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Executive Meetings in the Command Room! ~Beyond the Digital Twin

CS502348

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Const. Dx Promotion Dept.
Daiwa House Industry Co.,Ltd.

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Construction Dept.
Daiwa House Industry Co.,Ltd.

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About Daiwa House

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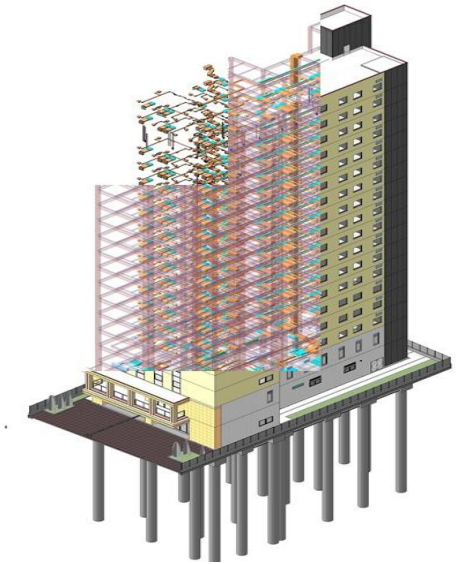
Data Driven

Digital Value Chain

BIM



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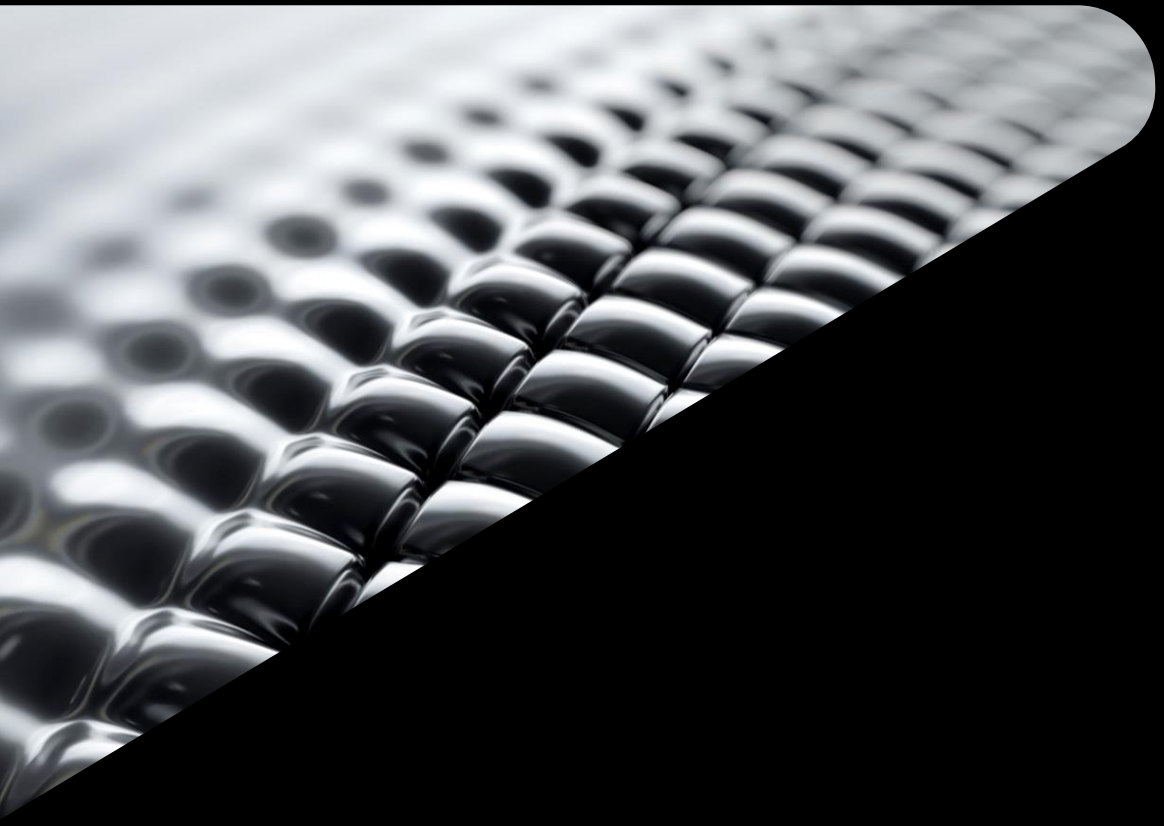


Introduction

Speakers Introduction

Takaaki Miyauchi

Sr. Manager

Construction DX
Promotion Dept.

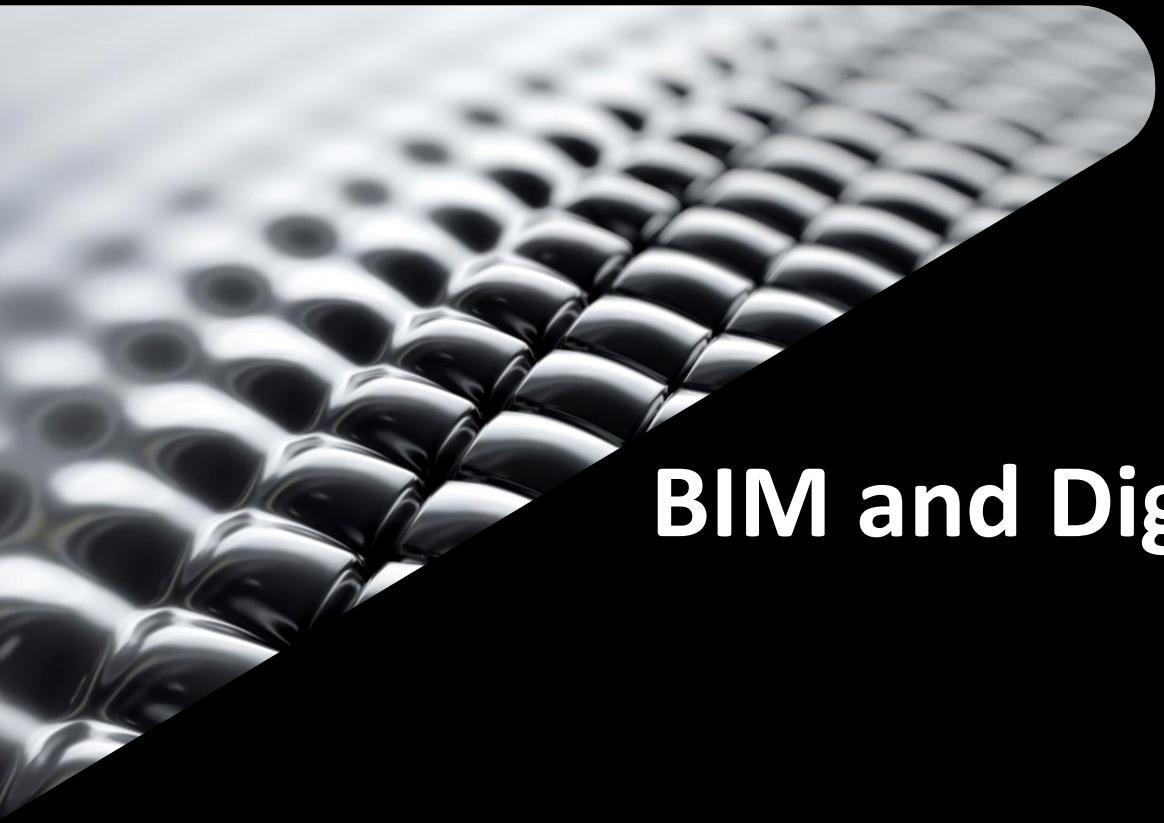
- Joined Daiwa House in 1998
- Expert in Structure design
- Since 2017, working on establishing BIM standard Corporate-wide. Currently focus on utilization of BIM throughout Construction life-cycle
- Autodesk Expert Elite since 2019

