The Baton Change: Transition from Capital Investment to Operations

Maurie Pawsey Schneider Electric Scholarship 2013

Never Stand Still

Joe Santangelo

tefma

Maurie Pawsey Schneider Electric Scholarship

"…very much in line with Maurie Pawsey, Bill Humble and Geoff Harrison's, vision for Facilities Management in Australia through the early 80's, I see a tremendous **opportunity to share** the wealth of knowledge we have immediately available to the **collective of TEFMA**. The value of such exchanges **enables continual improvement** in the way which strategic asset management is applied in **our sector**…"

Big thanks to many……

- TEFMA Board
- Schneider Electric
- UNSW FM Directors
- UNSW Colleagues
- U.S Universities – too many to name all….
- HDR Architects and Designers

Age old lineal process…..

Need for efficient transition…why?

The key to this event is how much time the **baton** spends in those **exchange** zones

U.S.A - July 2014

Survey

Information Sheet for Participants

University of New South Wales (UNSW) Australia
UNSW Facilities Management- Planning and Development- Major Projects
Tertiary Education facilities Management Association (TEFMA)

Project Study Area - The Baton Change: The transition between capital investment to maintenance and operations.

Joe Santangelo- Senior Project Manager UNSW

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You are invited to participate in this research questionnaire. Participation is voluntary.

The purpose of this study is to identify and document exemplar, innovative processes with regard to the transition between Strategic Asset Management phases, namely Capital Investment to Operations and Asset Management in tertiary environments. This is an area the construction industry does this poorly, certainly in Australia, and operationally has major ramifications to the overall business if the Asset Managers are not willing to accept the newly developed assets or begrudgingly do so. Often this reluctance can be brought about due to the assessment of unacceptable maintenance and/or operations costs.

The study will also examine use of enterprise information systems and review various contracting options that may support a more integrated Strategic Asset Management approach. This study will explore the way in which the FM Management Executive, within Capital Investment and Maintenance and Operations, set their performance targets for alignment in an attempt to gain optimal efficiency in relation to asset phase transition and improvement of asset life-cycle costs.

In order to examine project success criteria I would appreciate your response to the attached questionnaire.

Your participation will benefit the wider Tertiary Education Sector as it will identify current project success criteria and illustrate any similarities or differences between private and public sector in the US and Australia.

All records containing personal information will remain confidential and no information which could lead to identification of any individual will be released.

This project has been approved by the Tertiary Education Facilities Management Association (TEFMA) which is an affiliate organisation to APPA and SCUP in the United States.

Your participation is very much appreciated.

University of New South Wales (UNSW) Australia
UNSW Facilities Management- Planning and Development- Major Projects
Tertiary Education facilities Management Association (TEFMA)

To what extent do you believe that successful transition between asset phases is:

Q3. measured by executive stakeholder satisfaction?

No not at all 1-------2-------3-------4-------5- Yes very *much* ..... *(please circle)*

Comments:

Q4. measured by end-user satisfaction?

No not at all 1-------2-------3-------4-------5- Yes very *much* ..... *(please circle)*

Comments:

Q5. measured against the benefits the project offers to the organisation?

No not at all 1-------2-------3-------4-------5- Yes very *much* ..... *(please circle)*

Comments:

Q6. measured by the Capital Delivery Phase coming in on budget?

No not at all 1-------2-------3-------4-------5- Yes very *much* ..... *(please circle)*

Comments:

Q7. measured by efficient use of resources in the Maintenance Phase?

No not at all 1-------2-------3-------4-------5- Yes very *much* ..... *(please circle)*

Comments:

Focus Areas

- Use of Enterprise Information Systems, BIM / GIS to improve the transition of information.
- Improved alignment of the strategic objectives of the Asset Manager and Manager of Planning and Development.
- Various contractual options and ideals that improve transition and improve integration.

Collaboration

Integration

No silos

Sustainability

Sharing

Trust

Team work

Reliability

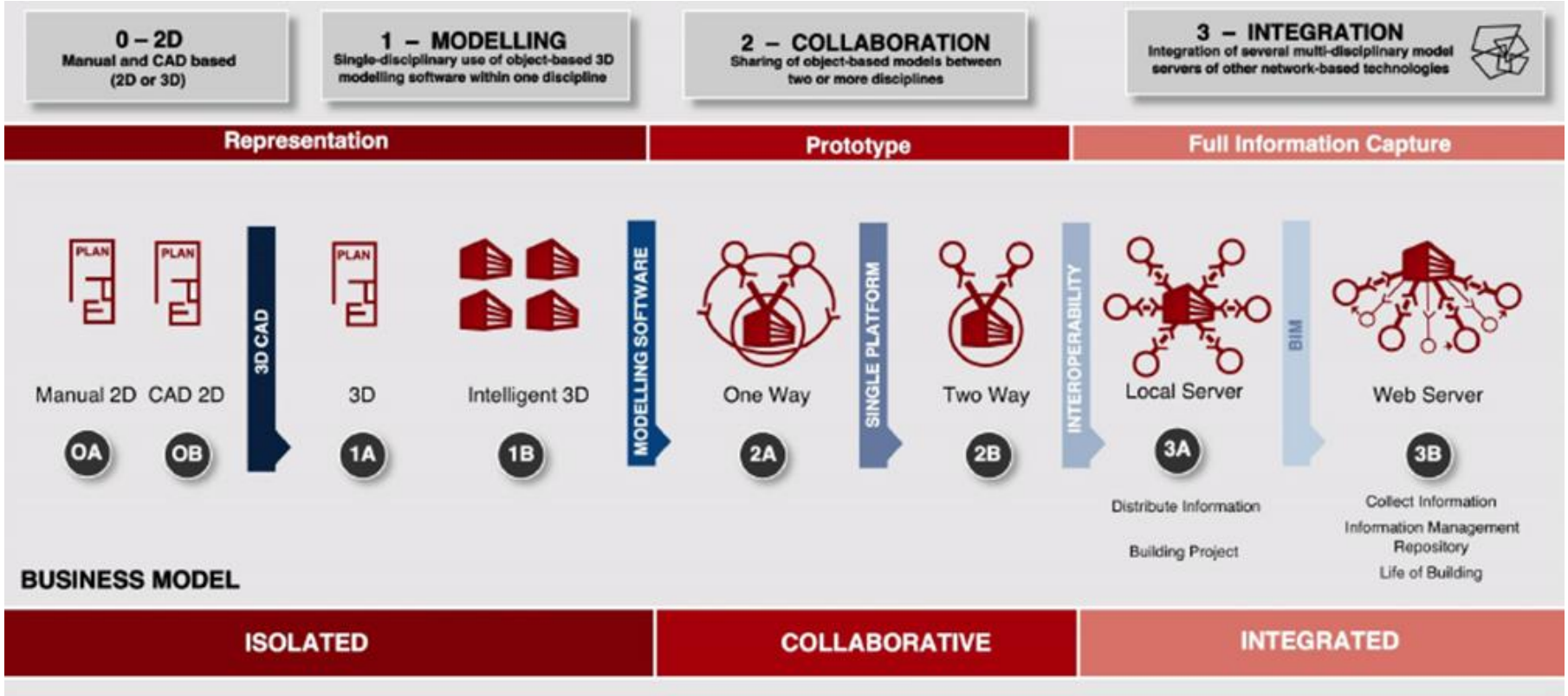
Focus Area 1
Use of Enterprise Information Systems and BIM for improved integration

