LOD and 3D-10D BIM
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Level of Development and 3D-10D BIM

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Learning outcomes

- At the end of this lecture, the learner is expected to be able to

  - Explain role of different Levels of Development in BIM

 - Name diverse kinds of information which can be provided by BIM

Level of Development in BIM
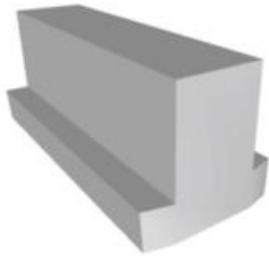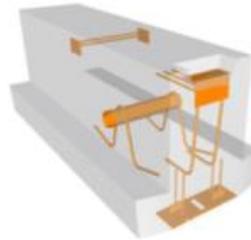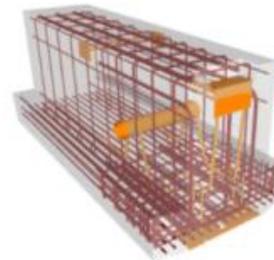
LOD 200   LOD 300   LOD 350   LOD 400

LoD – Level of Development, or even Level of Detail

Describes not only geometric features, but all BIM content for each element

LoD Levels

LOD levels usually increase during the BIM process:
LOD 100 - Concept Design
LOD 200 - Schematic Design
LOD 300 - Detailed Design
LOD 350 - Construction Documentation
LOD 400 - Fabrication & Assembly
LOD 500 - As-Built
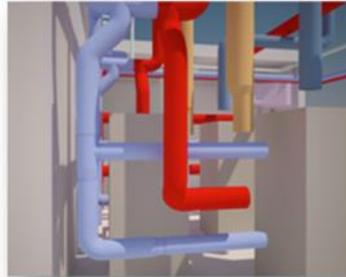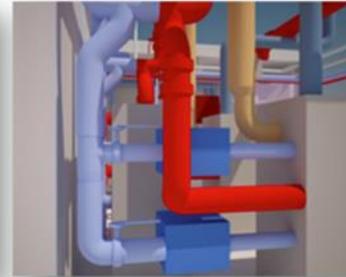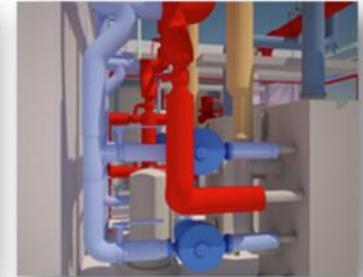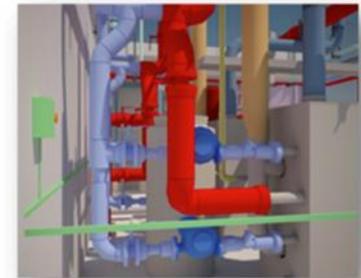
A piping project at various LOD (Levels of Development) levels
Source: https://lanmarservices.com/2014/05/14/lod-in-scan-to-bim/

LoD Level - example

LoD for a chair:

LOD 100 = there is a chair
LOD 200 = a chair with space requirement
LOD 300 = a chair with arm rests and wheels
LOD 400 = manufacturer and model number
LOD 500 = manufacturer and model number, supplier, date purchased

http://wordpress.archigraphic.de/en/wp-content/uploads/sites/5/2015/07/Level-of-Development-ENG-1024x724.png

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Diverse LoD in the same model

LOD 100   LOD 200   LOD 300   LOD 350   LOD 400
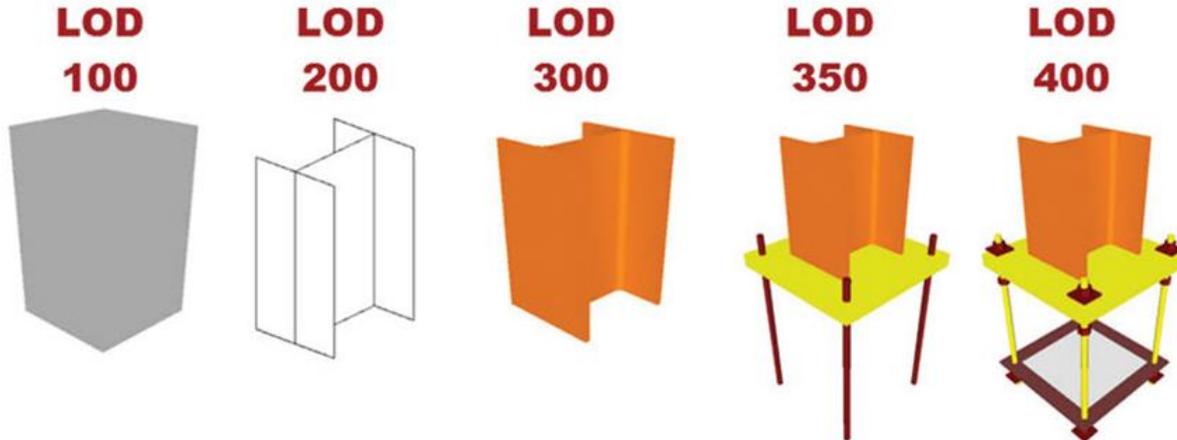
BIMForum Original Content – BIM Forum

