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## Economic Case for Early Adoption of Facilities Management - Presentation

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# **The Economic Case for Early Adoption of Facilities Management**



**Joint CIB W070, W092 & TG72  
International Conference  
on Facilities Management,  
Procurement Systems and  
Public Private Partnership**



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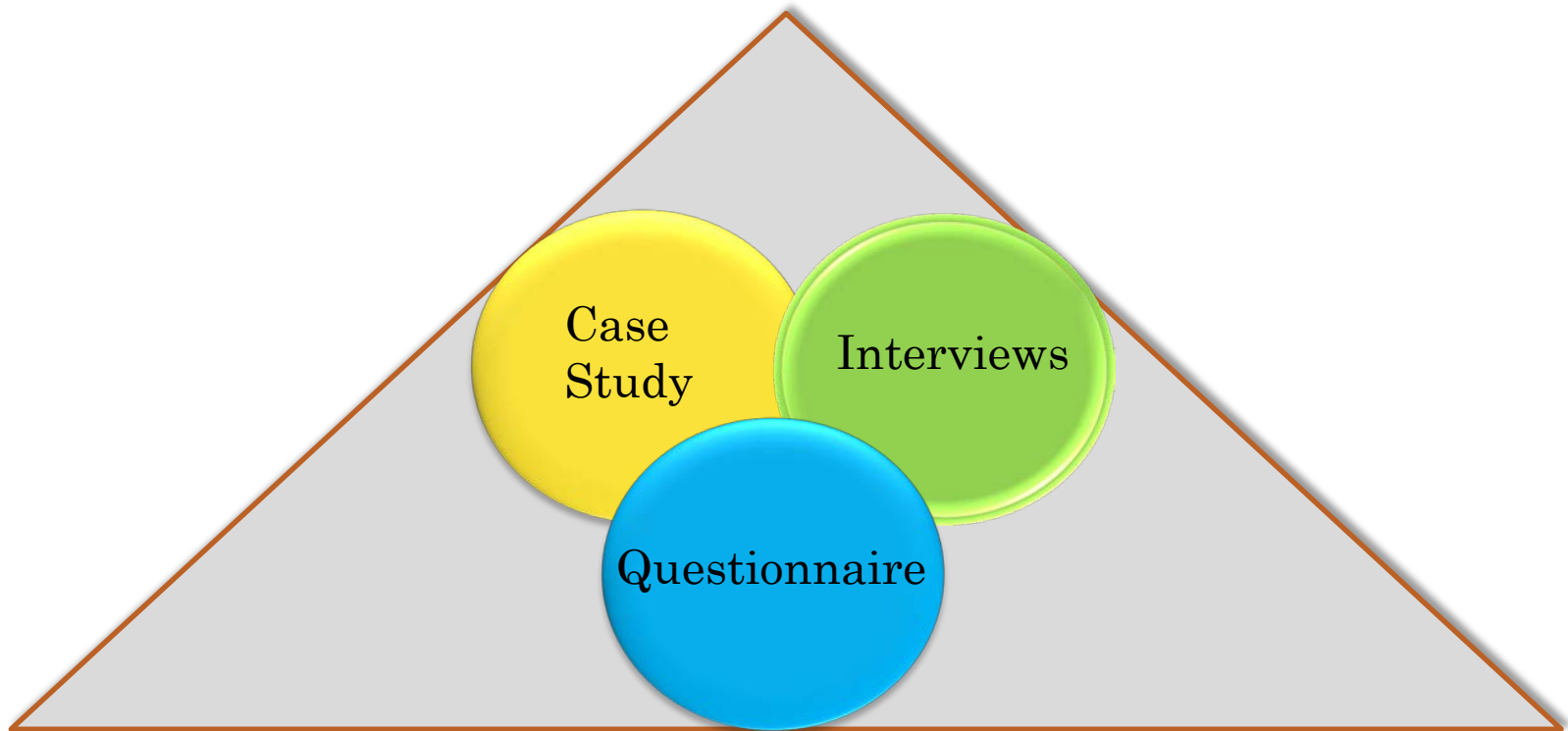
**Dr John Wall**

# THE IRISH ECONOMY

- ✓ €38.4 billion in 2007 / €10.5 billion by the end of 2011
- ✓ €300 million a year through simple actions - SEI
- ✓ State contracts worth up to €16 billion a year – Irish Government
- ✓ Reduce greenhouse gas emissions by up to 20% by the year 2020 – EU
- ✓ Traditional method of construction needs to be re-engineered