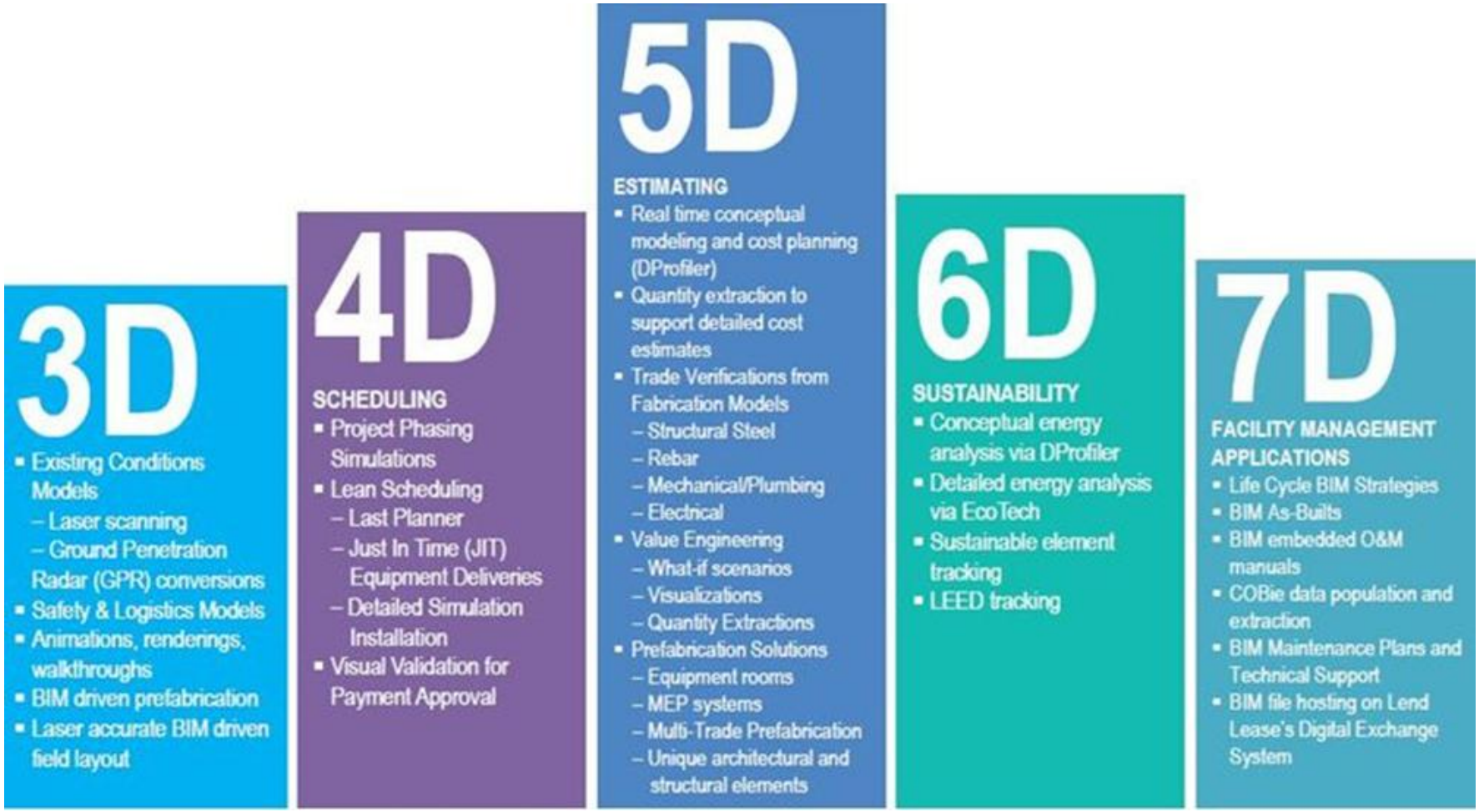
- Most importantly, BIM is not a technology. It is a process. This is possibly the most important aspect to understand.

