

Transforming Construction Through IDD

HDB's Data-Driven Journey and Future Vision

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DEVELOPMENT
BOARD**

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**Building MORE
Building FASTER
Building BETTER**

THE STRAITS TIMES

Robots that paint and plaster walls to be rolled out at half of BTO construction sites from 2025



About half of new Build-To-Order construction sites will use robots to carry out labour-intensive tasks to enhance site productivity. PHOTOS: HDB

Our IDD Journey

2009



BIM for in-house projects

2012



HDB BIM Guide/
BIM requirements

2014



Mandatory BIM
submissions

BIM

2015



HDB BIM Guide V2/
VDC requirements

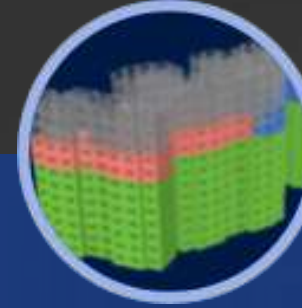
2019



Full VDC
Implementation

VDC

2022



Enhanced IDD
requirements

2023



HDB BIM
Guide V3

IDD



Design Smarter.

Build Better.

Our Enhanced IDD Requirements

DESIGN

FABRICATION

CONSTRUCTION

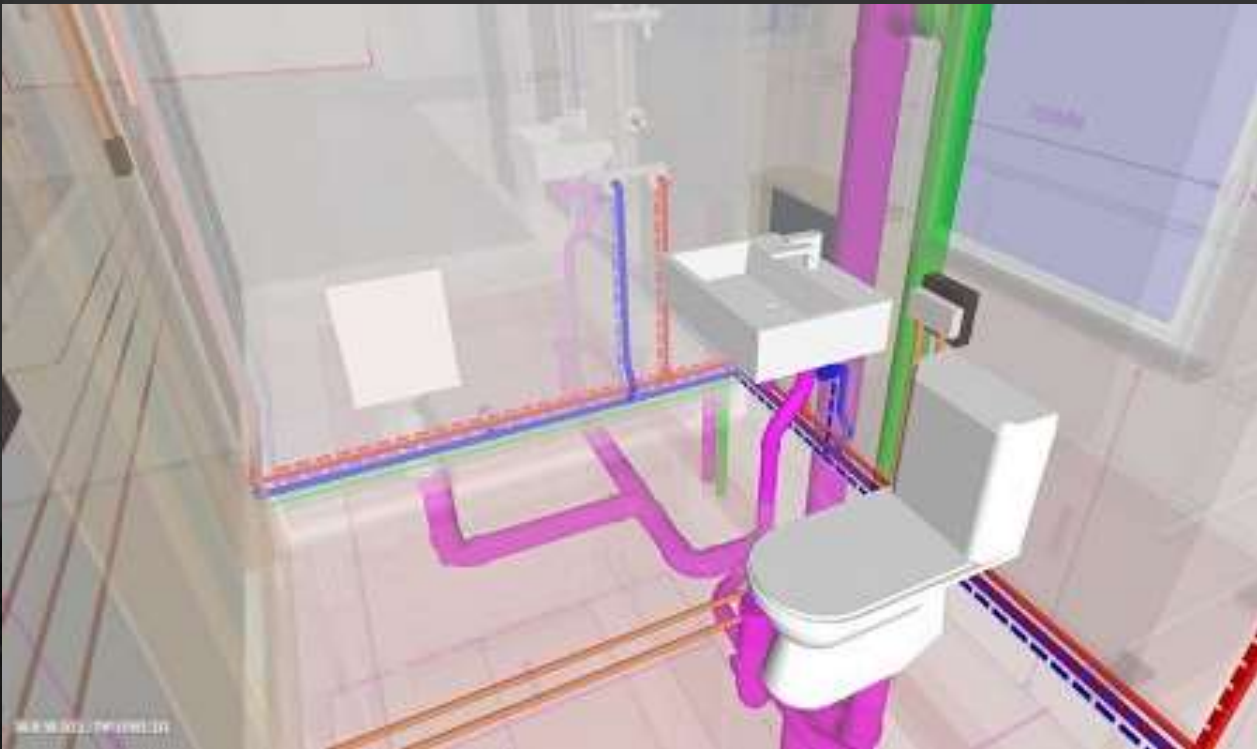
HANDOVER

Construct BIM model for visualisation & coordination

- Design Authoring
- Model Quality Assurance
- 3D Visualisation
- Visualisation & Design Checks
- ICE Meetings
- Design for Safety



Design Authoring & 3D Visualisation



Garden Waterfront @ Tengah



Central Weave @ AMK

Visualisation tools like BIM have helped improve the coordination of services across disciplines before construction

Design Authoring & 3D Visualisation



Central Weave @ AMK

ICE meetings during design stage and clash detection lead to streamlining of service routing before construction

Our Enhanced IDD Requirements

DESIGN

Construct BIM model for visualization & coordination

FABRICATION

Plan, track & monitor offsite production digitally

- Digital Production
- Digital Logistics

CONSTRUCTION

HANDOVER

Digital Production



Precast Automation System

Optimising manpower and production space

Standardization of precast components has enabled use of off-site robotics for precast production

Digital Production



Electronic tagging systems help track the status of production and delivery of our precast components

