

**CitA**  
BIM GATHERING



# Building Capabilities in Complex Environments

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CitA BIM Gathering 2017, Croke Park, November 23rd & 24th, 2017





## Introduction

- Abstract
- Masters Thesis – Explore the gap between Theory & Practice
- Greenway Hub
- DIT's BIM Aspirations & GDA's Directive
- Key Areas – Vision & Business Plan/Literature Review - Universities/Assets/Current FM Procedures/Resources & Organisational Structures/BIM Champion/Training/Technology
- Interviewees
- Lessons Learnt for Future Projects as an iterative process across projects

- *Student Paper - Limitations*
- *Avoid Redundant AIMS*
- *On the ground reality and not anecdotal evidence*
- *Cross referenced with Industry*
- *DIT Senior Management*
- *DIT Academic Personnel*
- *DIT IS & Estates*
- *DIT Campus Planning*
- *GDA*





## Paper Synopsis: Literature Review



## Literature Review

- Client Roles and responsibilities ('active' versus 'passive')
- FM and the BIM FM uptake
- BIM FM only work with FM involvement
- BIM and Third Level Institutes
- Precedent role models – i.e. Ohio State University & Birmingham City University
- BIM missing link between projects and maintenance – C Lindkvist 2015
- Continuation of information

- *Roadmap*
- *Project Delivery Standards*
- *Intelligent Clients*
- *Iterative Learning*





## Quantative Analysis



## Quantitative Analysis:

The purpose of the quantitative analysis was to identify the interviewees':

- Level of BIM experience & knowledge of the Pillars of BIM
- Opinion on whether BIM can aid FM
- Role of the GDA/DIT Campus Planning (*BIM Champion*)
- Opinion if BIM was being imposed upon the operation of the campus

Two key factors emerged from the quantitative analysis

- In general Lack of Knowledge of BIM Level 2 (client's responsibilities)
- A collective acceptance of BIM and need to involve FM personnel from outset

- *BIM = 'Push or Pull'*
- *No middle ground Experience*
- *PAS 1192 Suite of Documents*
- *PAS 1192 Part 3 2014*
- *PLQs – (MoJ)*





## Asset Management Strategy

- across all departments
- how data is collected / recorded / audited to avoid superfluous information

## BS ISO 55000 Asset Management

- *'a thing, item, or entity that has actual or potential value' and can be 'physical, financial, human or intangible'*

## PAS 1192: 3'Specification for information management for the operational phase of assets using BIM'

- *'coordinated activity of an organisation to realise value from assets'*

## BS EN 15221-1-2006 Facility Management Part 1

- *'a management discipline concerned with the integration of processes within an organization to maintain and develop agreed services which support and improve the effectiveness of its primary activities'.*

- *PAS 1192 Part 3 2014 Specification for information management for the operational phase of assets using BIM*
- *Asset Management Strategy*







## Qualitative Analysis



## Client Role & Responsibilities

- Active?
- (clients who have made the leap to making BIM – R. Saxon)
- Passive?

(Willing to use BIM for the delivery but not able to use for operations – R. Saxon)

- DIT Academia versus DIT FM/Operations

Result

Acknowledgement that the DIT FM were more 'Passive'

Appetite amongst DIT FM to become 'Active' and 'Intelligent Client'

- *'Active' & 'Passive' Definition of Client BIM Usage – Richard Saxon 2015*
- *Cross referenced with Industry*





## **Business Plan & Vision 1** (Vision for BIM aligned with Corporate Strategic Business Plan)

- DIT's vision of BIM across the overall Institute
- Risk Assessment – Disruption/User Resistance/Learning Curves/Interoperability
- Business Change Programme not a technology - Love et al (2014)
- Consider software and hardware (technology) as an investment
- Key Performance Indicators to monitor ROI and measure the outcomes
- Commercialisation and leverage of assets i.e.third term
- Leap of Faith (instinct & intuition)
- Do you have the in-house skills required to manage and maintain BIM

- *Why is BIM a corporate Goal*
- *Identify your need?*
- *Green Sustainable Digital Campus*
- *Risk Assessment*
- *Consider budgets – Financial Standing critical*
- *PESTEL*





## **Business Plan & Vision 2**

The investment is not just technology based but relates to training people, amending work processes and continuous improvement in relation to emerging technological trends.