- BIM applies to all aspects of the construction of a building, from the design, the estimating, the supply chain, the delivery of goods during the build, the build process, the resource allocation, the productivity requirements to meet targets and on in to the post-handover phase through Facilities and Asset Management.

https://www.youtube.com/watch?v=Do2Vm22OCm4

BIM Process - needs organisational maturity




3D
Existing Conditions Models
– Laser scanning
– Ground Penetration Radar (GPR) conversions
Safety & Logistics Models
Animations, renderings, walkthroughs
BIM driven prefabrication
Laser accurate BIM driven field layout
4D
SCHEDULING
Project Phasing Simulations
Lean Scheduling
– Last Planner
– Just In Time (JIT) Equipment Deliveries
– Detailed Simulation Installation
Visual Validation for Payment Approval
5D
ESTIMATING
Real time conceptual modeling and cost planning (DProfiler)
Quantity extraction to support detailed cost estimates
Trade Verifications from Fabrication Models
– Structural Steel
– Rebar
– Mechanical/Plumbing
– Electrical
Value Engineering
– What-if scenarios
– Visualizations
– Quantity Extractions
Prefabrication Solutions
– Equipment rooms
– MEP systems
– Multi-Trade Prefabrication
– Unique architectural and structural elements
6D
SUSTAINABILITY
Conceptual energy analysis via DProfiler
Detailed energy analysis via EcoTech
Sustainable element tracking
LEED tracking
7D
FACILITY MANAGEMENT APPLICATIONS
Life Cycle BIM Strategies
BIM As-Builts
BIM embedded O&M manuals
COBie data population and extraction
BIM Maintenance Plans and Technical Support
BIM file hosting on Lend Lease's Digital Exchange System

Implementation Plans

- Review your organization with objectivity, evaluate your company's position and capabilities, and ask, "Is this organization set up to be successful with BIM?"
- Consider willingness of personnel to embrace a different type of project delivery and their tolerance for change.
- Success with BIM has direct relationships with the participants' level of determination. .
- Study current archiving and document control methods in advance and compare them with expected BIM deliverables.
- BIM Implementation Plan
- BIM Maintenance Plan

BIM Project Execution and Standards Guide
For
Western Michigan University
Facility Management

TABLE OF CONTENTS

	MODEL LIFE CYCLE RESPONSIBILITIES				BIM FUNCTIONALITY														
	Level of Model Use				Project Functions									Facility Management Functions					
	Stage 1	Stage 2	Stage 3	Stage 4															
	Can Analyze Alternatives	Optimize Design for Capability, Cost, Schedule & Spatial Considerations	Execution Documents	As-Built	Parametric Modeling	Spatial Coordination	Discipline Analysis	4D Schedule Data	Lean Construction	Constructability	Code Compliance	LEED Compliance	5D Cost Data	Life Cycle Cost Data	Maintenance Data	Warranty Data	Energy Data	Space Management Data	Risk Management Data	Security Data	Network Data
BUILDING SHELL SYSTEMS					✓	✓		✓	?	✓	✓	?	✓	?							
Exterior Wall Systems	D	D	D	C																	
Door Systems	D	D		C																	
Glazing Systems																					
Curtain Walls	D	DSC	S																		
Windows	D	D		C																	
Roofing Systems	D	D		C																	
MEP Interfaces	D	DS	SD	Sc																	

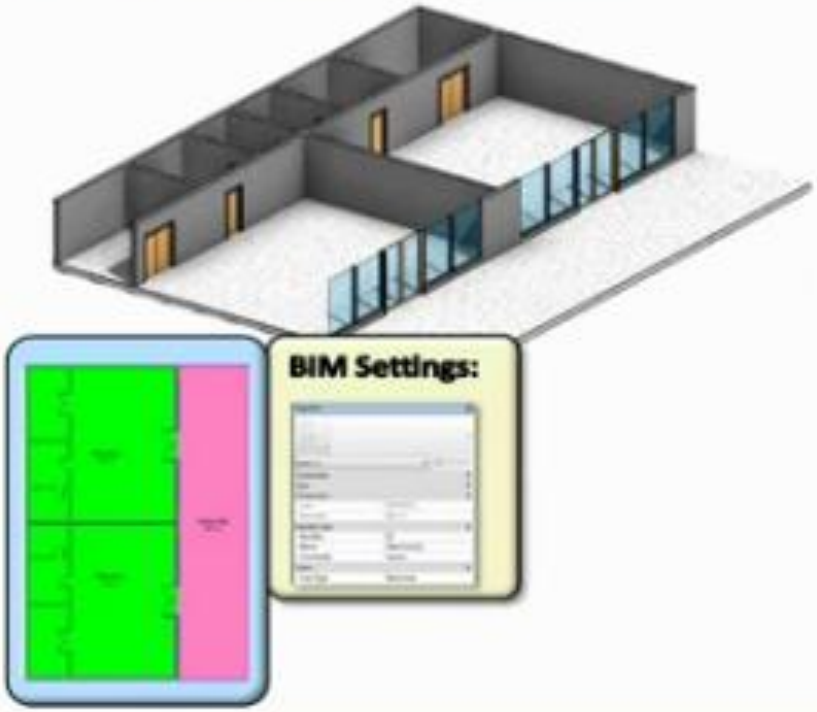
Maintenance Plan

- Many large building owners see great benefits for developing and maintaining lifecycle data for its facilities.

- The overall purpose of utilising BIM for data handover and facility management is to enable facility owners to leverage design and construction data to provide safe, healthy, effective and efficient work environments.

- The maintenance of this data will create greater efficiencies such as having accurate as-built information to reduce the cost & time required for renovations; increasing customer satisfaction; and optimising the operation and maintenance of the building systems to reduce energy usage.