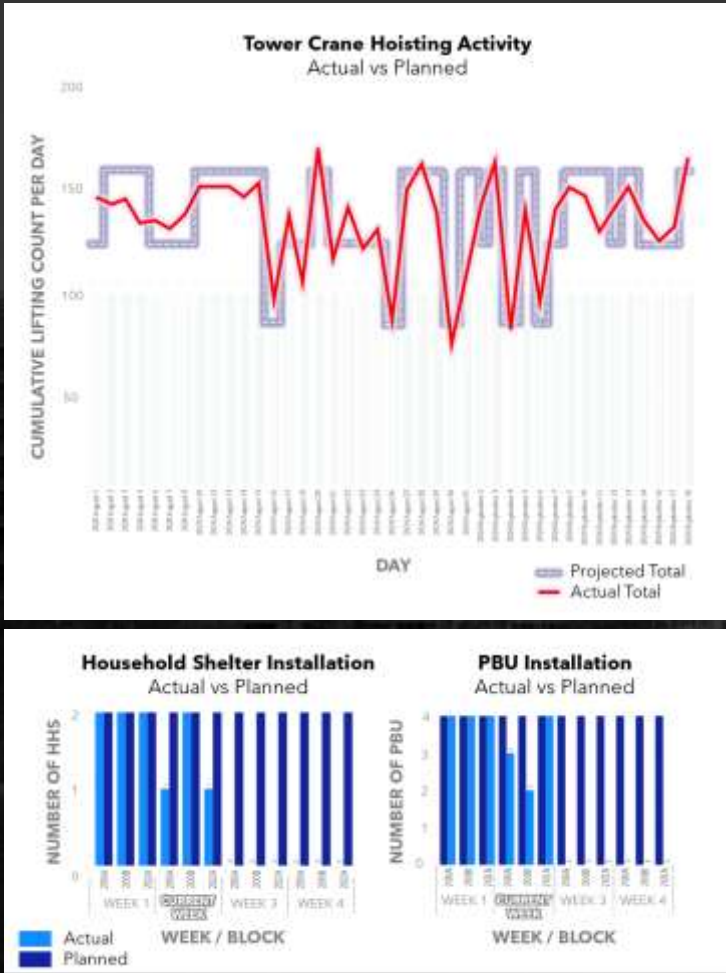
3D concrete printing to explore the creation & use of unique, organic-shaped benches
Garden Waterfront @ Tengah

Digital Logistics



Real-time tracking of precast components facilitate planning for delivery, storage and installation

Queen’s Arc



Digital twins paired with tagging systems improve material inventory and management

