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Implementing of Building Information Modelling in Public Works Projects in Ireland - Presentation

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Implementing Building Information Modelling in Public Works Projects In Ireland

By

Barry McAuley , Dr. Alan Hore & Dr. Roger West



Presented by

Barry McAuley MSc, BSc (Hon), Dip.Eng

PhD Candidate, Dublin Institute of Technology

Ireland and the need for change

- Ireland - huge financial losses in the public works
- Reduce greenhouse gas emissions by up to 20%
- Capital Works Management Framework (CWMF) introduced in 2007
- A number of recent Large investment from the Irish Government
- Public works projects in the UK will be required to use BIM techniques from 2016.
- Irish Government move towards the mandatory use of Building Information Modeling (BIM) on public works projects



Methodology - RIAI / CITA BIM Workshop

- Raise awareness and promote a higher level of understanding of BIM
- Demonstrate a more effective way for teams to collaborate
- Assess / demonstrate some of the BIM software tools available
- Validate designs through digital analysis
- Test BIM technologies in responding to low carbon construction demands



CITA BIM Workshops

9

What major BIM activities

- Collaborative networking effort
- Gaining international interest
- Discussion on Key Topics/Obstacles
- Expert Opinion and Table Discussions
- Record & distributed outcomes back to Industry
- Promote/Communicate Industry Consensus & Joined-up Thinking



Construction IT Alliance BIM WORKSHOP SERIES 2012

A series of workshop events designed to facilitate a high level discussion of the key stakeholders on the immediate obstacles to the implementation of building information modelling in Ireland.

Specifically the workshops are designed to assist in:

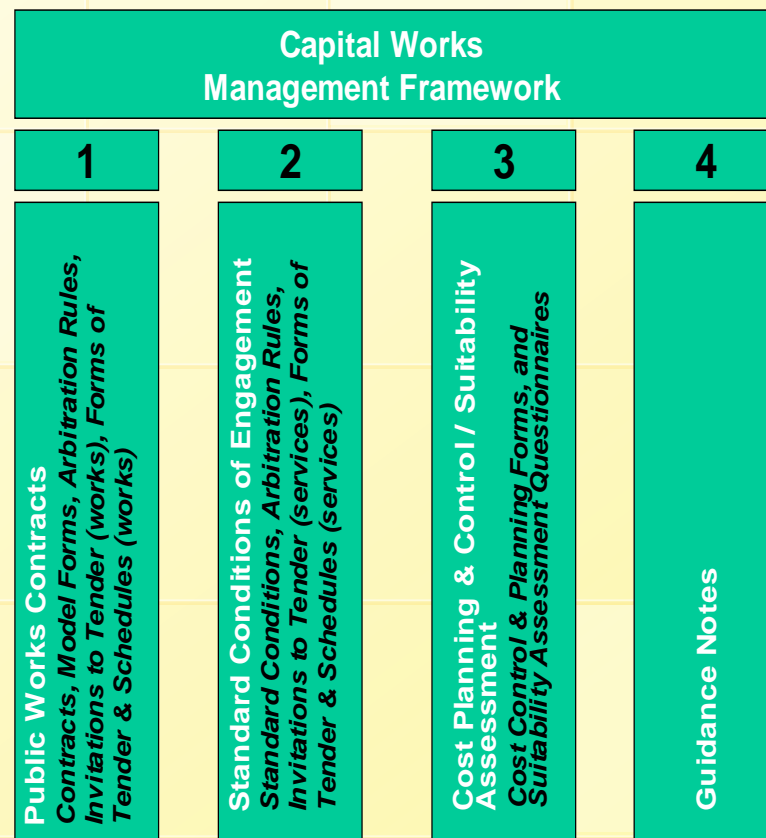
- Fast tracking the general adoption of BIM in Ireland.
- Disseminating best practice and application of BIM in a variety of direct and indirect construction related work processes.
- Facilitating a consistent and co-ordinated message back to industry in how to best implement building information modelling in Ireland.