Phase 5 – FM Integration



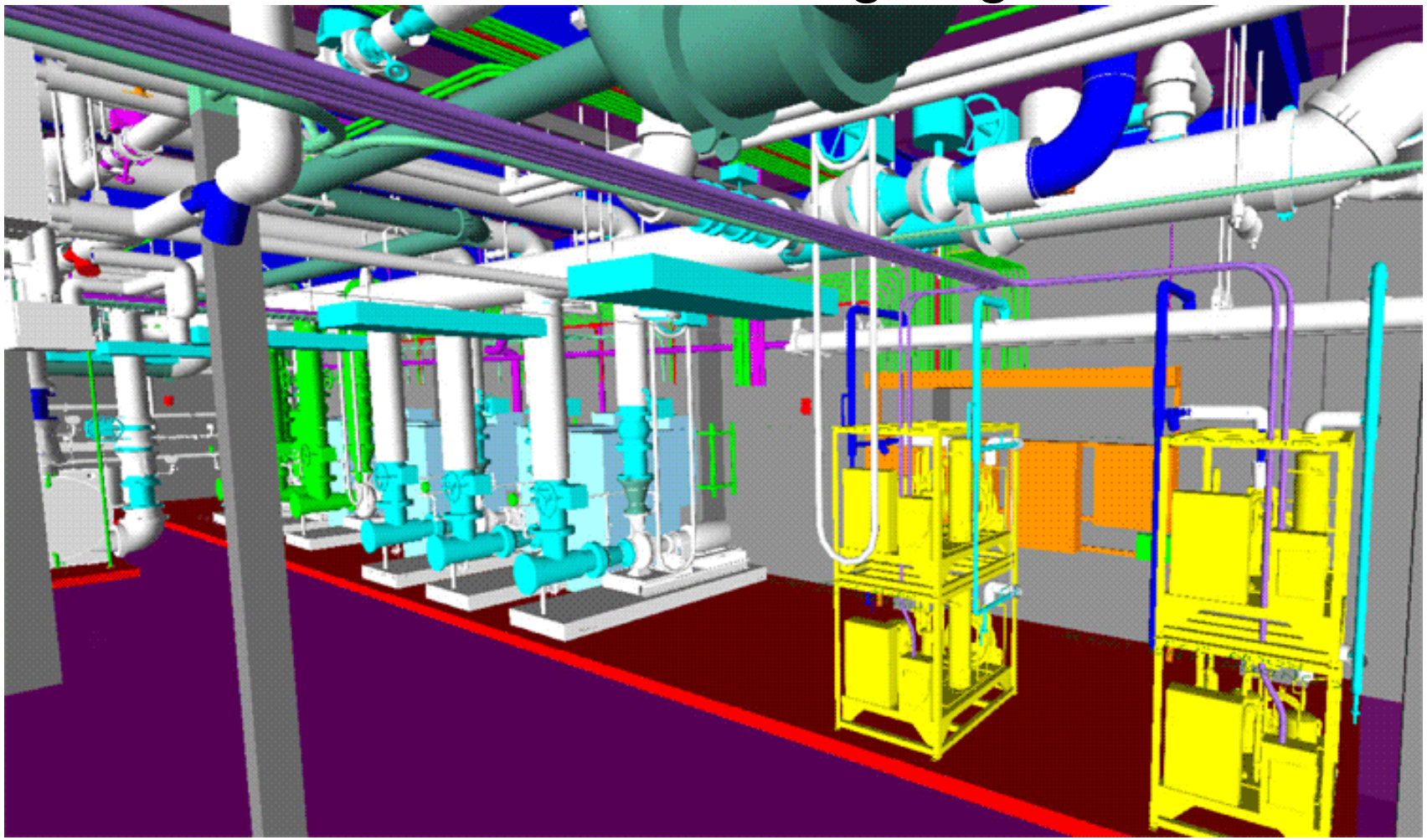
Room (model) Elements

- *Room name*
- *Room number*
- *Space type*

Asset Information

- *Manufacturer*
- *Model*
- *Serial number*
- *O&M requirements*

Where is BIM going?



http://www.youtube.com/watch?v=aejYovqmwOw


Sky 2D
N
W
E
S
Sky 2D
Sky 3D
Visibility
Globe
Options


Sky 3D
Visible
Andromeda
Pisces
Triangulum
Perseus
Aries
Moon
Cetus
Mars
Eridanus
Orion
Sky 2D
Sky 3D
Visibility
Globe
Options