Garden Waterfront @ Tengah

Our Enhanced IDD Requirements

DESIGN

Construct BIM model for visualisation & coordination

FABRICATION

Plan, track & monitor offsite production digitally

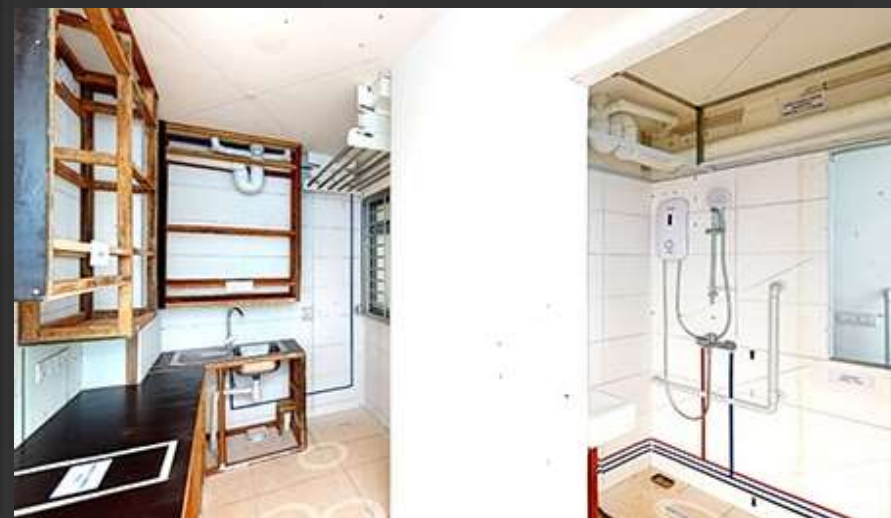
CONSTRUCTION

Plan, track & monitor construction ops matters digitally

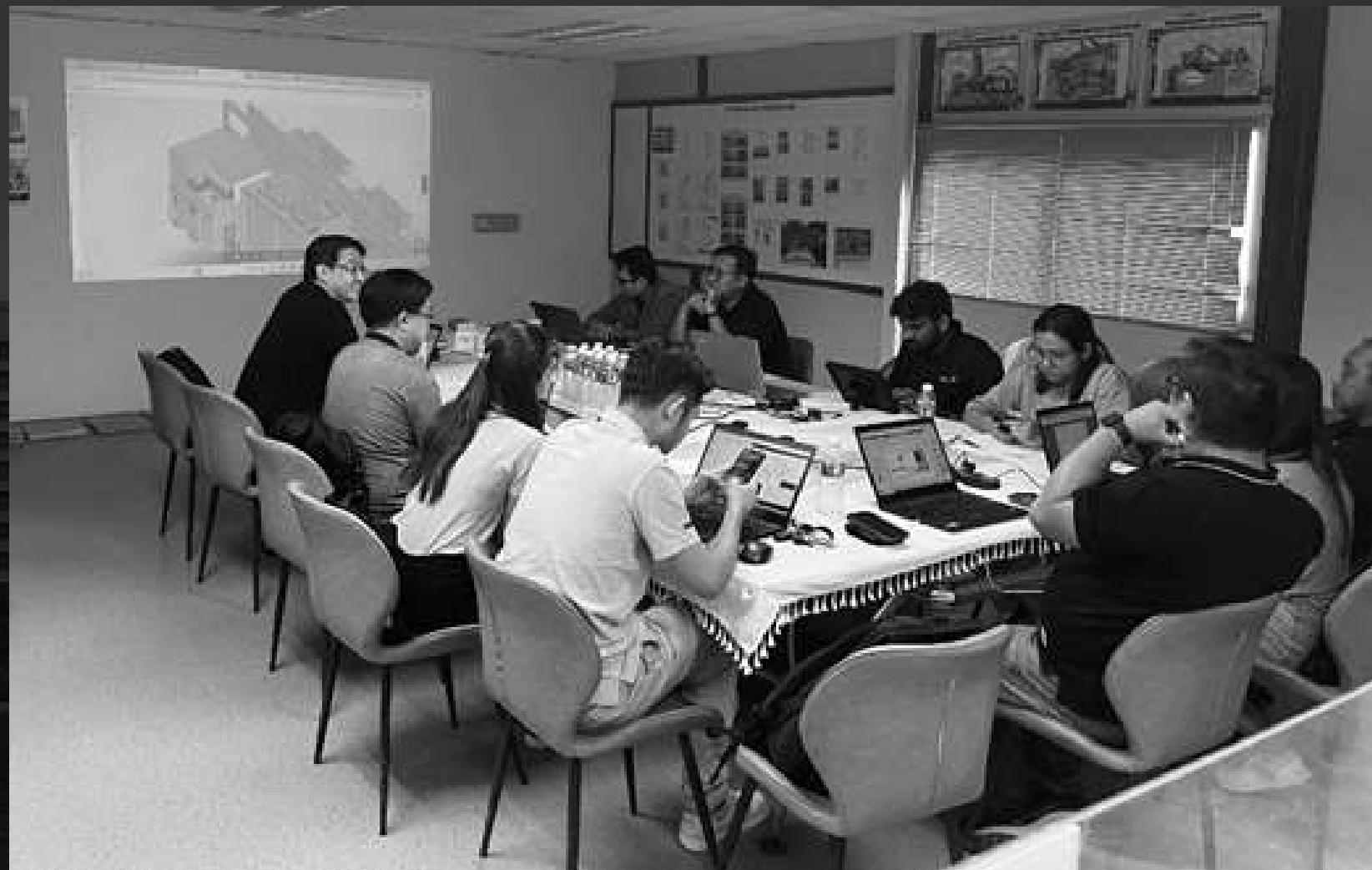
- ICE Meetings (continued)
- Digital Progress Monitoring
- Digital Construction Scheduling & Sequencing
- Digital RFI
- Manpower Management
- Digital Submissions & Approval
- Digital Safety Inspections
- Digital QA/QC Inspections

