, tactics with responding to outside disturbances in the short term.

### 3.6.1. Clarifying the business idea

At the root of Kees van der Heijden's approach to scenario planning lies the concept of the business idea, designed as a tool for articulating and scaffolding knowledge about the subject itself, in the same way as scenarios are tools for scaffolding knowledge about the future. Equipped with a set of scenarios for the future environment in combination with a Business Idea as an explicit structural representation of the 'self', the strategist is enabled to address the strategic question: 'Is this society/city/ organisation equipped to face the various possible futures we can imagine?'

### 3.6.2. Clarifying the Environment

At this stage the environment side must be dealt with, meaning the question of the strategic time frame. At this point it is worthy to note that there is significant uncertainty in this consideration. As the scenario planning approach deals with uncertainty by generating more than one alternative future we must ask the questions 'Where do these alternative futures come from?' 'What are the raw materials and how are these put together?'. The crux of the scenario approach is that it makes use of insights and knowledge in the zone of proximal development, by scaffolding these into the body of codified knowledge of the scenario subject Scenario development is a social process, individuals working together to combine their spontaneous insights as a way to scaffold each other's tacit knowledge that is as yet unconnected. Scenario's elaborate cognitive structures through scaffolding to incorporate constructs that were initially isolated. They make initially isolated constructs meaningful and in that way incorporate these in domain knowledge, with which the future is considered, thus giving meaning to weak signals in the environment.

### 3.6.3. Articulation of the 'Business Idea'

An articulation of the "business idea" is required to make the scenario planning useful for reaching strategic insights. Social organisations are extremely complex mechanisms

in which many significant variables interact. For the purpose of discussing strategy a mental model of the organisation that can be held in one's mind as one whole is needed. The business idea is constructed of principles, namely, profit potential and distinctive competencies.

Realised uniqueness in two of these sources can combine to form a competitive advantage, or unique capabilities that cannot be copied which contribute to profit potential.

The articulation of the business idea brings out the current position of the organisation and specifies the conditions required in order to create a surplus of resources. The business idea also makes explicit the constraints to creating the surplus. In the process of mapping the business idea, organisations may encounter "limits to growth". The business idea provides a powerful tool as it makes internal view of the organisation explicit and does so in a holistic concept showing how the organisation fits with the external environment (van der Heijden, 1997).

### 3.6.4. Uncertainty

Uncertainties are most commonly compiled based on a series of in-depth, open-ended interviews. Once the business idea has been articulated, attention can be focused on uncertainty. Van der Heijden offers three categories of uncertainty: risks, structural uncertainties and unknowables (van der Heijden, 1997). An assessment of risks recounts past events of a similar nature to estimate probabilities of outcomes. Structural uncertainties are concerned with possible events for which there are no evidence to judge the likelihood of a given outcome. Unknowables represent events that cannot even be imagined. "Scenarios can provide powerful help here, and many would argue that this is the most important use of scenarios" (Schwartz, 1991).

### 3.6.5. External Environment – remarkable people

With the business idea mapped and uncertainties documented, the focus can shift to the outside world in which the business idea must perform. This is the beginning of scenario construction. Van der Heijden suggests the formation of a scenario planning

team, made up of members whom are able to "think the unthinkable," follow intuition, let their imaginations run wild and suspend disbelief. The team begins to study and analyse the industry, seeking "remarkable people". Van der Heijden defines remarkable people as "those experts who are not in regular contact with the client organisation, such that an original contribution may be expected. They could be academics, commercial s, writers, artists, consultants, or their perceptive business people." These "remarkable people" present a workshop to organisation members, detailing an outside perspective eliciting a first contribution. A discussion is then held in which organisation members may dialogue, challenge and develop the unexpected views. It is natural for discomfort to emerge throughout these dialogues. "In scenario planning, if you frustrate people for a few days, the subconscious takes over and you awake to find the scenario is there. The subconscious is more powerful than the conscious mind, however, it will not intervene until it has been frustrated" (Wack, 1985a). Van der Heijden (1997) presents five criteria for these early scenarios:

- At least two scenarios are needed to reflect uncertainty
- Each of the scenarios must be plausible
- The scenarios must be internally consistent
- The scenarios must be relevant to the client's concern
- The scenarios must produce a new and original perspective on client issues.

Through a series of workshops, an overview of the sometimes seemingly chaotic first scenarios should be created. This is helpful in establishing links and connections between variables and data in the system. From this point, scenario building is largely a process of brainstorming, checking for plausibility, and playing the driving forces into different positions. Some common methods for fleshing out scenarios are: listing key patterns and trends, mapping causal relationships in influence diagrams, listing underlying driving forces and ranking driving forces by unpredictability and impact. A popular metaphor for thinking through the scenario building process is the "iceberg" metaphor (Figure 2).

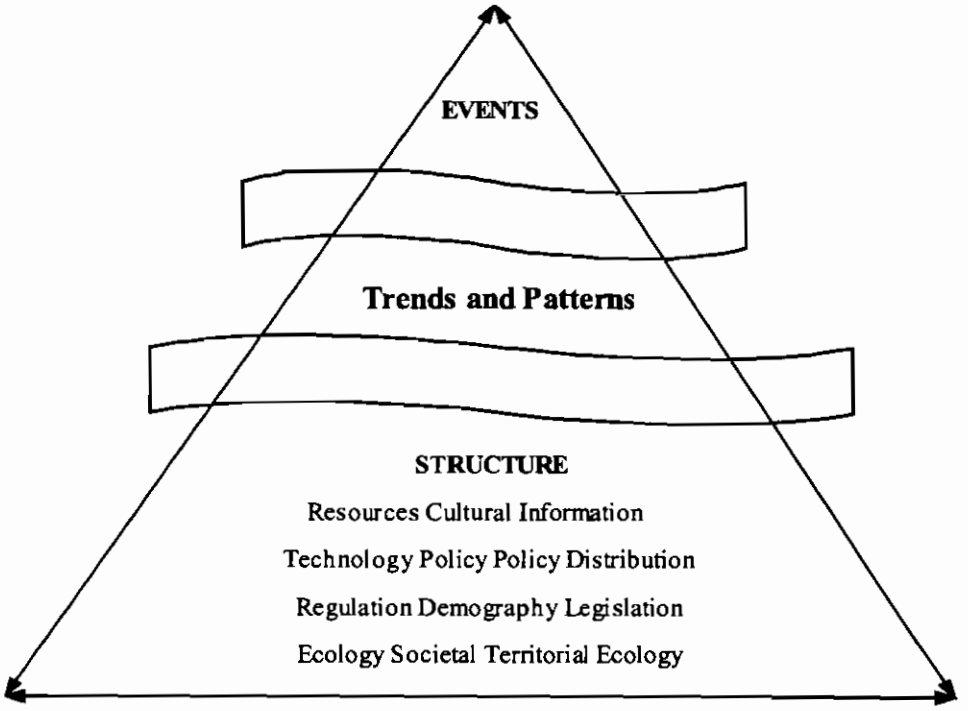



*Figure 2* ***The "Iceberg" Metaphor***

## 3.7. Global Business Network – Theory and Methodology

Global Business Network was created in 1987. The five friends/cofounders envisioned a world-wide learning community of organisations and individuals. This network would be connected by the open and generous exchange of ideas, "out-of-the-box" scenario thinking, ruthless curiosity, and exciting new information technologies.

Back in the late 1980's, when GBN was founded, signs of significant change (even discontinuity) were emerging in the environment, driven by a convergence of technological, social, political, economic, and environmental forces. GBN's cofounders were convinced that the business community (not government) was most likely to translate emerging opportunities into sustainable growth and a better future. The challenge: encouraging companies to question, and change their mental maps, to embrace uncertainty, and to stop predicting the future based on the past.

Scenario planning was seen as an innovative and collaborative process pioneered by

Pierre Wack at Royal Dutch/Shell and offering an ideal tool for GBN. Shell had used scenarios successfully to anticipate—and profit from—the oil price crashes of '72 and '86 and perestroika, the gradual opening up of the USSR under Gorbachev in the '80s. Developing scenarios generated novel and relevant insights, illuminated possible implications, and produced robust strategies across a range of possible futures.

Thus the methodology used by the Global Business Network originated in Shell's application of scenario technology. Pierre Wack first began applying Herman Kahn's concepts in the 1960's and refined them into a proprietary framework stressing the big picture first, then zooming in on the details. Wack believed that to begin with the details was to miss some key dimensions of the building process (Wack, 1985a). Peter Schwartz a GBN co-founder, offers a conceptual overview of the scenario building process in *The Art of the Long View* (Schwartz, 1991). This process is described herein and forms the basis of the approach used by the Global Business Network.

Step one is to identify a focal issue or decision. Scenarios are built around a central issue outward toward the external environment. It is asserted that scenarios based on external environmental issues such as high versus low growth may fail to capture specific information that makes a difference on how the organisation will deal with such issues.

Step two is to identify the key forces in the local environment. This is logical following the selection of a key issue. Step two examines the factors that influence the success or failure of the decision or issue identified in the first step. Analyses of the internal environment and strengths and weaknesses are commonly conducted in this step.

Step three involves brainstorming the driving forces in the macro-environment. These include political, economic, technological, environmental and social forces. Driving forces may also be considered the forces behind the key factors in step two.

Step four consists of ranking the key factors (from step two) and the driving forces (from step three) on the basis of two criteria: 1) the degree of importance for success and 2) the degree of uncertainty surrounding the forces themselves. The results of the ranking exercise are two axes along which the eventual scenarios will differ.

Step five, then, is the development and selection of the general scenario logics according to the matrix resulting from the ranking exercise. The logic of a given scenario will be characterised by its location in the matrix.

Step six, fleshing out the scenarios, returns to steps two and three. Each key factor and driving force is given attention and manipulated within the matrix developed in the scenario logics of step four. Plausibility should be constantly checked from this point.

Step seven examines the implications of the developed scenarios. The initial issue or decision is "wind tunnelled" through the scenarios. It is important to examine the robustness of each scenario through questions such as: Does the decision look good across only one or two scenarios? What vulnerabilities have been revealed? Does a specific scenario require a high-risk, bet-the-farm strategy?

Step eight is to select "leading indicators" that will signify that actual events may be unfolding according to a developed scenario. Once the scenarios have been developed, it's worth spending some time selecting identifiers that will assist planners in monitoring the course of unfolding events and how they might impact the organisation.

## 3.8. The French School

When he took over the Department of Future Studies with SEMA group in 1974, Michel Godet began conducting scenario planning. His methodology was extended at *the Conservatoire Nationale des Arts et Metiers* with the support of several sponsors. Godets work is based on the use of "perspective," advocated by the French philosopher, Gaston Berger (Ringland, 1998). Godet's approach began by dividing scenarios into two categories: situational scenarios, which describe future situations, and development scenarios, which describe a sequence of events that lead to a future situation (Georgantzas and Acar, *1995).* Godet also identifies three types of scenarios that may exist in either category. Trend-based scenarios follow what is most likely, contrasted scenarios that explore purposefully extreme themes, and horizon/normative scenarios that examine the feasibility of a desirable future by working backward from the future to the

present. Godet's approach has evolved and now includes several computer-based tools that help highlight interdependencies between interrelated variables that may be ignored by more simple procedures (Ringland, 1998). The French School approach is a structural analysis that is divided into three phases.

Phase one, according to Godet (1992), begins the process by studying internal and external variables to create a system of interrelated elements. This approach focuses on a detailed and quantified study of the elements and compilation of data into a database. A cross-impact matrix is constructed to study the influence of each variable on the others.

Phase two scans the range of possibilities and reduces uncertainty through the identification of key variables and strategies. Future possibilities are listed through a set of hypotheses that may point to a trend in the data. Advanced software reduces uncertainty by estimating the subjective probabilities of different combinations of the variables.

Phase three is the development of the scenarios themselves. Scenarios are restricted to sets of hypotheses and, once the data have been compiled and analysed, scenarios are built describing the route from the current situation to the future vision the Futures Group

## 3.9. The Futures Group

The Futures Group is a consulting firm based in Connecticut. The Futures Group advocates a trend-impact analysis approach to scenario planning. This approach requires three phases;

- Phase 1 Preparation

The preparation phase includes defining a focus, issue or decision, and then charting the driving forces. There are several questions that should be answered in this phase, such

as: What possible future developments need to be probed? What variables need to be looked at for assistance in decision-making? What forces and developments have the greatest ability to shape future characteristics of the organisation? (Thomas, 1997).

❖ Phase 2 Development

The development phase includes constructing a scenario space, selecting alternative worlds to be detailed, and preparing scenario-contingent forecasts. Selecting a scenario space means examining the various future states that the drivers could produce. Illogical and non-plausible situations should be rejected. Selecting alternative worlds to be detailed involves limiting the number of future stories, since it would be impossible to explore every option. The key is to select *plausible* futures that will challenge current thinking.

❖ Phase 3 Reporting and Utilising

Preparing scenario-contingent forecasts involves listing trends and events that would be required for the plausible future to exist. Depending on the assumptions of each alternative world, indicators are selected that might "signal" the direction in which the subject is heading.

## 3.10. Reference Scenarios

Scenario Planning is a method for allowing an organisation or society to better cope with the forces of external change. Ackoff (1970, 1978, 1981) identifies four methods to cope with this external change. The four methods defined are *Inactivity, Reactivity, Preactivity* and *Proactivity*.

1. *Inactivity* basically involves ignoring changes and continuing without diverging i.e doing nothing.
2. *Reactivity* responds to the change after it happens.
3. *Preactivity* involves trying to predict changes and establishing positions before they happen.
4. *Proactivity* calls for interactive involvement with the external environment.

Within these four methods of dealing with change, Ackoff uses the term *reference scenario* to mean the reference projections, if there were no significant changes in the external environment. The call for strategic turnaround starts with an idealised scenario of a desirable future. To be effective, such a scenario should be interesting and *provocative* — it should show what to change to evade the problems in a given strategic situation.

## 3.11. Procedural Scenarios

Amara and Lipinski (1983) and Chandler and Cokle (1982) use very similar methods for constructing scenarios, but prepare separate forecasts for each principal factor or variable. Chandler and Cokle "also define scenarios as the coherent pictures of different possible events in the environment whose effect on a set of businesses should be tested through linked models". The manipulation of macroeconomic models is a mechanism by which vague assumptions are translated into projected values of wholesale prices, GDP, or consumer expenditures for an entire industry. The models used in these approaches are computer-driven (Georgantzas and Acar, 1995) and provide a good example of procedural scenarios incorporating intuitive and quantitative techniques.

## 3.12. Industry Scenarios

Porter (1985) asserts that scenarios traditionally used in strategic planning have stressed macroeconomic and macropolitical issues. He further claims that, in competitive strategy, the proper unit of analysis is the industry and defines industry scenarios as the primary, internally consistent views of how the world will look in the future. The essence of this view holds that there are two loops in building these industry scenarios. In this approach, industry analysis is within the larger unit of building industry scenarios. Industry focus scenarios can help an organisation in analysing particular aspects of a business, but Wack (1985a) argues that beginning with a narrow focus will miss key dimensions.

## 3.13. Soft Creative Methods Approach

Brauers and Weber (1988) have formulated an approach with three basic phases: analysis, descriptions of the future states, and synthesis. The analysis phase brings organisation members to a common understanding of the problem. Based on this consensus, the problem can be further bounded and structured. Brauers and Weber recommend the use of soft creative methods for the analysis phase, including morphological analysis, brainstorming, brain-writing, and the Delphi technique. The second phase examines the possible development paths of the variables chosen in the analysis. The synthesis phase considers interdependencies among the variable factors to build different situations for the future states. These eventual scenarios are then fed through a complex computer program for linear programming and cluster analysis.

## 3.14. Characteristics of Effective Scenarios

From this survey of the presented scenario methodologies, it is clear common themes run throughout. The following paragraphs outline the critical characteristics of scenarios and scenario planning. These characteristics are;

❖ The use of a systems approach

Because they require inputs, processes, outputs and feedback, scenario planning can be framed as a system (Von Bertalanffy, 1967; Senge, 1990). All of the examined methodologies incorporate some form of information as inputs, the information is manipulated into varying states through processes, and eventually a scenario is built that tells a story. Most of these methodologies then feed the information back for refining the stories. Although it is not explicit in any of the approaches reviewed, a systems perspective is applicable.

❖ Challenging the microcosm of decision-makers

The methodologies examined here all assert that scenarios must challenge the microcosm of decision-makers. Wack (1985a) asserts that "scenarios must come alive in inner space,' the manager's microcosm where choices are played out and iudgement exercised"

❖ The telling of multiple stories

Scenarios tell multiple stories. A scenario with more than three stories becomes unmanageable and the ideal number "is one plus two; that is, first, the surprise-free view (showing explicitly why and where it is fragile), and then two other worlds or different ways of seeing the world that focus on critical uncertainties" (Wack, 1985b). Van der Heijden suggests that more than two stories, but fewer than five, are particularly helpful because they: 1) reflect the uncertainty inherent in the future, 2) allow a multi-disciplinary approach to developing and discussing theories about the world, 3) present findings in a tangible real-world context, and 4) use a causal mode of thinking, which is intuitively comfortable.

❖ Broad-based scope

Scenarios are broad-based, not point-in-time projections. "Because scenario-driven planning does not solicit single-point forecasts from participants, it eliminates the need for any face-saving strategies" (Georgantzas and Acar, 1995). Managers who can adjust their thinking to see a wider range of possible futures will be in a much better position to take advantage of unexpected opportunities (Schoemaker, 1995). One of the most basic characteristics of scenario planning, the idea of multiple plausible outcomes, is critical in order to challenge the assumptions of management.

❖ Examining seemingly unrelated driving forces

The methodologies examined here all integrate seemingly unrelated forces. Economic, technological, environmental, competitive, political and societal forces are examined to develop what are called critical uncertainties and predetermined elements (Schwartz, 1991; van der Heijden, 1997; Ringland, 1998; Wack, 1985b; Schoemaker, 1995; Georgantzas and Acar, 1995). Wack (1985b) identifies predetermined elements as "those events that have already occurred (or that almost certainly will occur) but whose consequences have not yet unfolded". Critical uncertainties are those events that can only be imagined (van der Heijden, 1997).

❖ Requiring knowledge of the deepest concerns within the scenario subject

Scenarios require knowledge of the deepest concerns of managers and executives. Wack (1985a) notes, "We hit planning pay dirt with the 1973 scenarios because they met the deepest concerns of managers". Georgantzas and Acar (1995) assert that the

overriding goal of scenario planning is to enrich the way managers think, learn, and feel about strategic situations by investigating what they are most concerned about. A standard question offered by Schwartz (1991) is:
"What keeps managers and executives awake at night?"

❖ Focusing on re-perceiving reality.

Wack (1985a) offers "the reperception of reality and the discovery of strategic openings that follow the breaking of the manager's assumptions (many of which are so taken for granted that the manager no longer is aware of them) are, after all, the essence of entrepreneurship". In many ways, scenario planning advocates the return to the sort of thinking required to start-up a business. The entrepreneurial element is advantageous when considering how to "begin again". This concept is evident in all of the methodologies reviewed.

## 3.15. Scenarios as Tools for Organisational Learning

De Geus (1988) defines organisational learning as "the process whereby management teams change their shared mental models of their company, their markets, and their competitors". Although it was originally developed as a tool for strategic decision-making, scenario planning is increasingly noted as an important tool for learning (De Geus, 1988; Georgantzas and Acar, 1995; Kleiner, 1994; Schwartz, 1991; van der Heijden, 1997). Senge (1992) identifies three stages of an effective organisational learning process: 1) mapping mental models, 2) challenging mental models, and 3) improving mental models. Scenario planning has been shown to meet all three of these stages (Georgantzas and Acar, 1995). Scenario planning has also been titled a tool for inquiry, reflection, and construction of mental models (Senge, Kleiner, Roberts, Ross and Smith, 1994).

De Geus (1997), as the head of planning at Shell, conducted a study on the average life span of several Fortune 500 companies. His findings showed that one-third of those listed in 1970 had vanished by 1983. His findings also suggest that companies die because their managers focus on economic activities, and forget that they are a community of humans. The oldest companies all had a striking capacity to

institutionalise change and recognised that they had internal strengths that could be used and developed as organisational conditions changed.