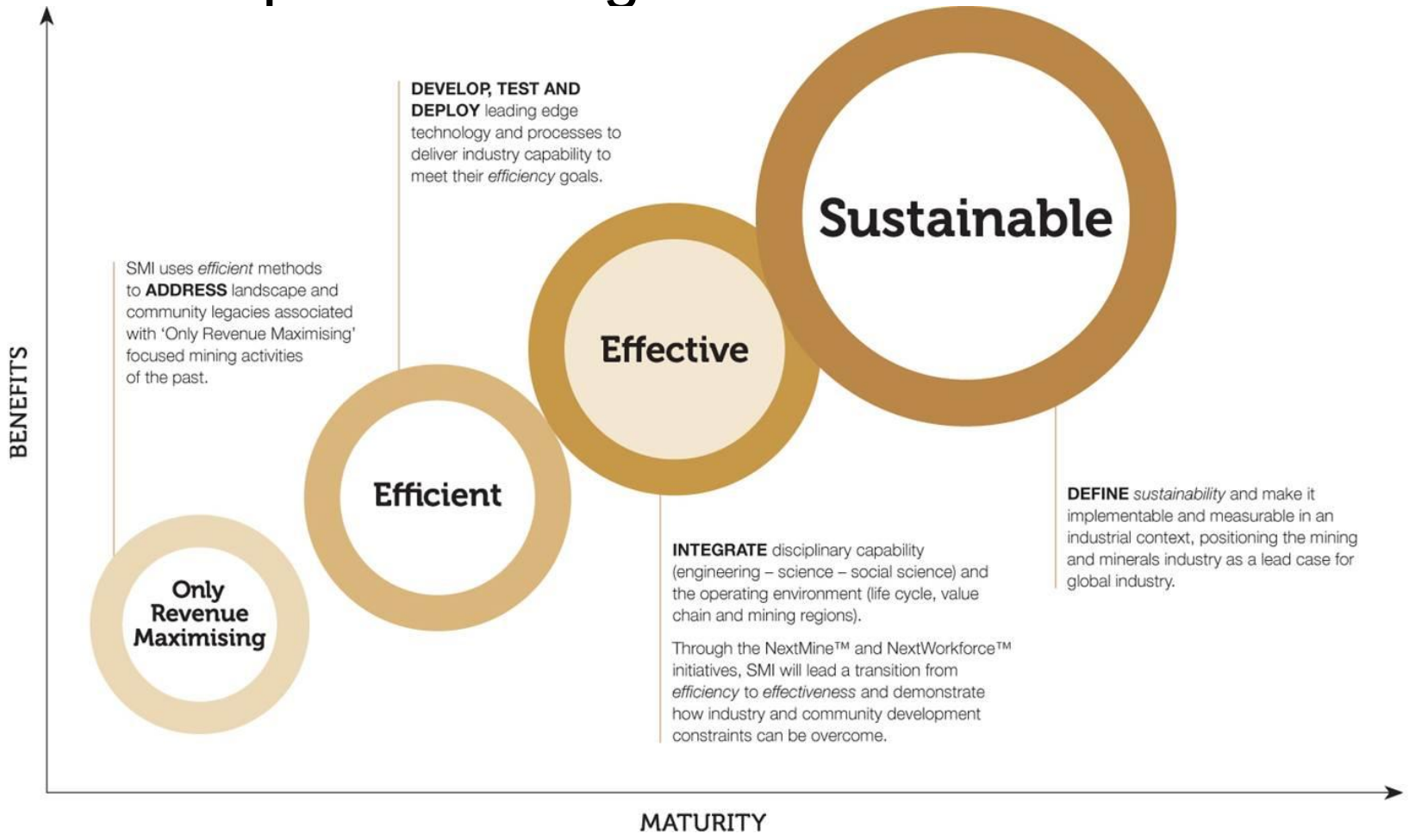
Focus Area 2
Senior Management Strategic objectives

- Design Standards ownership and maintenance.
- The use of Sustainability as a means to better achieve better integration.
- Organisational Structure- Integration Manager

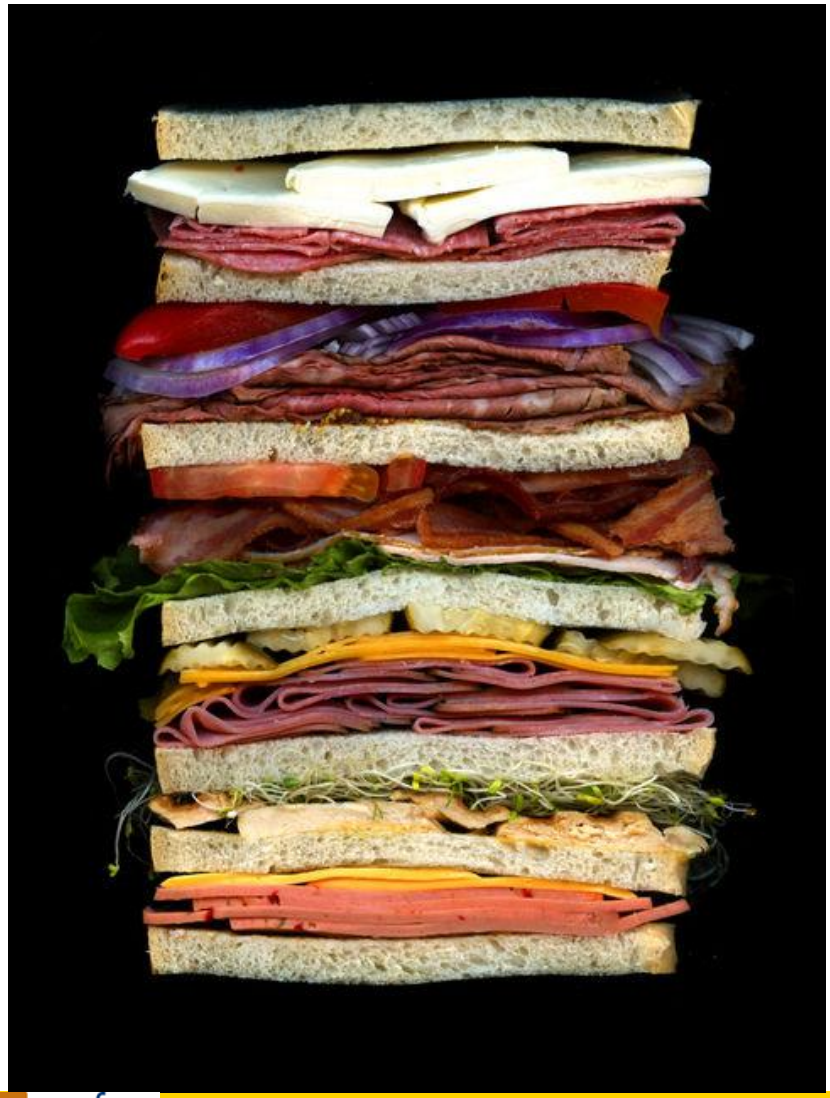
Design Standards

- Independent
- Considerate of all constraints
- Allocated responsibility and accountability
- Regular review with all stakeholders
- Point of contact for approval of departures
- Understand value of maintained Design Standards