Yoshinori Shimizu

Site Manager

Construction Dept.

- Joined Daiwa House in 2017
- Extensive construction experiences in Commercial facilities, logistics, hotels, office buildings etc.
- Inspired by AU2021 and AU-Japan, exploring new technologies for the future of construction



BIM and Digital Experience

BIM History

BIM, Digital Technology
in Daiwa House
大和ハウス工業が取り組んできたBIM、デジタル技術

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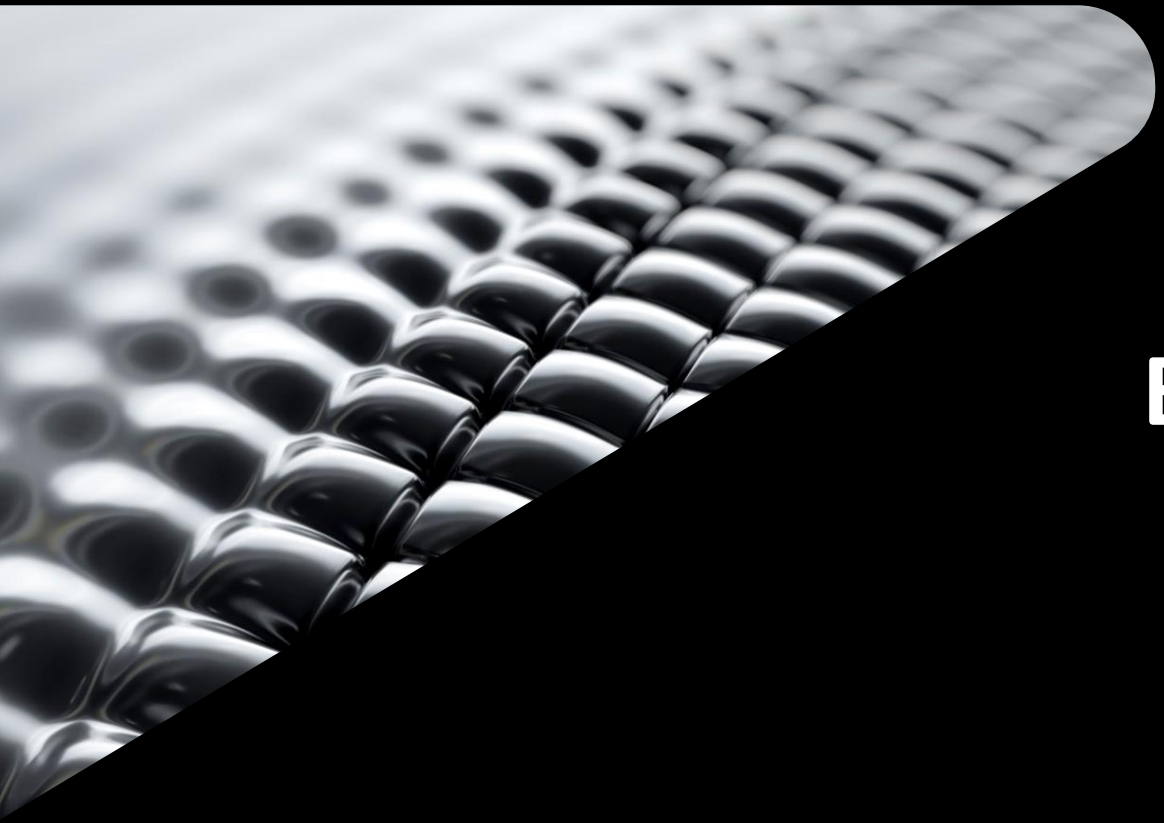
Agenda

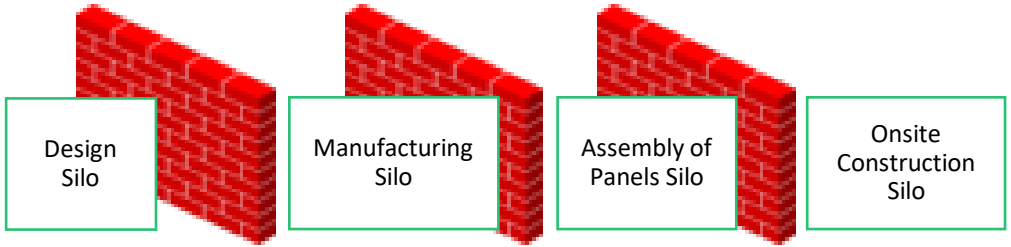
1. BIM & Data-driven Management
2. Command Room
3. Unified Data Platform

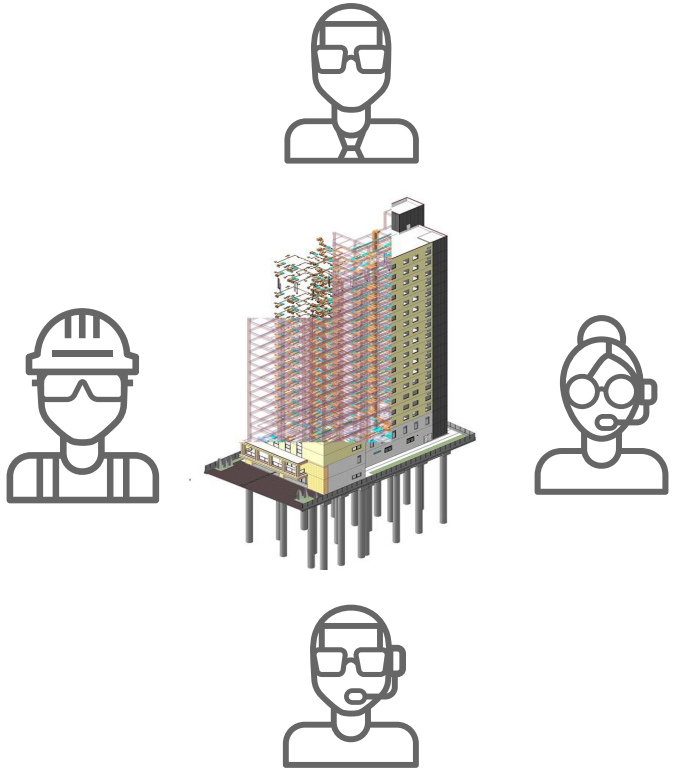


BIM, for whom?
DX, for whom?