HANDOVER

ICE Meetings, Visualisation & Design Checks

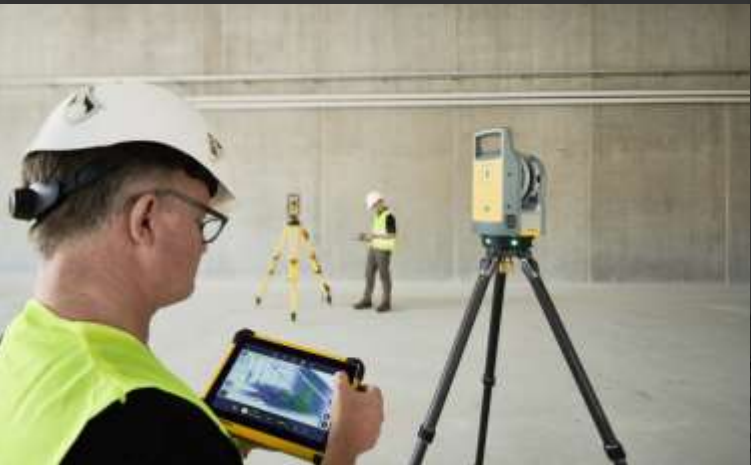


Timber mockups to Virtual – Detailed digital twin
Garden Waterfront @ Tengah



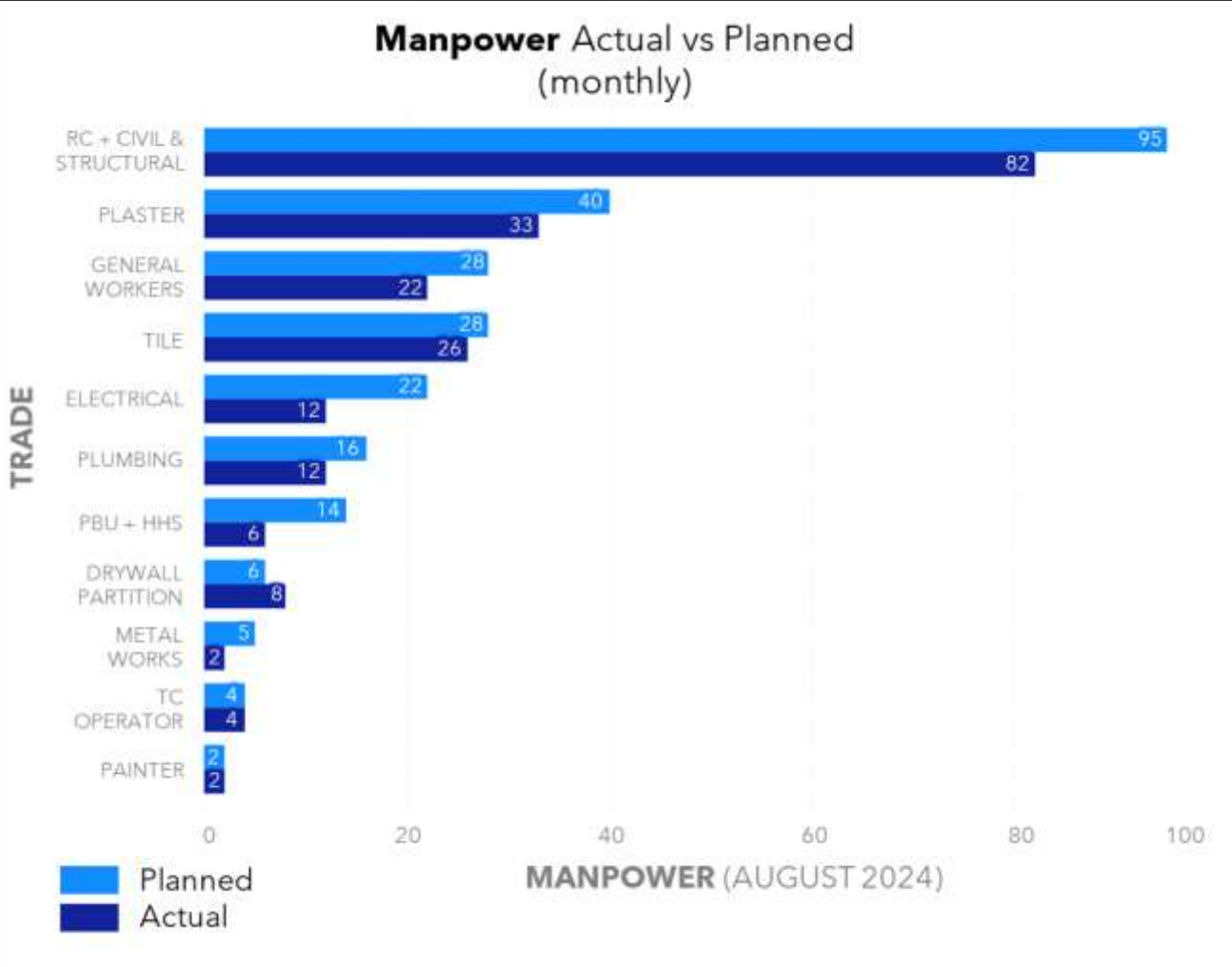