# MIXED METHODOLOGY



# CASE STUDY

- ❖ Opened in 2007 and was constructed for an initial €60 million
- ❖ Financial plan proposed saving initiatives in the region of €1.2 million over three years
- ❖ Better Energy Management Plan totaling €182,000 that generated savings of up to € 360,363 over the three year period
- ❖ Interviews with Current Facilities Management Team and former Construction Management Team





# BETTER ENERGY MANAGEMENT PLAN

Item	Description	Initial Cost	Savings
1	The changing of all current lights in the downstairs car park to PIRS. This will result in a microwave signal being emitted and in turn will optimize the efficiency of the lighting, as it will only be used on a needs basis.	€9,141	€27,215
2	Replace all 50watt A.R. 11type lamps with 35Watt energy efficient type.	€6,873	€10,039
3	Replacement of 120 x 35 Watt capsule halogen downlighter fittings in Consultant suites and throughout the building to 2 Watt LED downlight with equal Lux level performance.	€8,591	€10,479
4	Modification of all corridor and back house light fittings to incorporate 2 tube electronic start T5 tubes in place of 4 tube T8 type. This will reduce the power consumption by approximately 50% and increase the lifespan of the fittings and components by approximately. 50%.	€13,233	€41,454
5	Installing key switches throughout the building that will prevent the staff and patients from leaving unnecessary lights on. This will enable reduction of electrical waste.	€7,900	€31,971
6	Reconfiguration of the boiler plant to incorporate a combined Heat and Power system. The proposed installation of a CHP system will eliminate the three boilers which have no connection between the domestic hot water calorifiers and the main headers, resulting in significant savings in gas.	€32,905	€47,916
7	Installation of two port valves on the existing LTHW and their associating controllers. This will prevent boilers becoming heat sinks.	€10,590	€29,040
8	Updating the microprocessors in the BMS to encompass a complete re-programming of the existing BMS and include every item of plant in the facility. Also the installation of additional BMS control instruments and the associated I/O cards and programming. This will allow closer control and interaction between the user and the system on the Plant and Equipment set points.	€29,755	€57,692
9	Design and installation of a new control system for the compressors that will create an "on demand" scenario ensuring the compressors only operate when needed.	€16,790	€15,700
10	Advanced training on critical equipment i.e. BMS, Medical Equipment, wheel chairs.	€14,500	€24,100
11	Medical Air Compressor re-design and re-build.	€16,790	€15,700

Item	Description		
4	Modification of all corridor and back house light fittings to incorporate 2 tube electronic start T5 tubes in place of 4 tube T8 type. This will reduce the power consumption by approximately 50% and increase the lifespan of the fittings and components by approximately. 50%.		
	Installation / Cost Breakdown		
	Consultancy Design	€400	
	Ballast Change 320 fittings	€5,001.60	
	Electronics starters for each fitting 320 x €1.99	€637	
	Removal of WEE disposal of existing ballast 320 x €2.50	€800	
	Purchase new T5 Tubes 640 x €3.59	€2,997.60	
	Replace T8 Lamp holders with T5 Lamp Holders (4units x 320 fittings) =1280 x €1.99	€254.20	
	Testing and Commissioning	€850	
	Total Installation Costs	€13,233	
	Savings Breakdown		
a	Original cost to power T4 tube to T8 Modular tubing (Set out Below)		
	320 fittings x 122 watts (4 x 28w tubes) = 35.84 kw		
	35.84 KW x 12(hours in a day) = 430KW so 430KW x .17cent = €73.10 per day		
	Cost year 1 73.10 x 182 (days) = €13,304.20		
	Cost year 2 73.10 x 365 (days) = €22,587.90		
	Cost year 3 73.10 x 365 (days) = €22,587.90		
	Total original cost over 2.5 years €58,480		
	Modified to T5 Electronic Fittings to reduce power consumption to 52 Watts per fitting resulting in a net saving in approx 50% of running costs		
	Savings year 1 €6652.10		
	Savings year 2 €13340		
	Savings year 3 €13340		
	New approximate cost saving on power over 2.5 years		€33,332
b	Saving on relamping is 50% approx per annum		
	Original Cost 320 x 4 -1280 lamps per year @3.20 each = €4096		
	Lamps Year 1 = €2048		
	Lamps Year 2 = €4096		
	Lamps Year 3 = €4096		
	New Cost year 1 = €1024		
	New Cost year 2 = €2048		
	New Cost year 3 = €2048		
	New Calculated savings on lamp changes over 2.5 years		€5,120
c	New installed ballast fittings will reduce the placement rate over the next 2.5 year period		
	Estimated 40% of ballast fitting = 128 new ballasts @ 15.62 per unit = €199.36		
	Total ballast replacement cost = 320 ballasts @ 15.62 per unit = €5001		
	Hence total saved on ballast expenditure over 2.5 years = €5001 -€1999.36 = €3001.64		
	New calculated savings on ballast changes over 2.5 years		€3,001.64
	New savings benefits achieved from modification of fittings		€41,453.74

