



Data Management in BIM

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Learning Outcomes

At the end of this module, the participant is expected to be able to:

- Formulate key principles for effective BIM project management.
- Compare the technologies, software, and tools to ensure seamless interoperability between different software applications.
- List and describe techniques to optimize data workflows through collaboration.
- Select method for analysing BIM data, generating reports, and creating visualizations for support decision-making in BIM projects.

Content

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6. **Challenges Involving The Data**
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Where is the management in BIM Definition?

BIM - Buildings: refers to construction or the act of building.

BIM – Information: refers to useful information that helps in making decisions or carrying out activities in the broadest sense of the word.

BIM - Model, Modelling, MANAGEMENT: different terms that are often used in the abbreviation BIM.

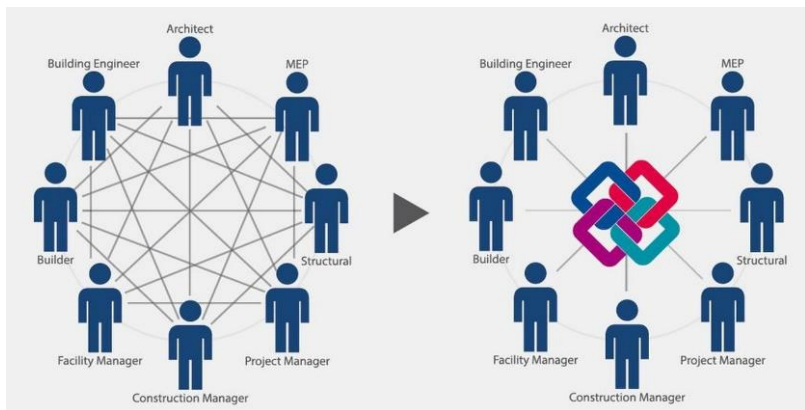
Data management in BIM refers to the process of organizing, storing and manipulating data throughout the life cycle of a construction project.

It includes modelling, but also the overall management of information and processes in construction.

Key Aspects Of Data Management

- **Centralized Data Repository** - hosted locally or on the cloud
- **Data Standards and Formats** - to ensure interoperability and effective collaboration (IFC, COBie..)
- **Data Integration** - integrating various types of information from multiple sources
- **Accuracy of (geo)data** - the foundation for reliable digital representations of the building and construction site
- **Data Validation and Quality Control** - processes of validate and ensure the quality of the information
- **Version Control** - mechanisms that track changes
- **Data Security and Access Control** - Implementing security measures
- **Collaboration and Coordination** - ensures that all parties have access
- **Lifecycle Management** - the capture, organization, and updating of data throughout each stage
- **Data Analytics and Insights** - enabling stakeholders to make data-driven decisions
- **Training and Skills** - requires a skilled workforce that understands the intricacies of BIM tools

