*"**Integrating** and **Digitalising** the Built Environment **Value Chain**"*

Streamlining work processes and **connecting** stakeholders...

...through **digital data**, **innovation** and **technology**...

...across the **whole project life cycle** from design, construction, fabrication, to facilities management...

... to deliver a **better outcome** for end users.

INTEGRATED DIGITAL DELIVERY

INDUSTRY LEADERS' QUICK START GUIDE TO IDD: THE "WHAT" & "WHY"

Digital Design

Engaging stakeholders to achieve optimised and coordinated design that meets client's, regulatory and downstream requirements.

Digital Fabrication

Translating design to standardised components for automating off-site production.

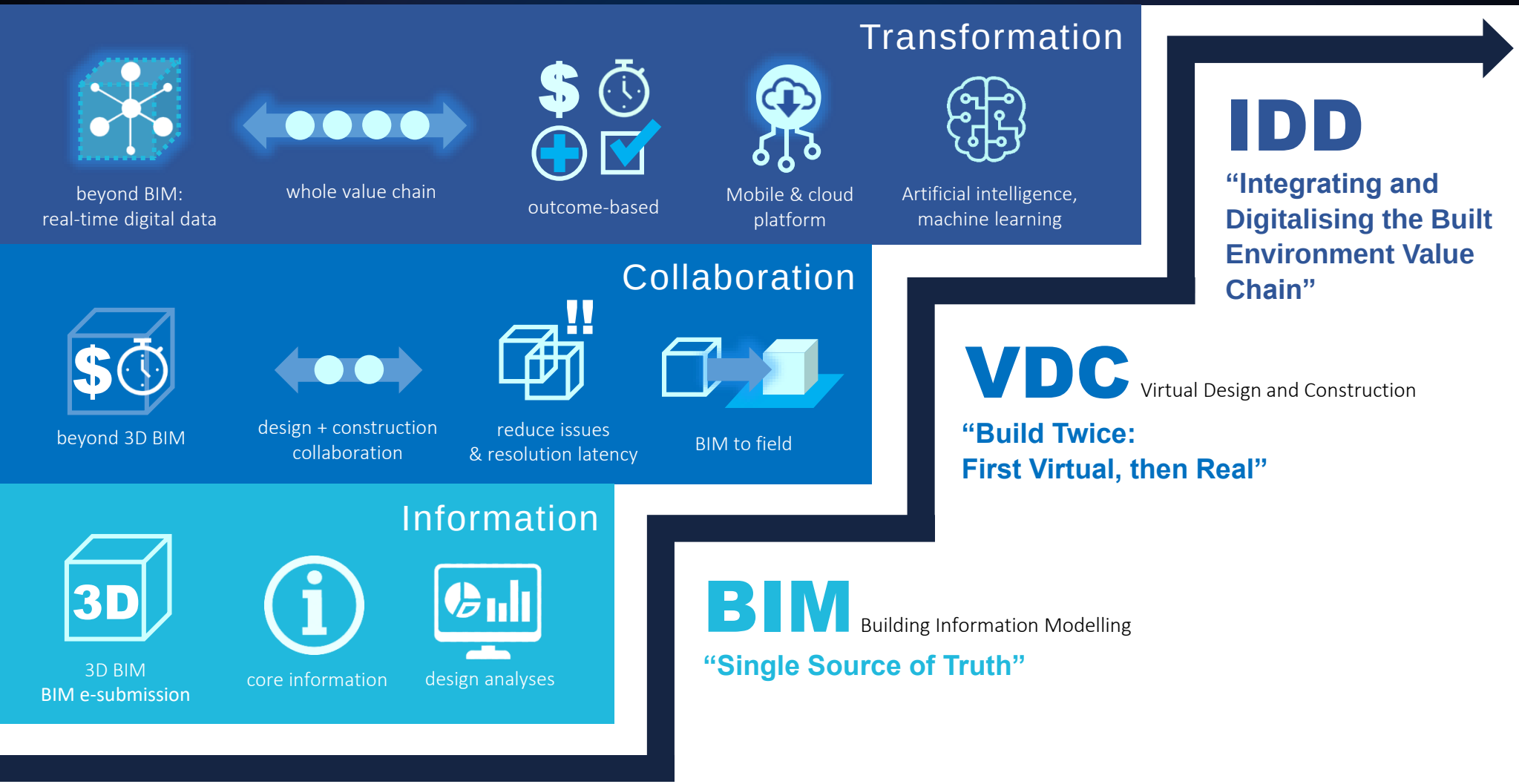
Digital Asset Delivery & Management

Real time monitoring for operations and maintenance to enhance asset values.