With a focus on institutional learning, De Geus has shifted the goal of planning at Shell. In studying how companies learn and adapt to environmental changes, Shell began changing the rules that managers had always known. For example, scenarios were developed that examined the implications of oil prices falling to $15 a barrel in 1985. (At the time, the price was $28 a barrel and $15 was regarded as the end of the oil industry). At first, managers were reluctant to consider such a serious problem, but they were asked to respond to these three questions: What do you think the government will do? What do you think your competition will do? And what, if anything, will you do? The actual price of oil was rising at the time of the exercise, but on April 1, 1987, the actual price fell to $10 a barrel. The fact that Shell had "already visited the world of the $15 barrel helped a great deal" (De Geus, 1997).

Out of this process, De Geus notes the development of shared language that makes the implicit knowledge of the learner explicit. Advocating that institutional learning begins with the calibration of existing mental models, De Geus believes that "the only competitive advantage the company of the future will have is its manager's ability to learn faster than their competitors".

Galer and van der Heijden (1992) suggest that there are two critical factors in the approach to business planning: organisational culture, and the degree of internal goal alignment. The cultural dimension runs from hierarchical mechanistic organisations on one hand to hierarchical network organisations on the other. Either of these can have a strong or weak goal orientation, according to the alignment of internal purposes.

Galer and van der Heijden assert that the approach to planning is dictated in part by the cultural structure of the organisation. A functional, hierarchical organisation will tend to engage in planning in the traditional sense, namely in a centralised and bureaucratic way. A network organisation, with more divergence in its goals, will tend to approach planning with more emphasis on learning, because a dialogue is required to converge varying goals and purposes. These two factors are charted in a planning matrix (Figure 3).

*Figure 3* ***Planning Matrix***

| | **Goal Orientation** | |
|---|---|---|
| | **Strong** | **Weak** |
| Mechanistic/Hierarchical Culture | Predict/ Design / Control | Emergent |
| Networked / Hierarchical Culture | Logical Incremetalism | Planning or learning |

This matrix can be a helpful tool in a snapshot diagnosis of the culture's orientation to planning. Galer and van der Heijden suggest that, according to the culture orientation to planning, different methods and practices are used. Van der Heijden (1997) also identifies the "strategic conversation" as an effective means for transmitting organisational learning. Most organisations have formal processes for the exchange of ideas and views, and these processes often become events such as meetings, budget systems, strategy reviews, cost-cutting exercises and marketing decision points. "These processes *are* less effective than informal conversations because they have less relevance for the participants". Van der Heijden (1997) suggests that the strategic conversation happens when people meet by chance outside of scheduled events, in corridors or lunchrooms. Because this conversation happens spontaneously and takes place in the zone of proximal development (De Geus, 1988; van der Heijden, 1997), it affects how individuals make sense of events and trends in the strategic situation.

It is through this informal conversation that learning about the strategic situation takes place (van der Heijden, 1997). Scenarios are particularly effective in transmitting strategic options within this conversation. However, the scenarios filtered into the conversation must meet the following criteria: simplicity and evocativeness, a short name, plausibility, relevance (Schwartz, 1991; van der Heijden, 1997).

## 3.16. Creating "Future Memory"

A strange phenomenon has occurred with the use of scenario planning called "future memory". As Schwartz (1991) notes in the final step of his methodology, the selection of leading indicators and signposts is critical to the realisation that a given scenario may be unfolding. Sometimes the direction is obvious, but it can also be very subtle. Indicators *and* signposts are selected to monitor, in an ongoing sense, the progress of the organisation along the lines of a given scenario. As in the study conducted by De Geus (1988), having considered the $15 barrel of oil, and what the company would do in such a situation, Shell was prepared to act based on stories that had circulated throughout the organisation. This is future memory - the advantage created by having previously considered critical circumstances when they actually present themselves (Schwartz, 1991).

In essence, individuals create future memory constantly. It unfolds along the lines of logic, for example, if X happens, then I will do *Y*. When this concept is applied to an entire organisation, the implications become very powerful. Coupled with the idea that the only competitive advantage of organisations of the future will be the ability of its managers to learn faster than their competitors (De Geus, 1988), future memory can decrease the response time of an organisation to external changes in the environment because the situations have been considered (De Geus, 1998; Schwartz, 1991; van der Heijden, 1997).

## 3.17. Evaluating Scenario Planning

The evaluation component is nearly absent from the literature of scenario planning. One study conducted by Schoemaker (1995) at the University of Chicago revealed some insights. Sixty-eight MBA students were asked to identify critical issues in their daytime jobs. They were then asked to provide confidence ranges. Schoemaker describes the following:

For example, a student might estimate that sales for her company would be 50,000 units per year five years hence. Then she would determine that she was 90% sure that the

actual sales volume would be between 30,000 and 70,000 and 50% sure that it would be between 40,000 and 60,000. Each student also asked a colleague at work who was familiar with the issues for similar estimates.

Weeks later, the students developed a few scenarios for the initial issues and the guesses and confidence ranges were taken again. New estimates were also gathered from a colleague after reviewing the scenarios. Confidence ranges were found to widen about 50%. The scenarios were found to have a greater impact on best guesses than on ranges of confidence.

While this study did not evaluate the effects of an implemented scenario project, it seems to reveal that considering options will have an impact on perceptions of outcomes in the scenario planning process. This was, however, the only study found to evaluate effects of scenario planning in any form. Scenario planning, developed in practice and proprietary in nature, is gaining exposure to academic examination, but has not been thoroughly documented as a discipline or process.

## 3.18. Implications for Further Research

The themes revealed in this paper outline the key characteristics of scenario planning and advocate the use of scenarios for enriching traditional strategic planning. Scenarios have also been suggested as a means for developing organisational learning and decision-making, however, further research is necessary in these areas. Perhaps most critical to the development of scenario planning as a discipline, an evaluation process, or method for measuring the impact of scenario planning on the decision-making and learning processes of organisations is the validity of the approach.

The history of scenario planning is here documented with the intention of outlining the context out of which scenario planning as a process has grown. Lacking in explicit theoretical foundations or the result of proprietary applications, the current state of scenario planning must move toward the establishment of sound theoretical bases for the rigorous and detailed study of the process.

## 3.19. Conclusions

While the process of scenario planning has proven itself in some specific situations, without a sound means for measuring the impact of participation in scenario planning, or explicit theoretical foundations, the process cannot be developed further. Furthermore, in the absence of these two critical elements, it is unlikely that the practitioner or scholar will be able to attribute any increases in organisational effectiveness, organisational learning, decision-making capacities, or replicate results. This manuscript has outlined the background and context of scenario planning and has advocated some particular points that, if addressed, could greatly improve scenario planning practice and research.

# 4. Methodology Applied to the Dublin City Foresight Project

## 4.1. Introduction

In Chapter 3 scenario planning has been characterised as a perceptual technology, or in Pierre Wack's terms, a tool to "re-perceive strategic openings". This chapter further delves into the methods employed by the practitioners. The purpose of this chapter becomes a reference point for the reader to understand the practice, by way of elucidating the processes and techniques used to create scenarios in practice. Moreover, this chapter refers to and delineates a scenario planning exercise undertaken by the researcher over a 18mth time scale during this research study. The researcher set-up the Dublin City Foresight exercise and invited a number of leading players in Dublin to attend the related workshops. Having recorded the Issues and Trends at workshop 1, the researcher then used these to author the four scenario stories (combined with related knowledge gaincd from the environmental scanning and strategic conversation processes). Whilst the researcher recorded the process and outcomes of the workshops the role of facilitator was filled by Professor John Ratcliffe in Workshop1 and by Phil Murray in Workshop 2.

As methods are born from the values, perspectives and visions of those who create, use and adapt them over time. "How to" do something is indebted to and an embodiment of the culture of the social group creating the practice, it was felt therefore that the best way to understand the practice of scenario planning and to fully appreciate its capabilities, ambiguities, attributes and functions would be to work through a scenario planning exercise from beginning to end.

The Dublin City Foresight scenario planning approach continues to follow one locus of scenario planning, that deemed the *Intuitive Logics* school (similar to the Global Business Network approach discussed in Chapter 3), which seeks to understand the environment in terms of "driving forces" and perception through "mental models" and then to produce multiple scenarios (in this instance four scenarios were created by the

researcher) that bridge the gap between the two. As demonstrated in Chapter 3 even within the scenario planning community and the modern day applications of the method, practitioners demonstrate numerous ways about what they are doing and how they are doing it. While categorisations and demarcations are made in this study and particularly in the Dublin City Foresight scenario planning exercise, it is important the flexibility both in the representation and application of the methods is not obscured These methods are contingent, which is to say they are implemented selectively and differently dependent upon the setting, the goal, the audience, the scope of the problem and the type of organisation/ society engaged. To begin it is necessary to explore background information regarding the participants, the setting and the role of the practitioner and continue with descriptions and commentary on the different methods involved in scenario planning the method selected in the case study and a presentation of the Dublin City Foresight scenario exercise.

## 4.2. Participation

Scenario planning is professional, rigorous and aimed at "empowering" and "enabling" clients and participants rather than solving problems or making decisions for them. As opposed to typical business consulting services that aim to resolve client problems, this practice is described as one that "empowers" the decision-makers. The practitioners' aim is to encourage those engaged in the process to develop a new way of thinking that recognises the malleability of the future within certain structural constraints. The practitioners see themselves not as "telling their clients what to do" but rather "enabling" them to learn to solve their problems. While some scenario practices take a global scenario and apply them to their client's situation, or conduct interviews and then write the scenarios themselves, those using the methods described below favour a more participatory process.

The importance of client participation seems to have evolved from problems with the scenarios not being taken seriously. It is believed that an active engagement with the process itself serves to solidify client and participant commitment to and interest in the scenarios generated. As one practitioner states:" You must get the people engaged, if there is not real engagement, [an] embodied relationship to what is being presented,

nothing has happened."(Swartz, 1991) This is to say, participation throughout the process helps to solidify "buy-in" or acceptance of the scenarios. Not only will the participants sometimes present the scenarios to interested parties, but many may also have a role in authoring them. Such an intimate level of engagement, such as composing the plot and formulating the narration, is considered professionally responsible and tends to lend to the support of the project.

## 4.3. The Participants

Both corporate and governmental sectors use scenario planning and despite public or private affiliations, it is taken for granted that a wide variety of styles of thinking and ways of making meaning enrich the process and work space. Different actors with various areas of expertise or interests come together during a scenario workshop. In this sense, scenario making workshops can be viewed as a space which brings together different *social worlds*. Those involved from the corporate sector may be managers, executives, CEO's, shareholders, consumers, economists or industry experts. Projects undertaken in the political milieu may involve an even broader composition of actors. For example, the South African Mont Fleur scenarios involved political parties, civic organisations, professional bodies, governmental departments, trade unions, and business groups. Similarly, the Destino Columbia scenarios project enlisted a wide range of participants from business, indigenous groups, political factions, the church, media, right-ring militias and even four illegal guerrillas via speakerphone from a maximum-security prison and from exile (Kahane, 1998). The Dublin City Foresight scenario project involved people from diverse sectors. It was recognised from the outset that in order to run a successful scenario planning exercise for Dublin the participants would need to be from many different sectors and opinions would need to be sought from many levels – a detailed listing of the participants can be found in Appendix B, these wildly varied social actors are referred to as *participants* with regret of possibly erasing their diversity.

## 4.4. The Place

This practice is usually set within large corporations or political alliances dealing with countrywide issues. Governments have also conducted scenario projects which take place within the context of a larger foresight or technology assessment program aimed at assessing research and development priorities or are designed to deal with a specific planning issue or with long-term social or economic goals. Clients from the corporate sector may be interested in similar macro issues, but often have focused questions dealing with specific products, markets, preferable organisational structures, or consumer needs. There are also scenarios that are produced through multi-governmental and corporate partnerships that seek to make broad pictures of the future environment in order to conceptualise the landscape where political decisions are being implemented.

Regardless of the scope of the project, these participants meet in a common workspace designated for constructing scenarios. Some practitioners prefer to hold workshops offsite or in conference centres to create a neutral atmosphere of a retreat. A workshop often lasts for three days, or may take place during a series of meetings over several months. While the process may take between three to nine months, some projects include preliminary organising and co-ordinating that takes years. Regardless of the scale of the project, it is typical that sometime during the project participants meet for long, consecutive days. One practitioner described the scenario building workspace as "very interactive with white boards, scribes, persons documenting the conversation with visual tools, and getting people involved with their hands" (Schwartz, 1991).

There is also an emphasis on constructing a safe place where the participants can feel comfortable to share thoughts. The questioning of assumptions and speaking about the future makes participants feel a degree of discomfort because they learn what they do not know. A sense of safety and security needs to be created by the practitioner as a way to allow the conversations to go to a deeper level and allow the participants to feel safe, so they can open their minds to new ideas and perceptions. In addition, the practitioners are sensitive to establishing trust within the group and throughout the process.

Within the Dublin City foresight scenario planning exercise the first workshop (workshop 1) took place within DIT Bolton Street, the second at a conference suite in a Dublin City Enterprise Centre, the strategic conversations took place in the confines of the interviewees offices (Interviewees Listing Appendix C).

## 4.5. The Practitioner

The practitioner often takes an active role in organising, planning, and inviting the participants and usually serves as a facilitator in the process. When the literature is questioned as to what makes a successful scenario practitioner, characteristics such as "charisma", "divergent thinking", and "group skills" emerge. It seems as though the practitioner must actively engage the participants and get them excited about the process. Drawing from the Royal Dutch Shell experience, in Consequential Heresies the importance of Scenario Planning at Royal Dutch Shell the importance of the practitioner "being a good helicopter" is stressed. Helicopter refers to taking a roving distance from the topic at hand while maintaining the ability to fly down to inspect the details. A lesson learnt from the Dublin City Foresight Exercise suggests that the moderator's / practitioners role is to unearth assumptions, help clients 'think the unthinkable' and expand world views.

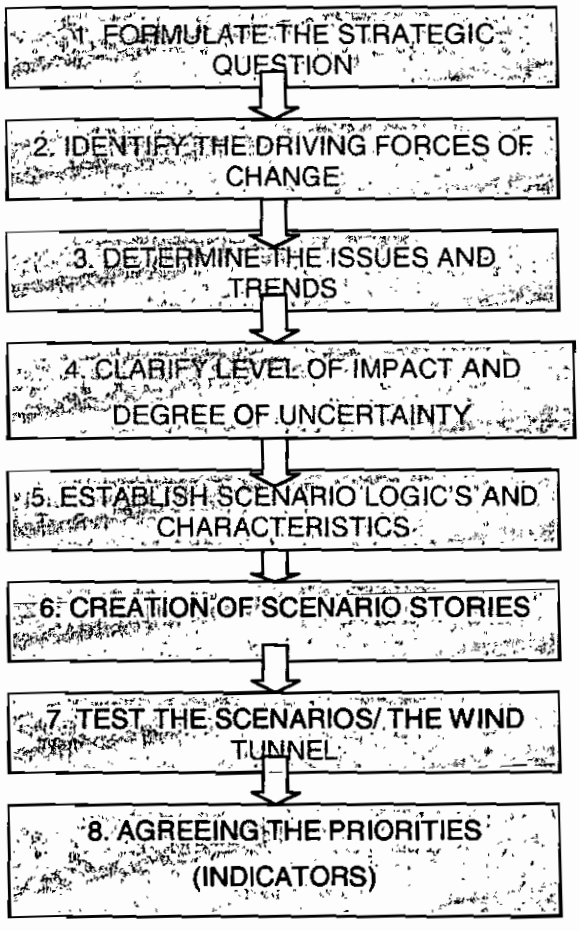
It is also important for the scenario planning practitioner to advocate a kind of distanced impartiality to the material flowing in the workshops. Doubtless it is difficult for the practitioners not to influence and *their* worldviews will inevitably shape the content to greater and lesser degrees. Varying degrees of acceptance exist as to "content intervention". There is a domain which places those practitioners who used shocking statistics, their own industry research and other means to swerve content as outside of the true essence of the scenario planning community. This thesis defies the idea of an objective, neutral facilitator and suggests rather that the practitioners inevitably take a more active role as in the Dublin City Foresight scenario planning exercise, despite attempts to somehow remain outside the process. This intervention, however subtle, affects the course of the discussion and, in the end, is written into the scenarios.

## 4.6. The Scenario Planning Process

### 4.6.1. Introduction

This section defines scenario planning drawing from the most common interpretation within this school of thought: as stories describing different but equally plausible futures that are developed using techniques that systematise perceptions of alternative futures. From the literature review and interview data, some common, basic steps in scenario planning can be distilled. A standard process is outlined in Figure 4.

***Figure 4 The Scenario Planning Process***




## 4.7. The Problematic Situation – formulation of the strategic question

Within the 8 steps outlined above there are layers of technique for conducting a scenario workshop, generating scenario stories and agreeing the priorities. Drawing from Donal Schon (Schon, 1993) one approach begins with the re-conceptualisation of the problem

to determine the best way to frame and thereby approach it. If the larger context and forces affecting the decisions that have to be made are focused upon, it is possible to view this problem in terms of a "problematic situation." The process of constructing problematic situations can be characterised as developing a problem "out of a vague and indeterminate reality" by naming and framing and selecting perspectives (Schon, 1993) The practitioner works with the participants to complicate, expand, and reconfigure the perceived "problem" into a more integrated, encompassing story. As noted by Schon, such framing of a situation determines, to a large degree, the kind of solutions (and in this case, the kind of scenarios) that will be generated. In this sense, the framing of the "problematic situation" sets the stage for what will and will not be included as relevant or plausible considerations.

## 4.8. Step 1 Formulate the Strategic Question

Step one is to identify a focal issue or decision. Scenarios are built around a central issue outward toward the external environment. In delineating the scope of the 'Dublin City Foresight' project, it was determined that there were four defining issues to consider. The project should:

- Deal explicitly and effectively with the full range of uncertainty in the medium term future (a time line of 2015 was set)
- Take account of future economic, technological, environmental, governmental, demographic and cultural conditions.
- Be compatible with existing planning and management culture within the Greater Dublin Area.
- Be capable of developing a range of plausible strategic options.

The scenarios focus on the future of Dublin. Within that context, it is useful to focus the discussion further by identifying the key question to be answered by the scenarios.

Resulting from workshop 1, and the selected Strategic Conversations, an initial question was modified to read:

**"What policy measures should be implemented now in order to secure the sustainable planning and development of Dublin?"**

It has been determined that the scenarios would focus on the sustainable planning and development of Dublin. Given Dublin's prominence as Ireland's premier city, the scenarios would also take into account key aspects of Ireland's cultural, political, and economic situation. Sustainability in planning and development was singled out because of the spiralling development of Dublin over the past 10 years. Its growth in terms of population, land mass and economics has been phenomenal and begs the question *'What next?'*.

## 4.9. Strategic Conversations - Interviews

Great effort and time has been invested in perfecting the art of the unstructured interview. Rather than the traditional approach of the structured interview the scenario planning approach favours the 'strategic conversation'.

Using this approach interviews are as much as possible of an open-ended nature. Thus the interviewer does not arrive with a ready set of specific questions concerning the topic. Instead questions are general, and intended to trigger a free-flowing conversation, in which the interviewee sets the agenda.

Each interview was opened by explaining the purpose of the exercise. Time is taken to explain what would happen to the data collected, it was made clear to the interviewee that all data would be stored anonymously. This understanding thus helped the interviewee to talk more freely.

The challenge for the interviewer is to establish oneself as a genuine listener. Genuine listening involves paying attention to what arises in the mind of the listener during the conversation (active listening), and feeding this back to the interviewee. Some degree of interaction of this type is required to establish a trust relationship between the parties in the conversation, a pre-condition for a successful interview.

The start of the interview sets the tone for the rest. Again, some personal trust needs to be established as quickly as possible. This is important to enable the interviewee to express what they care about. Thus the interviews generally began with asking the interviewee how they arrived in their current position.