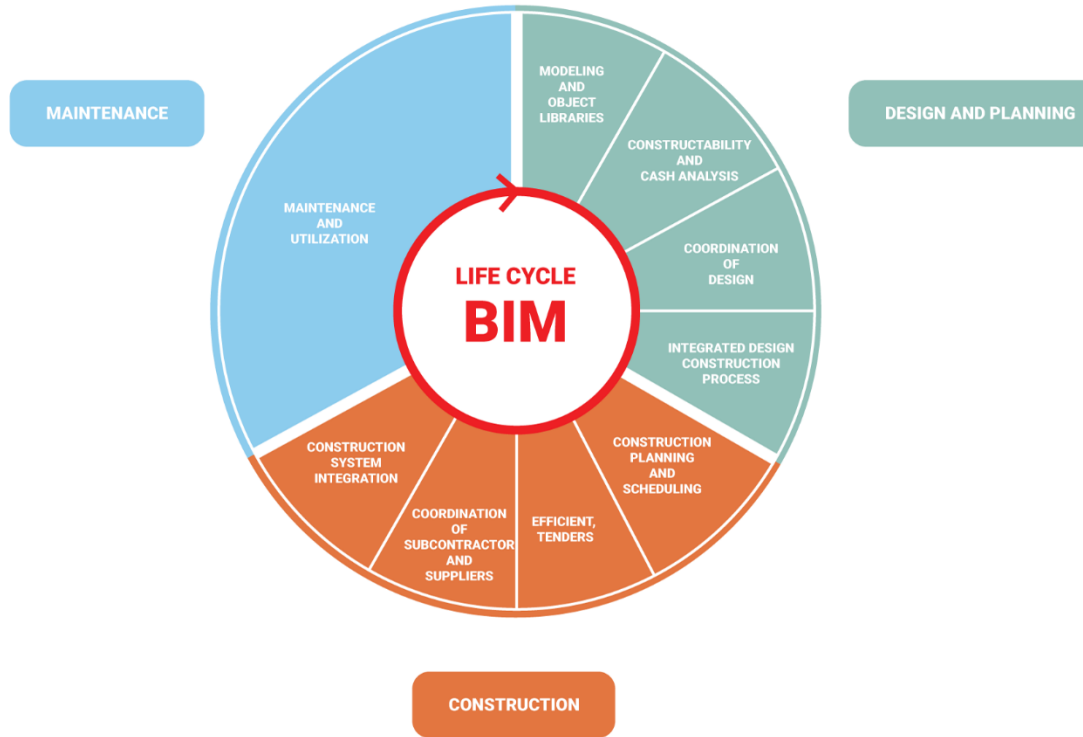
Interoperability In Data Management



- **(Geo)data Exchange Formats**
- **Open BIM**
- **Software Integration**
- **Clash Detection and Coordination**
- **Multi-Disciplinary Collaboration**
- **Data Validation and Quality Assurance**
- **Cloud-Based Collaboration Platforms**

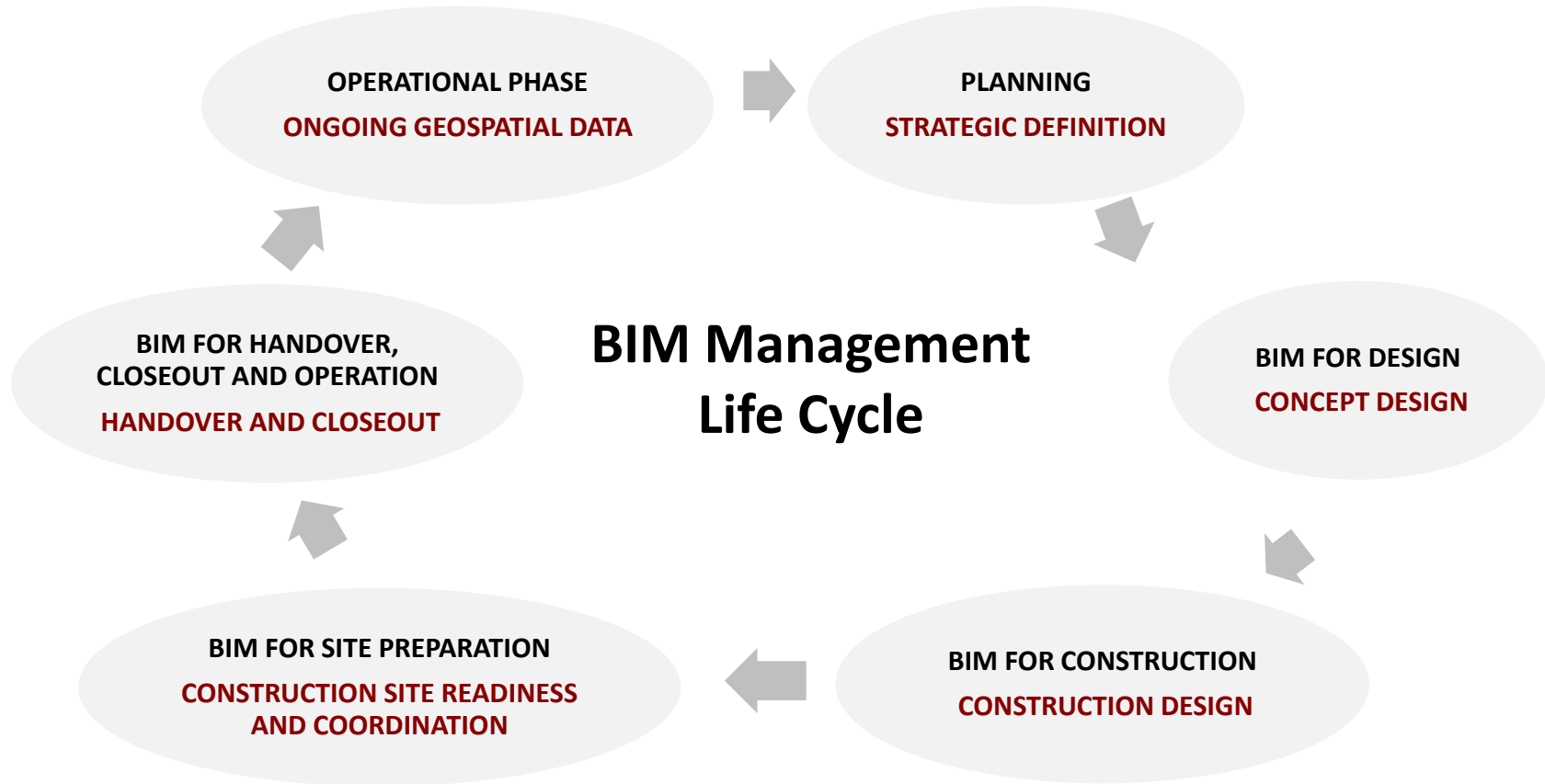
https://www.researchgate.net/publication/323656813_Employment_of_BIM_in_Italy_Lights_and_Shadows_on_New_Design_Approach

Life Cycle of a BIM project



The interaction between BIM phases and data management ensures exchange of information.

https://www.researchgate.net/publication/349710993_Intelligent_information_systems_for_the_representation_of_the_city_-_Urban_survey_and_design_for_resilience



Challenges involving the data?