- LoD is a measure of progress in %
- LOD 500 is 100%, then LOD 100 = 20%, LOD 200 = 40% etc.
- At any stage the model will contain elements in diverse LoDs

LoD in Building Lifecycle

Different needs for BIM information during building lifecycle

= different BIM models in time

In reality, not always done until LoD 500

Though, LoD 500 BIM model for Facility Management is highly important

https://www.tejjy.com/wp-content/uploads/2021/11/Level-of-Development-LOD-Tejjy-Inc-1-1024x627.jpg

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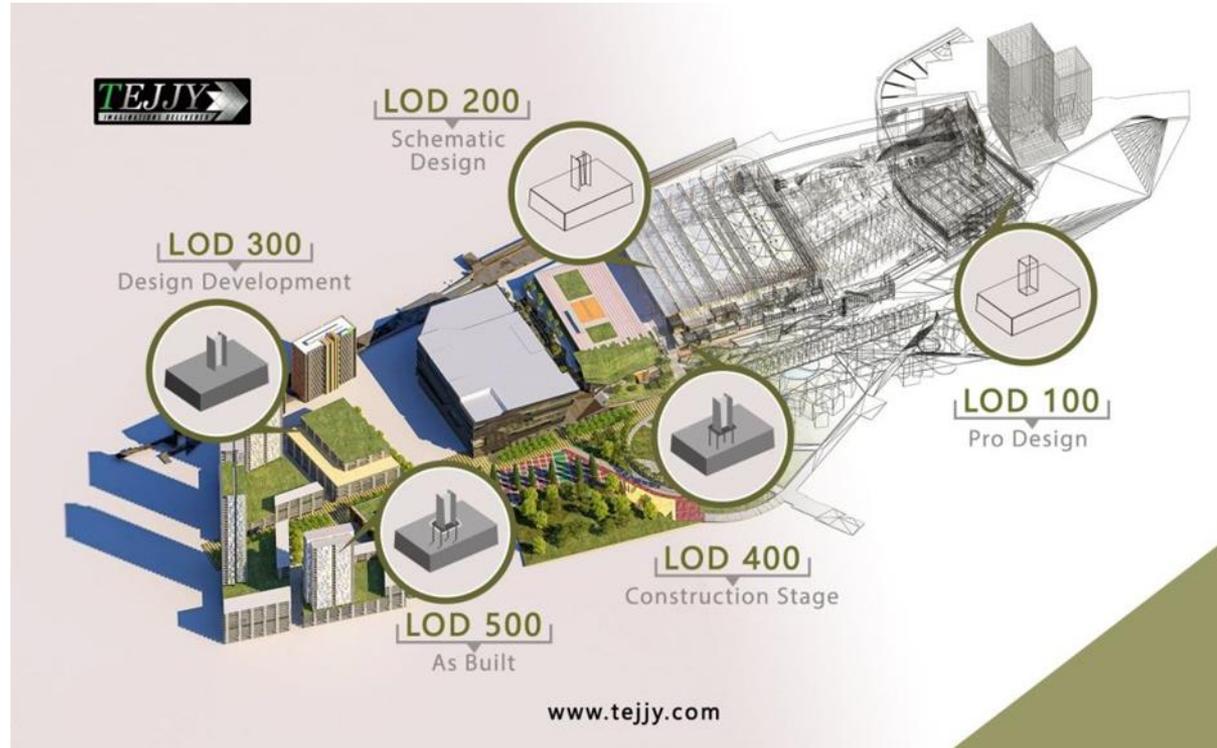
BIM Dimensions 3D – 10D

BIM model = not only 3D geometry, even properties and much of additional information

Analysis for multiple purposes can be done

These analyses:
- increases the value of the data (not possible in CAD)
- can be performed already in design phase = clear picture and less error in early stages

https://biblus.accasoftware.com/en/wp-content/uploads/sites/2/2018/04/dimensions-of-BIM-2.jpg