Identifying and resolving issues through ICE Meetings

Digital Progress Monitoring



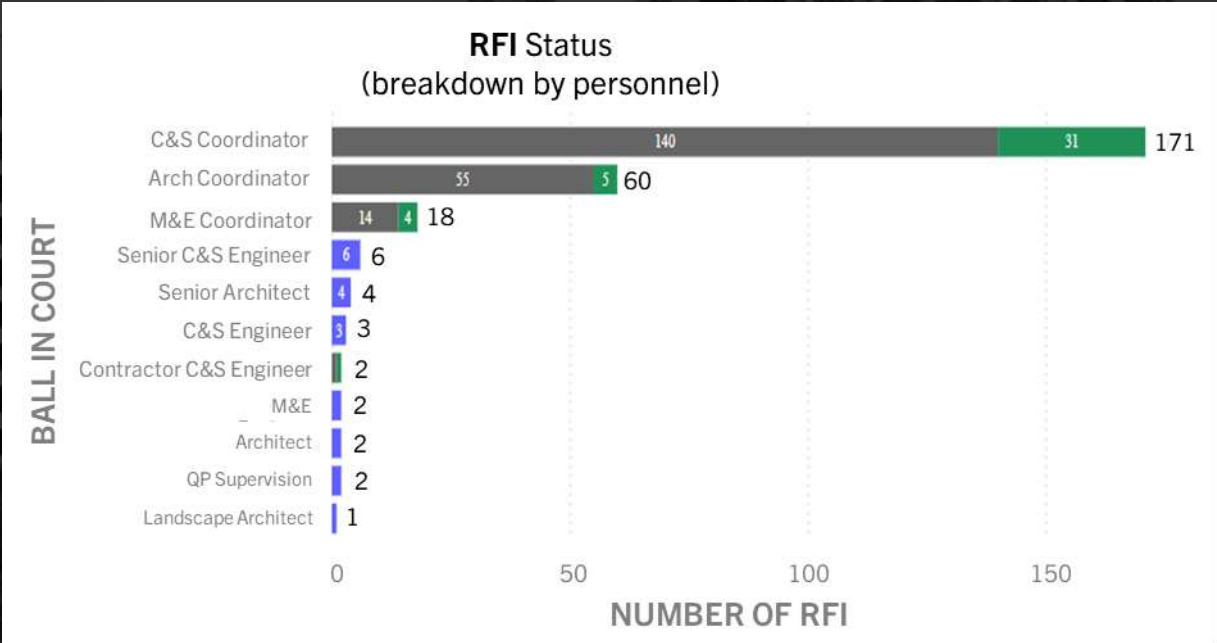
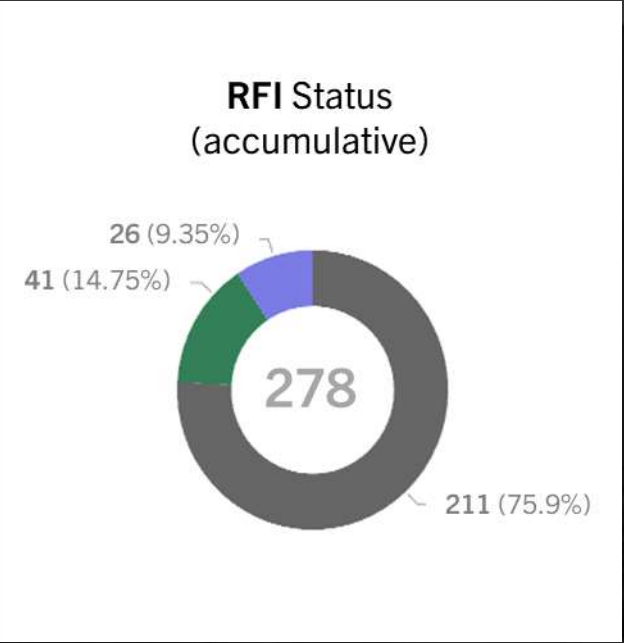
Leveraging technology to capture progress on-site

