

HOW TO BIM WHEN YOU ARE THE CONTRACTOR

BIM LESSONS: A CONTRACTOR'S TRANSITION TO BIM

Marius Bierman

VDC Manager (Virtual Design & Construction) at Murray and Dickson Construction Group





MARIUS BIERMAN

BIM Enthusiast

**VDC MANAGER
(VIRTUAL DESIGN AND CONSTRUCTION)**

**MURRAY & DICKSON
CONSTRUCTION GROUP**

<https://www.linkedin.com/in/marius-bierman-9ab76371/>



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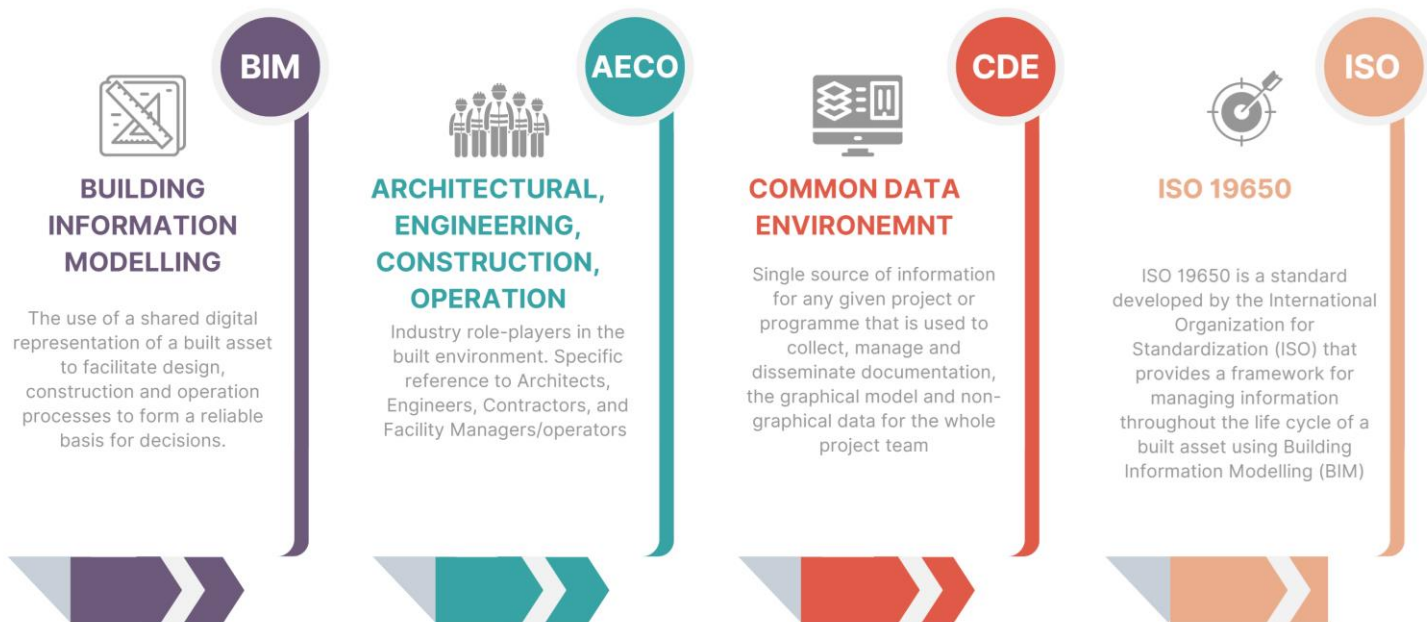


01

INTRODUCTION

TERMINOLOGY & ABBREVIATIONS

Before we get started, lets discuss some important terminology



BIM



BUILDING INFORMATION MODELLING

The use of a shared digital representation of a built asset to facilitate design, construction and operation processes to form a reliable basis for decisions.