BIM Dimensions II
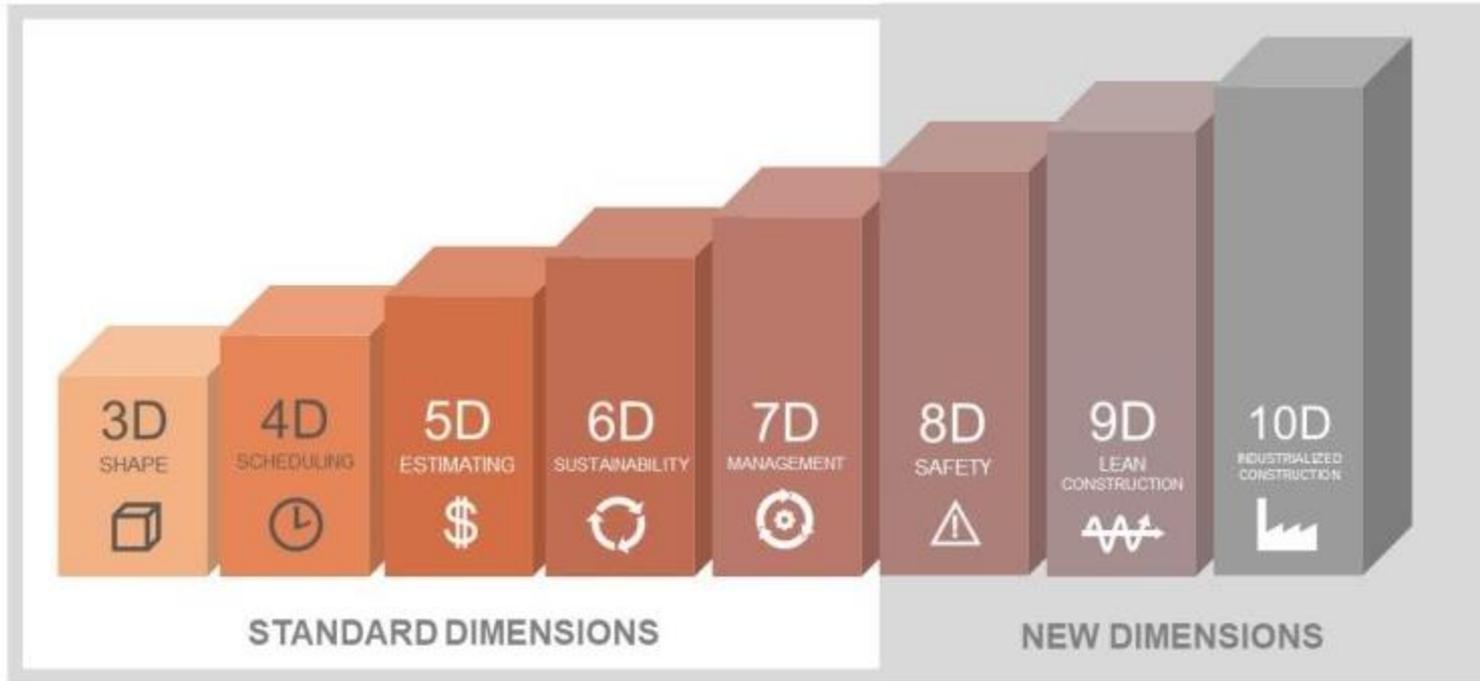
## 3D and 4D BIM modelling