From Partial Opt → Overall Opt.

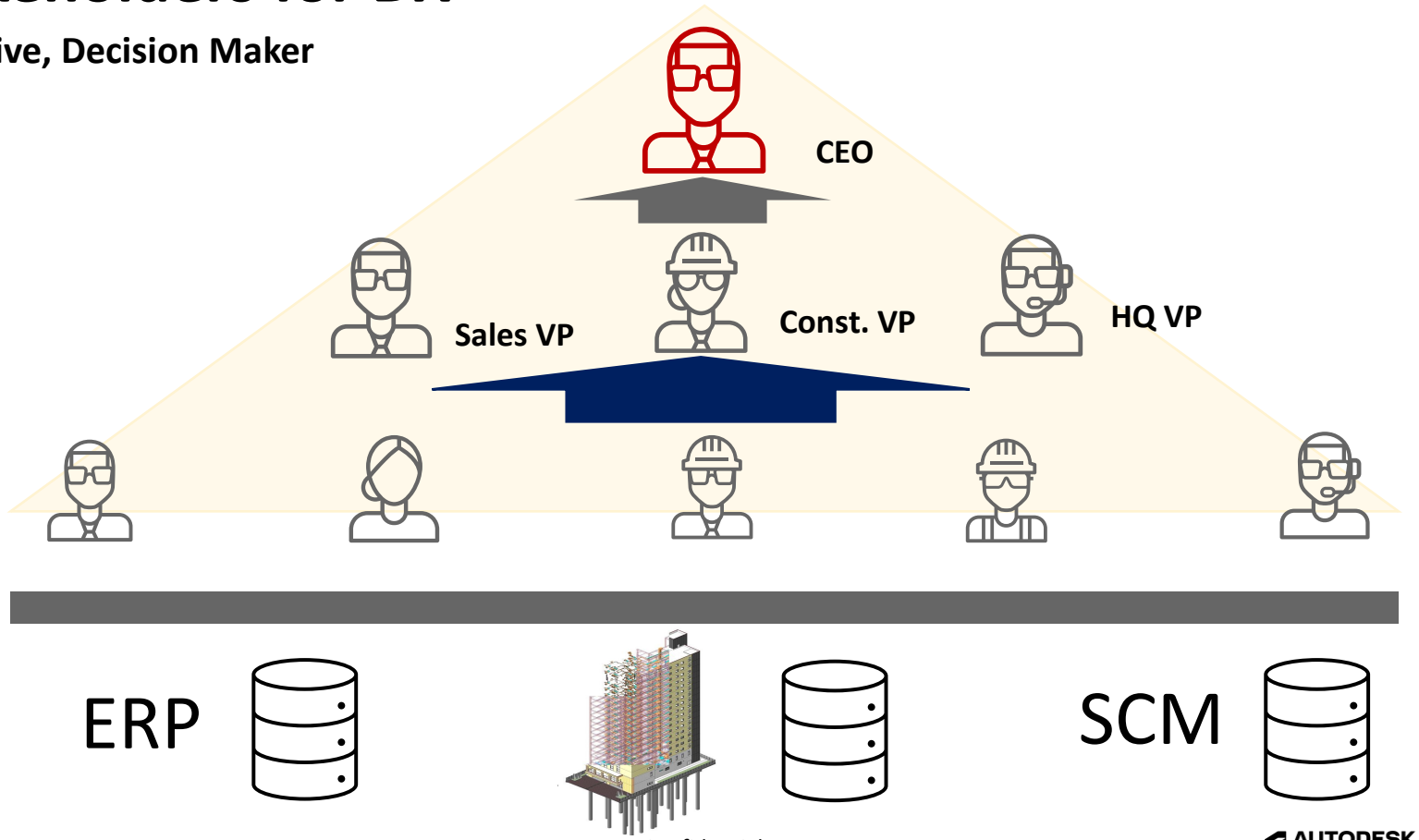
BIM used to be only for Building lifecycle