AECO



ARCHITECTURAL, ENGINEERING, CONSTRUCTION, OPERATION

Industry role-players in the built environment. Specific reference to Architects, Engineers, Contractors, and Facility Managers/operators

CDE



COMMON DATA ENVIRONMENT

Single source of information for any given project or programme that is used to collect, manage and disseminate documentation, the graphical model and non-graphical data for the whole project team

ISO



ISO 19650

ISO 19650 is a standard developed by the International Organization for Standardization (ISO) that provides a framework for managing information throughout the life cycle of a built asset using Building Information Modelling (BIM)



02

UNDERSTANDING BIM IN CONSTRUCTION PROJECT LIFE CYCLE

AECO INDUSTRY

ARCHITECTURAL, ENGINEERING, CONSTRUCTION, OPERATION



PLAN

Needs analysis
Develop concept
Secure site
Secure funding



DESIGN

Developing Idea
Preliminary Design
Detailing
Specifications

OPERATE

Occupancy and
operation
Maintenance

CONSTRUCT

Construction
Construction detailing
Commissioning
Handover




D

DESIGN

Conceptualization,
programming and cost
planning

Architectural, structural and
systems design

Analysis, detailing,
coordination and specification




C

CONSTRUCT

Construction planning and
const. detailing

Construction, manufacturing
and procurement

Commissioning, as-built and
handover



O

OPERATE

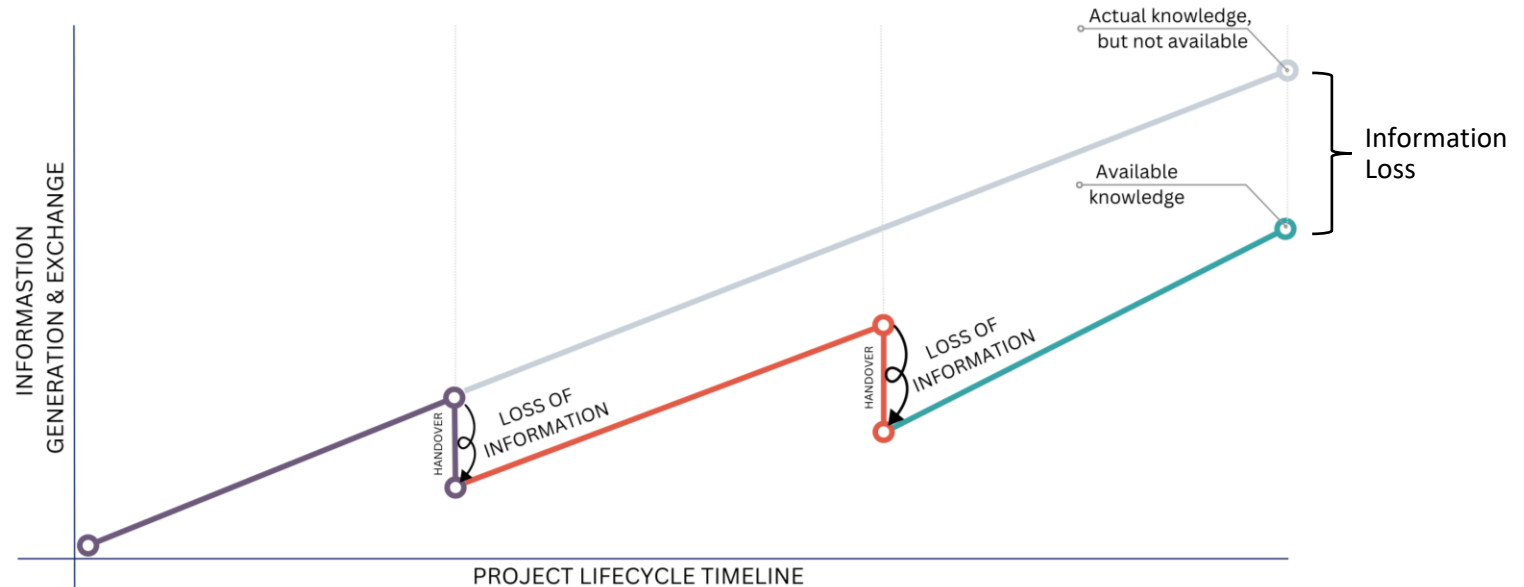
Occupancy and operation

Asset management, and
maintenance

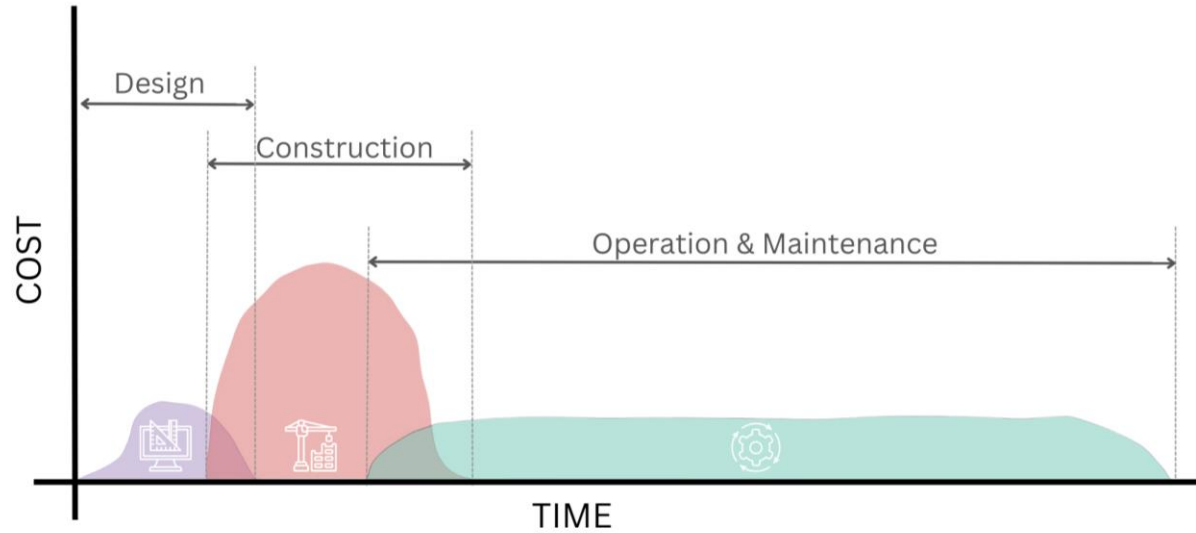
Decommissioning and major
re-programming



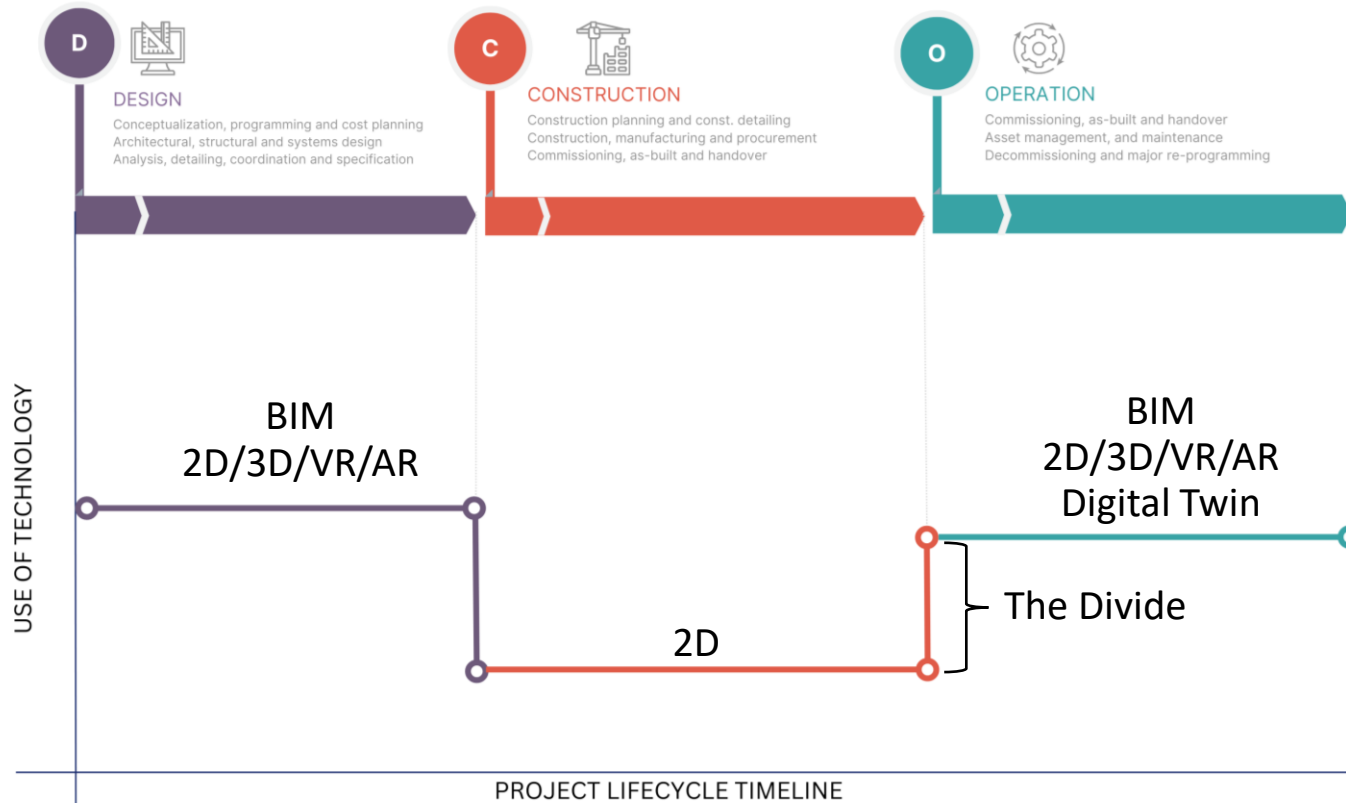
GENERATION, TRANSFER, AND LOSS OF INFORMATION