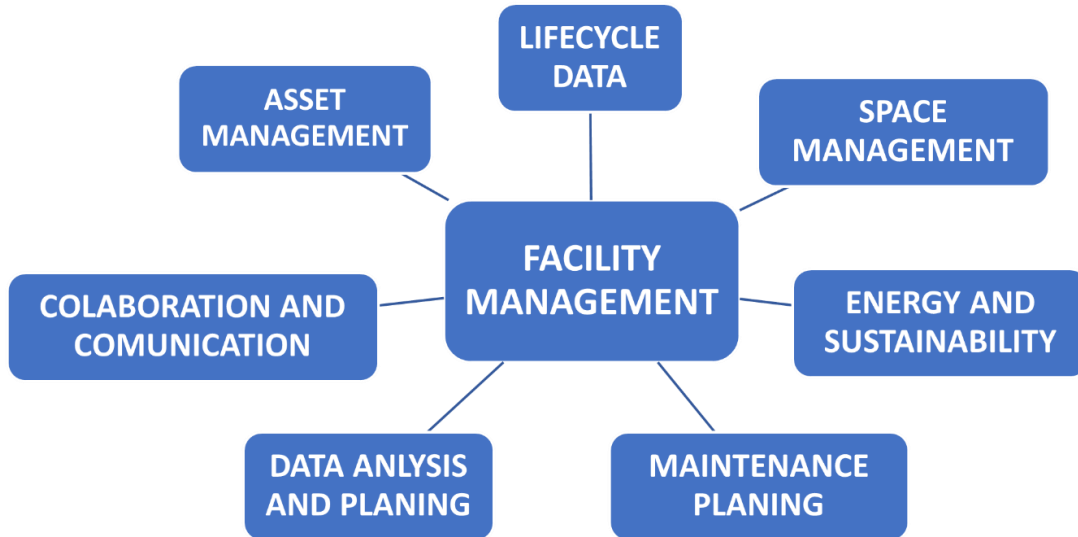
PROCESS RELATED TO THE MANAGEMENT OF BIM Data INCLUDES: collection, verification, quality, harmonization

WHAT MAKES A GOOD DATA SET?

1. **Accuracy**
2. **Completeness**
3. **Consistency**
4. **Compatibility**
5. **Standardisation**
6. **Accessibility**
7. **Maintenance**

DATA IN BIM MANAGEMENT	
GEOMETRIC DATA	NON-GEOMETRIC DATA
<ul style="list-style-type: none">• 3D coordinates of building elements• Dimensions of building elements• Shape of building elements• 3D coordinates of location and characteristic element of the construction site	<ul style="list-style-type: none">• Material properties of building elements• Manufacturer information for building elements• Construction specifications for building elements• Context of a project site• Quantity takes offs• Cost-related data• Time/Schedule information• Maintenance information• Sustainability-related data• Facility management-related data

Facility management data



Facility management in the context of BIM involves organizing and utilizing information about a building's operation and maintenance throughout its lifecycle.

BIM provides a platform to store and manage comprehensive information about a facility, including its physical and functional characteristics, maintenance schedules, equipment information, and more.

Asset management data

Asset management in BIM **involves the systematic and strategic management of physical assets throughout their lifecycle, from design and construction to operation and maintenance.**

Various range of aspects related to asset management:

- Asset Information
- Asset Identification and Classification
- Maintenance Planning
- Asset Performance Analysis
- Integration with Facility Management Systems
- Collaboration and Communication
- Asset Tracking and Visualization
- (Geo)Data Integration and Interoperability
- Data Security and Access Control

OPEN BIM Approach

Open BIM is a collaborative and standardized approach to BIM that promotes interoperability and the open exchange of information among different software applications and project participants throughout the building lifecycle.

BuildingSMART initiatives - international organization that leads initiatives aimed at improving the interoperability and standardization of Building Information Modelling (BIM)

The approach includes:

- Interoperability
- Collaboration
- Vendor Neutrality
- Data Integrity and Accessibility
- Life cycle Support



BIM Data management software

BIM data management software, helps in organizing and managing BIM data throughout the project lifecycle.

BIM 360

- is part of the Autodesk Construction Cloud

Plannerly

- is focuses on efficient BIM and Information Management, specifically for design and construction projects
- integrates with other BIM software such as Autodesk Revit, BIM 360/ACC, and IFC files

Dalux

- it is a cloud-based application
- include progress tracking, cost management, scheduling, and resource allocation

Thank you for your attention.



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