### **Process**

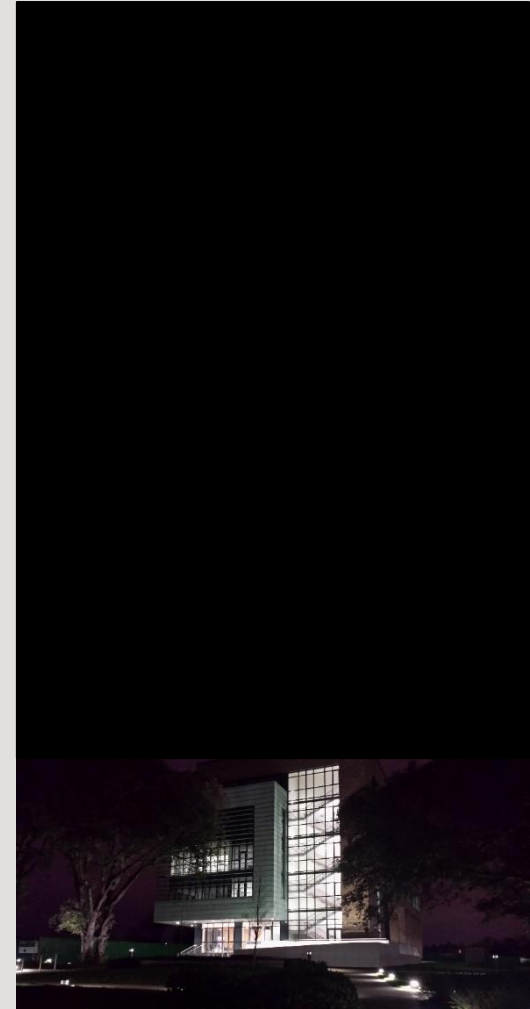
- Data Collection
- Policies
- Governance
- Training

### **Technology**

- Database
- Software/Hardware/Infrastructure/CAFM/Enterprise Management

### **People**

- Culture
- Employee Activation
- Organisation Dynamics





## Business Plan & Vision 3

The corporate strategy should offer three competitive advantages according to D. Kavrakov

- professional commitment to the needs of the end user;
- provide effective and financially efficient services
- an organisational culture which enables the continuous drive for excellence

Cost to implement the roll out of BIM

Timeframe

Author?

### Reminders

- *D. Kavrakov (2015)*
- *DIT/GDA Smart Campus Group*
- *Implementation Plan*





## Resources & Organisational Structures

- Requires a cultural change within the organisation
- Requirement under BS 8563 requires a dedicated BIM Information Manager / BIM Champion
  - Fully integrated with the needs of the organisation - cultural, corporate & strategic vision
- In-house roles & upskilling
- Identification of suitable personnel – right people in the right place at the right time
- Temporary Third Party Consultant (Project Delivery Standards and Training)
- Third Party Consultant - Information sharing based upon trust

## Reminders

- *Skripac (2013)*
- *BS8536 Briefing for Design and Construction Code of Practice for FM (Building Infrastructure)*
- *Onerous requires external integration with existing systems*





## Client Training Roadmap

- Collective acceptance across the board – (accepted cultural change)
- Specific BIM Training – managers/project coordinators/operators
- BIM does not start with or end with an EIR (OIR/AIR/PIM/AIM/POE)
- FM Operators – access to live models to interrogate, maintain and keep up to date.
- Update AIM periodically – digital twin of the handed over building
- FM Managers – involved during the initial Design Stages
- Use in-house staff expertise – operations/management/academic

## Reminders

- *Avoid redundancy of AIM model post handover*
- *FM aware of critical roles*
- *Soft Landings – incorporation prior to handover and POEs*
- *OIR and AIR immediate need for training to inform bespoke EIRs*





## Technology (software)

- CAFM/CMMS – first step
- IWMS

## Security

- Unauthorised Access by third parties & students
- Access to rooms
- Building layout
- Guidance required from DIT
- Unsolicited audits of the building