Monday 25th June 2012

Capital Works Management Framework Objectives

1. Greater cost certainty
2. Award contracts on the basis of a lump-sum fixed-price
3. Rebalance the risk
4. Value for Money
5. Efficient delivery of the projects



Lit Review

❖ Irish Public Sector and the Governments roles in implementing BIM

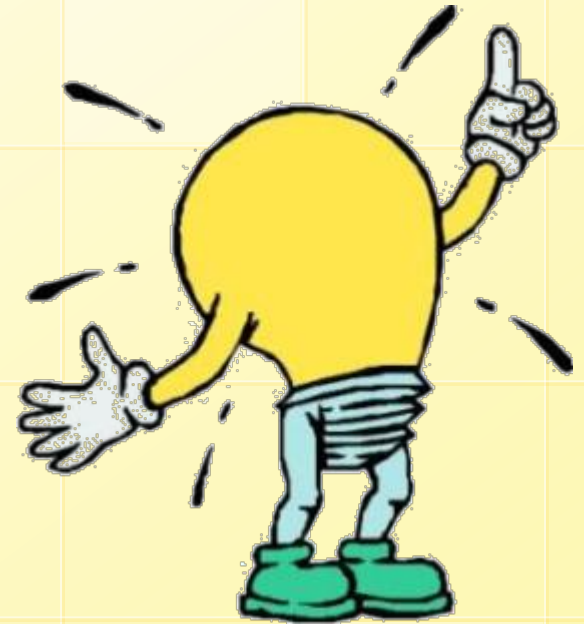
- Majority of construction contracts used in Ireland provide for conciliation and arbitration as an alternative means of dispute resolution
- The Irish Government must play a major driver and review current BIM initiatives and barriers within internationally public sector procurement

❖ Global BIM

- USA, Finland, Norway, Denmark, UK, Germany, Singapore who are all currently in the process of developing BIM guidelines
- The implementation of BIM on all public works projects in the UK to a level 2 standard

❖ Barriers to BIM

- Process, Interoperability, Use of the Model, Status of the model, Project responsibilities and risks, Ownership and protection of Data
- The US Consensus DOCs 301 and AIA E202



RIAI / CITA BIM Workshop

- 2011 RIAI showcase of integrated and collaborative Working



● **3D BIM Model
on Screen**

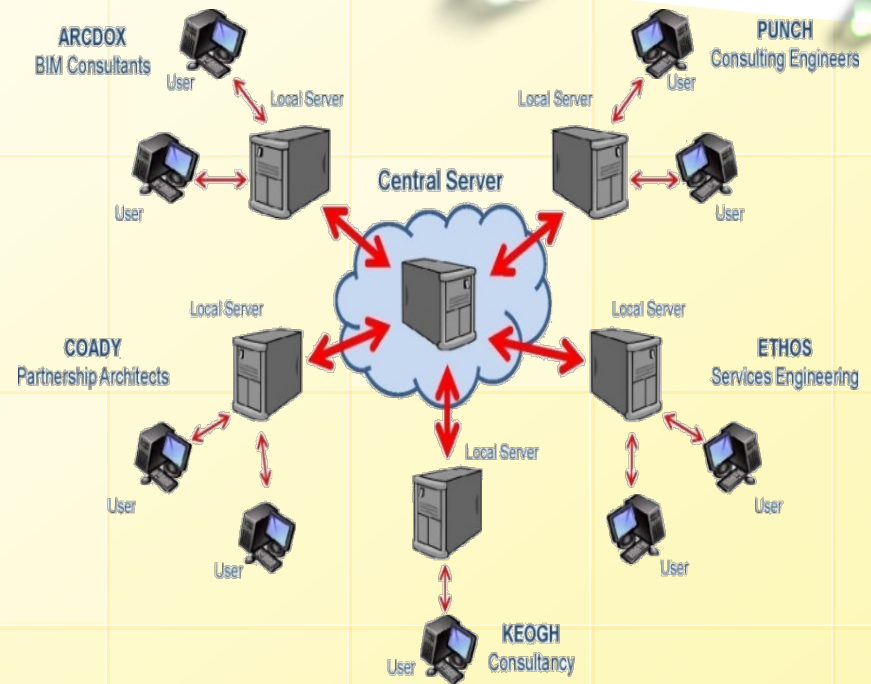
● **Laptops On
Meeting Table
(No Paper)**