The use of Sustainability as a means to achieve improved integration

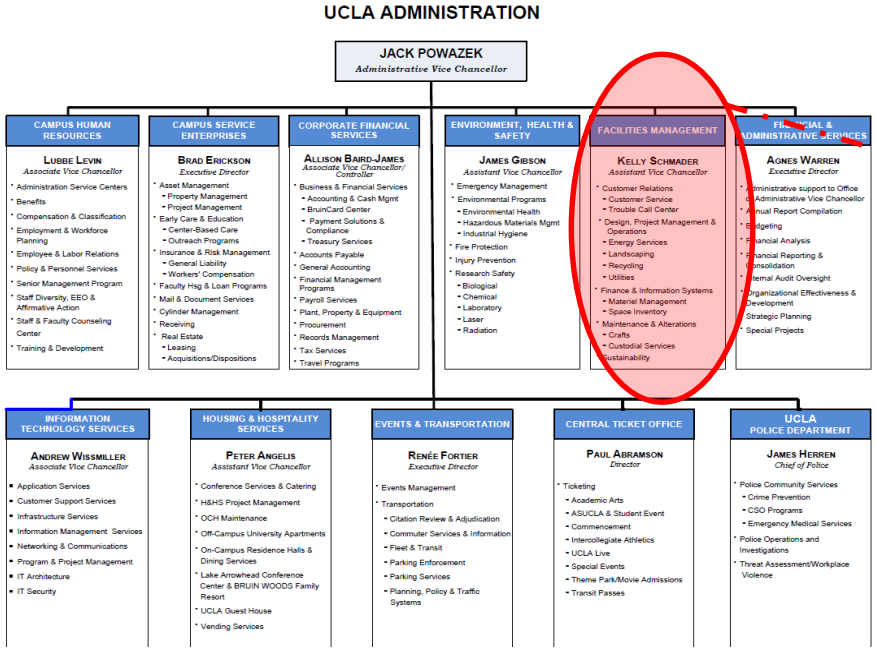


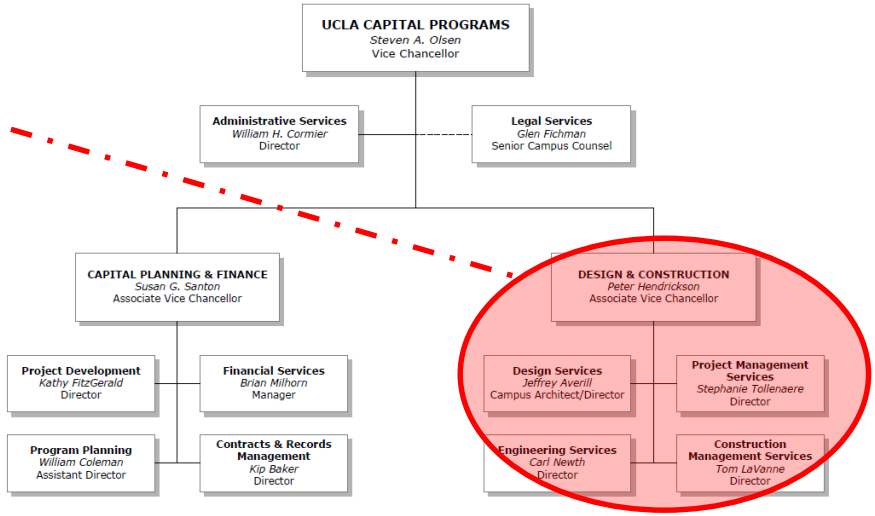
Organisational Structure



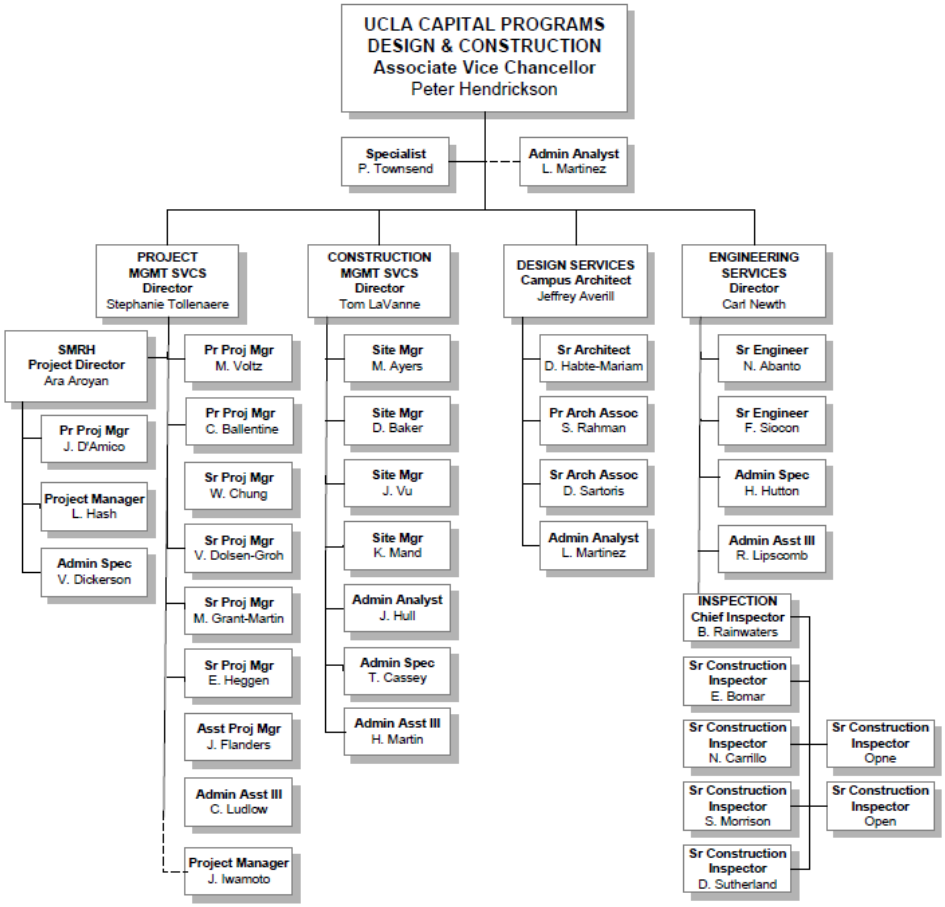
VS

UCLA- Facilities Management

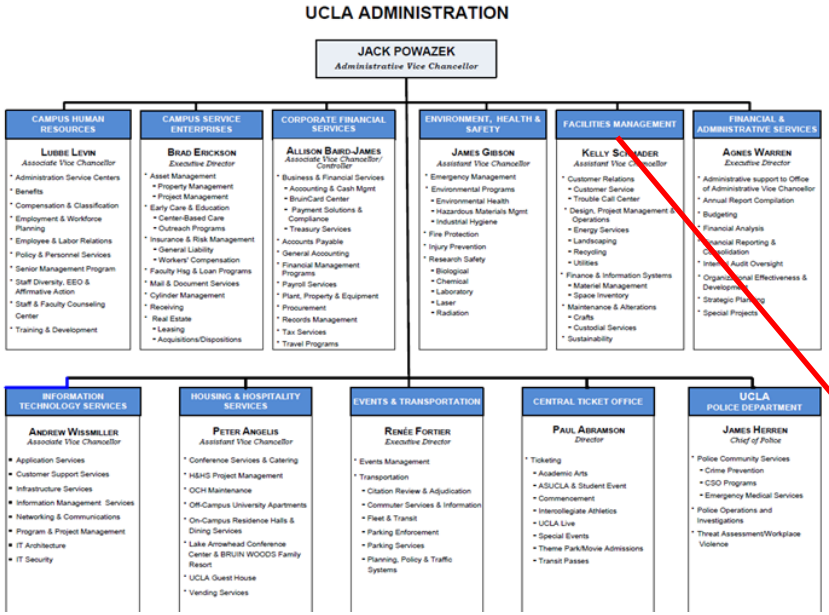


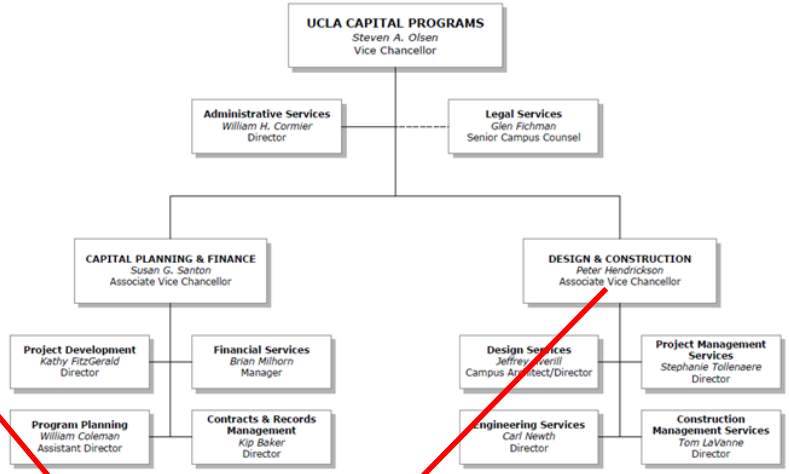


Capital Program- Design and Construct



UCLA- Facilities Management





Integration – Independent - Coordination

The Integration Manager

- Position Description
- Dual Reporting to Asset Manager and Planning and Development Manager
- Facilitator between FM PD and FM Operations
- Assist with the efficient use of internal resources
- Owner and maintainer of standards

Position Description

- The role of the Integration Manger will allow for improved alignment of the business requirements and deliverables for both the Capital Investment and Operations Phases. Further, by ensuring dual reporting lines to both directors of each area of responsibility this will align the key performance targets of each.

- The Integration Manager will be responsible for providing strategic direction, professional advice, project management, engineering expertise, technical assistance and operation and maintenance advice for Facilities Management Capital projects drawing upon their previous experience and technical knowledge.

- This will be achieved by ensuring the functional requirements for each project are complemented by regularly updated Design and Construct Standards, developed in conjunction with all facets of the FM operation.

Duties would include;

- Liaise with Project Managers, Planning and Development on Capital project related matters in the areas of building services, campus infrastructure and building operation and maintenance.
- Coordinate the Engineering activities of the FM Engineering team on project related matters in the areas of building services, campus infrastructure and building operation and maintenance.
- Engage with a range of building services, engineering, maintenance and sustainability issues and resolve complex problems arising from interactions between such issues, including interactions with external consultants and/or contractors.
- Evaluate how new Capital projects relate to established campus infrastructure, engineering, operation and maintenance services and resolve integration and capacity issues arising from the new works.
- Ensure Capital projects are defined, designed, built and commissioned in ways that reflect cost effective, energy efficient and low maintenance designs in accordance with FM's whole-of-life considerations.

Duties would include; continued…..