3D

- the first step
- geometry enriched with properties

4D

- time schedule and simulations
- sequence and duration of activities
- visualisation of the construction for stakeholders
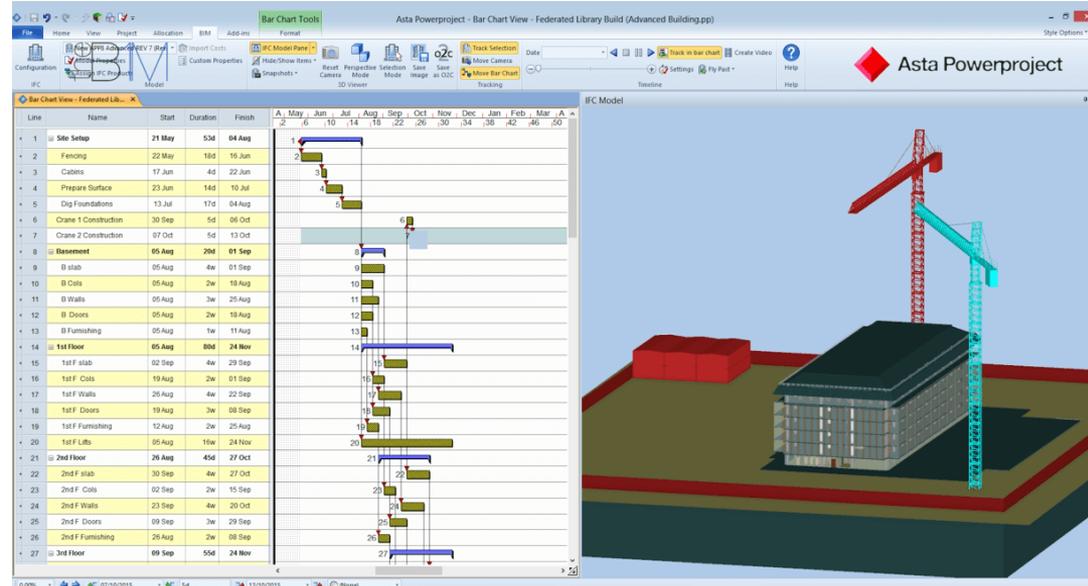
https://www.theb1m.com/assets/images/Asta+Powerproject+(4D+BIM)+on+The+B1M.png?Action=thumbnail&algorithm=fill_proportional&width=754

5D BIM - Budget

- Automatic estimation of costs
- Comparing alternatives
- The cheapest not always the best option
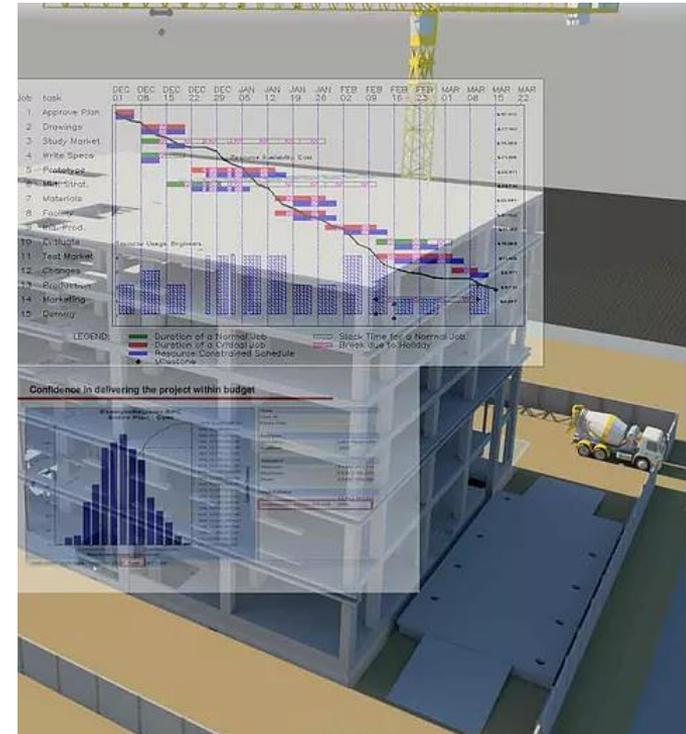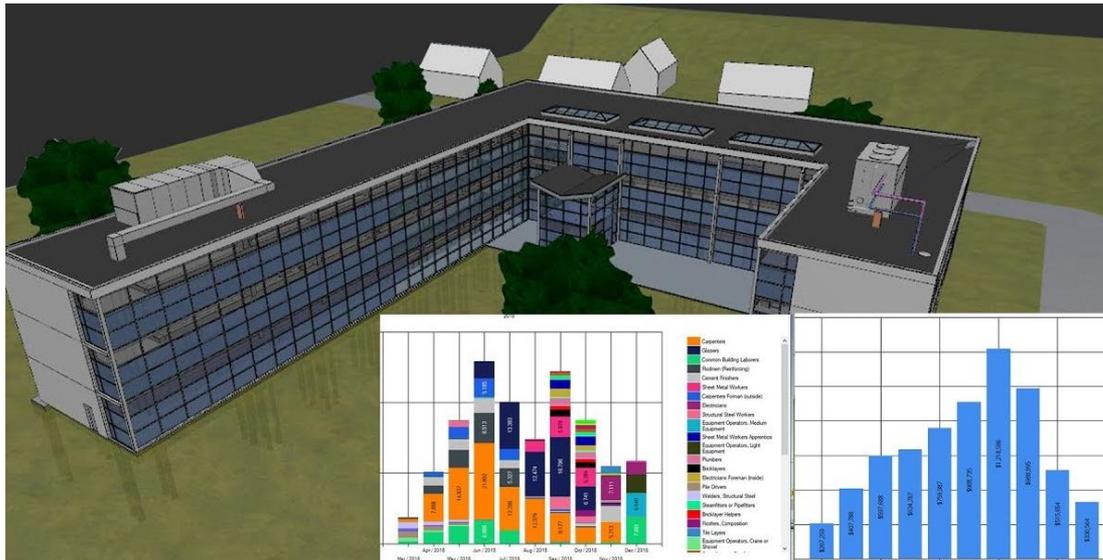
Up: 5D-BIM-SERVICES.png (479×519)
(sesbimcoordination.com)
Left: maxresdefault.jpg (1280×720) (ytimg.com)

