Bridging the Gap with 3D BIM Technology
26 August 2015
• The Project
• Common Data Environment
• 3D Modelling
• Asset Management???
What is BIM?

“A process involving the collaborative production, use and management of digital representations of the physical and functional characteristics of a facility / asset. The resulting information models, when fully coordinated, support decision-making about a facility or asset throughout its lifecycle.”
Transport for London (TfL) 2014

What is DIGITAL ENGINEERING?

“The use, manipulation, simulation and analysis of digital data to inform decisions.”
Transport for London (TfL) 2014
Core Digital Activities:

1. DIGITAL CAPTURE
Laser Scanning, Traditional Surveys, Photogrammetry, Downloads etc.

2. DIGITAL MODELLING
2D/3D CAD, Spreadsheet or Database field entries etc.

3. DIGITAL VISUALISATION
Virtual/Augmented Reality, Drawings, Dashboards (e.g. Web-GIS), 3D Printing, Animations, Images etc.

4. DIGITAL SIMULATION
Computational Fluid Dynamics (CFD), Virtual Construction (4D), Wind, Energy & Sun-shade Studies etc.

5. DIGITAL MANAGEMENT
Transmittals, Approvals, Validation & Verification, Transformation, Information Exchanges etc.
The Diagram emphasises the shift in value of graphical data to non-graphical data through the life of an asset.
Common Data Environment (CDE)

**Owner Operator Systems**
(e.g. Web-GIS, Asset Register)

**Review & Approve Tools**
(e.g. Navisworks, Mobile Apps)

**Project Team Data Environment**
(e.g. SaaS Extranet Solution)

**Task Team Data Environment**
(e.g. ProjectWise & SharePoint)

**Capture**
**Model**

**Visualise**
**Simulate**

**Approvals Workflow**

**Activities**
**Coord.**

**Share**

**View**

**Owner Operator Systems**
(e.g. Web-GIS, Asset Register)

**Review & Approve Tools**
(e.g. Navisworks, Mobile Apps)

**Project Team Data Environment**
(e.g. SaaS Extranet Solution)

**Task Team Data Environment**
(e.g. ProjectWise & SharePoint)

**Capture**
**Model**

**Visualise**
**Simulate**

**Approvals Workflow**
Common Data Environment (CDE)

WORK IN PROGRESS
- Approvals Workflow
- SHARED
- PUBLISHED

ARCHIVED
- Review & Approve Tools (e.g. Navisworks, Mobile Apps)
- Coord.
- Review

Leighton Domain
- Shared Drives (Design Team)
- ProjectWise: All internally shared access forming a Common Data Environment (CDE)

Other Domain
- Shared Drives (Design Team) (Distributed CDE)

Leighton Domain
- Shared Drives (Construction Team)
- 12D
- Microstation AutoCAD Civil3D
- MS Office Documents
- Navisworks/Navigator 3D clash detection

KeyStone
- All published deliverables
- QA Software TeamBinder

DPTI Domain
- Shared Drives

Notes:
- Overlaps represent the opportunity for information exchange – these may be manual or automatic processes depending on contractual requirements
- Red arrows represent a formal transaction of information
- Data residing within the red dashed area is subject to requirements of the CDE based on BS1192
- Distributed CDE means data is authored elsewhere such as a shared drive, yet still subject to the requirement of the CDE