● **Instant Access
to Sophisticated
Information and
Analysis**

● **Digitally
Recording
Decisions in
Real-Time**

Pilot Team and Process

- ❑ Leading design professionals from selected firms within the AEC/FM sector
- ❑ Consulting engineers, services engineers, architects, and consultants
- ❑ Additional support from contractors, QS's, technical support, FM support for handover documentation and BIM energy specialists

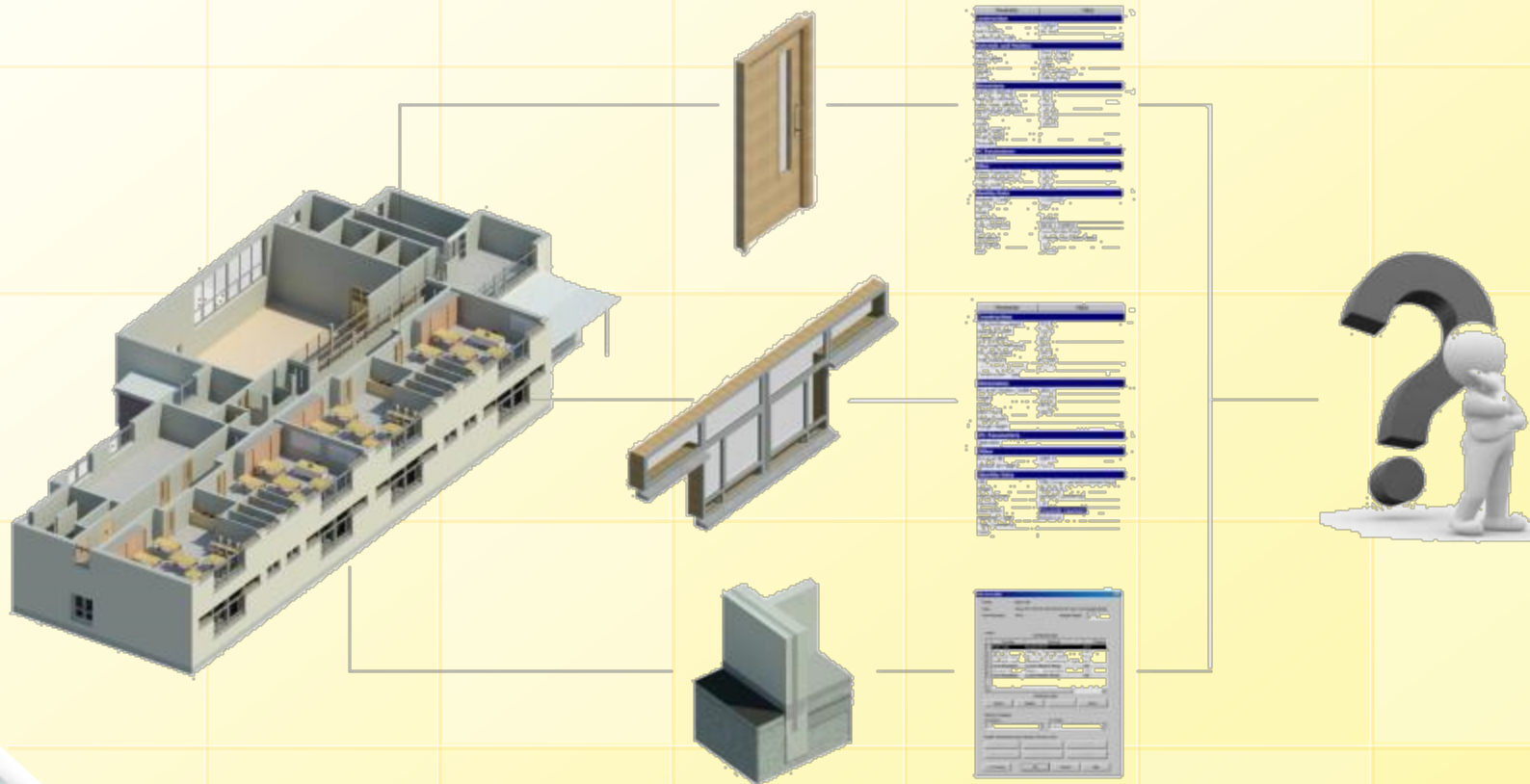


- ❑ Digital brief with the overall goal to design a BIM model of a standard generic DOES school
- ❑ Exploded down to its components
- ❑ Synchronised with a central server

