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BIM for FM: Utopia Versus Reality

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Learning Objectives

- Discover the implications of COBie, No COBie, and Modified COBie for FM data collection
- Learn about the interoperability or lack of interoperability between various BIM authoring and CMMS software
- Learn about the challenges posed in the data-gathering process due to current contractual frameworks
- Learn about the pros and cons of hiring a consultant for FM data collection

Description

Utilizing BIM for facilities management (FM) has been the utopian dream of BIM enthusiasts since the inception of BIM. A fully parametric BIM can provide immediate access to information from mechanical component types and periodic maintenance records, to fixture and equipment inventories, to seating charts and disaster recovery plans. However, a closer look at the process of delivering FM-BIM shows that a gap exists in integrating facility-related information with intelligent models for efficient handover to support facility management operations. There are many technical challenges posed due to the lack of interoperability of multiple software involved. Also, there are challenges in the process of data gathering due to the current contractual framework. This presentation will take a deeper dive in understanding the process and technology challenges in creating useful FM intelligent models and will propose a road map to turn the utopian dream of BIM for FM into reality.

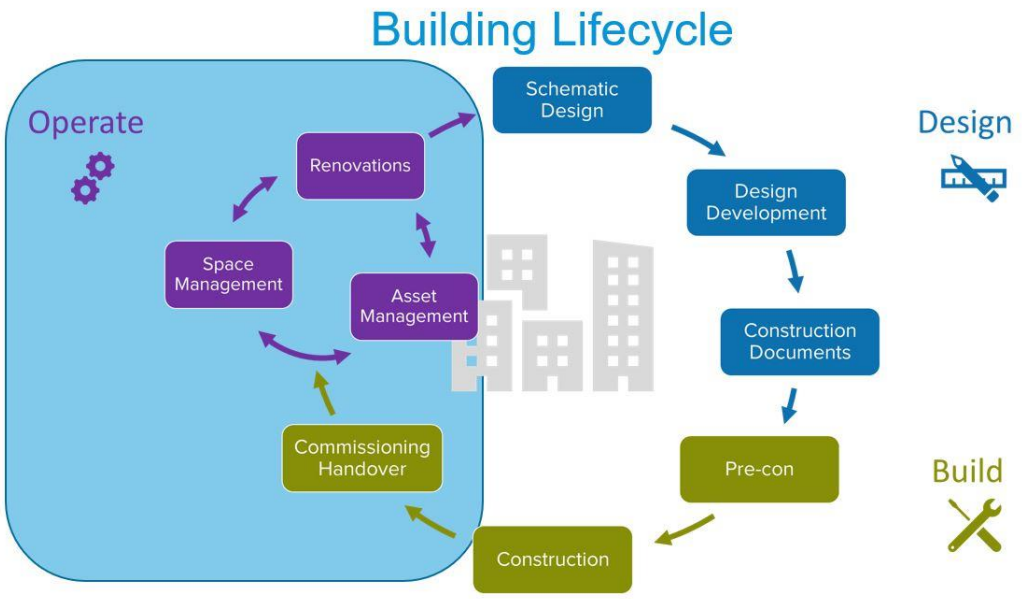
About the Speaker

With more than a decade of AEC industry experience Saurabh is a diversely talented Technologist and Design & Construction Expert. His experience includes over nine years at Hess Construction where he worked his way up through the organization from project engineer to vice president of integrated construction. He then moved on to lead the Construction and Facilities Management practice at CADD Microsystems to provide technology solutions to the AECO industry. In his current role as part of the corporate VDC team at Clark Construction, Saurabh leads the development and implementation of Clark's service offering for Underground Baseline Reporting and BIM-FM nationally. Saurabh earned a Bachelor of Architecture from School of Planning and Architecture, New Delhi, India and Master of Science in Building Construction Management from Virginia Tech, USA. Saurabh holds LEED AP BD+C and CM-BIM designations.

What is BIM-FM?

Building Information Modeling

"**Building Information Modeling** is a digital representation of physical and functional characteristics of a **facility**. As such it serves as a shared knowledge resource for **information** about a **facility** forming a reliable basis for decisions during its **life cycle** from inception onward." - *National BIM Standards (NBIMS)*



Data Curation

Data curation is the organization and integration of **data collected** from various sources. It involves annotation, publication and presentation of the data such that the value of the data is maintained over time, and the data remains available for reuse and preservation.

BIM-FM *is the process of data curation from Building Information Models for the purpose of Facilities Management throughout the building life cycle.*