After this introduction the interview proper starts. The difficulty for the interviewer is that they must refrain form setting the agenda of the discussion. The questions must therefore be designed so that they trigger conversation, but influence the agenda as little as possible. Examples of a set of trigger questions which have been found to be extremely effective are known as the 'seven questions'. The core of these originate from the work of the Institute of the Future (Amara & Lipinsky, 1983), but further questions have also been added by Shell during scenario exercises.

As this tool is perceptual, the knowledge, understanding, and *worldview* of the participants are integral to the workings of the process. Interviewing is considered one of the best first steps to get a sense of the participants' worldviews and understand how they make decisions.

Certain questions are heralded as skilful in retrieving such information. Known as the "oracle questions", this line of inquiry aims to reveal the critical uncertainties, anxieties and priorities of the individual: Suppose I were an oracle and knew the future, what one question would you ask me? Another: Assume now *you* are an oracle, look back and describe your "good world" and your "bad world"? (van der Heijden, 1996). This last question is said to be an effective way to reveal values, as the interviewer is not defining good or bad, but rather leaves it to the interviewee to define and explain their own models and ethics. Another question often used is: Where do you feel at variance with your culture? How does your culture constrain you? This question not only allows the interviewer to understand the cultures at play, but also the individual's restraints within the culture. Finally, the "epitaph" questions ask: If you quit your job, what would you really like to leave behind? What would you like to achieve between now and the time you leave your job? What would you like to be remembered for? All of the questions are used to interrogate the interviewees in order to reveal, make explicit and understand their mental models.

The provocative and personal questioning brings forth people's prejudices and assumptions and generates the background information necessary to orchestrate the perceptual shift, or re-perceiving, endorsed by Wack. This opening and exposing of mental models is achieved through the explicit articulation of individually and/or collectively held views. During the Dublin City Scenario Planning exercise the began to look upon the information gathered through interviewing as moving from what was there in the tacit domain to the articulate domain. As a kind of self-knowledge generator, this process helps the subject to analyse and clarify assumptions. Or, Peter Swartz contributes, scenario planning is a "trick to get people to listen to themselves" and reveal tacit understandings locked in worldviews. Once the worldviews are out in the open, the process moves to see how the mental models enforce, restrict, or permit thinking, acting, and co-operation by shading perception on how the world works.

## 4.10. Environmental Scanning

It was determined through the interview process and consecutive workshops that the Dublin City Foresight scenarios would focus on the sustainable planning and development of Dublin. Given Dublin's prominence as Ireland's premier city, the scenarios would also take into account key aspects of Ireland's cultural, political, and economic situation. Sustainability in planning and development was singled out because of the spiralling development of Dublin over the past 10 years. Its growth in terms of population, land mass and economics has been phenomenal and begs the question *'What next?'*.

In a parallel analysis performed at the same time, an assessment of Dublin's current situation was undertaken. This analysis took the form of Environmental Scanning. The precise origins of Environmental Scanning are unclear, but much of it focused on identifying economic developments. Soon, it came to include the tracking of prospective technological innovations, and then social trends and change. By the late 1970's it was recognised that new legislative and regulatory requirements needed to be monitored. In essence, it involved a broad scrutiny if all major trends, issues, innovations, events and ideas across the spectrum of activities deemed relevant for the

particular study. This can however be very broad. The method used in this research project is the six sector approach advanced by Kotler (1997) which classifies information according to the following areas: Culture, Demography, Economics, Environment, Governance and Technology. An example of this for of scanning for real estate can be found at www.mcb.co.uk/pmgf (Ratcliffe, 1998).

The objective of environmental scanning is not to predict the future but to help decision makers in situations of increased uncertainty. It has become increasingly important, mainly as a consequence of the growing need for planners and policy makers to have information on the general environment outside their specific area of interest as well as within it. The perspective gained is thus more of an outside-in than an inside-out one. Careful scanning results in the development of a body of information with a range of uses, and the process of scanning itself has the value of sharpening observation and analytic skills while providing opportunities to hone discrimination, judgement and expression (Slaughter, 1995)

The environmental scanning process carried out during the Dublin city foresight exercise devilled into many publications both public and private sector. In this parallel analysis, an assessment of Dublin's current position was established. This assessment had little bearing on the scenario development work itself, but bore a major role later in examining the strategic implications of the scenarios.

## 4.11. Workshop 1

The first workshop held in conjunction with this project was held on the 24th April 2001. The primary function of this workshop was to identify the issues and trends effecting Dublin's Future (again using the six sector approach), and could be viewed as a brainstorming session involving leading players with an opinion on the future urban landscape of Dublin. A listing of the attendees at the workshop can be found in Appendix B.

In summary a combination of environmental scanning, workshops and strategic conversations identified the driving forces. These are the most significant elements at play in the external environment.

## 4.12. Step 2 Identify the Driving Forces of Change

Since scenarios are a way of understanding the dynamics shaping the future, the next stage in the process is to identify the primary "driving forces" at work in the present.

***What are the major forces driving change that impact the strategic question?***

Six major forces were defined (Figure 5). These are the forces driving future change. These are the elements, or dimensions which need to be focused upon in describing the future of Dublin, all need to be included in the scenarios.

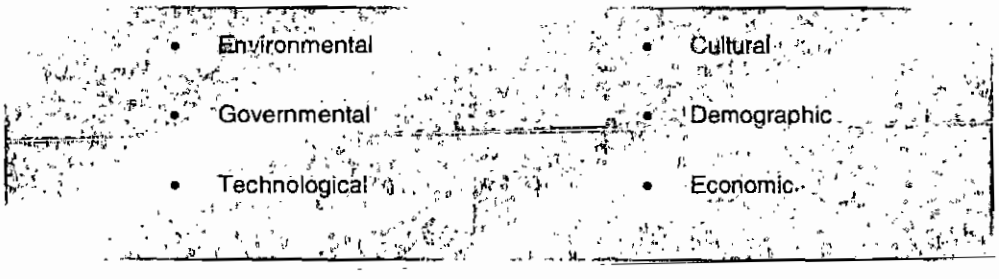



***Figure 5*** ***Major Factors and Forces Driving Change***

## 4.13. Determination of the Issues and Trends

The next step is to cluster the interview data into broad categories. The ordering and grouping should be simple and each category should be named. However, there is said to be no particular recipe for dealing with how to order and group, but rather the clustering process should be done on an "intuitive" basis. According to a scenarios training seminar, the best way the practitioner sees fit will suffice. (van der Heijden, 1993). The clusters are then contingent upon the sixth sense of the practitioner. For the Dublin City Foresight exercise the interview data was clustered in to the same six sector approach used to organise the environmental scanning process as described above.

Once the clustered categories are presented to the participants, the next stage is to establish the *Issues and Trends* affecting the problematic situation. The clustering of driving forces is intended to identify the forces that give shape to and influence the external environments of the participants. The editors of the popular book *Learning from the Future: Competitive Foresight Scenarios* divide driving forces into two main categories: environmental forces and the actions of institutions. Here environmental forces are economic, social, cultural, ecological, and technological in nature. The actions of institutions refer to "different types of business organisations, political parties, governmental agencies, and regional and international bodies."(Fahey and Randall, 1997). Other scenario authors explained the classification of Issues and Trends in terms of SEPTE (social, economic, political, technical and environmental) factors.

There are many different methods to choose the most relevant and significant Issues and Trends dependent upon the logos of the practitioner, the will of the participants and the specific framing or focus of the problematic situation. The literature suggests cultural variations affecting the practice. The Dutch typically would decide on Issues and Trends through long discussions culminating in consensus. The Americans would appear much more comfortable with voting on Issues and Trends as a means to select for relevance and importance, despite the fact that some will disagree and not be represented. At scenario conferences debate has ensued over which method is ideal- whether voting (by hands, by stickers), discussion or measures that are more "creative". The methodology would appear the same, but the application may be different.

The above examples point to an obvious way that the method is flexible to accommodate the desires of those involved in the process. Different groups will choose different Issues and Trends that seem important or relevant to their situation. However, the Issues and Trends are often presumed to exist outside any group's ability to imagine them. The point is that these structures of change or drivers of civilisation are said to operate independent of peoples' ability to perceive them.

The Dublin city foresight exercise undertook an exploration of the issues and trends pertaining to the future of Dublin. These Issues and Trends were diagnosed and classified according to the six-sector approach outlined above.

### 4.14. Method

Over 20 selected persons were invited to attend a workshop in April 2001, a full listing of attendees can be found in Appendix B. Workshop 1 was attended by a variety of persons including a valuable contribution from Dublin City Council – in particular the City Development Board prior to the publication of Dublin 2002 – 2012 a City of possibilities. As already mentioned in conjunction with the workshop, 12 interviews taking the form of '*Strategic Conversations*' were held with leading professionals with a focus on Dublin City (Appendix C Interviewees Listing).

During the workshop the attendees were broken into three groups, each group was given two topics from the clustering methodology as demonstrated in Figure 6.

***Figure 6 Sector distribution at workshop 1***

| Group | Topic |
|---|---|
| Group 1 | Cultural, Demographic |
| Group 2 | Technological, Economic |
| Group 3 | Environmental, Governance |

The groups were asked to ascertain what they considered would be the main issues and trends with an effect on Dublin over the next 15 years. In excess of 160 Issues and Trends were recorded at workshop 1 a full listing of these can be found in Appendix D.

### *4.15. Step 4 Clarify the Level of Impact and Degree of Uncertainty*

Subsequently, the same group were asked to rate these issues and trends according to their likely 'level of impact' and 'degree of uncertainty' as demonstrated in Figure 7 below.

*Figure 7* ***Impact and Uncertainty Ranking***

**Issues and Trends - Dublin City Foresight**
**Impact and Uncertainty**

You are asked to consider and rate the following issues and trends described below as a "List of Issues and Trends" on the scale of 1 to 5 in the appropriate box. Please try to minimise the use of 3 as a level of rating.

**Impact - 5 = Most important / Very High Impact. 4 = Important / High Impact.**

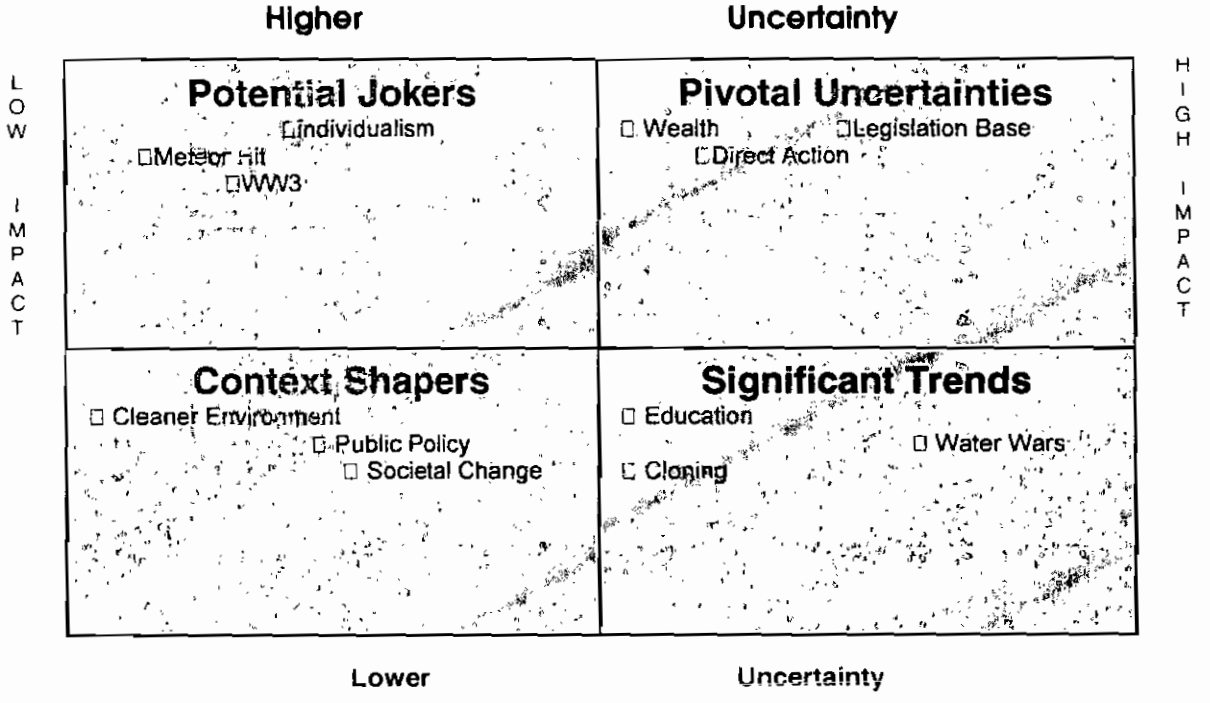
**3 = Modest importance. 2 = Unimportant / Low Impact. 1 = Trivial**

| List of Issues and Trends | Impact (1= low to 5= high) | Uncertainty (1= low to 5= high) |
|---|---|---|
| **Economic** | | |
| Changing economic fortunes over past decade | | |
| Political appetite for state intervention in provision of a range of income support schemes i.e. pension/social security | | |
| Substantial proportions of the Irish population are prepared to vote with their chequebook in response to the possibility of cheaper services in another Euro-currency country... | | |

**Uncertainty. 5 = Most certain by 2015. 4 = Likely. 3 = As likely as not. 2 = Unlikely. 1 = Almost impossible by 2015**

The workshop attendees scored each uncertainty under the two headings described in Figure 7. Each uncertainty was plotted via its aggregated scores as a point in the plane and the resulting scatter-graph was analysed into four quadrants as shown in Figure 8.

***Figure 8*** ***Illustrative Quadrants - Issues and Trends***



Each quadrant has a different interpretation as follows (GBN, 1999)

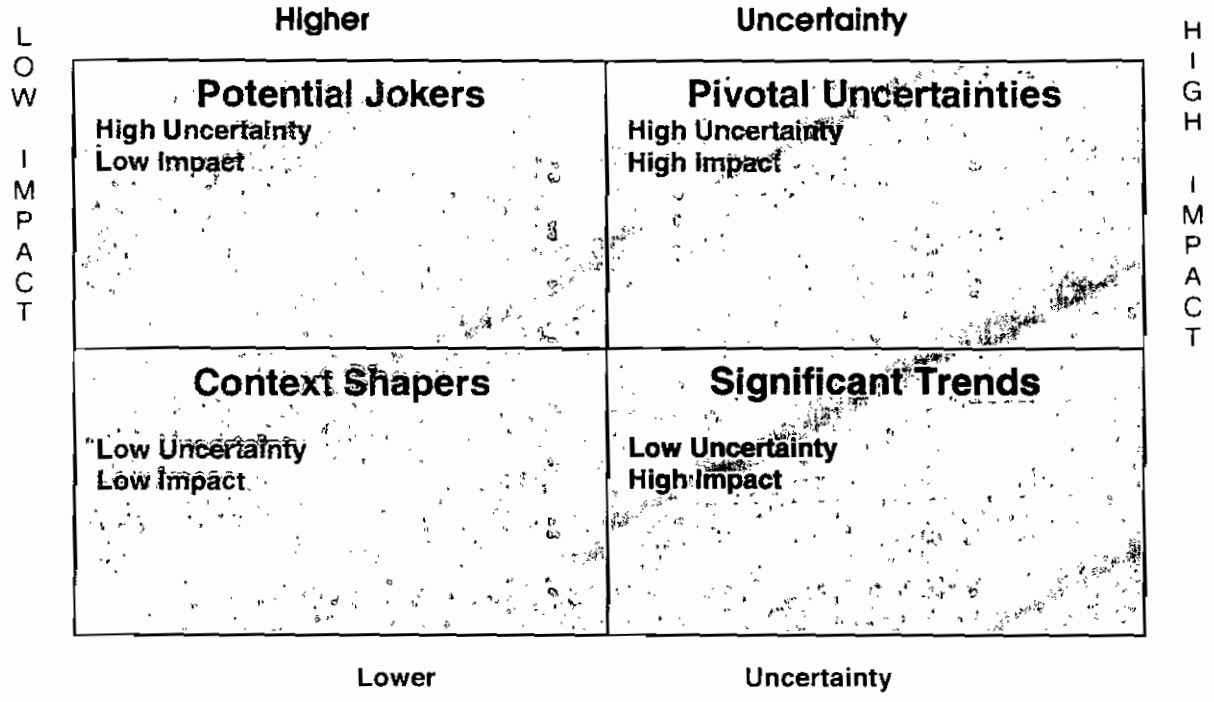



***Figure 9 Positioning of Issues and Trends***

- *Pivotal Uncertainties:* These are likely to have a direct impact, but their outcome is uncertain. These are pivotal in the sense that the way they turn out may have strong directional consequences. These are the areas that will determine the shape of different scenarios.
- *Potential Jokers:* These are pretty uncertain as to their outcome and less relevant. However, it could be dangerous to treat them as mere 'noise'.
- *Significant Trends*: These impact more directly upon the question in hand and it should be possible to anticipate their effect.
- *Context Shapers*: These are relatively certain and, therefore, will surely shape the future context.

In the scenario building exercise described here, the factors in the context shapers quadrant were woven into every scenario when fully written-up. The significant trends also ran through each scenario, but the way in which they were developed was different in each one. The potential jokers were also useful factors to bring into a scenario when a surprise or distinguishing element was felt desirable (GBN, 1996)

It is the pivotal uncertainties, however, that are central to the construction of the alternative scenarios.

## 4.16. Breakdown of Matrix Details – outcome of the rating of Issues and Trends

For illustrative purposes Figure 10 details some of the issues and trends as rated and categorised. – a full listing can be found in Appendix D

| *WILD CARDS* | |
|---|---|
| Power Failure and Gridlock | Collapse of Peace Process in Northern Ireland – spread to Dublin |
| City Government V's Nation Government | Economic Stagnation |
| Value changes e.g. Post Materialism | National Unity – Placing further emphasis on Dublin Belfast Corridor |
| Loss of Irish Competitiveness and collapse of Strategic Advantage | Manipulated consciousness |
| Large Scale Industrial and Public sector unrest | Meteorite Hit |
| Civil Strife – Bombing campaign, Bio-Terrorism | World War 3 |
| *CONTEXT SHAPERS* | |
| Consensus and consultation | Intellectual Property |
| City as centre of region | Social exclusion and its implications |
| Infrastructure development – behind and curtailing business' | Greater Dublin region |
| Private Sector and consultants | Spatial fragmentation and competition between authorities for RATES BASE |
| Medical Implications | Cleaner environment |
| Legislation EU | Design Urban Terrorism |
| Consumer Demand Quality of environment | Environmental Pricing/ Auditing & Labelling |
| *SIGNIFICANT TRENDS* | |
| Centralisation (increasing) of and due to e-commerce | Split residency – between home and work between home and other home |
| Trend Led / Vision Led | Affordability of necessities |
| East Europe / West African emergence | Household size and Ageing |
| Government – great emphasis on regulation. Less Government service by trading entities | Impact of IT on real economy of production |
| Correct support services | Cloning |
| *PIVITOL UNCERTAINTIES* | |
| Implications of Taxation | Peripheralisation of Ireland in EU and Europe |
| Economics of E-commerce | Globally defined local economy – loss of local identity |
| Loss of Traditional Values | Immigration and emigration |
| Power of Urban / co. Manager | Regionalisation supply and marketing not centred in Dublin |
| Food GMO – Organic | Fragmentation of central institution of city government |
| Legislation base | Status of Dublin has changed moved from provincial to international status |

***Figure 10 Outcome of the rating of Issues and Trends***

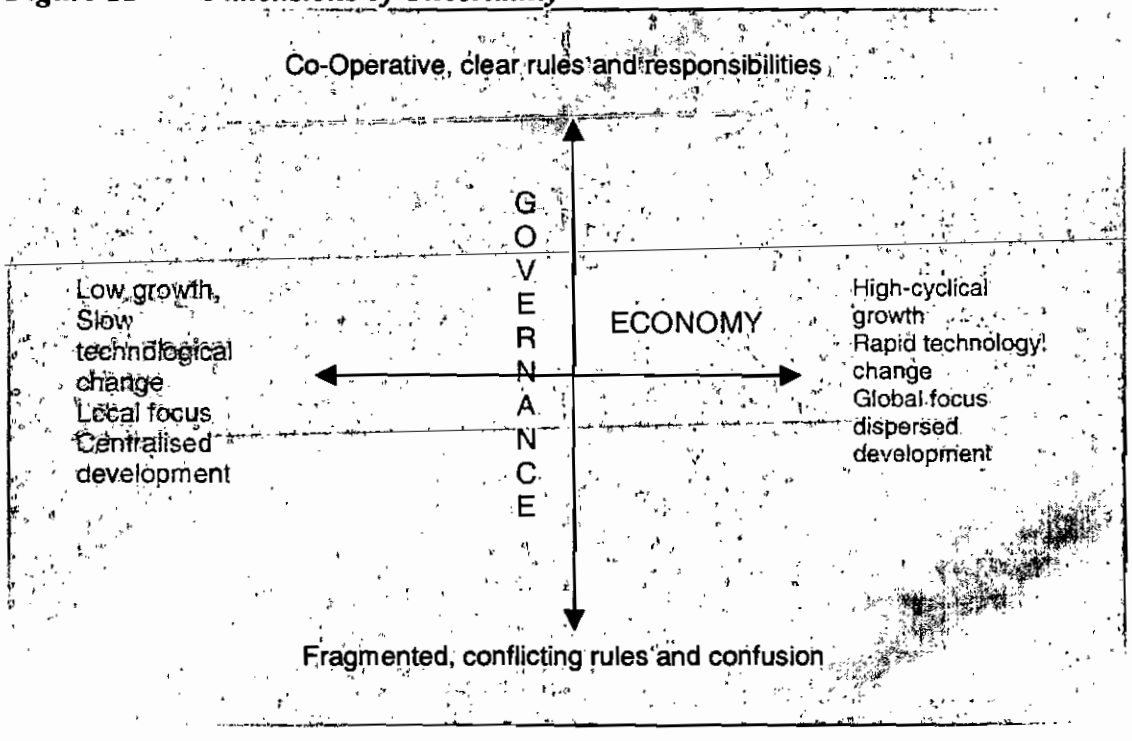
## 4.17. Dimensions of Uncertainty

Some forces are predictable. We are confident in their direction and impacts. These are often referred to as predetermined elements. We should plan for these changes under any scenario, because they appear to be certain. Other forces, however, are unpredictable. Either their direction or future impacts are uncertain. In short, for these key uncertainties there is a wide range of possible future outcomes. These uncertainties are important because they lead to diverging paths for the future. They are critical in defining different scenarios. To identify these, the following question was asked:

***Of the major forces identified, which two have the greatest potential to change significantly the future of Dublin?***

Two key uncertainties were defined. These may be represented as two dimensions forming orthogonal axes as shown in Figure 11.