Pilot Analysis

Generic School broken down to its core elements

Build the Base BIM Model ▶ **“Explode” to Standard Components** ▶ **Prepare a New Design**



Low Carbon Options

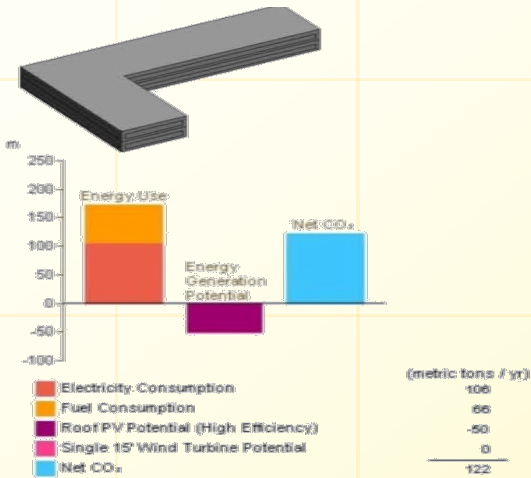


Figure 6: Mass Model 1

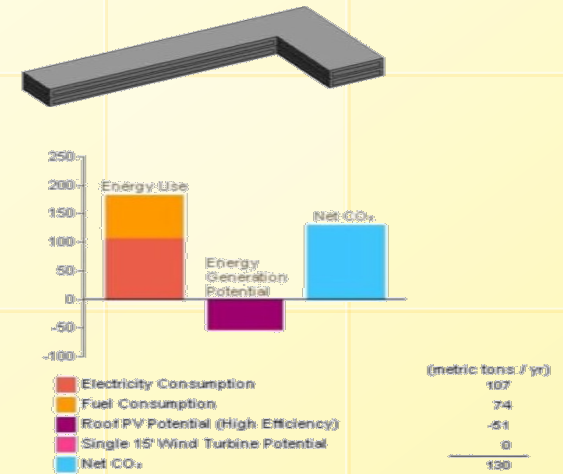


Figure 7: Mass Model 2

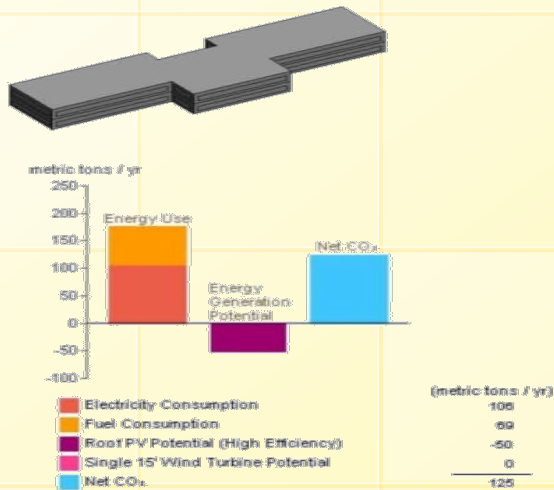


Figure 8: Mass Model 3

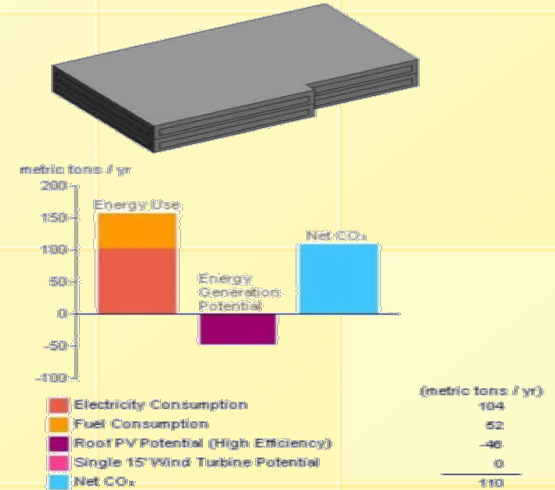
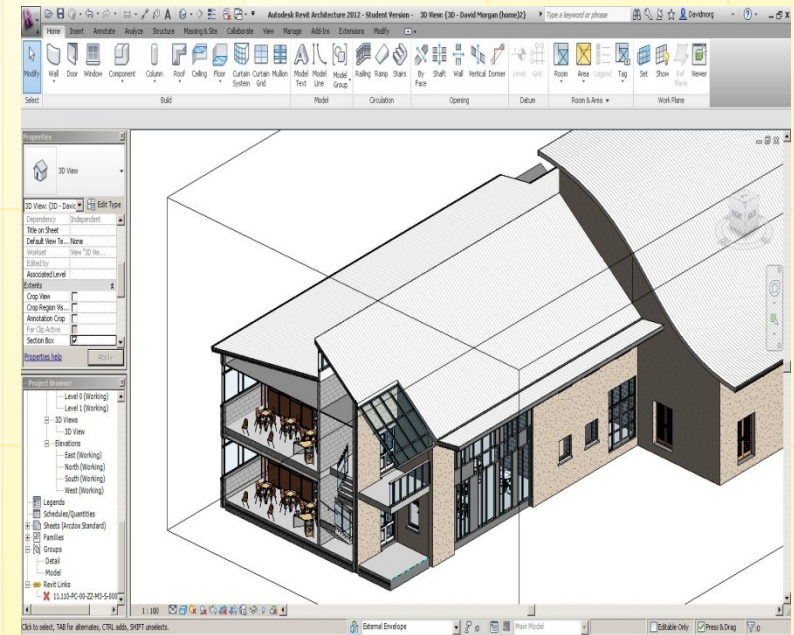


Figure 8: Mass Model 4

Pilot Feedback

- The BIM process helped identify eventualities that may occur on site and subsequently aided in avoiding these eventualities
- The BIM process added a greater cost certainty and reduced a significant amount of the design risk
- BIM enabled the designer to have the option to choose a carbon friendly design for the primary school.
- Design team could identify areas of possible clash detection and could instantly confront them before they went to site



BIM Workshop

- ❖ Setting an aligned policy for use of BIM in regards to a top down strategy for Government, Institutions, companies and projects
- ❖ Roundtable Discussion
 - Should the Irish Government follow the UK Government's decision in mandating the use of BIM on public sector projects?
 - How best can the Irish Construction industry, lobby / influence the decision of the Irish Government in regard to BIM?
- ❖ A resounding agreement that Ireland should follow the UK
- ❖ There must be single voice in the form of a Chief Construction Advisor such as in the UK

CITA BIM Meeting 1
Setting Aligned Policy for Use of BIM - A Top Down Strategy
With
Key Note Speaker
David Philp
Head of BIM Implementation Cabinet Office, London

"Every BIM project needs a strategy"
"Every Company needs a BIM policy"
"Every Institution needs a policy and so does government"

[CLICK HERE FOR FURTHER INFORMATION](#)

Wednesday 1st February 2012
Venue: Royal College of Physicians, No. 6 Kildare St, Dublin 2
Time: 07.30am - 10.30am

EVENT PARTNERS
RIA, ACI, CHARTERED SURVEYORS, CIBSE IRELAND, ENGINEERS IRELAND, The Institution of Structural Engineers, Law Society of Ireland, ENTERPRISE IRELAND, OPW

