

Changing Behaviours through Information Management

Demonstrating Improved Project Performance



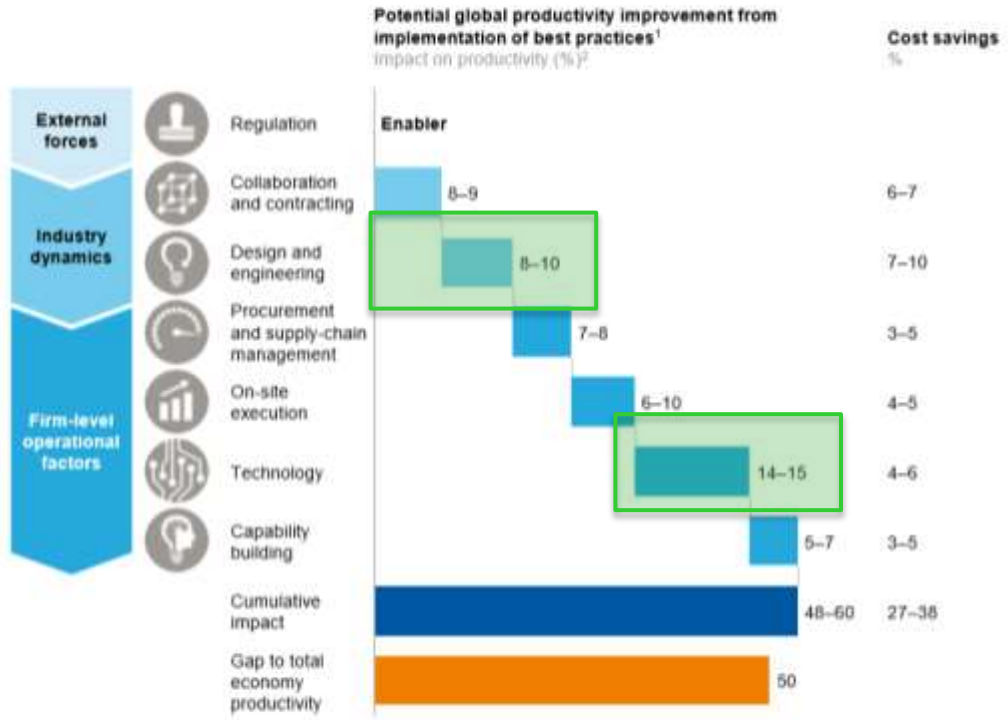
Michael Gaunt
Information Manager

 @MikeGaunt

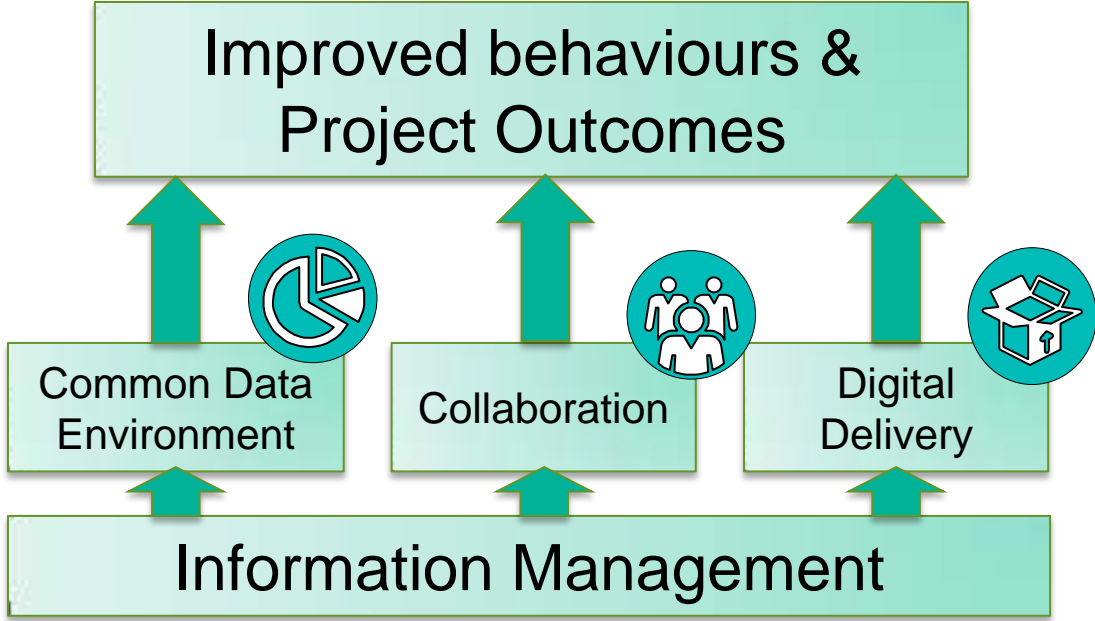
Technology is the most promising lever for productivity improvements

Construction can catch up with total economy productivity by taking action in seven areas

Cascading effect
Regulation changes facilitate shifts in industry dynamics that enable firm-level levers and impact



¹ The impact numbers have been scaled down from a best case project number to reflect current levels of adoption and applicability across projects, based on respondents to the MGI Construction Productivity Survey who responded 'agree' or 'strongly agree' to the questions around implementation of the solutions.
² Range reflects expected difference in impact between emerging and developed markets.