***Figure 11 Dimensions of Uncertainty***




One key uncertainty was defined as **"Economy."** At one extreme, the future could be characterised by high, cyclical economic and population growth and rapid technological change where the economy of Dublin is focused outward on global relationships and

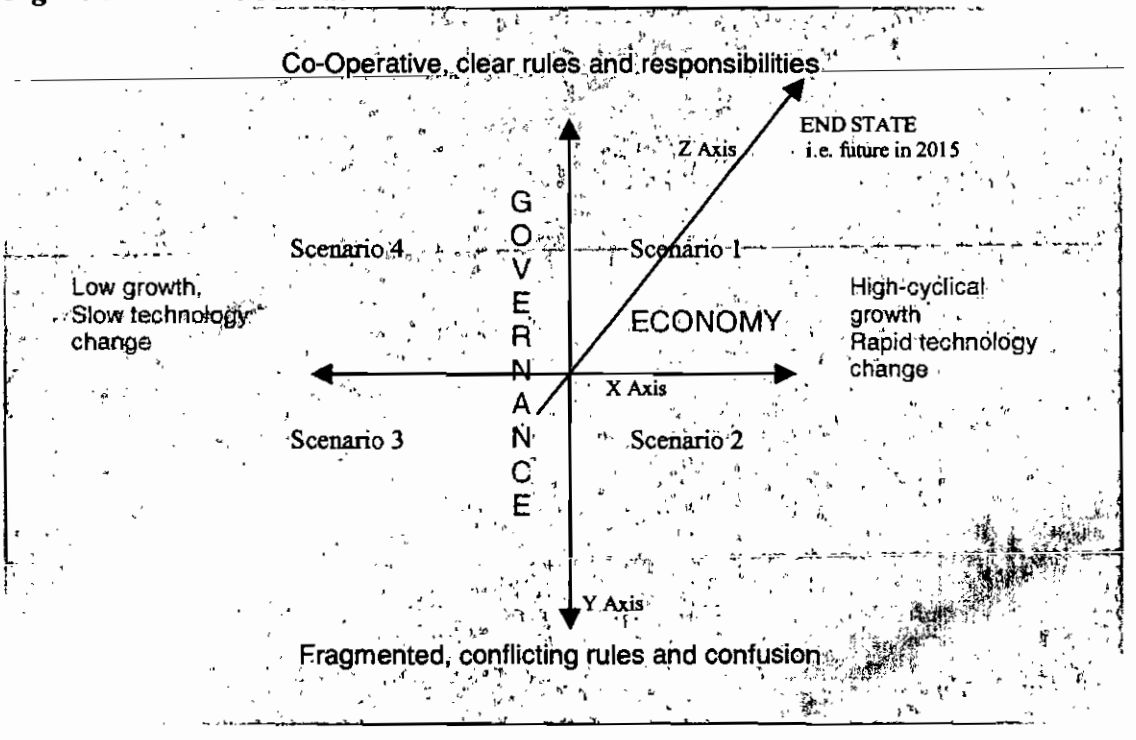
growth within the region is widely dispersed. Alternatively, the future could be characterised by low, stable growth and slow technological change leading to a more local economic focus and centralised development within the region.

The other key uncertainty was defined as **"Governance."** At one extreme, relationships within the region and with other levels of government could be co-operative and flexible with clear roles and responsibilities. Alternatively, relationships could be fragmented and rigid, with poorly defined and conflicting roles leading to confusion and acrimony.

## *4.18. The Matrix*

The issues and trends are then ranked for importance (or relevance) and most uncertain in order to be fitted upon a matrix. The matrix is commonly used by practitioners to represent the forces that have been generated through discussions or revealed through interviewing. The matrix is another way that the information is sorted, categorised and ordered so that key themes can be expressed through the scenario stories.

***Figure 12 The Matrix***



As displayed in figure 12, the matrix has an X and Y-axis upon which two main driving forces are mapped. In this case governance and kinds of economic dispositions are represented. The axes are divergent, which is to say there is not a cause and effect relationship at play. Instead, the matrix helps to show the interactive relationships between each driving force as related by degree of impact and degree of uncertainty. In figure 12, degree of impact of economy (on the X axis) is referenced upon high-cyclical growth and rapid technology change versus low growth and slow technology change. The Y-axis is based along a range of governance. The empty spaces of the axes can be considered the site where the story evolves along a continuum of time as symbolised as axis Z. The far end of Z is the end state, or the version of how things are imagined in the future date. The creation of four scenarios is common when the matrix is employed and is regularly adopted by both corporate and governmental groups, and indeed was adopted in the Dublin city foresight exercise.

## 4.19. Scenario Logics

After the matrix has been created, *scenario logics* are worked out to determine how events will be linked together. This construction involves taking the end states, coupling them with the driving forces and working through the dynamics over time. The logics of the scenario link the events together and narrate the why and how we have arrived at a particular point in the future. Scenario logics are also known as the *story line,* and refer to the chronological flow of events that lead to the end state.

Oftentimes, scenarios are complicated by the addition of an extraordinary event that would have a large impact. Known as *wild cards* or *surprises*, they have been characterised as wholly discontinuous events, catalytic events, or unintended consequences of other actions. (Schwartz and Ogilvy, 1997). For example, political coups or assassinations, plagues, religious upheavals or nuclear disasters could be introduced as surprises. For work in the corporate sector, Schwartz suggests one "trick" that "frightens the management enough to think" which integrates alternatives that would upset their world, such as a stock market crash or a massive downsizing (Schwartz, ,1992) Some practitioners believe that these surprises serve to point to the unpredictability inherent in stories about the future, while others believe that the

arbitrary selection of a sequence of events and surprises lead to random scenarios of little use for decision-makers.

## 4.20. Step 5 Establish Scenario Logics and Characteristics

The key uncertainties provide a logical framework for developing scenarios. Each quadrant in Figure 11 represents a different combination of uncertainties and different future outcomes. The challenge is then to develop scenarios that describe in more detail the characteristics of each future and show how that future could come about. Characteristics for each scenario were developed and formed the basis for the scenarios presented below. The names selected for the scenarios are shown in Figure 13.

*Figure 13* ***Future of Dublin – Scenario's Plotted***

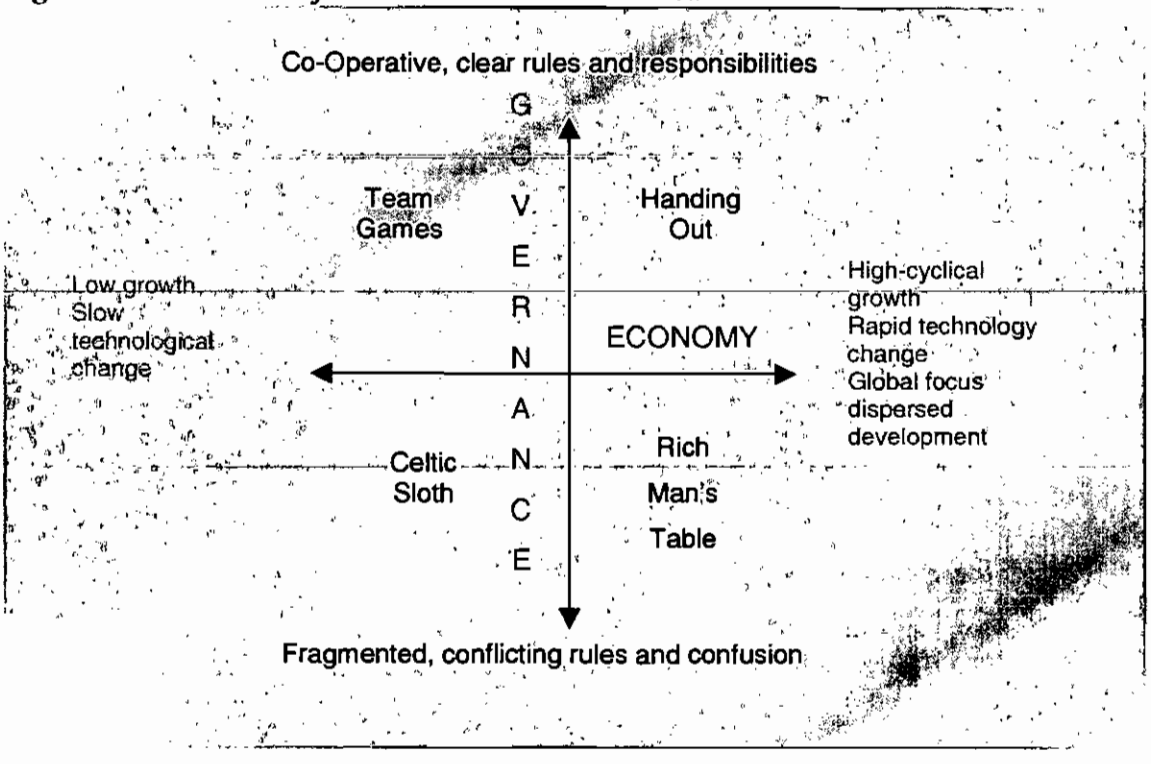



Figure 14 presents the scenario logics as they are presented in each scenario.

| *Figure 14* | *Scenario Logics* | | | |
|---|---|---|---|---|
| **Scenario** | 1.<br>Handing Out | 2.<br>Rich Man's Table | 3.<br>'Celtic Sloth | 4.<br>Team Games |
| ***Main Themes*** | • Strong growth<br>• Dramatic change<br>• Co-operation across regions<br>• Challenge to manage economic cycles, expectations | • Strong growth<br>• Strong rivalry<br>• Uncoordinated development<br>• Conflict amongst authorities | • Growth Stagnant<br>• Heavy conflicts amongst authorities<br>• Lack of infrastructure development | • Humble growth<br>• Lack of resources<br>• Co-operation amongst local government and national<br>• Community values prevalent |
| **Economic factors** | • Rapid cyclical growth<br>• Strong traditional growth + high tech growth = diversified economy<br>• Co-operation to meet global competition | • Strong cyclical growth<br>• Traditional growth + high tech + gov't = diversified economy<br>• Intense competition to attract development | • Very slow growth<br>• Traditional decline + weak gov't sector = stagnation<br>• High unemployment<br>Centralisation of jobs | • Low economic growth<br>• Weak traditional growth + modest gov't growth = stable economy<br>• Balance city and regional growth |
| **Governance** | • Planning led development<br>• Mutual respect & co-operation<br>• Harmony<br>• Roles & responsibilities clear from outset | • Reactive planning<br>• Competition & rivalry<br>• Provincial interventions<br>• Confusion over roles & responsibilities | • No effective planning<br>• Conflicts & fragmentation between relevant parties<br>• Frustration<br>• Us-them attitude | • Co-operative planning<br>• Co-operation out of need<br>• Provincial support<br>• Joint roles & responsibilities |
| **Social Values** | • Basis in Economic priorities: work and incomes<br>• Affluent: high service expectations<br>• High indiv/ community participation<br>• Fading of | • Economic priorities: jobs and incomes<br>• Affluent: high demand for services<br>• Low levels of participation<br>• Preservation of | • Social priorities: community and security<br>• Immigrants and low incomes = high social needs<br>• Apathy<br>• Strong community identities | • Social priorities: community and family<br>• Rationalisation of services<br>• High volunteer activity<br>• Strong community identity |

| | | | | |
|---|---|---|---|---|
| | community identities | identities/ autonomy<br>• Ghettoisation | • No young people | |
| **Transportation & Infrastructure** | • Massive expansion<br>• Challenge to manage growth / timing<br>• Regional "suburban" road network<br>• LRT/ Metro expansion | • Major expansion<br>• Planning always lagging<br>• Radial and "ring" road system<br>• Metro/ LRT expansion | • Maintenance and repair<br>• Decaying infrastructure<br>• Centralised road pattern (upgrades)<br>• No LRT expansion | • Upgrades and maintenance<br>• Sharing, "make-do", improvisation<br>• Centralised pattern<br>• LRT expansion |
| **Housing Affordability** | • Strongly rising property values after initial lull | • Rising property values after initial lull | • Stagnant, falling property values – never recovered | • Incremental increases in property values |
| **Densification** | • Dispersed, low density development | • Dispersed, low density development | • Centralised, high density redevelopment | • Centralised, high density development |
| **Population** | • High growth<br>• Population in 2015 = 2.7 million | • Moderate to high growth<br>• Population in 2015 = 2.3 million | • Very low growth<br>• Population in 2015 = 1.6 million | • Low growth<br>• Population in 2015 = 2 million |

## 4.21. Step 6 The Scenario Stories

Step 6 involves the creation of the scenario stories. Descriptions of each scenario are presented below. The descriptions include a brief overview highlighting the key characteristics of the scenario, followed by a more detailed story.

## 4.22. *Handing Out*

- Rapid growth and development after initial lull
- Economy diversifies
- Population growth – 2.7m in 2015
- Strong European and Global influence
- Consensus building critical
- Dublin Port partially moved and redeveloped
- Conference centre built in 2006
- Liberal labour policies allow necessary manpower from new eastern Europe states
- Arklow – Drogheda Bypass eagerly awaited
- Northern Ireland economy playing catch-up
- Pressure on services to new suburbs expensive to build and maintain
- Small indigenous companies prosper
- Jobs are plentiful
- Pressure on infrastructure
- Cyclical downturns add to funding challenges
- North and Western Dublin re-developed
- Port land becomes new residential and leisure hub.
- Waterside Opera House built in redeveloped Poolbeg
- BIDS installed in 2006
- Luas and Metro due for expansion
- Public involvement helps reduce Nimbys

### 4.23. Summary

**"Handing Out"** is a future characterised by rapid growth and development. After the initial lull of the early tens traditional (manufacturing/technology/tourism) companies prosper and a variety of new, technology-driven companies mushroom across the Greater Dublin Area (GDA). The economy diversifies. The advent of the Euro increases trade within European countries and tourism is boosted. Jobs are in abundance. Population grows. Pressure on infrastructure development is intense. There is a global influence with links to businesses and markets around the world multiplying. Cyclical downturns, punctuating periods of growth, add to the challenges of managing and co-ordinating physical and social infrastructure development. Processes for co-operation with Europe and public involvement are strengthened and expanded. Consensus building is critical to meet the planning needs of the GDA. Mutual respect and co-operation between Local authorities and other important bodies such as CIE and the Dublin Transport Authority and the national government are part of the consensus building process and vital in reinforcing and sustaining growth. By 2015, the GDA is a dynamic economic region of over 2.7million people, even more prosperous, confident, progressive and exciting.

### 4.24. The Story

In **'Handing Out'**, dynamic economic growth and development drive the region. Technology based industries expand. North Dublin and western Dublin are opened to new re-development and the city prospers from the movement of a portion of Dublin Port to Lough Shinny. In its wake land is released for residential and leisure development and the building of the National Conference Centre in 2006 followed hotly by an impressive water side Opera House (on Poolbeg peninsula) where an ageing Andrea Botchelli makes a return visit for the opening Gala in 2012. This new area is alone in its high-rise development but even then only in select and carefully planned areas away from the historic parts of the city.

Technology firms multiply. Some are large, but many are small new (indigenous) entrepreneurial start-ups drawing on the educational talents in the region. Some grow to significant size. Some remain Ireland based with only one or two employees. All are linked globally. All must compete directly or indirectly at a global level or at least at a European level since competition knows no boundaries.

These indigenous companies have seen the strongest growth, and are generally seen as a better place to work. This is due is due to the greater variation and type of work on offer as opposed to multinationals. Employees also prefer the potential to play a more significant role in the development of the company.

This economic growth is thanks to liberal labour policies, which allowed for the importation of necessary manpower, through immigration from within the EU (especially the new Eastern European member states) and beyond. This new wave of employees has filled the large gaps left by demographic middle age spread.

This dynamic growth creates an even more diversified and prosperous economy. Incomes rise. Some individuals become very wealthy, although the disparities between rich and poor do increase. Work is plentiful and well paid job opportunities abound. Population expands as the GDA attracts workers from across Europe and internationally. Economically, the GDA is an exciting place.

## 4.25. Infrastructure Pressure

Growth also creates challenges similar to those experienced during the infamous Celtic tiger years. There is intense pressure to provide the infrastructure for business and meet the service demands of the population. Infrastructure needs reflect both the overall increase in economic activity and the distribution of development. Economic growth is widely distributed - certainly a vast improvement on the 1990's. Some businesses locate in the core. Others locate in new and expanded industrial areas. Yet others, many self-employed work from home, or in small office complexes. Tele-hotels and serviced offices become favoured alternatives.

There is greatly improved regional infrastructure which does help businesses compete. This has made it easier to locate outside Dublin City and indeed the towns of the GDA. More and more employees are available in these areas as they move outwards in search of a better quality of life.

While the city centre has not suffered economically, it is ringed with shopping and entertainment villages which leaves less and less of a reason to travel into town. This void is filled by tourists, and by 2015 it is quipped that the only nationality not found in Dublin City is a Dubliner.

Similarly, residential developments are widely dispersed. A prevalent Irish preference for detached housing, contributes even more to urban sprawl. The urban renewal apartment complexes, some now in their third decade, are becoming run-down and shoddy, and many of the cheaper developments are regarded as slums The trend is toward low-density residences and townhouse developments rather than high-rise buildings, except in the re-developed Poolbeg peninsula.

## 4.26. Transportation needs

These trends put more pressure on infrastructure development. With dispersed development, transportation flows of both goods and people are dominated by

movements around the periphery, as opposed to movements into and out of the core. The need is for ring roads as part of a regional network rather than roads into the city centre.

The building of the M50 at the turn of the century was not enough, and the Arklow to Drogheda By-Pass is still not completed. The LUAS light rail transport system and metro are installed successfully; both are due for yet another expansion and seem to be constantly playing catch-up.