Stakeholders for DX

Executive, Decision Maker



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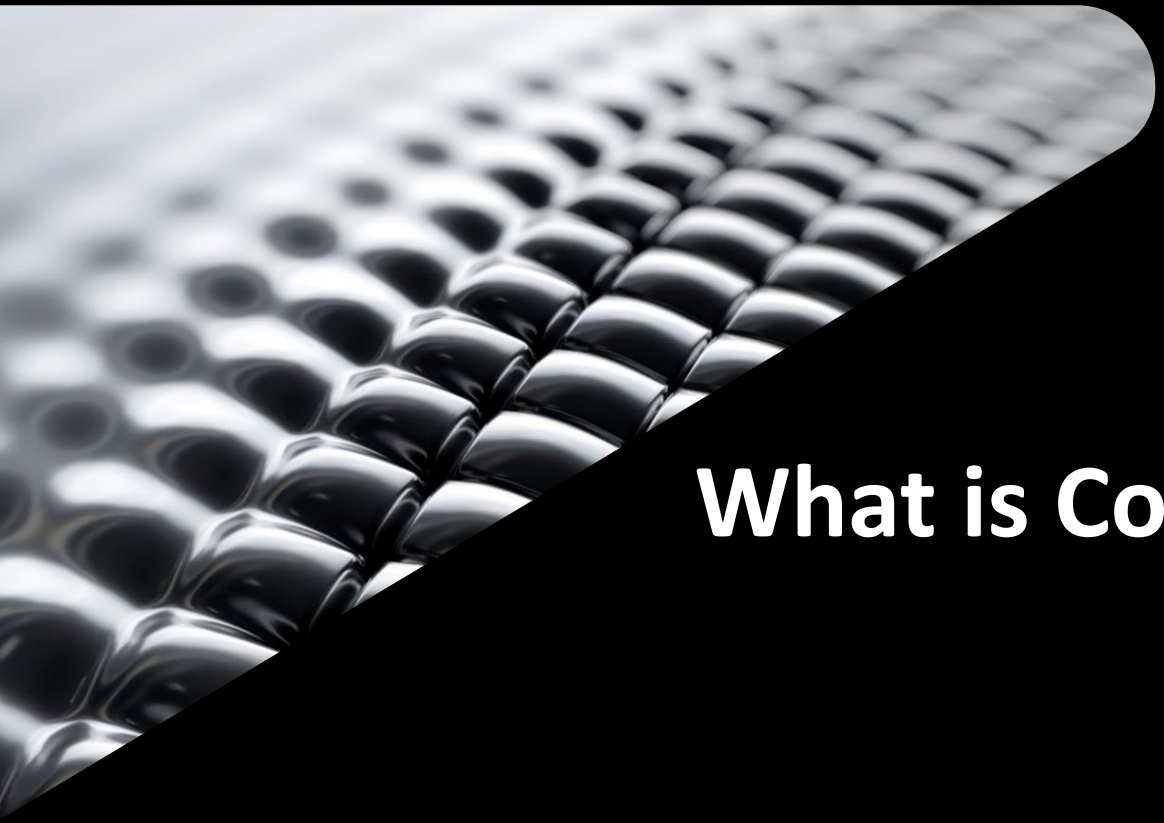
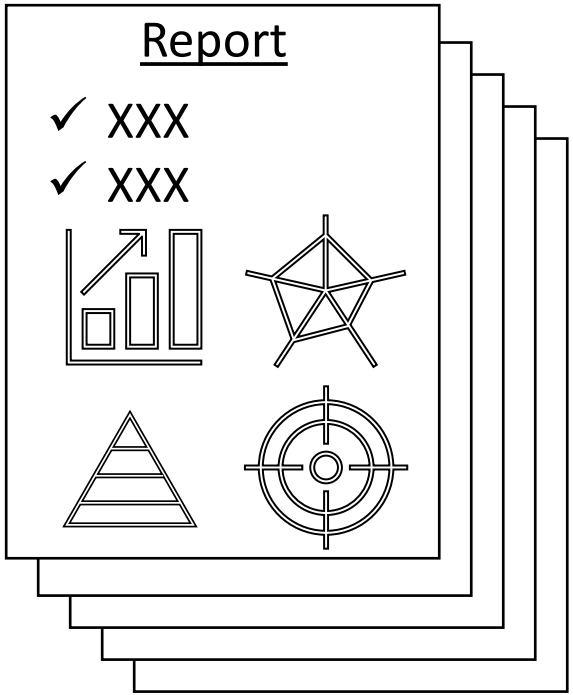


What is Command Room?

Conventional Executive Mtg.

- Data gathered by the day before the meeting



Executive mtg in Command Room

- Realtime
- Data-driven
- Exit strategy for BIM

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BIM is “Information”

2D

2D BIM is a digital geometric model that constitutes an X and a Y axis associated with further information. Early CAD systems were 2D models, where plans and sections could be developed on computers more quickly and more accurately than manually, on a drawing board.
More advanced modelling tools now allow parameters, constraints and concepts to be attached to the 2D model. However, most in the industry would not consider 2D geometry models as BIM.

3D

3D BIM is a digital geometric model that constitutes an X, Y and Z axis associated with further information. 3D modelling tools have been a huge success because:

- 2D views of geometric information can be generated from the 3D model at different levels of detail.
- Schedules can be generated, reporting on objects of different types within the 3D model.
- Multiple 3D models can be combined to report on any geometric clashes.

All of these features greatly improve accuracy and efficiency, and reduce the risk of errors occurring on projects.

4D

Scheduling

4D BIM is adding scheduling information to model construction sequences. Adding a dimension of time allows the project team to better visualize how the construction will be sequenced. From a contractor point of view, this is vital. 4D BIM was a huge step forward for the industry when first made possible through the use of new modelling tools – it demonstrated collaboration between the design and construction team through coordination and sharing of 3D models.

5D

Cost information

5D BIM is generally considered to be adding cost information to a model. If discussing 5D BIM, it is advised to clearly set out these specific requirements. For example, is the team expected to be providing capital or operational costs? Are these costs expected to be pre-tender estimates or a record of as-built costs? Who is responsible for adding this information? What method of measurement is to be used?

6D

Facility management

6D BIM is considered by some to be adding facility management to the information set. However, there is little industry consensus on this, and arguably this isn’t a ‘dimension’ at all. If discussing 6D BIM, it is strongly advised to set out precisely what is required so that all parties have a clear understanding.

7D

Sustainability

7D BIM is considered by some to be adding sustainability information to the information set. As with 6D BIM, be sure to carefully define the specific information required in terms of data types, scope, units, rules of measure, etc.

Source： **BIM dimensions – 3D, 4D, 5D, 6D BIM explained** **© NBS Enterprises Ltd**

Command Room Example

Disaster simulation/response

Dynamo

AUTODESK Revit

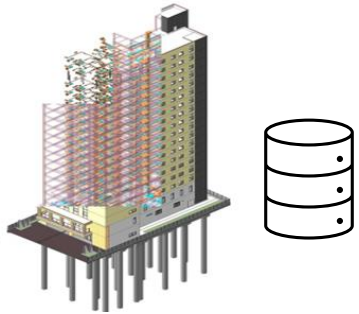
AUTODESK InfraWorks

Milestone

Goal : Conduct Executive Meetings in the Command Room!

Step1

Mini Command Room



Step2

Integrate Data

Step3

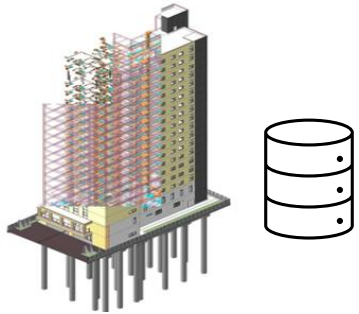
Executive Mtg in Command Room

Milestone

Goal : Conduct Executive Meetings in the Command Room!