Thames Tideway Tunnel



Map key

Main tunnel drive site	Main tunnel	Acton Storm Tanks	Chelsea Embankment Foreshore	Chiswick Wharf
Main tunnel reception site	Long connection tunnel	Faversham Pumping Station	Chelsea Embankment Foreshore	Earl Pumping Station
CSO site	Lei Tunnel	Ben Elme	Kew Bridge	Deodar Church Street
Short connection tunnel drive site	Proposed drive direction	Putney Embankment Foreshore	Heathway Pumping Station	Greenwich Pumping Station
Long connection tunnel drive site	West works site	Dorset Street	Albert Embankment Foreshore	King Edward Memorial Park Foreshore
System modifications	Central works site	King George's Park	Victoria Embankment Foreshore	Deodarway Street
	East works site	Camrath Road Riverside	Blackfriars Bridge Foreshore	Abbey Mills Pumping Station
		Faversham Pumping Station	Rial Thames Pumping Station	Beckton Sewage Treatment Works

Project Cost

£4.2bn

**24km, 7.2m dia.
interception, storage and
conveyance tunnel
35-65m deep**

**The Thames Tideway Tunnel
will clean up one of the
world's iconic rivers
and enable the UK to meet
European Environmental
Standards**

Project Challenges



Challenge – reduce programme by 2 years



Engagement with a Client, Contractor and stakeholders



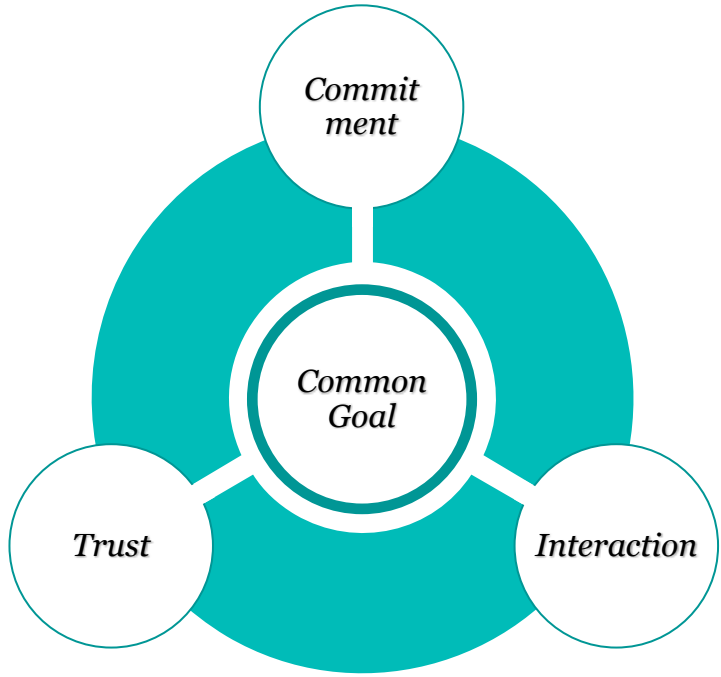
Reduce the vast number of deliverables (50,000+)