Digital Manpower Management



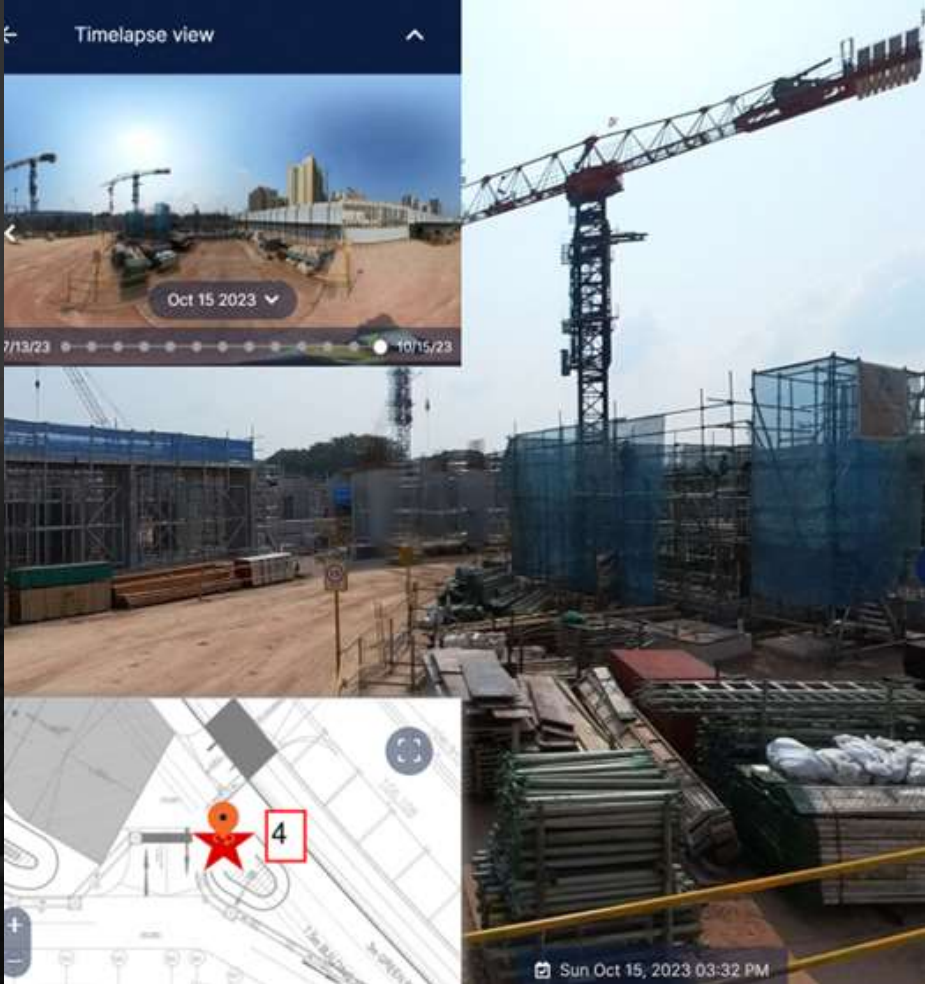
Biometric systems help to track & monitor site manpower

Digital RFI/RFA Management



Centralising the management of project information such as RFIs & RFAs

Digital QA/QC & Safety Inspections



Utilising digital tools for safety & quality inspections

Garden Waterfront @ Tengah; Queen's Arc

Our Enhanced IDD Requirements

DESIGN

Construct BIM model for visualization & coordination

FABRICATION

Plan, track & monitor offsite production digitally

CONSTRUCTION

Plan, track & monitor construction ops matters digitally

HANDOVER

Manage As-built BIM & track defects digitally

- Digital Defects Management
- As-Built Documentation for Ops & Maintenance

Digital Defects Management



Novade

Case #LV-H_E-80710-001

Unit: 80710 Unit 87, 80710-001

Credited Date: 12/03/2020 14:00 by Eshwari

Confirmation Date: 12/03/2020 14:00 by Naveen

Work Start Date: 12/03/2020 14:00

Target Completion Date: 12/04/2020

Unit

Credited Date

Confirmation Date

Work Start Date

Target Completion Date

Unit

Credited Date

Confirmation Date

Work Start Date

Target Completion Date

Unit

Credited Date

Confirmation Date

Work Start Date

Target Completion Date

Unit

Credited Date

Confirmation Date

Work Start Date

Target Completion Date

Case #LV-H_E-80710-001

[New] Defect

B 07 07-10

Location: Dining Area

Type: Door - Timber

Description: Cannot open or close properly

Assignee: Carpentry Works Subcon

PHOTO (1)