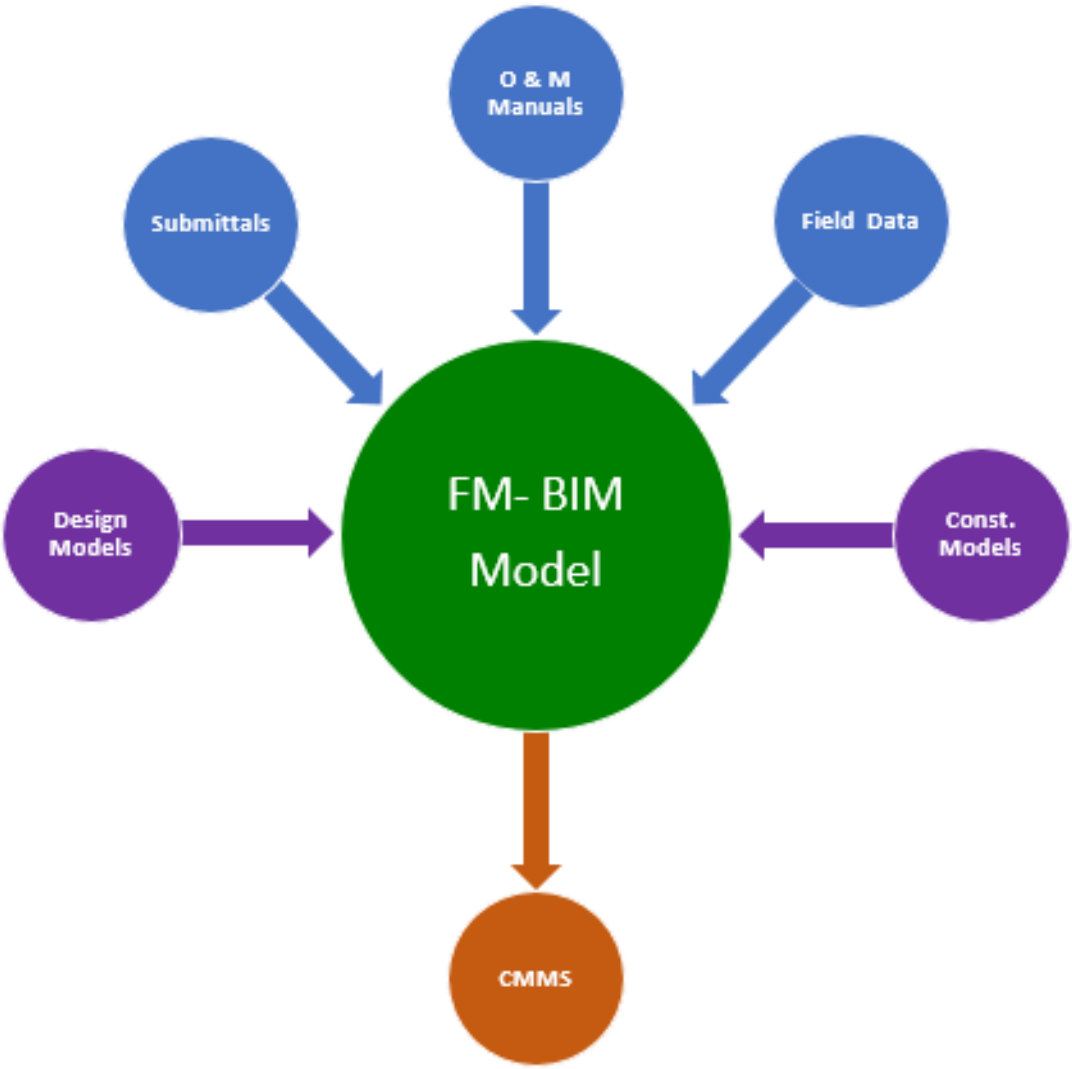
Facilities Management Data Collection

The Traditional Way

FM data is often collected/submitted in the following formats that makes it difficult to sort and use for the Facility Mangers:

- Hard copy prints/binders
- PDFs
- 2D CAD

The BIM Way (Utopian Way!)



Challenges in Data Collection

Collecting and delivering the FM data utilizing BIM seems to be a noble concept. However multiple challenges are faced in this process, mainly arising from the lack of understanding of the nuances of data collection by different stakeholders.

A Deeper Dive into Data Collection

Why do we collect FM data?

- Space Management
- Renovations
- Preventative Building Maintenance
- Reactive Building Maintenance

What FM data do we collect?

- Geometric Data
- Parametric Data
- Field Data
- Operation & Maintenance Submittal Data

How do we collect FM data?

- BIM Authoring Software
  - Great for geometric data
  - Good for parametric data
  - OK for field data
  - Not good for submittal data
- Custom Spreadsheets
  - Not good for geometric data
  - Great for parametric data
  - Good for field data
  - OK for submittal data
- COBie
  - Not good for geometric data
  - Great for parametric data
  - Good for field data
  - OK for submittal data
- FM Cloud Software
  - OK for geometric data
  - Good for parametric data
  - Great for field data
  - OK for submittal data

	Geometric Data	Parametric Data	Field Data	Submittal Data
BIM Authoring Software	★★★	★★	★	⊘
Excel	⊘	★★★	★★	★
COBie	⊘	★★★	★★	★
FM Cloud Software	★	★★	★★★	★

Who collects FM data?

- Owner
- Designer
- Contractor
- Subcontractor
- Consulta

Data Turnover

Knowing when to collect your FM data and where that data should come from is essential to creating an assembly line process for capturing and validating assets and data throughout the project. It is critical that the FM data collection process includes multiple validation steps to ensure data quality and accuracy. Data validation should ultimately connect the asset to the specs, digital turnover standard, submittal and physical asset in the field, ensuring the correct asset was installed in the right location and the data captured matches the installed asset.

Recommendations

- Clearly ***define deliverables*** early
- Clearly ***define assets and attributes*** early
- Establish ***LOD definitions*** for all required assets early
- Define ***roles and responsibilities*** of various stakeholders
- Data ***deliverable requirements*** dictate data collection workflows
- Start with the ***end in mind***
- Consider ***software interoperability*** (or lack of!)
- Do ***not wait till the end*** for data collection