Construction IT Alliance
BIM WORKSHOP SERIES 2012

Triangulation of Results

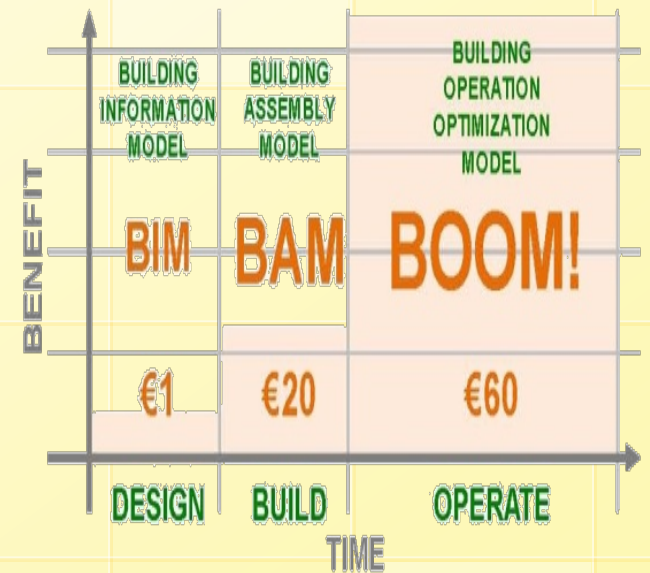
Greater cost certainty- Mass model studies allow design teams to design to a cost, rather than cost to design

Award contracts on the basis of a lump-sum fixed-price - Exercises in design, programming, value management and concept energy analysis allows a more accurate financial assessment for a contract with a fixed price

Rebalance the risk - Better risk prediction through enhanced clash detection

Value for Money - BIM enables a whole life cycle approach and addresses the clients needs over the structures life.

Efficient delivery of the projects – BIM enables testing of design solutions to provide a more responsive building design



Source: Patrick MacLearmv – HOK

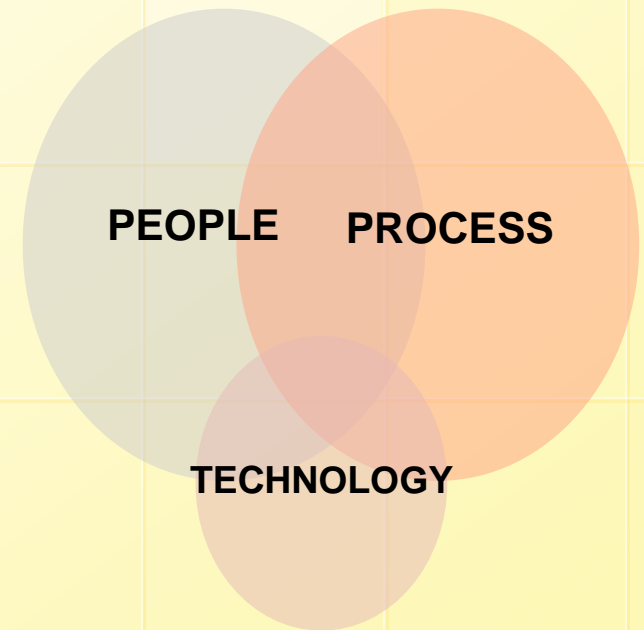
Conclusion

- ❖ The workshop proved a success and provided the platform for the Irish Government to see first-hand, how a collaborative BIM model could provide cost certainty
- ❖ The BIM workshop addressed a number of problem areas in which the Irish AEC / FM sector was found trailing in all areas
- ❖ Still require “an act of faith” for the Irish Government to fully embrace it.
- ❖ Legal mandating of BIM may further be viewed as discriminating on SME’s
- ❖ The CWMF is already achieving low tender prices



Ireland's challenges.....

- ▶ Getting people up to speed and training is key
- ▶ Getting people to change mindset
- ▶ Irish Government to step up to the challenge
- ▶ Investment is needed by AEC businesses
- ▶ Need to utilise BIM champions with your organisation
- ▶ Interoperability of BIM products to be addressed



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Monday 25th June 2012

Major BIM Activities in Ireland

11

What major BIM activities

CITA | Construction IT Alliance

BIM | Building Information Modelling | Ireland's Opportunity

Presentation To

GCCC | Government Construction Contracts Committee

Wednesday 2nd May 2012

Presentation by:

Dr. Alan V Hore
Executive Director, Construction IT Alliance

Ralph Montague
Director, Arcdox
Co-Ordinator CITA LinkedIn Group

Accompanied by:

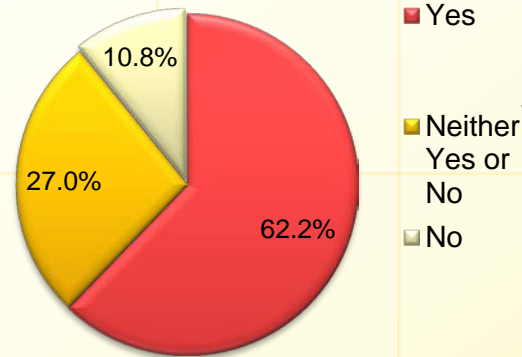
John McGowan
Director, Construction IT Alliance

Barry McAuley
Phd Student
Dit Bolton Street

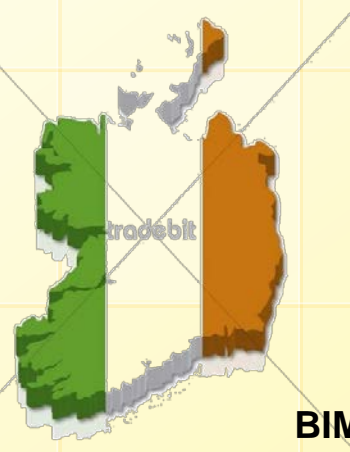
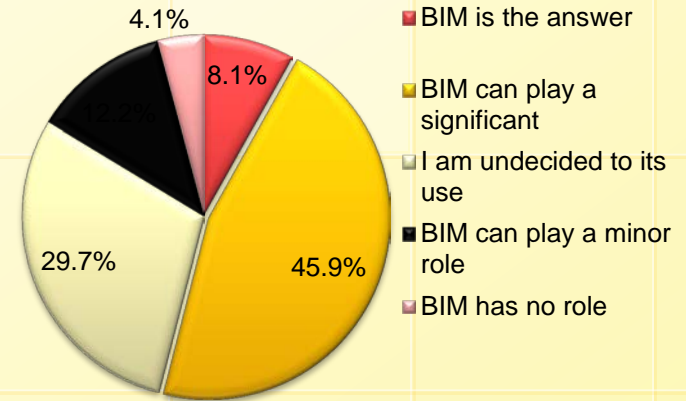
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CITA BIM Survey 2012

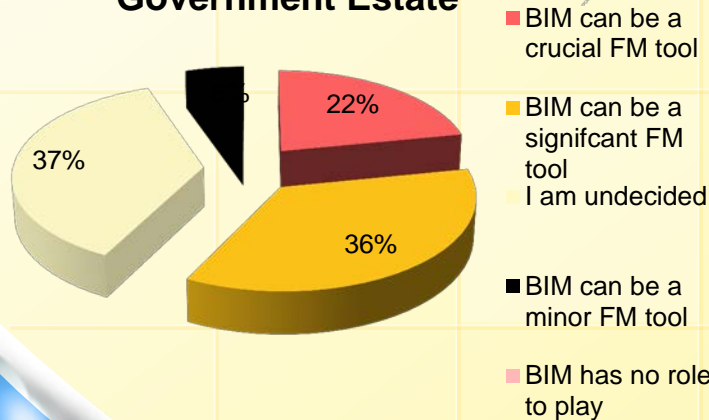
Should Ireland follow the UK in mandating BIM



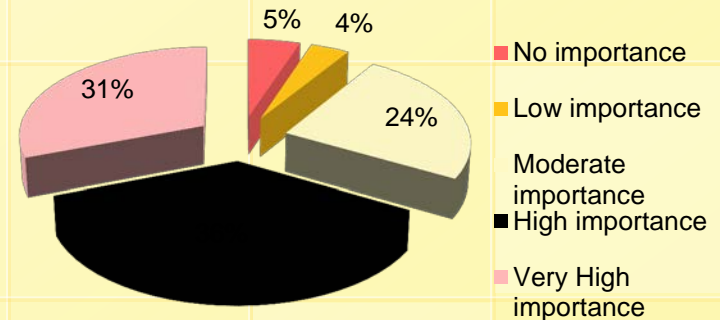
Can BIM help Ireland reaches its Carbon Targets



BIM as FM Tool in Managing the Government Estate



BIM Importance in 5 years Time



Thank You!