Step1

Mini Command Room

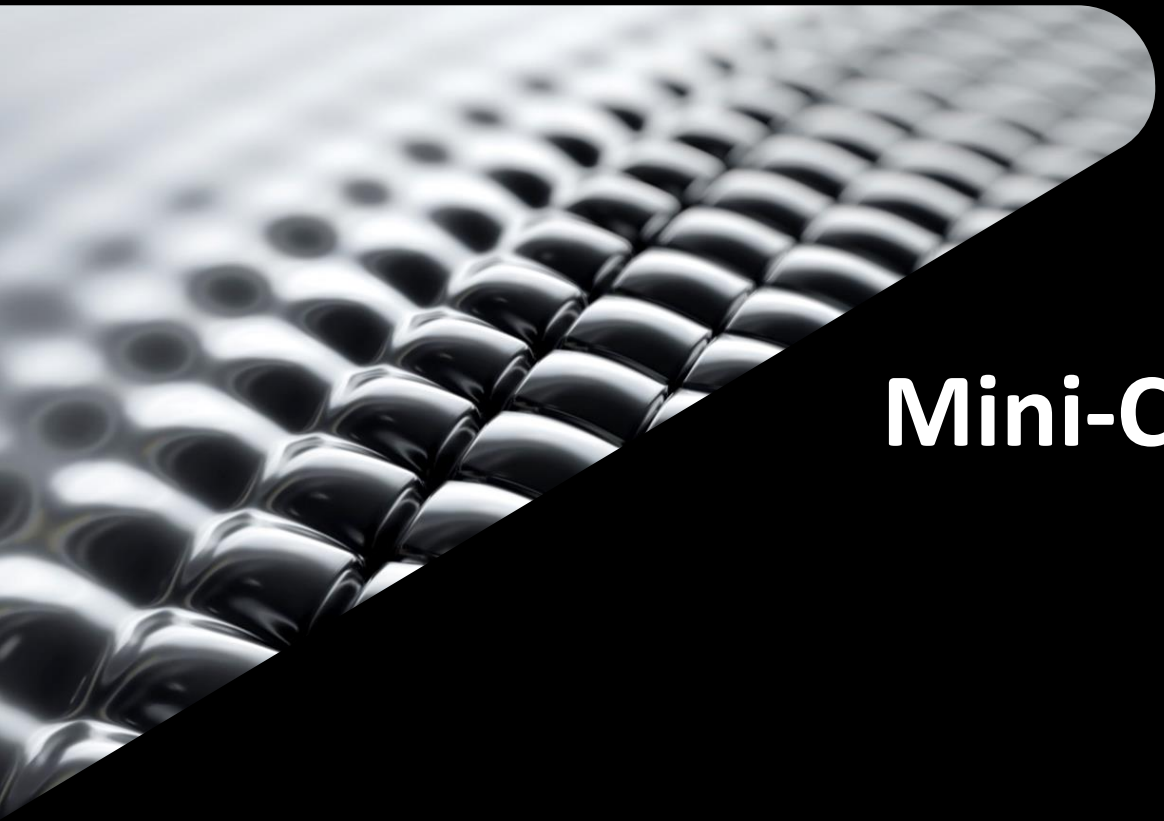


Step2

Integrate Data

Step3

Executive Mtg in Command Room



Mini-Command Room
Step1

Mini-command Room @on-site

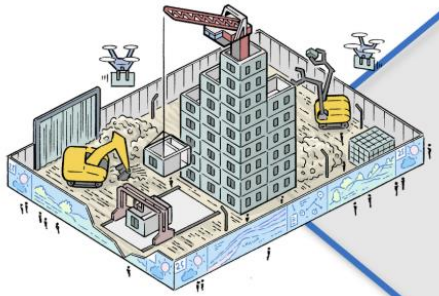
Digitalizing the whole Construction site

Digital Construction

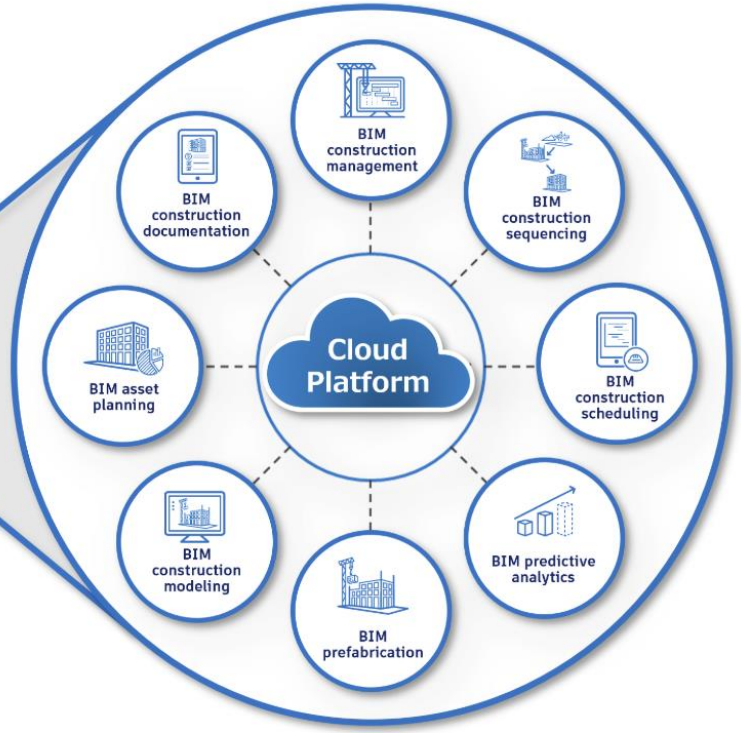
AUTODESK Revit

AUTODESK Build

PlanGrid



Digital construction site



#1 : On-site survey before construction

- Check on Virtual model
- Accumulate data as digital stock
- Reduce time required for preliminary survey by 50%

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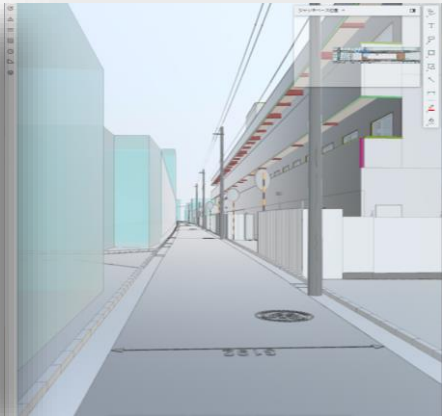