- Maintain the FM Design and Construction standards, initiating all required inputs from all operational business units. This will be done bi-annually.
- Ensure Capital project designs adhere to University FM design standards and manage the resolution of issues were there are conflicts or departures.
- Provide building services, engineering, operations, maintenance and sustainability advice to the University's Associate Director, FM (Asset Management) and Associate Director, FM (Planning & Development).
- Ensure building services equipment installation and replacement projects, and the commissioning and testing of building services on new Capital and refurbishment projects are efficient and effective.
- Contribute strategically as a core member of Facilities Management and assist in the development of strategic business cases, financial analysis and the allocation and alignment of resources.
- Contribute to the cost planning, budget and Capital program development as part of the overall Facilities Management planning framework.

Focus Area 3
Various contractual options that improve asset transition

- IPD – Integrated Project Delivery (using BIM)
- PPP- Public Private Partnership - property manager
- Turnkey
- D+C- Design Build, CM

Integrated Project Delivery (IPD)

- IPD is a collaborative alliance of people, systems, business structures and practices into a process that harnesses the talents and insights of all participants to optimise project results, increase value to the owner, reduce waste, and maximise efficiency through all phases of design, fabrication, and construction

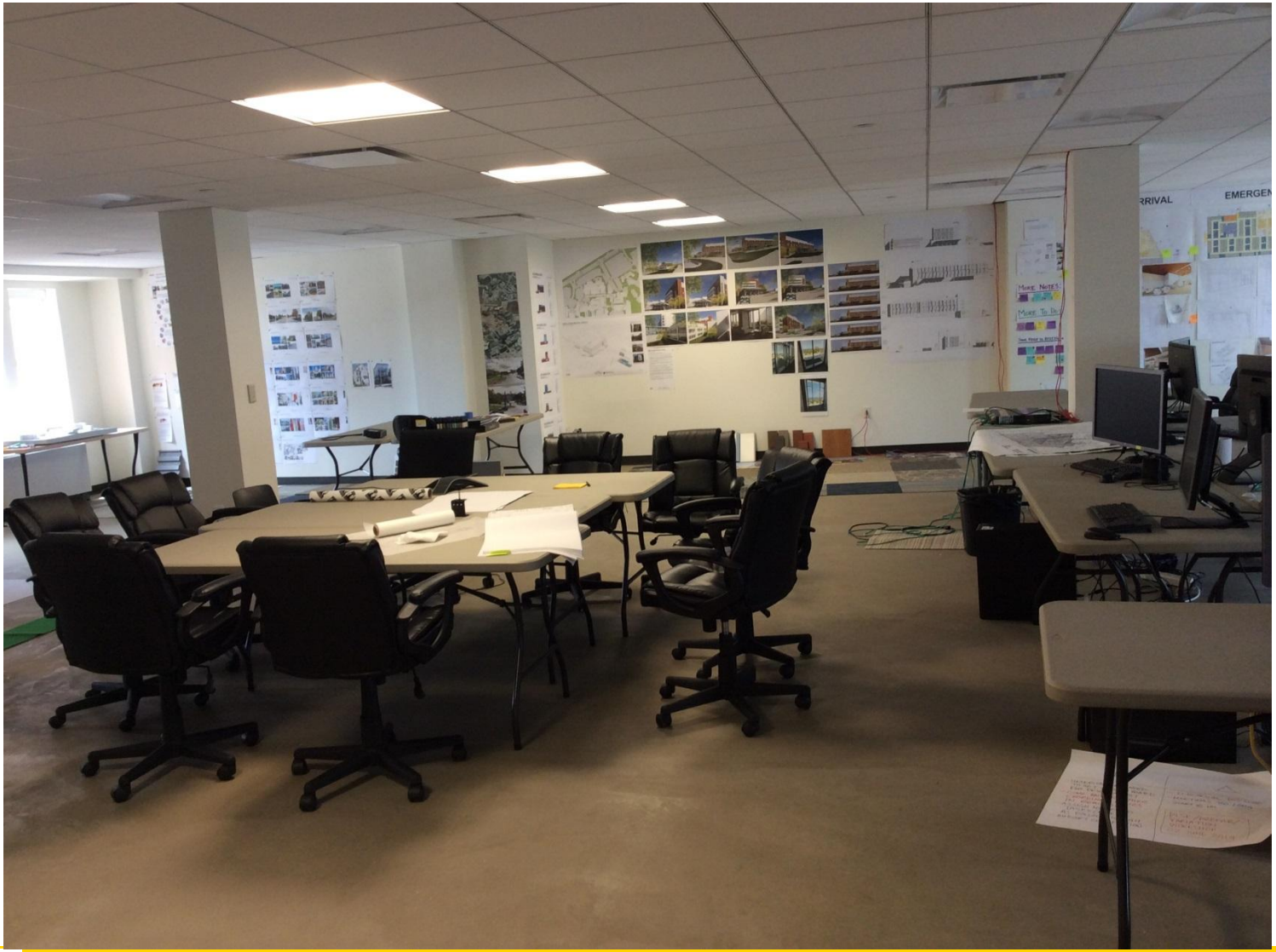
- The new focus in IPD is the final value created for the owner, the finished building. Rather than each participant focusing exclusively on their part of construction without considering the implications on the whole process, the IPD method brings all participants together early with collaborative incentives to maximise value for the owner

- This collaborative approach allows informed decision making early in the project where the most value can be created. The close collaboration eliminates a great deal of waste in the design, and allows data sharing directly between the design and construction team eliminating a large barrier to increased productivity in construction

- 15% program efficiencies realised

- 80% reduction of change orders

Boston War room



Wrap up… Integration is key

- Collaboration, collaboration, collaboration….
- BIM/GIS and related technology enabling greater efficiency
- Organisation maturity
- Soft skills ever important in managing culture
- Integration Manager – seen as pivotal in aligning FM business u
- Design Standards- ownership and maintenance
- Integrated Project Delivery- IPD

Integration…….

- Use of Enterprise Information Systems, BIM / GIS to improve the transition of information.
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Questions…..