Case #LV-H_E-80710-001

[New] Defect

B 07 07-10

Location: Dining Area

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PHOTO (1)

Unit

Credited Date

Confirmation Date

Work Start Date

Target Completion Date

Unit

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Target Completion Date

Unit

Credited Date

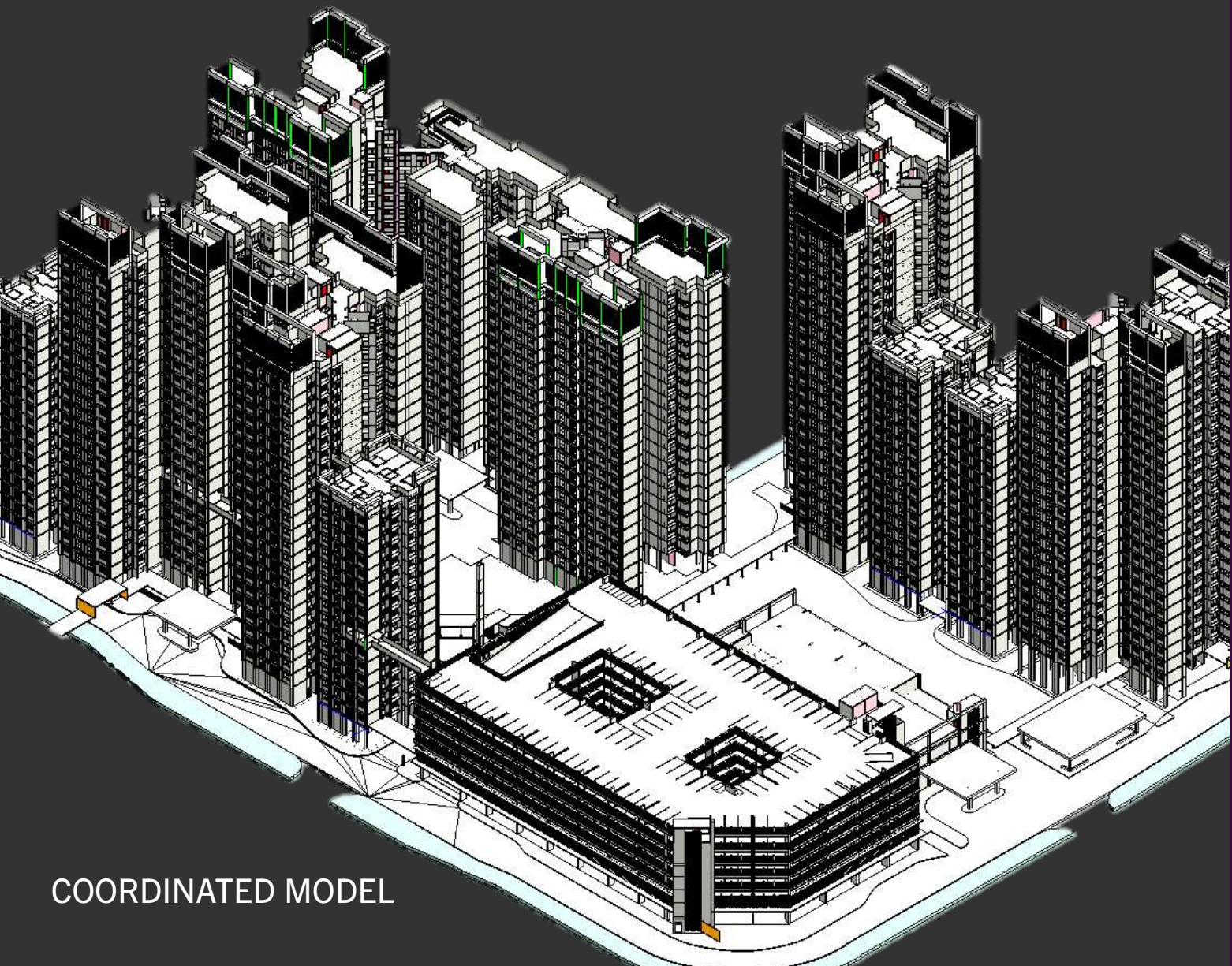
Confirmation Date

Work Start Date

Target Completion Date

Digital platforms for addressing unit defects

As-Built Documentation for Ops & Maintenance



COORDINATED MODEL

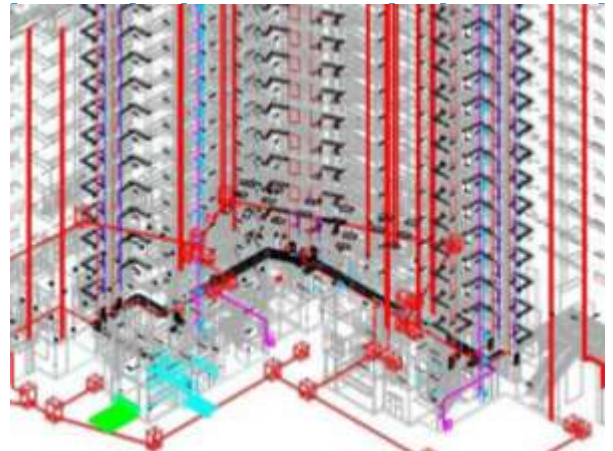
ARCHITECTURE MODEL



C&S MODEL



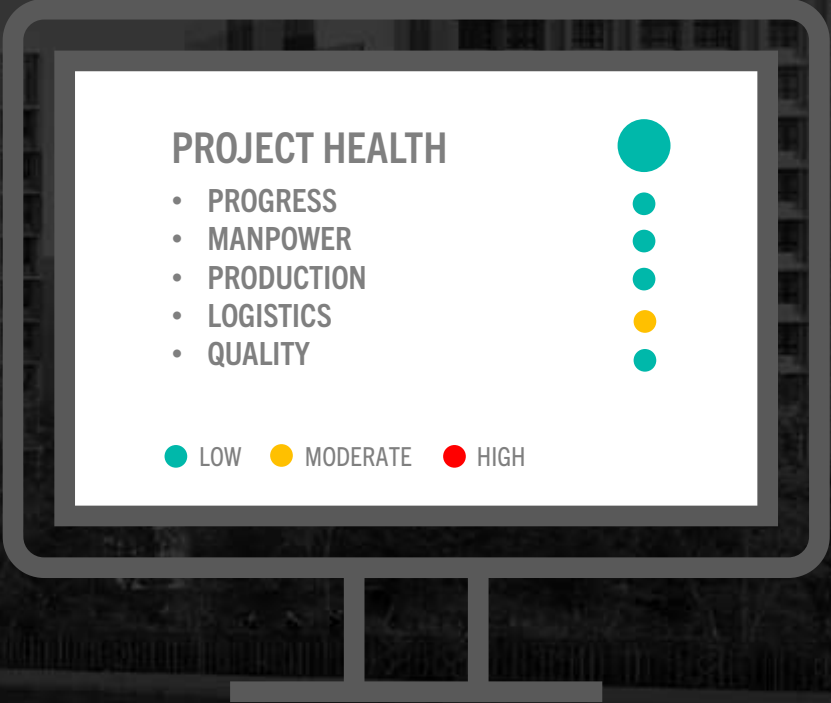
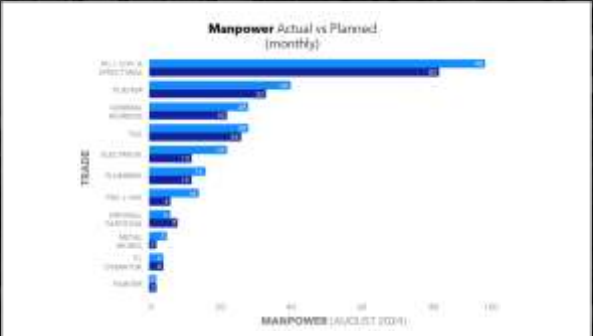
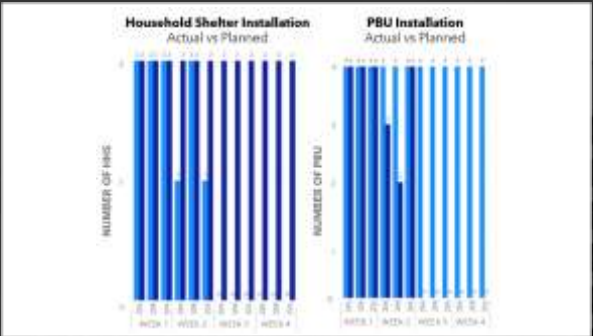
MEP MODEL





What's Next?