Similarly, low-density expansion puts pressure on other services. Water and sewage facilities, extended to new suburbs, are expensive to build and maintain. Providing other services, from new schools to parks to recreation facilities, is also difficult.

### 4.26.1. Procurement

The challenge to be met is to develop infrastructure in a timely and co-ordinated fashion. Further complications occur as cyclical oscillations in the economy put stress on planning and funding. Long-term projections lose credibility in the face of short-term downturns. Politicians are as sensitive to criticism about overbuilding as failing to anticipate demand.

Funding presents further problems. One source is local property taxes (Business Improvement Districts were introduced with the change in Government in 2006). Rapid growth raises the demand for housing and house prices escalate again after the temporary lull of the early 2010's. Nevertheless even with rising personal incomes, public resistance to tax increases is as strong as ever. The advent of the Euro and a more European outlook makes the public more aware of taxation in other European countries. For example Vehicle Registration Tax is abolished due to immense public pressure in the wake of Euro enlightenment. Moreover, there is pressure to reduce or at least steady income and other taxes, thus delaying large public expenditures. This creates some planning problems.

### 4.26.2. Public Involvement – pacifying Nimbys

Strong public involvement and support exists in local communities. Local authorities, along with Government, recognise the need to engage the public in building consensus on major planning issues. New technology helps. For example, meetings using the Internet become commonplace, the public are invited to interact and offer their comments. There is a desire for workable solutions between politicians and 'Joe Public', which supports effective consensus building, and helps to reduce the nimbysim so ingrained in Irish people.

### 4.26.3. Teamwork

The result is a new level of mutual respect. The traditional role of politics in resolving disputes remains. But the pressure from citizens to get things done, in co-operative and timely ways, drives the process. Local authorities and other bodies are able to work effectively in planning regional roads, agreeing on joint recreational facilities, ensuring compatible land uses at boundaries, funding regional services in an equitable and agreed way and minimising duplication in the provision of services.

Critical to this process is the clear definition of funding formulas, combined with predictable decision making and a clear understanding of respective responsibilities and mutual recognition of limitations.

### 4.26.4. 2015 – Handing Out

By 2015, the Greater Dublin Area has changed significantly. Strong population growth has accelerated population to 2.7 million people. The built-up area has expanded outward dramatically. Rural-urban conflicts have periodically marred the local political scene. The road network has expanded beyond recognition. The major ring roads have attracted extensive industrial and commercial development. Distinct communities exist, but their identities are less clear with the influx of people over the past 15 years. There is a high level of public engagement and co-operation across local authorities in the

region. The economy is strong and diversified, and there is a sense of pride in the region and confidence in the future.

## 4.27. *Rich Man's Table*

- Strong uneven development across GDA
- Economy diversifies
- Jobs are numerous
- Planning tends to be behind the curve
- Element of Ghettosisation
- GDA attracts people from all over Ireland and Northern Ireland
- Demand for services high / pressure on infrastructure great
- Extension to Luas
- Port Tunnel a success relieving city centre congestion
- Tourism expands
- Many businesses compete in Europe
- Population 2.3 million in 2015
- Incomes rise – rich poor gap increases
- Security becomes major issue
- Demand for social services increases
- Friction between Local and National Government
- Development differs among local authorities

### 4.27.1. Summary

**"Rich Man's Table"** is a future characterised by strong regional growth and uneven development across the GDA. Traditional industries expand; more technology-driven companies emerge. Tourism, having taken a major hit in the early tens from both the September 11$^{th}$ disaster and the UK foot and mouth epidemic, bounces back with the establishment of the Euro and the ease of travel within the EU. The economy diversifies. Some companies compete globally but many are tied to the regional and indeed European market. Jobs are numerous. Population grows. Incomes rise but disparities between rich and poor increase. Efforts to co-ordinate development are ineffective and occasionally disastrous. Planning is always "behind the curve" and a hotchpotch of development results. A patchwork of communities develops with wide differences in service provision, tax rates (for waste management particularly) and

infrastructure investment. Eventually, this state of conflict hinders development and growth slows. By 2015 the Greater Dublin Area is a major economic region of 2.3 million people, broadly prosperous, but with sharp differences across sectors in incomes, attitudes and identities.

There is an element of 'Ghettoisation' particularly within the city centre and some areas become 'no-go' after dark. Security becomes a major issue for the wealthy.

### 4.27.2. The Story

In **Rich Man's Table**, strong economic growth creates prosperity and rising incomes. Traditional industries sustain modest growth. Tourism is a major growth industry mainly due to the enormous effort made by the government and global effort to restore confidence in the airline and travel industries after the tragedies suffered on Sept 11th 2001. It is firmly believed that the Euro has been of enormous benefit to the tourism industry and to trade in general. Fuelled by rising real wages, falling tax levels and collapsing prices in the wake of the Euro and indeed the internet, Irish consumers enjoy a high level of discretionary spending.

On-line purchasing becomes an every day occurrence; the Irish person of 2015 has lived through a convergence of technologies resulting in them having the same attitude to the Internet as the man of 2000 had to the telephone. Although they no longer think of it as the Internet but rather their home shopping service or their video phone television. Questions are being asked, however, as to the social cost of success. The average household size has dropped. It becomes apparent that an individualistic society is developing with people spending more and more of their leisure time at home.

In the early part of the 20th century no one would have envisaged the 'slaughtering of our three most sacred cows' - the territorial claim to Northern Ireland, Irish Neutrality and the traditional family. Yet in 1999, the then Government signed away Articles 2 and 3 of DeValera's 1939 constitution, signed Ireland up for the Nato-led partnership for peace and in its budget discriminated heavily in favour of married women who work outside the home. This, many say was the beginning of the new face of Irishness – only the hard facts of legal tender seem to have any emotional resonance. Likewise, no one

seemed overly concerned as the punt gave way to the Euro. Whilst there is certainly more very rich people in the GDA of 2015 there is equally more poor.

### 4.27.3. Diversified Economy

Building on the traditional industries, there is a tremendous expansion in high-tech industries, businesses and tourism. Some businesses compete globally, even more compete in Europe. Others are focused on the local market. Many provide services to, or are spin-offs of traditional industries. A significant number are supported by Government to undertake and develop leading-edge research and development. In turn, these firms create new companies to exploit and manufacture the new products and processes developed in the laboratories.

The result is a strong, diversified economy. Jobs are numerous, incomes are high, and the population expands as the GDA attracts people from across Ireland and Northern Ireland. Economically, the GDA is a growing and prosperous region.

### 4.27.4. Problems

These trends mask underlying social and economic challenges and sharp differences between areas of the GDA. Not everyone, for example, shares in the wealth. Many are poor. Although unemployment is low, many jobs are low-paying and unrewarding. Both the gap between the rich and poor and the demand for social services increase. At the same time, the demand for new housing, new roads, new schools, new parks and new water, sewage, electricity and communication lines increases. Public expectations are high. Demand for services is high. And pressure on infrastructure is high.

As the population becomes more middle-aged, with the numbers of 35-55 growing substantially, and the precipitous drop in the number of young people, immigrants are required to fill the gap. The relaxed immigration laws have led to a steady influx of Eastern European and African nationals, but this is not without its difficulties. The city centre becomes colonised and ghettos develop. Race riots become increasingly common

amongst the lower classes and security becomes an increasing issue. Crime levels rise in the city centre.

### 4.27.5. Identity + Autonomy = Conflict

Across the region, local authorities have a strong sense of identity and fight to maintain their autonomy. This creates severe difficulties in planning regional projects and systems. Initiatives to build or expand major roads and transportation links across the region are met with resistance. Efforts to co-ordinate water and sewerage expansions are similarly frustrated as each authority weighs the costs and benefits differently and seeks to gain maximum advantage in any planning decision. This jockeying for position not only creates political friction but also effectively destroys timely planning and development. Reactive and fragmented planning dominates. In some cases, this allows developers to manipulate trade-offs between local authorities. In others, major roads are not built or maintained and repairs are uneven. Assigning blame is a major political activity. A jumble of development results.

### 4.27.6. Solutions Imposed

The Government views this disjointed and often chaotic situation with dismay and frustration. It is frequently forced to intervene either by arbitrating disputes or by directly intervening to impose solutions. This heavy-handed approach is strongly resented by local authorities, but is often the only effective way to resolve impasses in the region. Lack of intervention is equally disconcerting. In some cases, non-intervention sends a mixed-signal as the provincial government's roles and responsibilities in the region are inconsistent and unclear.

Despite these difficulties, major developments are implemented. Some developments, such as the system of major roads and link roads radiating from the centre, are imposed by the state. Extensions of the Luas LRT follow the same pattern. Some local authorities support low-density residential development. Others advocate urban renewal with in-fill housing to preserve communities and utilise existing infrastructure. Yet others focus on commercial and industrial development.

The Port stays and eats up even more land. The port tunnel is opened and city centre traffic congestion is relieved.

### 4.27.7. Patchwork Quilt

The result is a patchwork of local authorities across the region varying in service provision, tax rates and infrastructure capacity. Local road maintenance is one visible sign of differences as potholes marking one community give way abruptly to smooth, even pavement at the boundary to the next. Visible differences appear in the size, age and quality of housing; in the number and extent of parks; in the size, age and maintenance of community centres; in the frequency and cost of bin collections; and commitment to recycling; and even in the responsiveness of staff to resident's problems and complaints, define the distinct differences and identities between communities. These differences are reflected in house prices and residents' perceptions. Residents identify with their community. Accentuated by the ghettoisation, some communities are seen as more desirable than others as places to live. This creates social divisions, which add to political differences in the region.

### 4.27.8. Growth Slowdown

Despite these difficulties, the regional economy has prospered for many years. Eventually, however, the deteriorating environment hinders development and economic growth slows.

### 4.27.9. 2015 – New Reality

By 2015, the Greater Dublin Area has grown to a population of 2.3 million people. It is a major region of economic growth nationally. It is prosperous. Incomes are high on average. There is a loss of 'Irishness' as the rich get richer and the poor, poorer. Sharp differences exist across communities. Some areas become Ghetto's and security becomes an issue for the wealthy. In the mid-tens the downshifting began in earnest as people found themselves with more money then ever before, but less time to look after

family matters, particularly with more women in the workplace. With the slowdown in growth, the local authorities and government face a new reality and there is pressure to change.

## 4.28. Team Games

- Modest economic growth
- Local authorities faced with limited resources find ways to co-operate and balance local and regional interests
- Volunteers and county groups prominent
- 2015 GDA an attractive, friendly, community oriented place to live
- Regional co-operation
- Strong family and cultural themes
- PPP's
- Strong government

### 4.28.1. Summary

In **"Team Games"** the future is characterised by modest economic growth and regional co-operation. Local authorities faced with limited resources find ways to co-operate and balance local and regional interests. Family and cultural values are strong. There is great pride in communities. Volunteers and community groups are an important resource in maintaining parks and recreation facilities, raising funds for local projects and building support for local initiatives.

Slow but steady growth eases the pressure on development and helps long-term planning. Local authorities realise that they cannot fund major projects on their own. For example, recreation centres that attract residents from several communities require joint funding and planning. Task forces are effective in co-ordinating and planning regional roads, water, sewerage and communication systems, particularly 'bandwidth' issues. The Government is supportive. By 2015, the Greater Dublin Area is an attractive, friendly, community-oriented place to live with a population of 2.1 million people.

### 4.28.2. The Story

In **Team Games** economic growth rates for the region taper off and stabilise at a modest level. Growth is steady and unspectacular as the traditional sectors of Dublin's economy slowly decline. Modest prices prevent large-scale development. The city centre remains largely unchanged over the last 15 years, except for the Millennium Spire, which now stands on O'Connell Street.

The early tens saw the Celtic tiger begin to trip. Low unemployment caused high labour costs and with an increased skills shortage many companies just could not withstand the operating costs and left for the more attractive rates of Poland and India. Irish business did take the best of those made redundant, but their growth was in turn slowed by the global economic downturn.

### 4.28.3. Unspectacular Growth

The strong government and sound economic base in the region proves highly beneficial. Government employment increases, albeit slowly, and rising expenditures support a host of service businesses. Health and education are growth sectors as a middle-aged spread in population, combined with expensive medical advancements raise expenditures and create jobs. Education is also a growth area as college and university credentials are recognised as essential in an increasingly competitive and demanding economy.

### 4.28.4. Infrastructure Development

The GDA's, and indeed the countries infrastructure has developed in a haphazard manner make-do approach with little evidence of a cohesive National Plan. Consequently, the regions of the GDA have failed to develop in the way envisaged, and the continued insistence of large businesses to locate in major urban areas of the GDA has resulted in the regions potential being far from fulfilled. Depopulation of the rural environment has continued, cities have sprawled and most farmers are now only part-timers who work in the city and farm at weekends.

### 4.28.5. Property Stagnation

The modestly growing but stable economy has major implications for local authorities. There is little pressure on housing and prices are stable. Demand for industrial and commercial development is low, although there is ongoing redevelopment and upgrading in these sectors, particularly commercial property. In general, however, the residential, commercial and industrial development markets are stagnant, the millennium residential boom a distant memory.

### 4.28.6. Necessity is the Mother of Co-operation

Lack of money, however, does not limit creativity. Local authorities and other government bodies recognise that to meet local expectations they must co-operate. They must adopt an attitude of doing more with less. They must be creative in managing budgets and funding capital projects. They must minimise duplication. They must work with their neighbours to improve efficiency. They must plan more effectively. And they begin to. There is a strong spirit of sharing as local authorities find creative ways to fund common recreation facilities, co-ordinate water, sewerage, electrical and communication upgrades – they dig up the street once instead of four times and co-ordinate work with their neighbours – create regional task forces to plan road expansions and regional services such as fire protection, Gardai services and ambulance services.

### 4.28.7. Community Values

Supporting these initiatives is a demanding but responsive public. Family and cultural values are strong. While there is great pride in local communities, there is respect for other communities and cultural groups in the region. The Celtic Tiger brought with it a number of immigrants, and the race problems of the early tens have been overcome by integration.

These strong underlying family and community values have two major impacts. The priority issues in communities are focused on quality of life concerns. Parks, recreation, safety, education and health are important. Jobs are important, but not if crime rates rise or parkland is sacrificed. This occasionally creates controversy. Local business interests are frustrated by local councils in their efforts to modify/ change zoning restrictions.

### 4.28.8. Volunteer Power

Strong community values also open opportunities to expand the role of volunteers in the community. Volunteers become an important resource both locally and regionally. In local communities, a variety of new public service groups emerge. Some are formed with the assistance of local authorities, but others develop from the grassroots on their own initiative. Community groups, for example, take over the maintenance of local parks and child play areas. Sports groups provide volunteers to help operate and maintain recreation facilities. School initiatives involve students in projects to maintain cycle paths, clean up canal banks and waterways, plant trees, rake leaves and work in the community doing such things as assisting OAP's in their homes, working in with the homeless and distributing used clothing for the poor. The activities of these groups is widely publicised and praised, reinforcing the strong sense of family values and pride in local communities.

These public initiatives are not limited to local communities. Similar efforts support regional projects. Prominent citizens take leadership roles in funding drives to support the arts, recreation and sports. Bono opens the new Irish Arts Centre in Smithfield. Regional fund raising for theatre, music and traditional Irish Dancing are highly successful, under the leadership of Michael Flatley.

### 4.28.9. Balancing Local and Regional Interests

These efforts reduce the pressure on local authorities. Although politicians are often actively engaged in supporting and co-ordinating these public-spirited efforts, direct government expenditures are minimal. Local authorities, as a result, are able to focus on maintaining and upgrading local and regional infrastructure and ensuring responsive

government to meet public concerns. Regional projects and services are the most demanding, but local authorities realise they are all in the same boat. Regional planning efforts are scrupulous in balancing local and regional benefits and costs.

### 4.28.10. Government Support

The Government is an active supporter in building regional co-operation. The GDA is active in using public private partnerships, providing expert support and bringing all stakeholders together in constructive ways. The Government takes the lead in reducing duplication in regional Gardai services, fire protection and health in consultation with local authorities to ensure fair and equitable sharing of costs and responsibilities.

### 4.28.11. 2015 – Team Games

By 2015, the Greater Dublin Area is a region of communities, working together, sharing resources, co-ordinating development, fostering community involvement and supporting safe, clean and attractive areas for families to raise their children and OAP's to enjoy life. Like the economy, population growth has been slow and steady reaching just under 2 million by 2015.

## 4.29. Celtic Sloth

- Jobless growth
- Destructive rhetoric
- Government activities face cutbacks
- As tax revenues decline
- Property prices fall
- Tax increases
- Deep regional conflicts
- Traditional Industries are in decline
- Fall off in technology sector
- Tax base error
- Social services priority

### 4.29.1. Summary

In "**Celtic Sloth**" the future is characterised by jobless growth, deep regional conflicts and destructive rhetoric. Traditional industries are in decline, new business development is sluggish and Government activities face ongoing cutbacks as tax revenues decline.

The fall-off in technology sector companies and the failure of our once sought-after technology graduates to re-train has left the GDA reeling from a depressed market and a jobless future.

With a stagnant economy, property prices fall and tax bases erode. Government is compelled to raise tax rates to maintain even the barest level of services. Social services are a priority, but with rising unemployment, growing social welfare demands and increasing crime rates, there is not enough money to go around. Thus social services and physical infrastructure, most visibly roads, deteriorate. Local authorities try to build community pride and identity but with little effect.

By 2015, the Greater Dublin Area is again fragmented and emigration becomes the likely option. The GDA is a declining region of 1.6 million people struggling to revive the past.

### 4.29.2. The Story

In **Celtic Sloth,** the economy is stagnant and fragile. The fall-off in technology sector companies and the failure of our once sought after technology graduates to re-train has left the GDA reeling from a depressed market and a jobless future. Importation of the sought-after skills, from Eastern Europe, in the early tens has left a sour taste in the Dubliner's mouth. These immigrants are now viewed with distaste and a 'go-home' attitude by a region that can barely look after its own. The fall-off in the construction industry sees one major contractor (guilty of overtrading in the Celtic Tiger Boom) at the turn of the century declare bankruptcy, leaving thousands unemployed.

This has led to areas of the city centre becoming ghettos, no-go areas for a white catholic, and even more pressure placed on local authorities to provide both education and religious teaching for these minority groups.

Emigration is once more the only option for our graduates; there is an absence of young people due to demographic factors, and the middle-aged start to fear for their final years.

Health and education are critical sectors for the public attracting intense debate and controversy. The debate centres on the dilemma of whether to increase taxes or trim expenditures and cut services. Opposing sides are vocal in advocating their positions and successive governments swing back and forth as they try to navigate through these dangerous rapids. For the GDA, the long-term result is no growth in government jobs, flat national expenditures in the region and a distracted national government. All these developments limit the opportunities for new business development.

Ireland as a nation comes to realise what a small player it is on the world stage. The entry into the Euro went without any major problems, but as time has progressed the nation has found itself with less and less say over important economic decisions.

With Peace firmly established in the north of the country, and with the continuing US war on terror, Ireland has found itself greatly diminished in US's interest. The UK has become heavily focused on the continent since its joining of the Euro in the mid tens.

The most sacred national assets have been stripped, the country has nothing left. The telecommunication companies, our three largest financial institutions, our airline, our postal service and our airports all gone to the trans-national private sector. Ireland becomes nothing but a European sub-region.

With the intense rise in the euro-sceptic view, individuals seem to have less confidence in the Government. The worst electoral turnouts ever are recorded as the belief spreads that the Irish Government has little influence on Ireland's fate.

### 4.29.3. Property Market

For local authorities, stagnant growth has severe impacts. New house construction, for example, taper's off to a trickle. The underground economy flourishes and evading taxes becomes acceptable practice in society. House sales are sluggish and prices are flat or declining.

### 4.29.4. Regional Failure

The poisonous environment precludes any co-operation in regional projects. Despite the sluggish economy, there is still a need to repair and upgrade regional roads, sewerage plants and water facilities, to co-ordinate regional communication and electricity corridors and to upgrade and build new parks and recreation centres. Most such developments die from lack of funding and lack of political will.