- *CAFM & CMMS first step*
- *Confusion re function of AIM*
- *Integration with DIT's existing Management Systems*
- *CAFM – harvest data*
- *PAS1195 Part 5*







## Summary: Lessons Learnt



- BIM Vision aligned with Organisations own Strategic Development Plan (*identify need*)
- Strong Leadership required at senior level to develop teamwork and implementation of BIM
- Requires a Leap of faith ("Man cannot discover new oceans unless he has the courage to lose sight of the shore" - Andre Gide)
- There is a cost investment required (*hardware, resources and technology*)
- How do you measure value? – (*monetary, staff productivity or customer satisfaction*)
- It will require a Cultural Change within the organisation (*third party involvement - PDS*)
- It is a disruptive process – many processes – agile
- Time (*not to be underestimated – it is limited*)
- BIM does not start with or end with an EIR (OIR/AIR/PIM/AIM/POE)

- *FM Resources Stretched*
- *Communication to implement Vision and Strategic Plan*
- *Identify key personnel to deliver*
- *Student = Customer*
- *Temporary External Mentor*





- Require new roles to implement – BIM Information Manager/GSL Champion/BIM Guru/Building Asset Security Manager
- People, process and technology are needed to implement BIM. (*People being the key!*)
- Training - role specific (*Management – Delivery – Operations – develop skills in-house?*)
- Asset definition – built asset (PAS1192) or asset (BS ISO 55000) (*data & audit in model*)
- KPI Matrix evaluate Post Occupancy Evaluations & ROI & Outcomes
- Ability to identify the misrepresentation of people's abilities either intentionally or unintentionally (*Supply chain readiness and procurement*)
- 'Start with the end in Mind' (*involve FM as early as possible*)
- BIM is not a panacea. (*we have been doing this all along*)

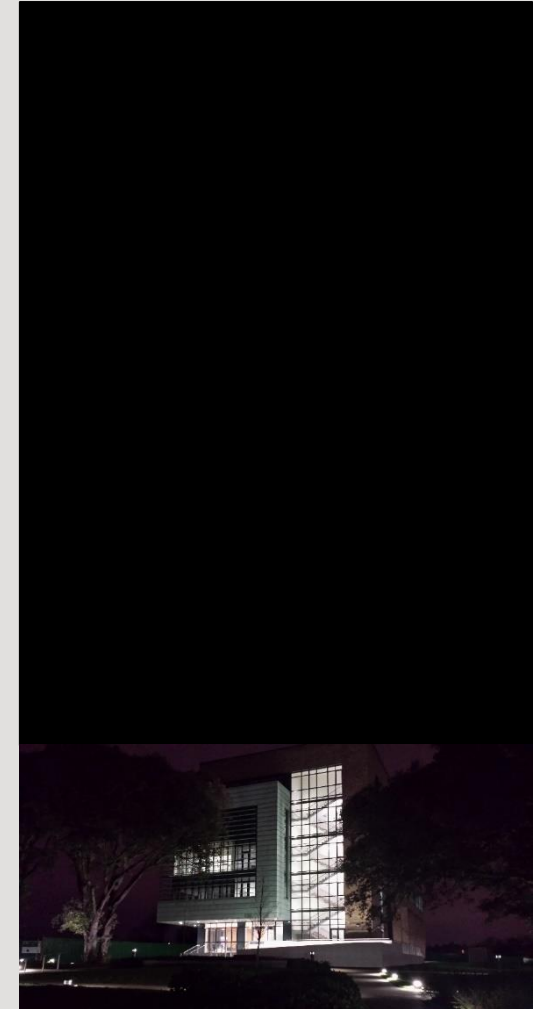
- *BIM Champion – where?*
- *People People People*
- *In-house Potential*
- *Not just Physical Assets – CAFM & CMMS first step towards IWMS*
- *Integration/Commission*
- *Operators different from Stakeholders and Academics*





## Future

- Avoid temptation to preserve with existing Status Quo
- Focus on long term gains
- Bring the BIM immediate goals into better focus
- Revise the Corporate Strategic Business Plan to include BIM
- Communication
- Institute the most important stakeholder to develop and drive BIM
- Students are the ultimate end user



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# Thank you

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