Digital Construction

Just-in-time delivery, installation and monitoring of on-site activities to maximise productivity and minimise rework.

IDD builds on BIM & VDC



Benefits to PROJECT

Project teams realise outcome-based benefits from IDD such as the following:

TIME

- Meet or shorten target construction period
- Reduce floor cycle time
- Reduce Extension of Time

COST

$$

- Reduce waste and rework
- Maximise target cost
- Reduce construction cost
- Reduce contingency

PROFIT

- Maximise saleable area or floor efficiency

SAFETY

- Improve site safety
- Reduce number of incidents
- Zero fatal accidents

QUALITY

- Better turnaround of quality inspections

Value to STAKEHOLDERS

At the same time, project stakeholders achieve value to meet their individual objectives, which in turn benefits the project as a whole.

OWNER / DEVELOPER

- Best design outcome for project
- Improved cost, time, and quality project goals
- More accurate & reliable digital asset information
- Enhanced value of assets

DESIGNER

- Faster and better design options
- Better design coordination and reduced RFIs
- Improved competitiveness

CONTRACTOR

- Reduced risk
- Reduced reworks
- Higher accuracy in bidding
- More time for value engineering
- Improved safety

FABRICATOR

- Faster shop drawing approval
- Automated translation of design to production/fabrication
- Improved production management

ASSET / FM OPERATOR

- Cost effective operations
- Enhanced lifecycle management
- Real time access to O&M manuals
- Streamlined maintenance regime

Applying IDD to PPVC

PPVC (Prefabricated Prefinished Volumetric Construction) is one of the most productive DfMA (Design for Manufacturing and Assembly) technologies. IDD helps to push the boundaries of productivity even further through digitalisation and streamlining of the entire PPVC workflow.

Optimise PPVC configuration and modularisation

Review virtual mock-up to obtain early design confirmation

Resolve issues collaboratively and promptly

Study constructability to optimise cycle time

DIGITAL DESIGN

PRE-CONSTRUCTION

KPI:
Reduce PPVC module types

KPI:
Reduce lead time & cycle time

Digital ordering

Extract data for production automation

Smart hoisting & installation

RFID for component tracking

DIGITAL FABRICATION

KPI:
Maximise automation

Digital progress reporting & claims

Digital defects management

Digital QA/QC inspection

DIGITAL CONSTRUCTION:

DIGITAL ASSET DELIVERY

KPI:
Reduce no. of defects

DIGITAL PLATFORMS

How to KICK-START IDD

Jumpstart IDD implementation for your project by using this framework:

KICK-OFF

KPIs

PROCESS

INFORMATION

TECHNOLOGY

Organise a **KICK-OFF MEETING** with the project team to:

1. Identify key project **challenges** and define project **outcomes**
2. Determine appropriate **strategies** at each phase to achieve outcomes
3. Identify relevant **processes** to re-engineer and streamline
4. Integrate **downstream** phases requirements **upstream**
5. Determine other requirements for **information exchange**
6. Identify **platform** for data exchange and collaboration
7. Identify other appropriate **digital solutions** and technologies

EXAMPLE:

Reduce construction period from 30 to 26 months

- Early design confirmation
- Reduce floor cycle time
- Maximise pre-fabrication
- Reduce defects

Streamline and digitalise shop drawing approvals

- Fabrication requirements
- FM requirements

INFORMATION STANDARDS: Tender, Fabrication, Asset data and models

COLLABORATION PLATFORMS: data storage, data exchange, data analytics

- Computational BIM Virtual Reality
- BIM to Field Resource tracking
- Automation
- Building sensors