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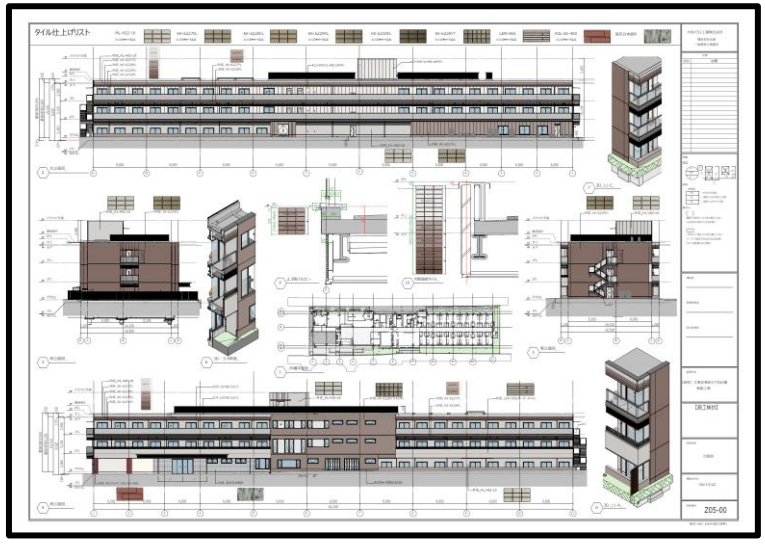
#2 : Establish clear agreement w/client

- Handover by Virtual model
- Accumulate data as digital stock
- Improve customer satisfaction, increase repeat business



AUTODESK Revit

#3 : Digitalize Inspections

- Digitalize
  - Safety management
  - Site patrol records
- Accumulate data as digital stock
- Reduce papers by 80%

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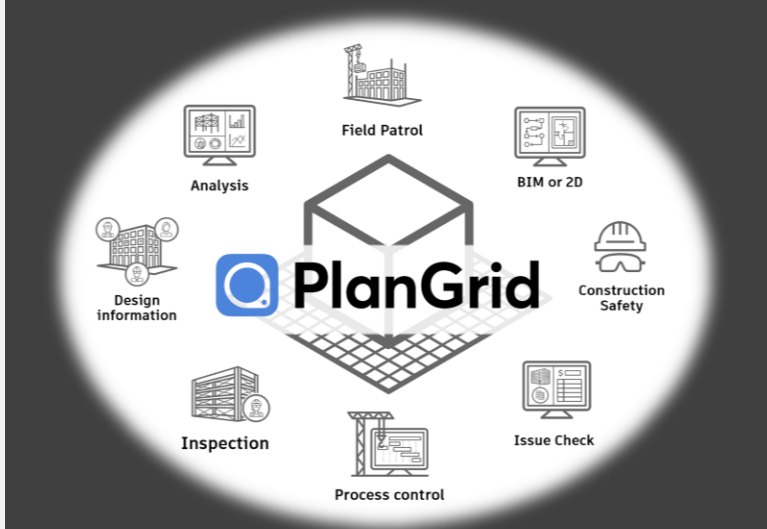
PlanGrid



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#4 : Project Management

- Link BIM and on-site people
- Project progress management
  - Collaborate with Schedule information
- Judgment based on data

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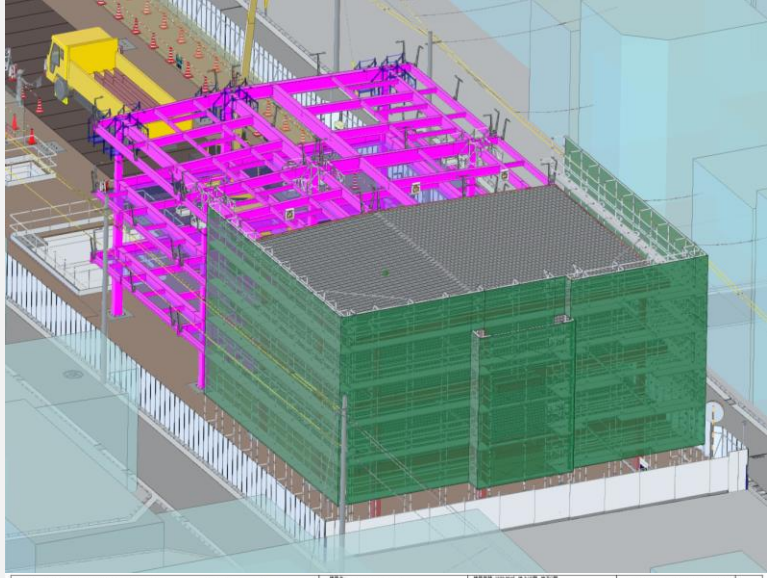