Team based at many different locations across Europe



12 diverse design disciplines interfacing with many subcontractors



Structure

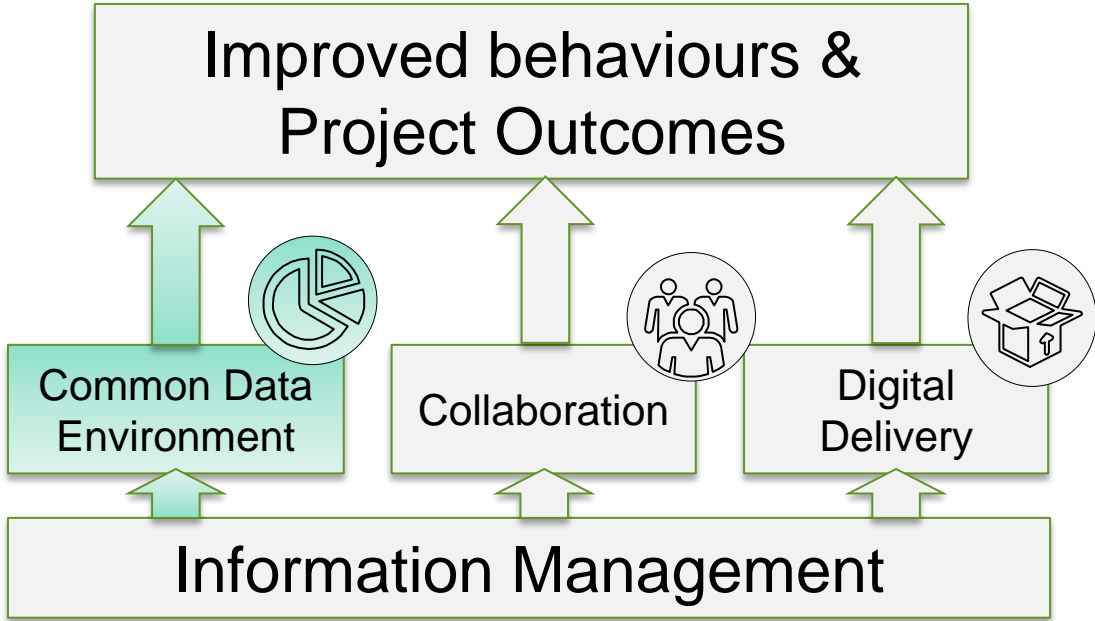
Control

Organogram

Responsibilities Matrix

Common Data Structure

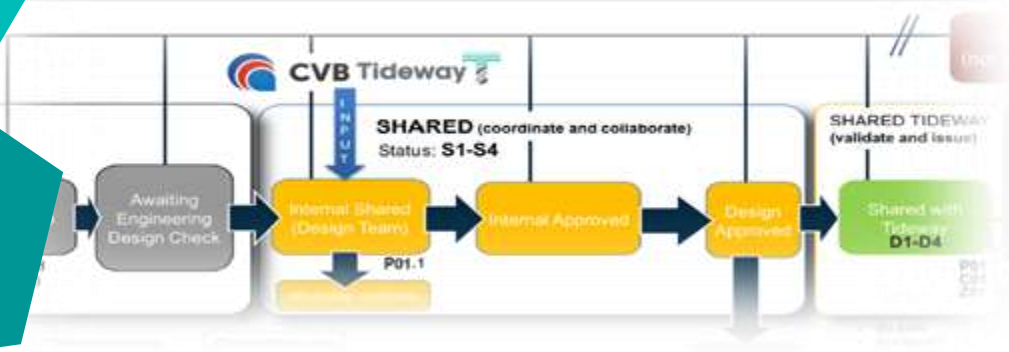




Execution – ONE CDE – Control & Clarity

100GB, 80,000 docs, 500 Users

0.9 Days – average delivery time to Client



Control to the team,
Assurance to the Client



Improved Project understanding

- Data to our team
- CDE linked to TIDP, Costs and Programme
- Automated **Lookahead** and **Lookback**
- Automated **Earned Value Analysis**
- Intelligent Risk Management

Discipline Model Sharing Dashboard

KPI dashboard target = 10

9

Updated on 25/05/17
Created by Michael Gaunt/Mott MacDonald

# of Model Count by Discipline					
Discipline	CHL	CM	CL	CP	Total
Architecture	1	1	1	1	4
Structural	1				1
Mechanical		1	1	1	3
Electrical	2	1	2	1	6