# CASE STUDY RESULTS

- ❖ Poor design choices and inadequate planning
- ❖ Energy Management Scheme could have been realised during construction
- ❖ Early collaboration between the Facilities Manager and the design team, would have been reduced life cycle costs.
- ❖ The practical approach by the Facilities Manager, could have helped to avoid counterproductive design details
- ❖ Facilities Manager suffering from a managerial identity crisis having been confined to the lower levels of Management



# QUESTIONNAIRE

❖ Online Survey through Survey Monkey



❖ Target Audience

- ✓ Facility Managers
- ✓ Project Managers
- ✓ Architects

❖ 5 Different Sections

- ✓ Life Cycle Cost
- ✓ Best Environmental Practice
- ✓ A More Innovative Approach
- ✓ Role in the Construction Process
- ✓ Business Function

❖ A total of 51 Replies





# QUESTIONNAIRE RESULTS

➤ All of the respondents agreed in some form that the Facility Manager should be introduced into the construction management stage at an early level.

➤ 98% agreement the Facilities Manager if introduced at the design and construction stage can help highlight best environmental practices.

➤ 92% agreed that a better approach would be the partnering of the Project and Facilities Manager along with the Design Team

➤ Facilities Manager would best serve if they were integrated into the design stage in a consultant role.

➤ 86% of the respondents believed that irrespective of its potential as a business strategy, it was still not considered an actual profession



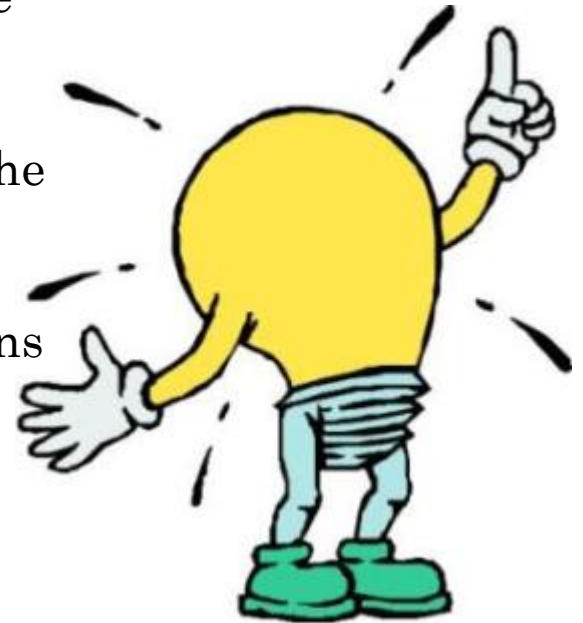
# MIXED METHODOLOGY RESULTS

- ❖ Early collaboration between the Facilities Manager and the design team would have resulted in reduced life cycle costs
- ❖ Adopt a more practical approach in avoiding counterproductive designs in favour of a more passive building
- ❖ Innovative approach of partnering the Project and Facilities Manager along with the Design Team throughout the Construction Stage
- ❖ A vital experience to external visitors and was central to the clinics business goals
- ❖ Facilities Departments are still only viewed at an operational level and is still not considered an actual profession.



# CONCLUSION

- ❖ Facilities Manager, if introduced into the beginning of a structures lifecycle, has the potential to increase sustainability and in the process promote best construction practice.
- ❖ Operational needs of the client are addressed at the onset of construction
- ❖ Continue to play the silent partner, unless it begins to promote itself as the key business strategy.
- ❖ FM process begins to move towards creating interactive capabilities, in order, to portray its financial worth to an organisation





QUESTIONS