### 4.29.5. Imposed Centralisation

One major exception is the upgrade and expansion of the road system. Although the national government is overwhelmed by larger national issues, and tries to ignore local problems, transportation is one area that attracts attention. To promote economic efficiency and stimulate economic activity, the region pushes a plan to expand radial corridors and focus economic growth in the centre of the region. The decision is pushed through. The opposition comes as much because of the heavy-handed process

as the proposed outcome. Nevertheless, a regional plan focusing on a radial road system, encouraging high-density redevelopment and centralised services, notably hospitals, is implemented.

### 4.29.6. Rising Service Needs

With an eroding tax base and declining national funding for many services, individual local authorities are caught in a difficult situation. Although traditional funding is declining, the demand for services is increasing. Rising unemployment and growing social welfare needs put added pressure on the local authorities to provide social services. Public attitudes are mixed, but broadly supportive of maintaining at least modest levels of social support. There is a view that local authorities must maintain support for the poorest and weakest in the community, especially during difficult economic times.

### 4.29.7. Higher Taxes

This puts Government in a financial box. They are compelled to raise taxes. Inevitably, even modest tax increases are met with vocal opposition. All expenditures are scrutinised in detail and fights between councillors create sharp divisions within local councils. Moreover, the added funds from tax increases are still inadequate. Stories of waste and inefficiency, errors by government staff in responding to public complaints and pictures of deteriorating roads – to name a few examples – highlight the local news. It is a trying time to be a local politician.

### 4.29.8. Loss of Pride

Nevertheless, some communities attempt to build on their history and sense of community to instil pride and confidence. Community awareness programmes, clean up programmes and many other creative programmes are launched. Some are

successful in building community identity. Most, however, wither away as apathy undermines action. In many cases, the rhetoric falls on deaf ears and nothing happens.

An alternative strategy is to shift blame. The Government is a common target, but blaming other local authorities and other councillors is also practised. In turn, TD's are quick to respond to "unfair" criticism and relationships deteriorate. It is evident that these destructive relationships cannot persist. The situation is not stable. Major changes seem inevitable.

### 4.29.9. 2015 – Twelve Years of Horror.

By 2015, the Greater Dublin Area stands at a population of 1.6 million. A long period of slow decline and internal conflict has sapped the energy and vitality of the region. Local authorities are divided, there is little common ground and the regions best years seem to be in the past.

Emigration is again prevalent as opportunities abound abroad and eurosceptisim begins to take hold. Many wonder if the nation is any better than it was before joining the EC and it is argued that it is weaker both socially and economically.

## 4.30. Step 7 Testing the Scenario's / The Wind Tunnel

Step seven examines the implications of the developed scenarios. The initial issue or decision is "wind tunnelled" through the scenarios. It is important to examine the robustness of each scenario through questions such as: Does the decision look good across only one or two scenarios? What vulnerabilities have been revealed? Does a specific scenario require a high-risk, bet-the-farm strategy?

Following the development and write-up of the Scenarios, as described above, the next step is to test policy options against the various scenarios.

However, at this point, it must be established which policies or strategies, will be tested.

In relation to the Dublin City Foresight project a second workshop was held. In this instance, a full day was scheduled with leading thinkers in Dublin, some of whom also attended the first workshop. (See Appendix E for listing).

The format for the day involved a shortened run-through of the scenario process. The morning session brought the participants through the first five steps in which they developed Issues and Trends and Impact and Uncertainty ranking. The participants were divided into three groups and presented with a scenario each to study as shown in Figure 15.

***Figure 15 Group Breakdown for Scenario Testing***

| **Group 1 –** | **Group 2 –** | **Group 3 -** |
|---|---|---|
| **Scenario 1** | **Scenario 2** | **Scenario 3** |
| **Rich Man's Table** | **Celtic Sloth** | **Handing out** |

The attendees were asked to concentrate on the Strategic Question and develop strategies in relation to that question.

***"What policy measures should be implemented now in order to secure the sustainable planning and development of Dublin?"***

The strategies as defined by the participants are shown in Figure 16.

***Figure 16 Strategies***

| | |
|---|---|
| 1 | Audit Energy Use Including Resources Generally |
| 2 | High Density And Transportation |
| 3 | Effective Subsidiarity |
| 4 | Public Adaptable Broadband Infrastructure |
| 5 | Provision Of Serviced Land |
| 6 | Social Inclusion – Area Targets |
| 7 | GDA Taxation |
| 8 | Quantum Leap In Infrastructure |
| 9 | Maximise Benefits Of Existing Infrastructure |
| 10 | Audit Of Resources And Their Use |
| 11 | Focused Excellence For Competitiveness |
| 12 | Strategies For Culture Art & Environment |
| 13 | Access To Education |
| 14 | Physical Plan – Vision Statement |
| 15 | Cultural Identity |

At this point each participant rejoined their group and rated each strategy in relation to their given scenario as shown in Figure 17.

*Figure 17* ***Rating Strategies against scenario's***

| | Strategies | Scenario 1 | Scenario 2 | Scenario 3 |
|---|---|---|---|---|
| 1 | Audit Energy Use Including Resources Generally | 3 | 1 | 1 |
| 2 | High Density And Transportation | 1 | 1 | 3 |
| 3 | Effective Subsidiarity • | 1 | 1 | 1 |
| 4 | Public Adaptable Broadband Infrastructure | 1 | 1 | 3 |
| 5 | Provision Of Serviced Land | 1 | 3 | 1 |
| 6 | Social Inclusion – Area Targets | 1 | 1 | 2 |
| 7 | GDA Taxation • | 1 | 1 | 1 |
| 8 | Quantum Leap In Infrastructure | 1 | 3 | 1 |
| 9 | Maximise Benefits Of Existing Infrastructure | 3 | 1 | 1 |
| 10 | Audit Of Resources And Their Use • | 1 | 1 | 1 |
| 11 | Focused Excellence For Competitiveness | 1 | 1 | 2 |
| 12 | Strategies For Culture Art & Environment | 1 | 2 | 3 |
| 13 | Access To Education • | 1 | 1 | 1 |
| 14 | Physical Plan – Vision Statement | 1 | 1 | 3 |
| 15 | Cultural Identity | 2 | 2 | 3 |

| **Rating Applied** | 1=critical | Outcome | • = Deemed to be critical by all |
|---|---|---|---|
| | 2=Important | | 2 or 3 = Rating applied by group |
| | 3=Desired | | |

From this analysis given the three unfolding alternative futures only four of the fifteen strategies developed were deemed to be critical in every scenario.

These four strategies are presented in Figure 18.

*Figure 18* ***Strategies deemed critical in all scenarios***

| |
|---|
| Effective Subsidiarity |
| GDA Taxation |
| Audit Of Resources And Their Use |
| Access To Education |

## 4.31. Step 8 Agreeing the Priorities (Indicators)

### 4.31.1. Introduction

In this step "leading indicators" that will signify that actual events may be unfolding according to a developed scenario are agreed upon. Once the scenarios had been developed, time was spent selecting identifiers that will assist planners in monitoring the course of unfolding events and their impacts.

This aspect of the scenario planning approach involves rehearsing the future. Theatre of this type is common with many complex technologies, and is also known as simulation. Using Scenario Planning is rehearsing the future – simulated events are run through as if they are already unfolded. It is important for the scenario planner to recognise which scenario is unfolding – and know how to act. Thus the 'performance' of a scenario will take the practitioner once again to the original question. The question can now be approached from another angle. The policy measures that should be implemented in order to secure the sustainable planning and development of Dublin have been discussed. The practitioner can focus on many other questions – what means of taxation should the GDA consider? – property tax model such as BIDS (Business Improvement Districts).

At least one, and probably more, of the scenarios developed for Dublin will challenge beliefs. That is the reason for creating the scenarios in the first place. It is difficult to consider an alternative to what is felt. There is an almost irresistible temptation to choose one scenario over the other: to say, in effect, "This is the future which we believe will take place. The other futures are interesting, but they are irrelevant. We are going to follow this scenario". Unfortunately reality does not follow even the best thought-out scenario. The point of scenario planning is to help suspend disbeliefs in all the futures: to allow the prevailing thought to be that any one of them might take place. It is then possible to prepare for what is not thought to happen.

This is the reason why scenario planning avoids single predictions. If several possible futures are considered the audience will consider plots which they would not otherwise accept. The Celtic Sloth scenario considers dramatic growth slowdown and

a fall in property values – during scenario workshop 2 a participant commented that this scenario would not take place however it became easier to consider when the participants deliberated the other scenario and the diversity which existed. It is interesting to note that few people have the perversity to study a future that they perceive as completely gloomy.

Similarly, people do not want to see only positives. That, too, is difficult to anticipate. It can be surprising too to convince people of optimistic scenarios – however as can be noted from Handing Out – upsides can also pose enormous challenges; growth, innovation, and change.

### 4.31.2. Looking for Early Warning Signals

Any forward thinking individual or organisation can use specific events as warning signals to help decide which scenario is coming to pass.

- If a future of strong economic growth was experienced coupled with increased European trade and population growth and increased global trade – these could be early warning signs of Handing Out – Care needs to be taken to assess the pressure on infrastructure development.

- If a future characterised by Ghettoisastion and an increased rich – poor divide, a heavy influence on security and an increased demand for social services and high infrastructure pressure develops, this could indicate that Rich Mans Table is emerging – Care needs to be taken to assess friction between local and national government.

- If a future of modest economic growth and strong regional co-operation develops in conjunction with a fall off in traditional sectors of the economy, preventing large scale development – this could signify that Team Games is unfolding – Watch areas of Health and Education as growth core.

- If the future is typified by jobless growth and destructive rhetoric a fall in property prices and an eroding tax base this could signify the emergence of Celtic Sloth. Watch for trimming of expenditures and cutting services – Watch out for no

growth in Government jobs, flat national expenditures and a distracted national government – limited new business development.

### 4.31.3. Agreeing the Priorities

At a subsequent workshop, an attempt was made to establish a number of priority objectives for Dublin. These can succinctly be summarised in Figure 19.

***Figure 19*** ***Priorities***

- Clean
- Green
- Mobile
- Knowledgeable
- Safe
- Agile
- Compact
- Inclusive
- Cultured
- Fun

Resulting from this study, it is now hoped to promote the use of some form of foresighting process to stimulate, facilitate and guide the formation of the Greater Dublin Authority when it is constituted in 2003.

### 4.31.4. Speculative Fictions

While scenarios are not commonly conceived as fictional accounts, they are indeed storied and manufactured, in part, through creative imaginative processes. As previously explained, scenario making is often a participatory process where the clients, or those involved in the project, take key roles in brainstorming and developing story lines. Scenario planners ask participants to suspend disbelief as part of the 'rules of the game'. In this sense, participants are asked to indulge in a creative exercise and make up a fictional account of what the world could be. The practitioners are to create a permissive atmosphere where creativity can be

"unleashed". Participants are to "stretch" the bounds of their reality and *imagine the possibilities* that could lead to various pictures of the future.

There are many reasons given as to why stories are used within this genre of planning. One of the most common responses simply points to narrative as being a way in which temporal and causal events can be integrated. The common entry into a story, "Once upon a time, in a land far away" indicates that story is bound by time and space. Narratives give shape to the forward movement of time, suggesting reason why things happen and showing that there are future consequences to present actions. As scenarios often deal with qualitative shifts, there is also a need to communicate rich detail to explain such shifts. The story serves to combine temporal succession and causality in one neat package.

### 4.31.5. Fact and Fiction

Scenario planning also utilises the story, or narrative structure, in order to convey a high level of complexity. Paul Ricouer in *Time and Narrativity* shows that "narration does a better job of capturing the meaning of human actions than explanations that would reduce those actions to the interactions of simpler elements described by hard sciences." Graphs and figures often do not effectively relay a complex meaning and the reader sometimes gets lost in a morass of numbers and data. Stories can provide a sense of lived experience that gives meaning to the numbers and reverberates with those not compelled by quantitative images. A narrative can hold in tension a diverse combination of data in a compelling, relatable fashion in a way that graphical or modular information often cannot.

Nonetheless, it should not be overlooked that scenarios are often buttressed with quantitative data that is generated through long hours, expensive resources and "expert" knowledges. Scenarios produced by this community are often packaged in a larger report containing historical and geopolitical data as well as large amounts of hard "facts" that serve as background information or context for the narratives. Graphs, statistics, economic indicators, demographics, models and other calculations buttress the story. Though some have lamented that the rigorous quality of research going into scenarios has decreased over the years, there is still a standard, or a sentiment that scenarios should be rigorous and well researched. Here a mix of

numbers and narratives, fact and fiction, serve to enhance the digestion of the overall message.

### 4.31.6. Naming Scenarios

Naming the scenario further condenses the overall message. Scenario names typically have a memetic quality, which is to say the names are intended to be catchy and memorable. Metaphors are used to compress a larger phenomenon (like a future world) into a relatable term. For example, scenarios dealing with global investment strategies were named: Two-Bloc Prosperity, Wobbly Three-Legged Stool, Techno-Capitalism Reigns, and Malfactus (Schwartz and Ogilvy, 1997). Scenarios for the future of Guatemala were named: The Illusion of the Moth, The Zigzag of the Beetle, and The Flight of the Firefly (Kahane, 2000). Web World, Nano-segmentaion, and Wild, Wild Web have been used to characterise a techno-dominated world. One scenario named Titanic described a more apocalyptic vision of a Canadian future with little or no economic growth (Ringland, 1998). Others prefer to borrow from pop culture and use naming schemes like The Empire Strikes Back, Star Wars, Against All Odds, Shakedown, Jeopardy or Let's Make a Deal. (Simpson, 1992). The names clearly evoke emotional or cultural responses and provide a first glimpse into the messages of the scenarios.

The memetic quality is demonstrated in the literature, in the aftermath of the Mont Fleur scenarios it is noted, "everybody in the country knew the stories, and those stories made it possible for people to understand (the dilemmas facing South Africa)". (Flowers, 1996). One practitioner recounting the experience said, "The Mont Fleur team gave vivid, concise names to important phenomena that were not widely known, and previously could be neither discussed nor addressed." The metaphors and narratives caught on and spread throughout the political discussions. Another observer recalls, "I heard preachers in their sermons referring to these scenarios, and ladies in the boondocks calling in on radio talk shows saying, 'I'm afraid we are going in the direction of the Ostrich scenario.'"[1] Years later, in 1999, a prominent business leader appointed governor of the reserve bank (who was also a member of the scenario making team) said in his inauguration speech, "We are not Icarus. There is not need to

[1] Ibid.

fear that we will fly too close to the sun." In summary, the naming of the scenarios is important not only to capture the message behind the scenarios, but also to contagiously spread the discourse.

## 4.32. Art or Science?

The naming of the scenarios points both to the great significance and to the apparent arbitrariness of *selection, framing, and representation.* The process involves so many choices along the way, those that are made by the practitioner as well as those made by the participants. This leads some practitioners to refer to scenario planning as "more art than science", and insist that there is "no simple formula" for generating scenarios.(Schoemaker and van der Heijden, 1992). Yet others insist that it is a "clearly defined technique" with a "disciplined methodology." (Simpson, 1992) Others cited the absence of a structured theory behind the method. In short, there is much debate over the norms of the method, if there is indeed a method, and on what foundations the method is based.

The literature laments the lack of a firm methodology, yet simultaneously cites the interactivity and flexibility of the process an advantage that would be missed if lost. There is an appeal to a method, yet the process remains contingent upon the setting, the "intuition" of the practitioner and the demands of the situation.

## 4.33. Conclusions

This chapter demonstrates thus far the contingency and consequential flexibility intertwined in scenario making, both within the "logos" of the practice and in the methods employed. This method is contingent, flexible, and subject to on the spot decisions made by the practitioner as well as the opinions and norms of those participating in the process.

While there is a wide range of interpretability in the scenarios, and the scenarios could have been written one way rather than another, in the end, specific worlds are described in the scenarios. The worlds are created in a specific time, drawn from particular images and metaphors, contain certain values and are arrived at from travel along a trajectory of specific, though intermingled, driving forces. However, there

could have been innumerable other scenarios. The frame or problematic situation could have been set different, more or less attention could have been given to different driving forces, and surprises could have been totally different or introduced at different points in time. Yet, in the end, the scenarios are not open and embracing the wonderment of endless potential and full of indefinite possibilities, but rather the choices made every step of the way lead to particular world versions. Versions of the world in a future state, or possible futures, are worked out, wrapped up in narrative and packaged as scenarios. A more detailed examination of the scenario planning process is discussed in Chapter 5.

# 5. Evaluation, Commentary and Conclusions

## 5.1. Introduction

Within this chapter it is the researcher's intention to evaluate the scenario planning process and to communicate the knowledge gained within the Dublin City Foresight Scenario planning project. This chapter begins with an in-depth analysis of the limitations of scenario planning as discovered throughout the Dublin City Foresight exercise.

Following from this discussion, this chapter distils the lessons learnt from the Dublin City Foresight experience this distillation is intended to serve as a basis for the preparation and completion of a scenario planning project and to aid in more effective and productive decision making.

## 5.2. Limitations of Foresighting

Ultimately, the opinions of people form the basis of all foresighting methods. The expertise and perspective of the persons involved significantly affect the outcome of any effort, whether the effort is based solely on expert opinion, or on a computer model, or even on a trend extrapolation. As a result, there are some common tendencies towards bias that reduce the effectiveness of all forms of foresighting. It is important to recognise these biases and account for them when using a foresighting method.

## 5.3. Human Perception Issues

There is a significant body of research on the limitations of people's ability to assess future (or generally uncertain) events. Human decision making is known to be affected by our ability to process information as well as by a general preference for a

"sure thing" over a less certain but better outcome (Slovic et al., 1982). These factors can be seen in several decision phenomena:

People make probability judgements in part based on the ease with which they come to mind. This would suggest that people doing foresighting are likely to overestimate the future impact of well-publicised trends or those that are in vogue, such as the proliferation of the Internet as a communication medium. At the same time, they might tend to underestimate the future impact of less well-publicised trends.

People tend to overestimate the likelihood of low probability events and underestimate the probability of very likely events. This would suggest, for example, that people would substantially overestimate the likelihood of a low probability event such as the advent of a new commercially developed energy technology in the next ten years, when the basic principles have not yet been demonstrated. Conversely, they might overlook the advent of a well established alternative energy source and its coming impact on energy markets, e.g., solar energy.

People tend to distort the representativeness of events, by focusing on irrelevant but "catchy" details. For instance, a participant in a foresighting exercise who has heard an anecdotal account of a terrorist event affecting an oil shipment may recall that incident foremost in estimating future volatility in world oil markets in coming years.

## 5.4. Other Personal Factors

Additional factors affect a person's ability to perform foresighting. The perspective and opinions of peers, subject expertise, personal characteristics, and physical or emotional state may affect a person's decision making ability, and, consequently, ability to estimate future events.

## 5.5. Group Dynamics

There are other factors that operate on a group level. For example, a consensual foresighting process, which is typically used in group exercises, has a bias toward the centre. Outliers – ideas which are at the extremes – tend to be dropped, in order to

arrive at a position that everyone can agree with. There is therefore a built-in bias against ideas which are at the cutting edge.

## 5.6. Zeitgeist

On a broader social level, foresighting efforts are inclined to reflect the popular dominant thought of the times. In other words, foresighting is less a prediction of the future than an implicit description of the social paradigms of today. This tendency, called the Zeitgeist ("spirit of the times") concept by Schnaars (1989) means that different foresighting efforts occurring at the same time are inclined to foresee the same events. Very likely we currently are unable to know what will be the critical social and economic concerns of the future, and thus must acknowledge that our foresighting efforts will largely be based on the concerns and other cultural perspectives of the present.

## 5.7. Lack of Context

A common source of error in many foresighting efforts originates from a tendency to focus on one topic area while neglecting to address other factors that can significantly affect the outcomes being predicted. For example, there is a common tendency for people performing technology foresighting to become enthusiastic about the novel technologies they are evaluating, and forget to consider the social, economic, environmental and infrastructure factors that will affect technology development and deployment. There is also a tendency to discount the "staying power" of existing technologies. These errors reflect the fact that the foresighting efforts are often performed in a vacuum without attention to the complex, interconnected forces that affect future states.