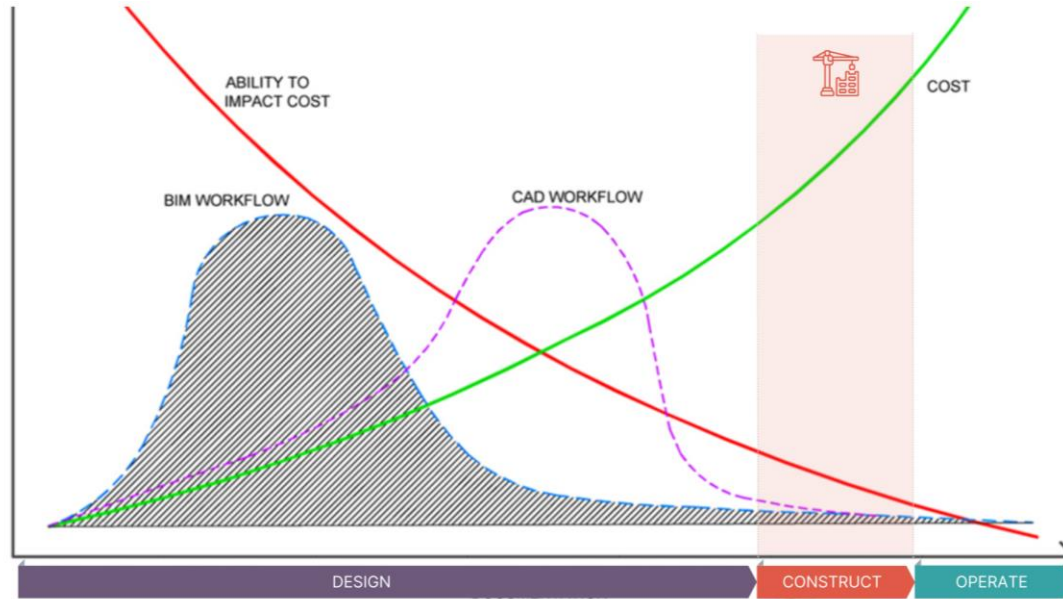
COST PER PHASE



BIM & THE USE OF TECHNOLOGY



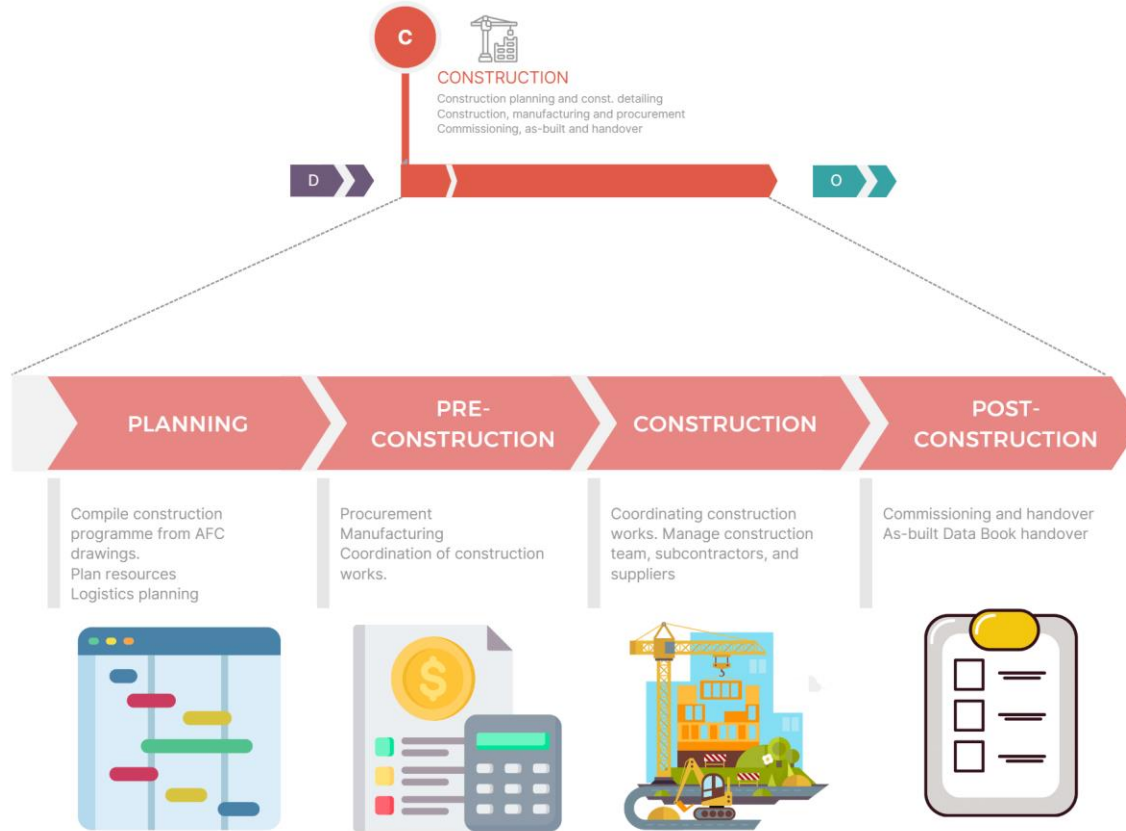
MACLEAMY CURVE



WHERE DOES THE CONTRACTOR FIT IN



CONSTRUCTION PROJECT LIFECYCLE

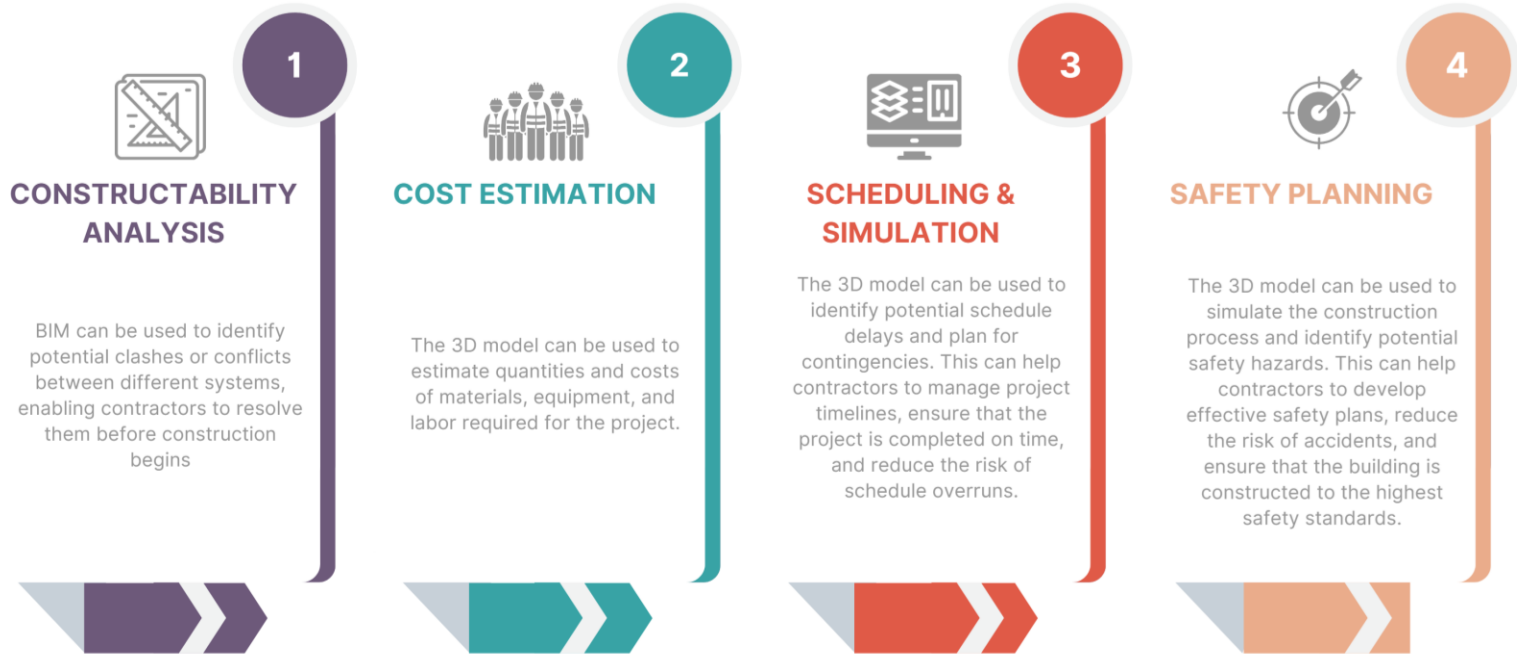




03

OVERVIEW OF BIM FOR CONTRACTORS