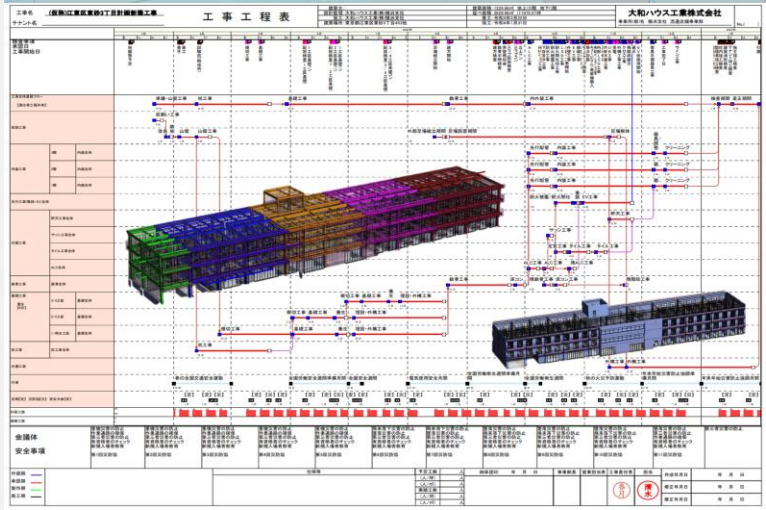

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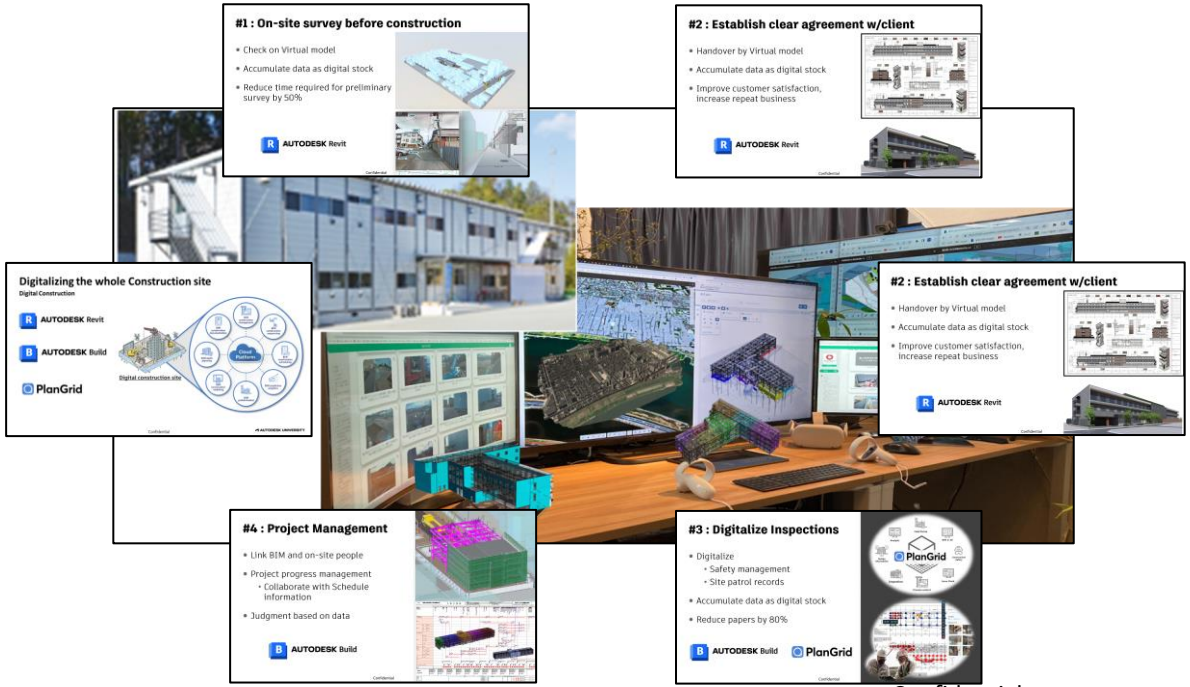
Mini-command Room to the next phase

Command Room at on-site

Step1 | Step2 | Step3



Integrate Data

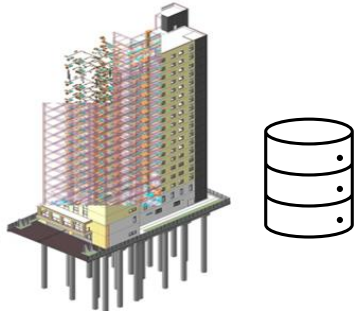
Executive Mtg in Command Room

Milestone

Goal : Conduct Executive Meetings in the Command Room!

Step1

Mini Command Room



Step2

Integrate Data

Step3

Executive Mtg in Command Room

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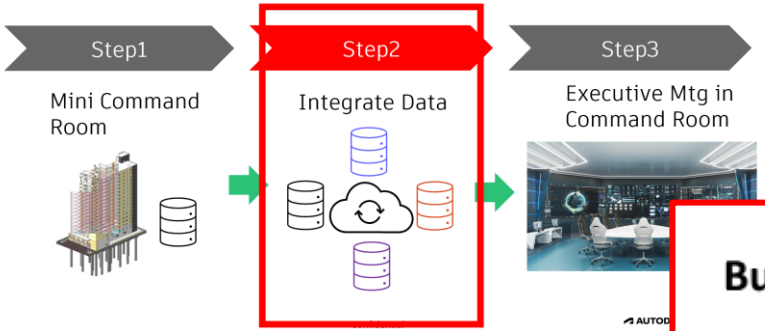
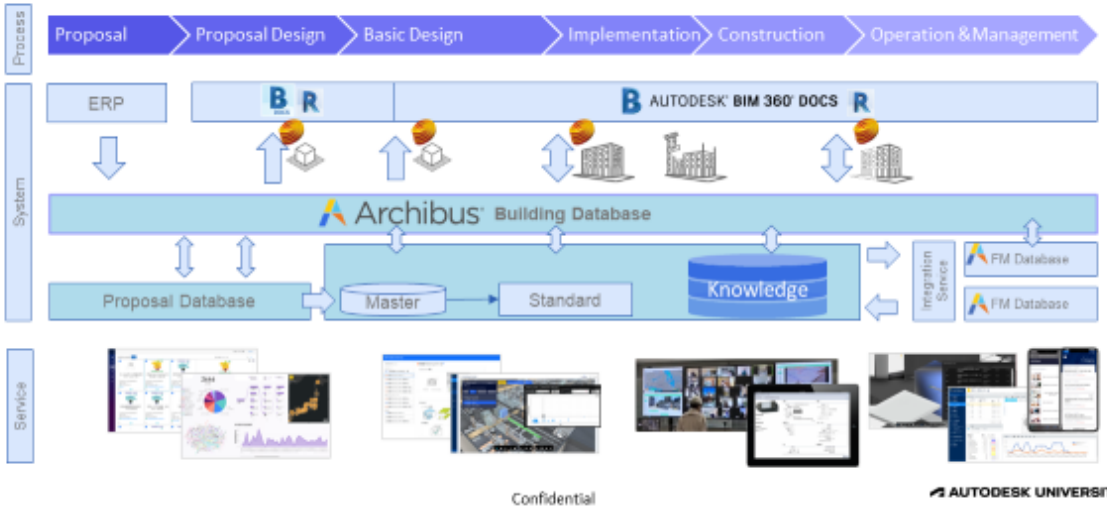
Milestone

Goal : Conduct Executive Meetings in the Command Room!