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6D − 8D BIM

6D sustainability
7D facility management
8D health and safety

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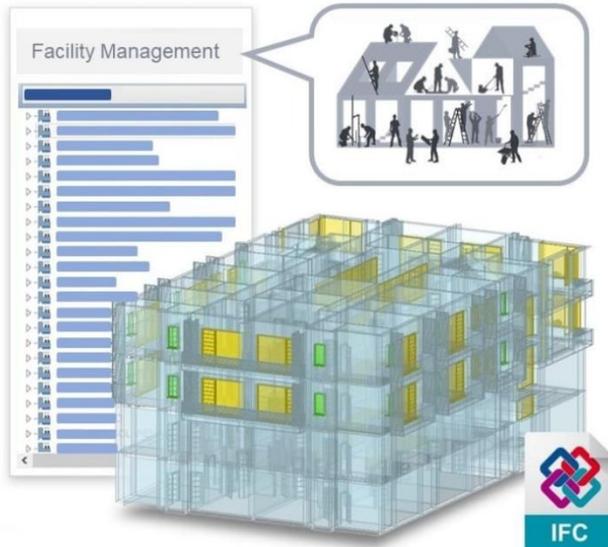
9D – 10D BIM

9D

- Lean construction
- Project management
- Construction simulations

10D

- Construction industrialisation
- Supply chain management
- Lifecycle & digital twin
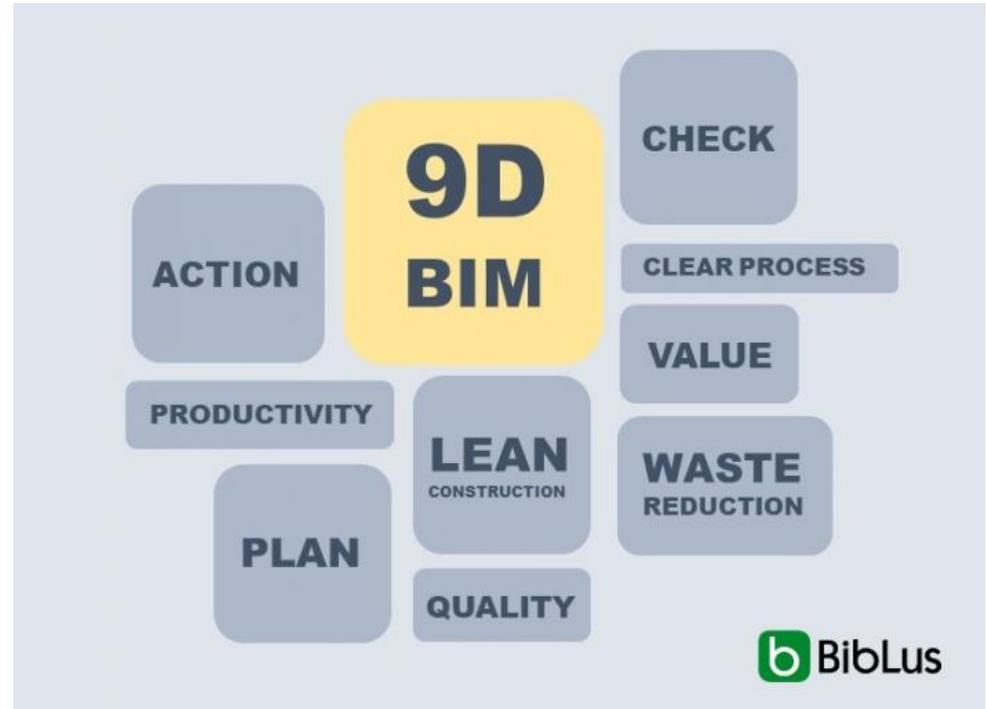
Dimenssions-BIM-9D-lean-construction-usBIM-705x512.jpg (705×512) (accasoftware.com)

Thank you for your attention

https://birgitproject.eu/