BIM APPLICATIONS FOR CONTRACTORS



BIM TOOLS AND TECHNOLOGY

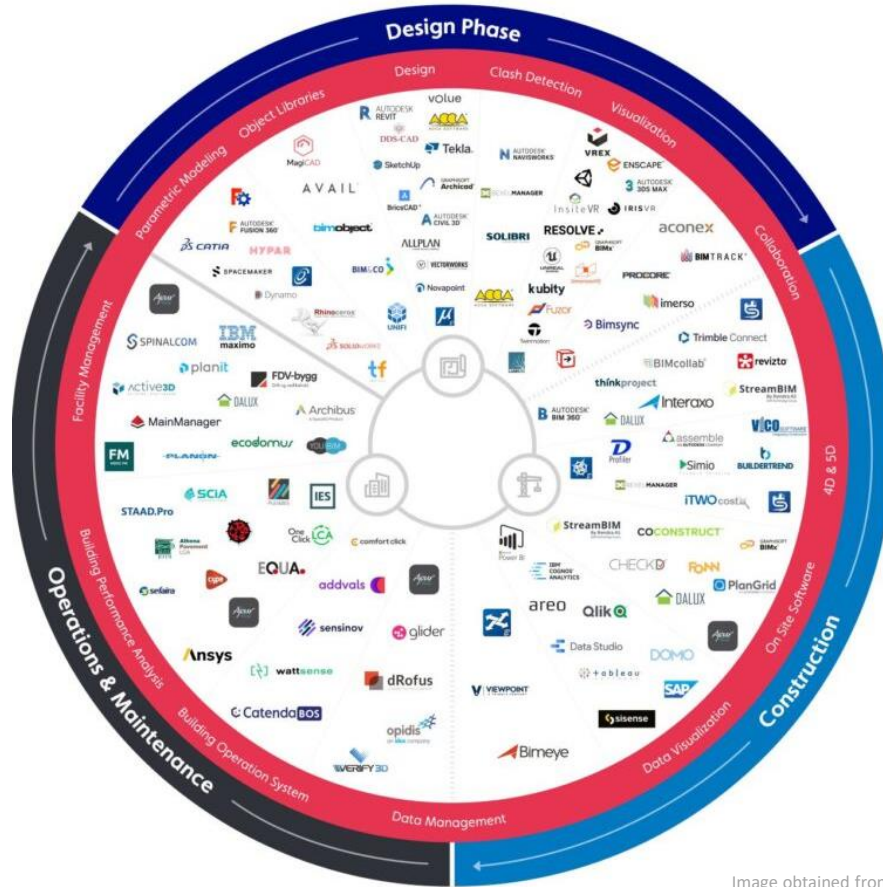


Image obtained from; <https://catenda.com/bim-building-information-modeling-software/>

BIM LEVELS OF DEVELOPMENT (LOD)

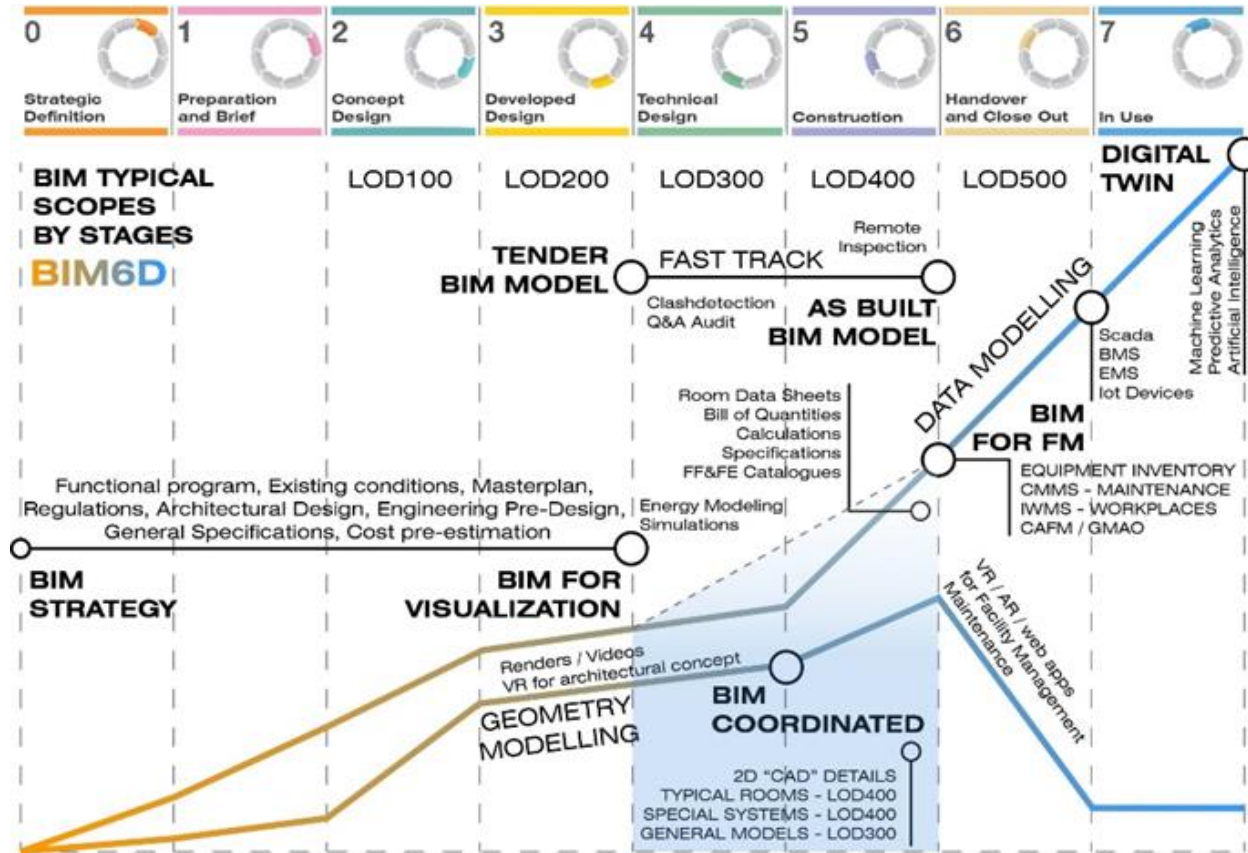


Image obtained from: <https://bim6d.eu/home/what-we-do/>



04

HOW TO IMPLEMENT BIM AS A CONTRACTOR

STEP-BY-STEP GUIDE



STEP 01

DEVELOP A BIM EXECUTION PLAN

The first step in implementing BIM as a contractor is to develop a BIM execution plan. This plan should outline the scope of the project, the BIM standards and protocols to be followed, the level of detail required, and the software and hardware required to create and manage the BIM model. The plan should also identify the roles and responsibilities of each team member, and establish a timeline and budget for the project.