## 5.8. Institutional Issues

Finally, any foresighting effort is not only affected by the inherent limitations of foresighting methods, but by certain external conditions as well. An important potential external issue is the organisation's ability to define the objectives and focus for its effort. Using a given foresighting methodology with full attention to inherent

limitations will not necessarily provide useful information if the method does not match the needs of the organisation. Likewise, the usefulness of any particular foresighting effort depends upon the ability of an organisation to act on the information generated in a timely and effective manner. Without attention to issues of purpose and implementation, an organisation's success at foresighting will likely be limited.

## 5.9. Summary of Limitations

This review of limitations and error tendencies is not meant to suggest that foresighting cannot be a useful exercise. Rather, the aim has been to identify the issues and limitations that any new foresighting effort will have to address. If appropriate methods are chosen, with adequate understanding of what they can and cannot do, foresighting can provide valuable information to decision makers – as illustrated by the Dublin City Foresight project examined in Chapter 4.

Some general observations can be made regarding the DCF casestudy. These observations include the following:

- The study assumes the future is basically unpredictable,
- Foresighting/ scenario planning can focus not only on providing information but also on changing mindsets,
- As a related point, process can be as important as outcome,
- High-level buy in or a program champion are key to program formation/maintenance,
- Measuring program effectiveness is desirable, but extremely difficult.

Each of these topics will be addressed in turn, along with associated findings.

It should be noted that the findings reported here are based on analysing a limited sample. As a result, the findings should be considered more illustrative and suggestive than necessarily representative of all successful foresighting programs. Further

investigation would be useful to determine how widely these experiences are shared by other scenario planning efforts.

## 5.10. Basic Philosophical Framework

As an overarching philosophical framework, all the Dublin City Foresight participants both interviewees and workshop attendants accept the notion of the basic unpredictability of the future. They acknowledge that some elements of future conditions may be predictable or predetermined, but others are inherently uncertain. This is an important factor within the foresight principle. Even a Japanese (NISTEP) program – which on the surface appeared to embrace strict predictability with its focus on assessing the likelihood of over 1,000 specific science and technology breakthroughs – adhered to the notion that the future is uncertain. For the Japanese program, the focus of the effort was not to perform exact predictions, but to provide information about gradually occurring trends in science and technology of which government and the private sector should be aware (Cuhls and Kuwahara, 1994).

For the Dublin City Foresight program, this sense of the basic unpredictability of the future extends to the idea that "Foresighting" as a concept is in fact off-target. Instead the emphasis should be on long-term perception, on developing a better understanding of what's going on presently. From this understanding of the present, one will then be better prepared to respond to what might happen in the future.

Overall, the basic point is that these programs are not attempting to perform exact predictions of future events. This crucial philosophical point needs to be kept in mind when considering issues of program purpose, design, and implementation.

## 5.11. Purpose of Foresighting

The Dublin City Foresight project represented in this analysis had a variety of objectives aspired to for the scenario planning project, ranging from "providing early warning capability" to "developing consensus." The project focused on the need to support planning, whilst stressing the role of institutional (or nation-wide) learning. The DCF project also aspired to highlight the effort to get people motivated, whilst

driving the effort to better understand trends. While these objectives appear to be rather disparate, when taken together they can be grouped into three major themes:

- ❖ Creating information which will help the decision making process
- ❖ Encouraging people to be reflective about the future
- ❖ Bringing people together to form a collective or shared vision for the future

### 5.11.1. Creating Information

The first theme, creating information, implies a focus on gathering and analysing data on trends, likely future states, critical issues, and so forth. The principle here is that through a better understanding of objective reality, it is possible to be better prepared for the future. The Dublin City Foresight program through the discussed environmental scanning process, performed a comprehensive survey of potential Environmental, Economic, Cultural, Technological, Demographic, and Governmental breakthroughs to determine innovative trends that might affect the future. In this example the foresighting process through scenario planning results in a documented body of information that can be distributed, expanded upon, and modified through time.

### 5.11.2. Encouraging Reflection

By contrast, the second theme, encouraging people to be reflective – focuses less on the type and amount of information being processed, and more on the mental models people use to process that information. The principle here is that new (broader) ways of thinking will make people better prepared for the future. Changing mental models and getting people to be more reflective are ends in themselves independent of what specific information is considered. For example, Dublin City Foresight relies on the scenario method to create opportunities for Dublin City Planners to "think the unthinkable" (in the phrase of Herman Kahn) – to consider possible future states that challenge status quo thinking. The Dublin City Foresight experience is that as people broaden their range of thinking, they become more flexible and better able to respond to the inevitable changes and surprises of the future as they occur.

### 5.11.3. Bringing People Together

The third theme – bringing people together to develop consensus or a shared vision of the future – also focuses more on how people use and think about information than on the type or amount of information they have. This theme also illustrates most clearly an important undercurrent of the Dublin City Foresight Project, which is that the foresighting process is as important as its outcome. Specifically, the process of bringing people together to think about and discuss the future can be as relevant to program goals as the specific subjects they discuss. The Dublin City Foresight process sought to encourage a high level of active participation in futures thinking. The process was intentionally designed to be open and consultative, with the initial effort (developing an overview of issues and trends) intended to represent the broadest views of the Dublin people.

Within the Dublin City Foresight project the objective of drawing people together and motivating them to think about the future is important regardless of how the information developed is specifically used.

In general, the Dublin City Foresight program included some emphasis on both creating information and changing the way people think about the future. Similarly, the project addressed both the value of the process and the value of the outcome. The Dublin City Foresight Project was concerned with creating a body of knowledge about the future as well as creating an active, national network for individuals involved in and concerned about futures studies.

## *5.12. Factors Effecting Scenario Planning*

There are a number of external factors effecting the Scenario Planning process deemed worthy of mention.

### 5.12.1. Organisational Factors

In examining the Dublin City Foresight project, one objective was to determine how details about program structure, orientation, and other organisational factors seem to affect program experiences. Initial observations can be made regarding two key organisational factors:

- Organisational affiliation - It is of the utmost importance that the foresighting program has the backing of a dedicated group within the organisation. A common sentiment expressed by the practitioners is that in order to be successful, a foresighting program needs to be conducted by a defined group with a clear sense of mission.
- Organisational learning one finding of the Dublin City Foresight project is that the foresighting activities conducted are not static, but instead evolve over time. In some cases, this evolution is an intentional part of program orientation. In all likelihood, program evolution is an inescapable aspect of foresighting programs, which draw from a discipline – future studies – that is still very much in development, and which tends to involve multiple objectives.

## *5.13. Measuring Program Impact*

An outcome of the Dublin City Foresight initiative and indeed of foresighting programs in general would be to effect change and have an impact on their affiliate organisations. However, the specific nature of the desired changes or impacts varies across these programs. The types of changes produced are determined in part by the jurisdictional scope of the programs as well as by the emphasis on the process of foresighting. Because the actual impacts are so diverse and process oriented, their measurement is problematic. For similar reasons, methods to track the use of foresighting information and assess the accuracy of the findings are rudimentary, at best.

### 5.13.1. Creating Change

The predominant desired effect of the Dublin City Foresight program is achieved through the actual conduct of the foresighting process. For example, the Dublin City Foresight program has effected change through the holding round table discussions with influential Dublin Players. Also, the process was instrumental in making numerous topics issues of discussion. The Dutch Shell foresighting activities are particularly noted for creating organisational change by changing the way its managers think about the future.

The importance of creating change within organisations is demonstrated by the case of Dutch Shell, proving that creating flexibility of thinking allows flexibility of action as well. Management's ability to quickly adapt to the changing oil environment has been a direct result of its exposure to the scenarios developed in the Business Development Department's foresighting process.

A specific example of how changing the way people think about the future can lead to actual outcomes or impacts is further demonstrated by the Shell Case. When Shell first began developing scenarios, not all of the corporate departments embraced the process. The Marine Department, for example, could not perceive how a scenario projecting an increase in the price of oil would affect its shipping and tanker activities. The department continued to purchase tankers based on traditional forecast techniques. This lack of flexibility in thinking did not allow the Marine Department to foresee that the oil price shocks of the 1973 oil embargo would affect shipping needs. Consequently the department, as well as many of the other oil shipping companies, had an overabundance of tankers at their disposal. In contrast, the Shell Manufacturing Department accepted the new way of thinking proposed by the scenarios and when the 1973 oil embargo hit they were able to interpret the situation differently (i.e., not as an anomaly, but as a new status quo). They were able to change their policies quickly and Shell Manufacturing was ahead in responding to the events. This allowed Shell Manufacturing to move from the bottom to the top of the Seven Sister hierarchy.

### 5.13.2. Measurement of Change

Measurement of change in the case of the Dublin City Foresight study is beyond the bounds of this thesis; a finding of this study is that a significant area for further research would be the measurement of such change. In general, measuring the impact or usefulness of a foresighting program in terms of manifestations of organisational/ societal change is a difficult endeavour for a number of reasons. The Shell case demonstrates that foresighting findings can effect visible change. However, it is important to note that for Shell and other programs, changing the organisation directly as a result of foresighting is not necessarily a pre-established goal. In fact, when Shell management first considered the possible future oil embargo scenario, it did not

immediately change policy. Instead, the policy decisions were made when the event actually occurred.

A similar difficulty in measuring how foresight programs affect change results from their emphasis on process. The very process of foresighting is diffuse and in organisations such as Dutch Shell, which is now combining foresighting within an iterative procedure to develop planning options, cause and effect assessment is even more problematic.

Consequently, some foresight organisations that emphasise process do not even attempt to assess the effect of their activities in terms of usefulness. Kees Van der Heijden points out that the only way to deal with the uncertainty of the future is to create various possible scenarios. In this respect, foresighting is extremely useful. However, an actual, quantitative measurement of the usefulness of foresighting is not possible, nor particularly informative. Andre de Jong of the Netherlands' Central Planning Bureau relates similar issues with measurement of use. The focus of the Netherlands' foresight effort is to organise the debate. This can be assessed by whether or not the findings were discussed in government and in other organisations. For example, the Australian ASTEC foresighting efforts have led to an expanded debate on urban water quality issues and the identification of the future importance of science and technology literacy is expected to influence the development of educational policies. However, clear examples of influence on specific strategies are more difficult to pinpoint.

## 5.14. The Question of Accuracy

Because of the general emphasis on the importance of the process of foresighting, efforts to rate the accuracy of foresight findings are subsidiary. Andre de Jong of the Netherlands' Central Planning Bureau put it clearly when he explained that foresighting is not meant to be a forecast, stating that "you don't have to wait 25 years to see if people are inspired to reflection and analysis." Clearly, the focus for the Dublin City Foresight endeavour was to "organise the debate." However, the literature reveals that within foresight programs with slightly more predictive emphases, such as AEPl and Japan's NISTEP, attempts have been made, or are being made, to evaluate

the accuracy of findings. AEPI is currently developing accuracy indicators and NISTEP has evaluated its first Delphi survey. The Japanese evaluation experience reveals that development issues were more accurately predicted than topics that focus on use. This accuracy in predicting development issues is related to the somewhat insulated nature of topics. Use issues, on the other hand, are dependent on several others factors that interrelate with social, political, and economic components. Interrelated issues such as these and the general process orientation of foresighting efforts make the assessment of impact, use, and accuracy of foresighting findings difficult.

## 5.15. Conclusion: What Makes These Programs Successful?

The Dublin City Foresight project undertook to perform a scenario planning exercise for Dublin. The participants considered the exercise to be successful and the focus to organise and debate was carried through. The question is posed however, that apart from self-evaluation, what appear to be the features that lead to a successful exercise?

As a generalisation, all foresighting programs start with one or more individuals perceiving a need for their organisation (or society) to consider future issues and to prepare for future opportunities, challenges and obstacles. As mentioned, program champions are extremely useful in getting a program started, although programs can also be started by more general efforts. From there, it would appear that programs become successful when they:

- Prove responsive to "client" needs ("societal" needs in the case of national efforts).
- Involve the relevant participants in the process. This point is related to the first, but emphasises the participatory element of the program.
- Experience some kind of legitimising process. This legitimisation can result from a single major fortuitous event, such as is the case with Dutch Shell when the 1973 oil embargo confirmed that one of the "unthinkable" scenarios being discussed could actually happen. The legitimisation can also be the

confluence of a broader series of events, such as the process by which the German Delphi program came to be seen by the media and public as a welcome effort to think about the future, rather than an effort to create socially unacceptable central planning.

All of these features serve to create buy-in to the program both internally and externally. In turn, this buy-in fosters organisational stability through the provision of adequate resources and defined organisational standing (i.e., the program becomes institutionalised).

The first two elements of success can be directly influenced by program developers and participants. However, the third – legitimisation – is a process that generally occurs outside of a program's direct control, and thus to some degree results from a combination of astute assessment of the times as well as sheer luck.

## *5.16. Implications - Establishing a Foresighting Program*

The experiences of the Dublin City Foresight Study suggest a number of key issues that are pertinent to the value and feasibility of implementing a foresighting program within an organisation. When designing and developing a foresighting program, organisations should consider the following issues.

### 5.16.1. Foresighting Perspective

The organisation must be realistic about the potential for foresighting to predict the future. Specifically, it must be prepared for the fact that foresighting, regardless of the actual method of analysis, does not provide an explicit means to predict the future. However, the foresighting process can provide new ways of thinking about the future, which will increase flexibility and help an organisation to quickly and proactively respond to changes.

### 5.16.2. Purpose and Goals

From the onset, the organisation must work to define its foresighting program purpose and establish clear goals that identify what the organisation wants to accomplish. Specifically, the organisation must be aware of the two different components of foresighting, which can occur concurrently:

- ❖ outcome—generating information about possible future trends
- ❖ process—changing mindsets and/or creating a shared vision of the future

Decisions about which focus to adopt will be related to the organisation's expressed goal for the foresighting program. This will depend on whether the goal is to:

- ❖ influence policy decisions by providing information to managers/decision makers
- ❖ influence policy decisions by influencing managers' ability to think flexibly and respond adaptively
- ❖ provide information to a variety of users inside and outside of the organisation (i.e., provide a broad service function)
- ❖ advance the art and science of foresighting methodology
- ❖ or a combination of any of the above

### 5.16.3. Organisational Placement

The organisation must determine both the institutional and functional "place" of the foresighting program within the organisation's overall science and technology strategy development endeavour. The Dublin City Foresight experience revealed that foresighting is most effectively conducted by a dedicated, service oriented group. However, the type of services provided by a foresight program can take a variety of forms:

- ❖ Analysis and dissemination of foresight findings, in which case the program is completely separate from the decision making process.
- ❖ Facilitation of an iterative and integrated process of strategic vision setting and options management with managers.
- ❖ Formation and moderation of a forum for futures thinking.

### 5.16.4. Planning For and Reinforcing Success

The organisation must keep in mind the key features of successful programs:

- ❖ The program must make efforts to create high-level buy-in and a shared vision of the program and its purpose
- ❖ The program must be responsive to the needs of its client base (i.e., decision makers)
- ❖ The relevant participants must be involved in the process so that key needs are addressed and the foresighting results are useful.

### 5.16.5. Measuring Effectiveness

At the onset of the program, the organisation should determine if organisational change is a goal and if so, develop methods of tracking and evaluating change (document achievements and impacts). Regardless, general measures of use, accuracy, and effectiveness appropriate to the organisation's mission and culture should be developed.

## *5.17. Areas for Further Research*

This analysis has been an exploratory review of the Scenario Planning process, in particular the commentary and critique has been drawn from experiences learnt during the Dublin City Scenario Planning exercise and has revealed important findings about key implementation and organisational experiences. However, there is still much to be learned about foresighting programs and their experiences. Key issues that merit further investigation were raised during the course of this study and are summarised below.

### 5.17.1. Examine Programs Facing Difficulties

The Dublin City Scenario Planning exercise and indeed other similar activities represented in this review were established, currently active, and successful programs.

Valuable insights may be gained from an examination of foresighting organisations that have faced difficulties, have been terminated.

### 5.17.2. Interview Decision Makers

This analysis focused on the foresighting practitioner's viewpoint, and the generation of the foresight information. While integral, these experiences only provide part of the picture. A more complete understanding of the foresighting process can be obtained by reviewing the foresighting experiences of the participants (e.g., experts, panel members) and decision makers who actually use the foresight findings in their development of policy.

### 5.17.3. Create a Forum for Shared Learning of Foresight Experiences

Because foresighting is a relatively new field of investigation, particularly in Ireland, little evaluation or sharing of program experience has occurred. In the interests of advancing foresighting research as a discipline, it would be useful to hold a forum at which a panel of foresight program leaders and futures experts could meet to discuss lessons learned and augment the understanding of program development, implementation, and evaluation.

## *5.18. Summary - Evaluation of Scenario Planning*

A figurative demonstration of the evaluation of the scenario planning process is found in Figure 20, (Source: Scenario Planning – an evaluation of practice, Professor John Ratcliffe, 2001)

## Figure 20 – Evaluation of Scenario Planning

**Objectives:**

- Foster client comprehension.
- Establish clear goals.
- Connect with strategic planning.
- Resolve whether the purpose is learning or planning.
- Deeide who exactly is the target audience
- Determine precisely which issues or topics the organisation concerned is tying to understand.
- Pose a pertinent strategic question.
- Aim ultimately to develop a shared 'vision' of the future.
- Create a shared language within an organisation.
- Remember that scenarios are not predictions.
- Pay attention to the 'organisational culture'

**Participants**

- Gain management support and involvement
- Great care should be taken in scenario team, selection..
- Include diverse interest groups end key actors in the research project.
- Take testimony from experts
- Introduce a few remarkable people
- Choose an experienced and appropriate facilitator
- Use consultants prudently.
- Take trouble in selecting interviewees and interviewers for the strategic conversations',
- Find a champion'.

**Process**

- Recognise that there are many ways of conducting foresighting programmes and scenario planning exercises.
- Do not limit the scope of the exercise.
- Time and timing is all important
- Establish links with similar activities elsewhere.
- Futures oriented exercises should be eclectic.
- Foresighting should be about depth as well as breadth.
- A pilot study is often advantageous.
- The process should be continuous and cumulative
- Hold an induction or training workshop.
- The amount of work involved should not be underestimated.
- Executive ownership of the process must be fostered.

**Method**

- Employ a recognisable formal method.
- Decide between an 'inductive' Or 'deductive' method.
- Make sure some form, of 'environmental scanning' is conducted..
- Appreciate that 'brainstorming' Is at the been of it all
- Pay heed to the selection of strategic conversations.
- Have an awareness of the value of metaphor'.
- Anecdotes and aphorisms can be helpful
- Invoke a feeling of crisis.
- Secure the inclusion of relevant and compelling information.
- Special kinds of presentation can enhance participation.
- Choose evocative and germane names for the scenarios.
- Concentrate on 'pivotal uncertainties'.
- Decide upon the number of scenarios.
- Take trouble in diagnosing 'triggers'.
- Consider the use of mats than one method.

**Implementation**

- Determine who is responsible for taking action.
- Make the recommendations simple, clear and relevant.
- Demonstrate the feasibility of the recommendations.
- Appreciate that there ate other results as will as formal recommendations.
- Connect the costs and benefits of the recommendations
- Devise a set of indicators for implementation.
- Be innovative in presentation.
- Provide a proper framework for results.
- Be aware that success is hard to pinpoint.
- Recognise that learning is an iterative process.
- Gain support

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## Appendix A - Scenario Studies Reviewed

***Public or Political Scenarios:***

**Destino Columbia**
A group of businessmen invited 43 Columbians to imagine futures for Columbia in 2010.
*When the Sun Rises We'll See*- Chaos reigns, action is stifled and apathy takes over.
*A Bird in the Hand is Worth Two in the Bush*- After war and divide, government listens to the dissidents and begins to make concessions and find consensus.
*Forward March*- Tells of a militaristic, institutionalised society that orders and rationalises people and ideas to end the "chaos."
*In Unity Lies Strength*- Here social and economic life improves and Columbians successfully work together and cooperate due to an acceptance of diversity.

Global Business Network. "Destino Colombia: A Scenario Planning Process for the New Millennium". *Deeper News* Vol. 9, No. 1, 1998.