Project Dashboard

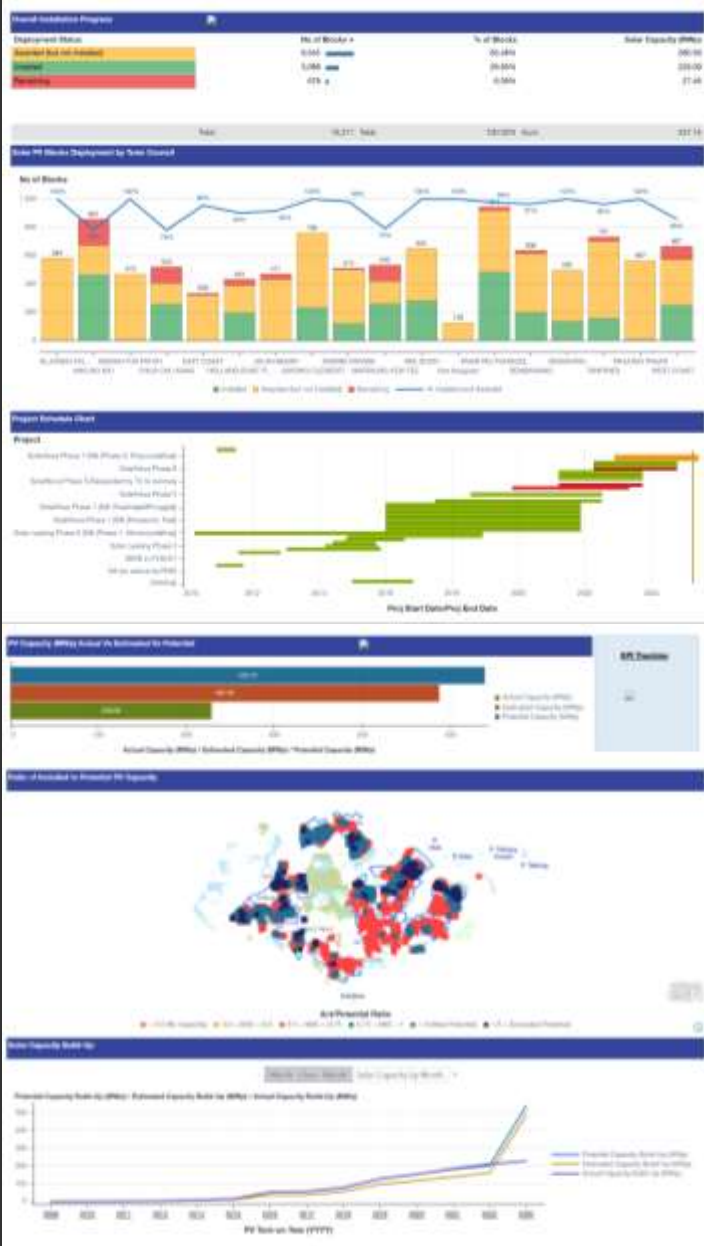


Dashboard displaying the health of a project based on set benchmarks

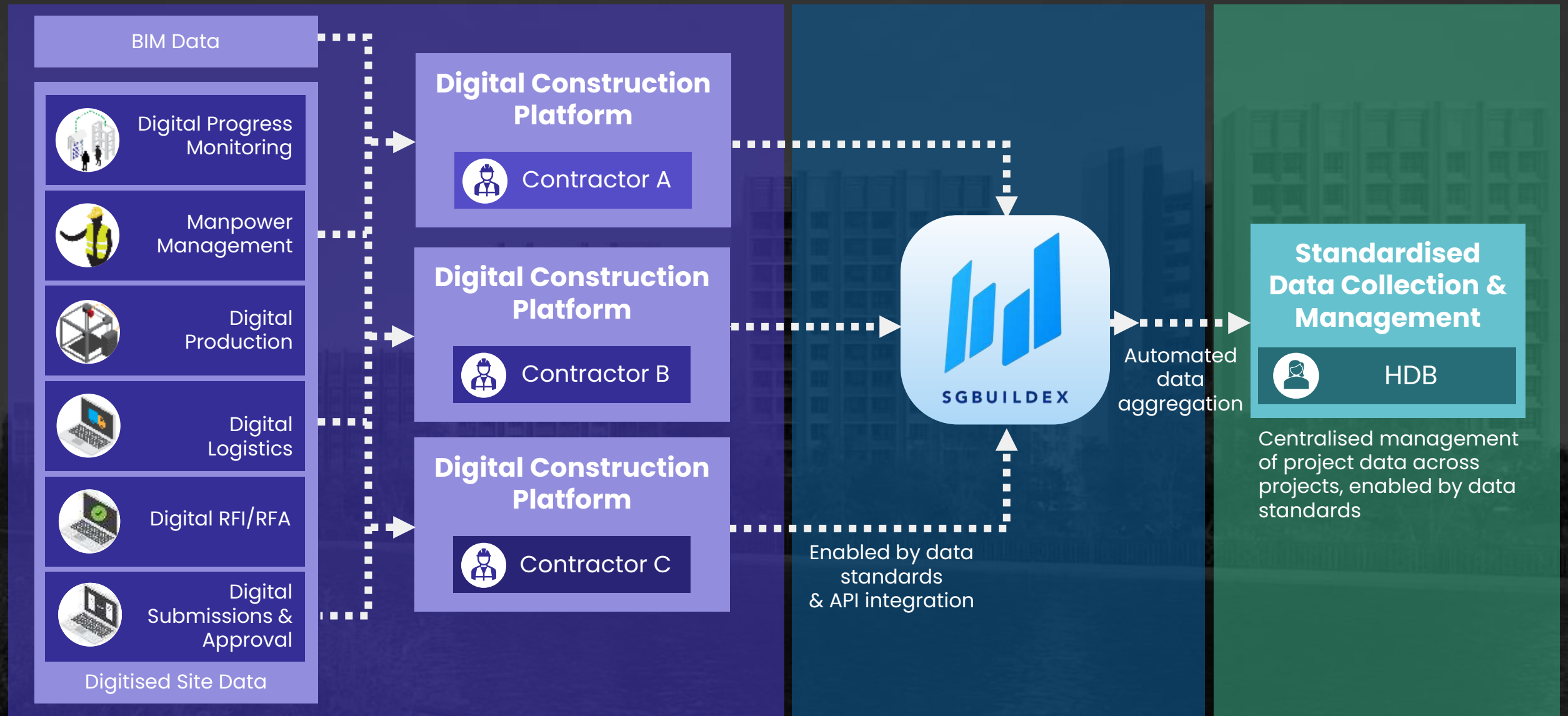
Future Possibilities

- Large data set for analytics
- Project health monitoring across projects
- Flag risks, optimize resources
- Improved productivity & quality of construction

*mock-up data for illustration only



Integrated Digital Construction Platform





WHAT'S NEXT | POSSIBILITIES

Realising Our Vision with SGBuildex

Building **MORE** Interoperability

Building **FASTER** Insights

Building **BETTER** Outcomes





One connection,
Endless possibilities



Join us in building the future.

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