Build a Building database



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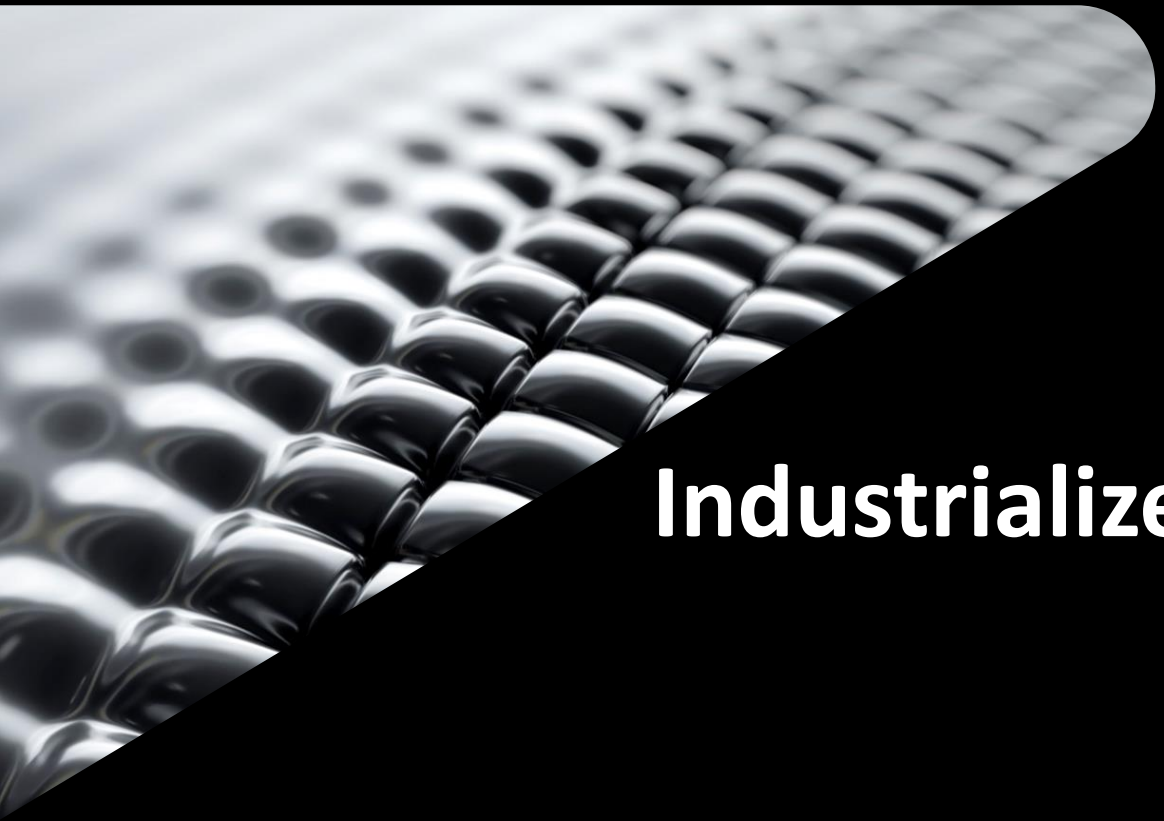
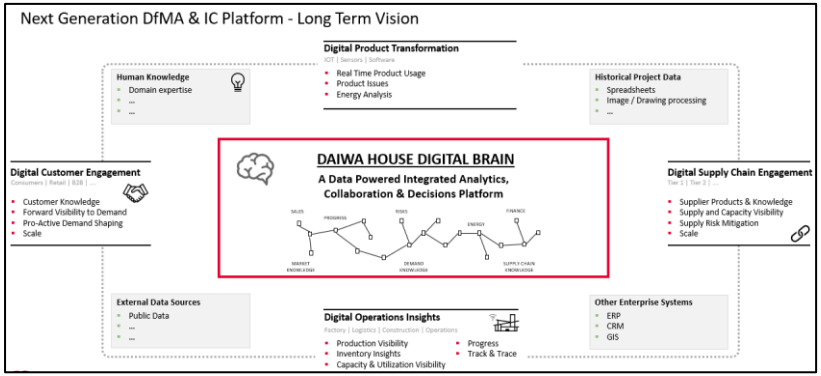


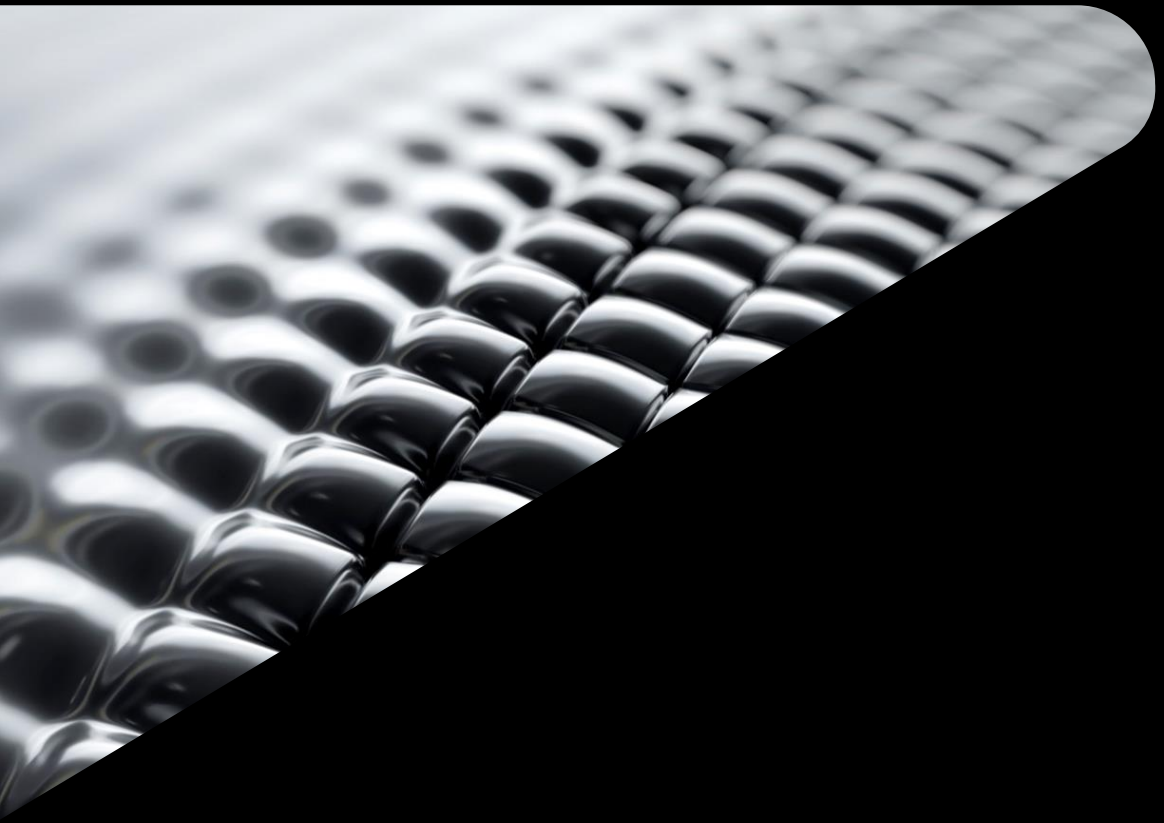
Evolution of Industrialized Construction

Evolution of the Industrialized Construction

Evolution of Industrialized Construction

- Construction Digital Platform
  - DfMA + IC
- Data Driven
  - Realtime
  - Digital Brain





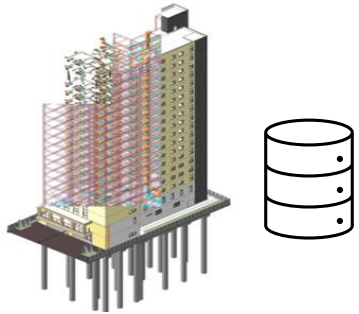
Summary

Milestone

Goal : Conduct Executive Meetings in the Command Room!

Step1

Mini Command Room



Step2

Integrate Data

Step3

Executive Mtg in Command Room

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