STEP 02

IDENTIFY BIM TEAM MEMBERS

The next step is to identify the team members who will be responsible for implementing BIM on the project. This team should include BIM specialists, software developers, and project managers. It is important to ensure that each team member has the necessary skills and experience to effectively implement BIM.

STEP 03

DEFINE DATA REQUIREMENTS

The BIM execution plan should define the data requirements for the project. This includes the types of data to be captured, the level of detail required, and the format in which the data will be stored. It is important to establish data requirements early in the project to ensure that all team members are working towards the same goals.

STEP 04

ESTABLISH BIM STANDARDS

The BIM execution plan should establish BIM standards and protocols to be followed throughout the project. These standards should include naming conventions, file organization, and data exchange protocols. Establishing clear standards and protocols can help to ensure consistency and accuracy throughout the project. The BIM Standards are generally inherited from the Client or Design Engineer BEP. In the absence of a BEP the Contractor can generate his own bespoke BEP.

STEP-BY-STEP GUIDE



STEP 05

SELECT BIM SOFTWARE AND HARDWARE

The BIM execution plan should identify the software and hardware required to create and manage the BIM model. This may include 3D modeling software, collaboration software, laser scanning equipment, and virtual reality tools. It is important to select software and hardware that are compatible with the project's data requirements and BIM standards.

STEP 06

IMPLEMENT BIM

Once the BIM execution plan is developed, team members are identified, data requirements are defined, BIM standards are established, and software and hardware are selected, it is time to implement BIM. This involves creating the BIM model, capturing data, and collaborating with other team members to ensure that the project is on track. Generally the BIM model is provided to the Contractor, however in the absence of a model the Contractor can generate a model, it should be noted the this model is used for information only and the information provided by the Client/Engineer takes precedence

STEP 07

MONITOR BIM IMPLEMENTATION

Throughout the project, it is important to monitor BIM implementation to ensure that the BIM model is accurate and up-to-date. This involves regular data capture, quality control checks, and collaboration with other team members.



05

BIM CONTRACTOR EXPERIENCE

LESSONS



Strategic Planning Lessons Learned

1. There is no one-size-fits-all approach to BIM adoption
2. Strategic Planning is a long-term process.

LESSONS



Implementation Planning Lessons Learned

1. Set achievable tasks.
2. Communication is the key to success.
3. BIM Uses are interdependent.

LESSONS



Procurement Planning Lessons Learned:

- Prior BIM experience improves the likelihood of a successful BIM project.
- No two projects are exactly the same
- Prior BIM Strategic and Implementation planning greatly enhances the quality of BIM contract documents

LESSONS



General Lessons Learned:

- BIM Development is a continuous process
- Pilot initiatives in small steps
- BIM Planning requires management commitment and resources

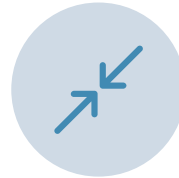
ISSUES



LACK OF EXPERTISE



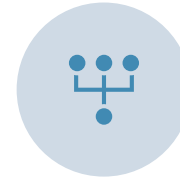
LACK OF AWARENESS



RESISTANCE TO CHANGE



LACK OF COOPERATION BETWEEN STAKEHOLDERS



LACK OF DETAILED AND COORDINATED MODEL FROM ENGINEERS.

CONCLUSION



The contractor plays a vital role in the project Lifecycle of a built asset

BIM is not software, BIM is a system of managing information, in fact, BIM should be considered as better information management.

We need to openly collaborate and BIM is the answer

Please consider joining our community and be a part of the movement



THANK YOU