**International Centre for Integrative Assessment (ICIS)**
ICIS developed the following scenarios using a participatory method among stakeholders and "experts" to address a range of futures for Europe.
*Knowledge is King*- an ICT revolution strikes, declining traditional industry and expanding the knowledge sector, followed by environmental sustainability, life expansion, and small-scale enterprises.
*Big is Beautiful*- globalisation and liberalisation couple with technology for a rationalised Europe checkered with big business and small government.
*Creeping Change*- drastic climate change unites Europe over national borders and endangers the economy and stimulates an "environmental sector."

Rotmans, Jan et al. "Visions for a Sustainable Europe." Maastricht: International Centre for Integrative Studies (ICIS), December 1999.

**The Mont Fleur Scenarios**

The Mont Fleur scenarios are much-cited example of scenarios being used to address with post-apartheid transitions in South Africa. In 1991-1992, during the shift from the de Klerk government to the Mandela government, representatives from the interested factions got together to create scenarios focused upon governance and South Africa.
*Icarus*- rise of a fast paced democracy that quickly becomes unstable and populist.
*Flight of the Flamingos*- where sustainable policies are slowly developed and implemented leading to inclusive democracy and growth.
*Lame Duck*- imagines a "incapacitated government" where slow, wishy-washy policies are instigated.
*The Ostrich*- poor socio-economic outcomes are consequent of a non-representative government.

Davis-Floyd, Robbie. "Storying Corporate Futures: The Shell Scenarios." *International Journal of Future Studies.* Vol. 1. 1996. (Republished at: http://www.plausiblefutures.com/text/shell.htm. Accessed January 12, 2000.)

Kahane, Adam. "Imagining South Africa's Future: How Scenarios Helped Discover Common Ground." In Fahey, Liam and Robert M. Randall (eds) *Learning from the Future: Competitive Foresight Scenarios*. New York: John Wiley & Sons, 1997.

Le Roux, Pieter, et al. "The Mont Fleur Scenarios." *Deeper News*. Vol. 7, No. 1. 1992.

New Jersey Transportation
Consultants and governmental offices worked together to create long-term futures (set in 2020) focused around organisational strategies and possible policy options.
*Muddling Through*- status quo continues, or the "official future" plays out with shortsightedness and crisis oriented politic making
*Gateway to the World*- high tech future that thrives on the long term planning initiatives to build efficient and comprehensive transportation systems
*Bad News*- dystopian scenario laden with crime, economic decline, isolation, traffic congestion and little public funding for transportation.
*Pushing the Envelope*- a sustainable future with community based values as well as advanced and environmentally friendly technologies provide transportation alternatives.

Bonnett, Thomas W. and Robert L. Olson. "How Scenarios Enrich Public Policy Decisions." Fahey, Liam and Robert M Randall. *Learning from the Future: Competitive Foresight Scenarios.* New York: John Wiley & Sons, 1997. 308-324.

**Scenarios for the Future of Japan**

Scenarios for the Future of Japan were created in 1999 through an international network of Asian, European and North American "experts" tasked with imagining how Japan will develop over the next 20 years or so.
*The Long Hollowing*- In this first scenario, Japan's structural problems remain unreformed with the long-term result that the brightest and the best in Japan, both individuals and companies, leave the declining country.
*Crash and Rebirth*- The second scenario, by contrast, is more optimistic populated with an active youth and successful reforms
*Hercules Departs*- This scenario describes what would happen is the American troops withdraw from Asia, which would pose big security dilemmas for Japan.

Nakamae International Economic Research, Global Business Network, and Nihon Keizai Shimbum, Inc. "Scenarios for the Future of Japan: Research Material." *Deeper News*. Vol. 10, No. 2. February 1999.

Nakamae, Tadashi. "Three futures for Japan: Views from 2020." *The Economist.* March 21, 1998. (Republished at http://special.northernlight.com/global/japan_threescenarios_economist.htm, accessed on January 16th 2001.)

**UK National Health Service**

The Hemingford Scenarios were developed to bring together a diverse group to discuss disease, clinical practice, public values, and the socio-political context of healthcare.
*Renewed Welfare Order*- characterised by state centralised, high quality health care and a satisfied populace.
*Health is Wealth*- health care delivered by multinational commercial organisations in a decentralised fashion.
*Science Makes the Big Push*- state centralised system focused upon the "informed consumer" who has access to both holistic and high tech health care.
*Well-being As You Like It*- diverse needs and wants of patient's leads to a decentralised service network.

Ringland, Gill. *Scenario Planning: Managing for the Future.* Chichester: John Wiley & Sons, 1998. 291-296 and 357-371.

***Corporate Scenarios:***

**British Airways**
British Airways conducted a scenarios project in 1994 that focused on growth and governance in the airline industry with a 10-year time horizon.
*Wild Gardens*- characterised by heavy handed global integration leading to booms and busts, lack of valued direction, and strong market forces.
*New Structures*- shared values and conscientious organisational principles emerge that lead to a strong Europe, high environmental costs, inner directed consumers, and infrastructure investments.

Moyer, Kathy. "Scenario Planning at British Airways- A Case Study." *Long Range Planning.* Vol. 29. No. 2. February 1996. 172-181.

Ringland, Gill. *Scenario Planning: Managing for the Future.* Chichester: John Wiley & Sons, 1998. 261-274.

**Electrolux**

These scenarios focused upon environmental factors and were presented to key managers to develop strategy and said to have resulting in a reorientation towards customer service.
*Summer Time*- focused on what would happen if Global Warming occurred.
*Cocktails*- focused upon the "use and abuse of toxins."[2]
*Evergreen*- focused upon material use, reuse and recycling.

"Electrolux Experience." Ringland, Gill. *Scenario Planning: Managing for the Future.* Chichester: John Wiley & Sons, 1998. 287- 289.
A Financial Printing Organisation
In 1993, the president of a financial printing firm gathered staff to create scenarios dealing with their key uncertainties (technology, legal issues, changing sales tactics).
*Primarily Printers*- "official future" where consumer demands for service and lower cost depress profits

[2] Ringland, 288.

*Composing Customer*- advances in home computing allows customers independence, causing decline of business.
*Multimedia Madness*- explosive growth in market for interactive, electronic financial information thus reorienting the services towards flexible products.
*Composition Free for All*- fragmented and diverse financial printing business tries to cater to a similarly heterogeneous client needs.

Kania, John. "Customer Driven Scenario Planning." Fahey, Liam and Robert M Randall. *Learning from the Future: Competitive Foresight Scenarios.* New York: John Wiley & Sons, 1997. 264-284.

**ICL**

Created two scenarios to address the forces of the information technology industry and ICL's role in it.
*Coral Reef*- characterised by restricted economic growth, a competitive, highly regulated environment, and a closed and limited telecommunications infrastructure
*Deep Sea*- characterised by high economic growth and global connectivity, competitive survivalist environment, an open telecommunications network.

Clayton, Paul, Jane Dowsett, Steve Parker, and Gill Ringland. "Scenarios for Information Markets in 2005. Ringland, Gill. *Scenario Planning: Managing for the Future.* Chichester: John Wiley & Sons, 1998. 327-344.

**Royal Dutch/ Shell**

Focused the following scenarios on questions like: what sort of business should we be in; what sort of business relationships will they require; what sort of organisation will we need; and what sort of social pressures will we face?[3]
*Da Wo*- fast growth due to East Asian performance with demands for oil increasing by 2% a year.
*Just Do It*- slow growth where environmental concerns and technological advances improve energy efficiency, hence decline in oil demands.

Ringland, Gill. "Shell Scenarios in 1996." *Scenario Planning: Managing for the Future.* Chichester: John Wiley & Sons, 1998. 379-389.

## Appendix B Workshop 1 Attendees

| | | |
|---|---|---|
| Mr Noel | Brady | DIT |
| Mr Patrick | Shiels | DIT |

[3] Ringland, 379

| | | |
|---|---|---|
| Mr Brian | Hughes | DIT |
| Mr Tom | Dunne | DIT |
| Mr Henk | Van der Kamp | DIT |
| Mr Liam | Kelleher | CIF |
| Mr Tim | Brick | Dublin Corporation (Deputy City Engineer) |
| Mr Neil | Kerrigan | Enterprise Ireland |
| Mr Conor | Skehan | EIS Ltd. |
| Mr Michael | Cullinan | MV Cullinan Architects |
| Mr Felix | McKenna | Eircom |
| Mr Michael | Bannon | UCD |
| Mr John | Rogers | Respond! |
| Mr Andrew | McLaren | Trinity College Dublin |
| Mr Mark | Adamson | DDDA |
| Mr Michael | Donohoe | Colliers Jackson Stops |
| Mr Senan | Turnbull | Fingal County Council |
| Ms Linda | Conway | Dublin Corporation (Strategic Policy Manager, Dublin City Dev. Board) |
| Ms Elaine | Hess | Dublin Corporation (Strategic Policy Manager, Dublin City Dev. Board) |

**Appendix C Interviewees Listing – Strategic Conversations**

| | |
|---|---|
| Tom Corrigan | DOE |
| Declan Martin | Dublin Chamber of Commerce |
| Tom Coffee | DCCBA |
| Finnean Matthews | National Spatial Strategy |
| Peter Coyne | DDDA |
| Liam Kearney | Enterprise Ireland |
| John Bruder | Treasury Holdings |
| John Fitzgerald | City Manager |
| Sean Carey | Asst City Manager Planning Dublin Corp |
| Philip McGuire | Asst City Manager Housing Dublin Corp |
| Mary Darley | Strategic Planning Guidelines |

**Appendix D Issues and Trends**

| | Economic |
|---|---|
| 1 | Changing economic fortunes over past decade |
| 2 | Political appetite for state intervention in provision of a range of income support schemes i.e. pension/social security |
| 3 | Substantial proportions of the Irish population are prepared to vote with their chequebook in response to the possibility of cheaper services in another Euro-currency country. |
| 4 | Growth in consumer spending. |
| 5 | Pattern of consumer spending shifting away from 'basics' towards 'luxuries' |
| 6 | Irish consumers are spending more money and time at home. |
| 7 | Cost of housing to buy |

| | |
|---|---|
| 8 | Cost of housing to rent |
| 9 | Levelling off of growth – impact on Built Environment of Dublin (downturn in construction) |
| 10 | Constraints on economic growth investment in infrastructure |
| 11 | Increase in gap between rich and poor |
| 12 | Fall off in public finance in Europe |
| 13 | Uncertainty of the Euro |
| 14 | Conflicts over social service and migration policies |
| 15 | Move towards labour un-intensive agri-activities |
| 16 | Demands of a global, communications saturated economy meaning that a growing proportion of the work force will work A-typical hours – shift/ week-end work becoming increasingly common |
| 17 | The role of trans-national companies |
| 18 | Industrial sector location will favour access to targeted customers with smaller plants in more places |
| 19 | Increase in disposable incomes |
| 20 | Impact of 'foot and Mouth' |
| 21 | Skills shortage – importing of trades from Continent to assist National development plan |
| 22 | Cost of Labour |
| 23 | Free trade / Competition |
| 24 | Centralisation (increasing) of and due to e-commerce |
| 25 | City as brand |
| 26 | City as centre of region |
| 27 | Erosion of fiscal case of government - transactions taking place or internet |
| 28 | Finite resources |
| 29 | Globally defined local economy – loss of local identity |
| 30 | Hinterland and City – supporting or supported by |
| 31 | Impact of IT on real economy of production |
| 32 | Irelands need for economic catch is driving current day ad-hockery forward at the expense of longer term planning |
| 33 | Leisure, sport and culture as an economic driver |
| 34 | Paradigm Shift of economic base / taxation policy e.g. Transfer policy |
| 35 | Peripheralisation of Ireland in EU and Europe |
| 36 | Regionalisation supply and marketing not centered in Dublin – Part of our Market |
| 37 | Status of Dublin has changed moved from provincial to international status |
| 38 | Water Wars |
| 39 | Will Ireland become richer because Dublin grows –V- constrain Dublin + grown regions |
| | DEMOGRAPHIC |
| 40 | Ageing population |
| 41 | Increase in women's participation – transformation of working patterns among married couples, where both partners are in paid employment has more than doubled in last 10 yrs |
| 42 | Significant proportions of the population have no private pension plan |

| | |
|---|---|
| 43 | Overall population will grow by more than Euro Average due to above average birth rate, returning emigrants |
| 44 | World population growth - by 2015 7.2 billion – 6.1 billion in yr 2000. |
| 45 | Provision of health, education and leisure facilities |
| 46 | Increasingly mobile population |
| 47 | Growth of assisted, sheltered and independent living accommodation |
| 48 | Drop in number of young people in Ireland (low birth rate in 80/90's translates to lack of teenagers/ early twenties |
| 49 | Labour force shortages getting worse?? Fall off in new entrants to workforce due to demographic trends shifting negotiating power to employees |
| 50 | Real wage increase – accelerated recruitment from women returning to workforce and returning emigrants |
| 51 | Affordable housing solutions an imperative |
| 52 | Early retirement, further exacerbating labour force shortages as 30+ 40+ decide to cash in nest eggs and retire by early 50's |
| 53 | Accent on 'middle class' values |
| 54 | People not companies determine location |
| 55 | Innovation and enterprise determine prosperity of urban areas |
| 56 | Flexibility of labour |
| 57 | Access to tertiary education by subsidy maintenance for socially deprived or excluded |
| 58 | Swedish Model – Children have more parents than parents have children |
| 59 | Split residency – between home and work between home and other home |
| 60 | Social exclusion and its implications |
| 61 | Number of houses increasing relative to population increase |
| 62 | Multi- Ethnics V's dominant immigration groups |
| 63 | Investment in Education / Housing / Ageing |
| 64 | Immigration and emigration |
| 65 | Emergence of a Dublin Super Region, expanding from City Centre |
| 66 | Demographics – Economics / Household size / ageing / immigration / Challenge of education / Political scenarios / Market led V's command / planning led |
| 67 | Consensus and consultation |
| | **Cultural** |
| 68 | Equality in the workplace |
| 69 | Equality in the home – especially with regard to financial decision making |
| 70 | Shake up in Irish 'job for life' mentality |
| 71 | Lack of employee loyalty |
| 72 | High rate of job change – people able to control such decisions |
| 73 | Professional accountability heightening |
| 74 | Professional standards increasing |
| 75 | Culture of competition in Ireland fiercer |
| 76 | House more than a home |
| 77 | Health an emerging sector |
| 78 | Future shock – backlash against so much change in a short period of time |
| 79 | Reassertion of traditional values and institutions – demand for more |

| | |
|---|---|
| | conservative social and economic policies |
| 80 | Lifestyle communities an emerging sector |
| 81 | Linguistic barriers |
| 82 | Advent of people working from home – in a non-structured environment |
| 83 | High rise development |
| 84 | Continuance of urban sprawl |
| 85 | Multi-national/ Multi-Ethnic Population |
| 86 | Ghettoisation of Dublin |
| 87 | Racism |
| 88 | Move away from traditional agricultural disciplines |
| 89 | Impact of Safety and Security on life in Dublin |
| 90 | Cultural positioning of united Ireland |
| 91 | Emergence of cultural attributes as a commercial product |
| 92 | Loss of Traditional Values |
| 93 | Manipulated consciousness |
| | **Environmental** |
| 94 | Sustainable development will be the watchword |
| 95 | Waste Management |
| 96 | Urban densities will increase |
| 97 | Urban densities will decrease |
| 98 | The Dublin Incinerator |
| 99 | Environmental quality of urban areas will be at a premium |
| 100 | Traffic congestion – effects on population (health) |
| 101 | Traffic congestion effects on Buildings (historic) |
| 102 | Sprawl into Green belt areas |
| 103 | Mixed use development will be more common |
| 104 | Transportation systems will determine the success of towns and cities |
| 105 | There will be less reliance on the private car |
| 106 | The private car will remain an icon |
| 107 | Optimisation of existing urban land use will be a priority |
| 108 | Fiscal measures for urban regeneration will be more popularly applied |
| 109 | Building on green-fields in the city (rezoning) |
| 110 | Regulations regarding emissions (Kyoto protocol) |
| 111 | Packaging and waste take back obligations |
| 112 | Recycling and Energy recovery from waste |
| 113 | Ireland failing to meet its international obligations in emission of nitrous oxide and Co2 |
| 114 | Taxes and charges to discourage car use in urban areas |
| 115 | Accommodation de-coupling |
| 116 | Ensure adequate support services and infrastructure (e.g. training, staff, money, facilities) |
| 117 | Encourage environmental collective action |
| 118 | Partnership arrangements between public and private sectors will grow - PPP |
| 119 | Government intervention in availability of childcare facilities so that women can return to work earlier |
| 120 | Debate regarding the roles of the state and the individual i.e. the dominant political paradigm that the state should have an active part in the |

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| | provision of a range of services and income support schemes |
| 121 | Controls on out-of-town development i.e. retail |
| 122 | Independence within European Union |
| 123 | Influence of independents / small parties |
| 124 | Influence of Europe |
| 125 | Policy determined by non-strategic issues |
| 126 | Falling tax levels |
| 127 | Collapsing prices in wake of Euro and technology fall off |
| 128 | Rise / Fall in statutory retirement age |
| 129 | Abolition of Statutory retirement age |
| 130 | Issue of increase water needs |
| 131 | Proposed Eastern Port access relief route |
| 132 | New Vehicular bridges across the Liffey |
| 133 | The Dublin Bay project – sewage treatment works, marinas etc |
| 134 | North fringe Sewer works Project |
| 135 | The Dublin Port Tunnel Project |
| 136 | The LUAS project |
| 137 | The Regeneration of Ballymena and other IAA's |
| 138 | Concept of additional taxes (like hotel bedroom taxes) which operate successfully in other cities) |
| 139 | Dublin's lack of local finance raising capacity – a disadvantage compared to other cities |
| 140 | Lack of Fully Serviced Land |
| 141 | Implementation of Business Improvement Districts |
| 142 | Traffic Congestion |
| 143 | Administration fragmentation – Functional and Spatial |
| 144 | Construction as an excuse – especially over land and property right |
| 145 | Elected Mayor – a celebrity? Local Authorities of the future being willing to cede some power to the Dublin regional authority |
| 146 | Entrepreneurial Planning – Special authorities / Agencies |
| 147 | Fragmentation of central institution of city government of capital |
| 148 | Geographical basis of governance |
| 149 | Increasing effective power of city and Co. managers |
| 150 | Increasing Entrepreneurialism in Governance – administration – Policy formulation – SPG – Consensus – Spatial – Local Access |
| 151 | New forms of local Government, comprehensive planning for small areas contradictions |
| 152 | Rate based planning |
| 153 | Spatial Hierarchy of Government and distribution of powers – National, Regional, Co. / Metro/ Urban etc |
| 154 | Subsistence – EU / National / Regional / County / Community |
| | TECHNOLOGICAL |
| 155 | Increase in the proportion of Irish Adults on-line – exercising their euro preferences |
| 156 | Genetic testing – advent of ability to predict future disease patterns/life expectancy |
| 157 | Revolution in information/communications – wireless technology |
| 158 | Fall off in trade skills due to new technology focus |

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| 159 | New energy sources |
| 160 | Effects of IT on design/ construction of buildings/ environment |
| 161 | Breakthrough in materials technology – generation of widely available products that are multi-functional, environmentally safe, longer lasting and easily adaptable. |
| 162 | New technology centre in Liberties/Coombe area |
| 163 | Wide variations in market performance due to differences in technological capacity will appear |
| 164 | Biotechnology driving medical breakthroughs – enabling the worlds wealthiest people to improve their health and increase their longevity dramatically. |
| 165 | E is for everything approach – information and communication technology will be ubiquitous in our homes, workplaces and leisure venues |
| 166 | Smart materials |

## Appendix E Workshop 2 Attendees

Paul Moloney
Gilbert Power
Declan Wallace
Alan Taylor
John O'Connor
Una Joyce
Michael Norris
Conor Skehan
Eileen Brady
Michael Stubbs
Jim Keegan
Dick Gleeson
Michael Reynolds
Vincent Norton
Michael Cullinan
Edward McDonald
Mary Taylor
Anne Graham
Sean Purcell
Tim O'Suillivan
John Murphy
Fergus Whelan
Ciaran Cuffe