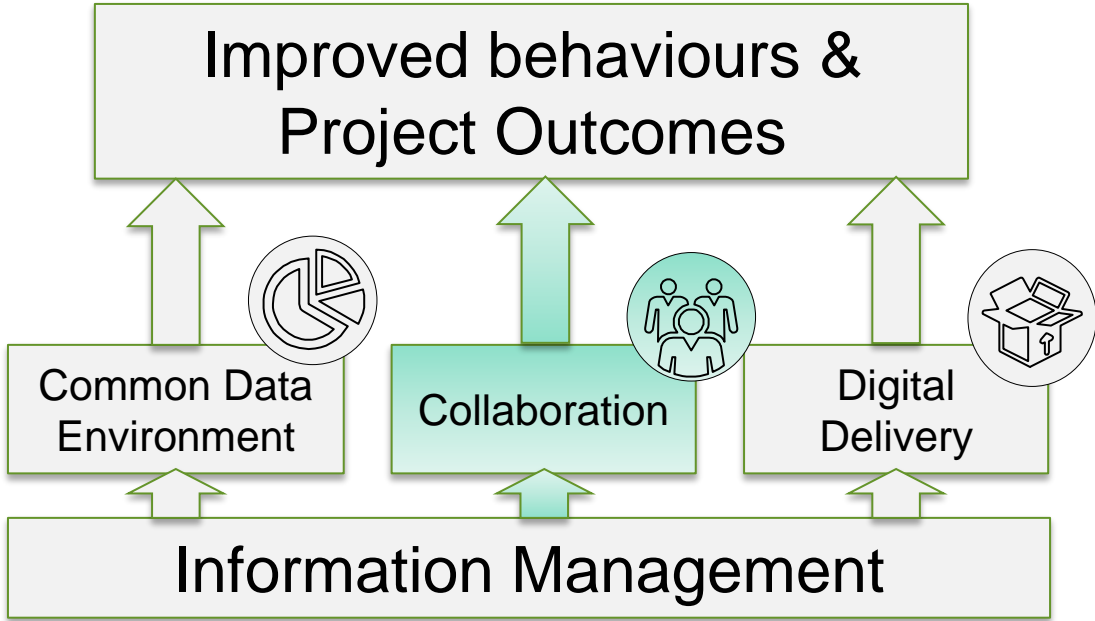
Models Checked per month

of Data Filter by STB

File Name	Document Type	Count
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1800-10704-ABAP1-10-22-18-10002.rvt	ABAP1	10
1800-10704-ABAP1-10-22-18-10003.rvt	ABAP1	10
1800-10704-CHAMP-10-22-18-10001.rvt	CHAMP	10
1800-10704-CHAMP-10-22-18-10002.rvt	CHAMP	10
1800-10704-CHAMP-10-22-18-10003.rvt	CHAMP	10
1800-10704-CHAMP-10-22-18-10004.rvt	CHAMP	10
1800-10704-CHAMP-10-22-18-10005.rvt	CHAMP	10
1800-10704-CHAMP-10-22-18-10006.rvt	CHAMP	10
1800-10704-CHAMP-10-22-18-10007.rvt	CHAMP	10
1800-10704-CHAMP-10-22-18-10008.rvt	CHAMP	10
1800-10704-CHAMP-10-22-18-10009.rvt	CHAMP	10
1800-10704-CHAMP-10-22-18-10010.rvt	CHAMP	10

Information Management – Common Data Structure





Leadership in Collaboration



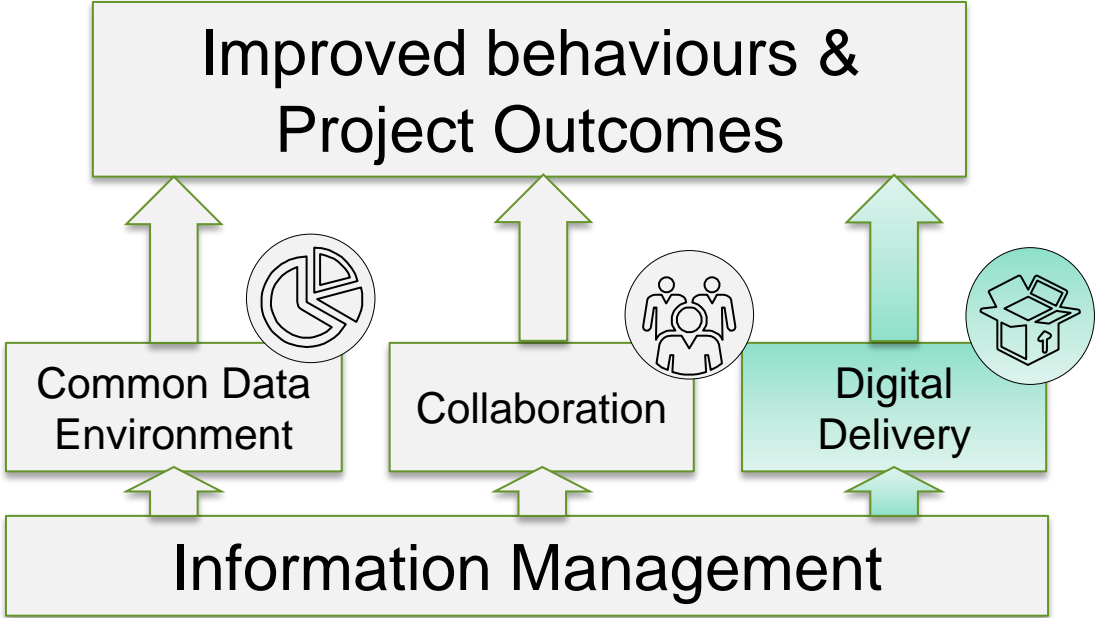
170 Meetings with 1500+ Attendees

Digital markup with full audit trail

Progressive Assurance

Open and honest



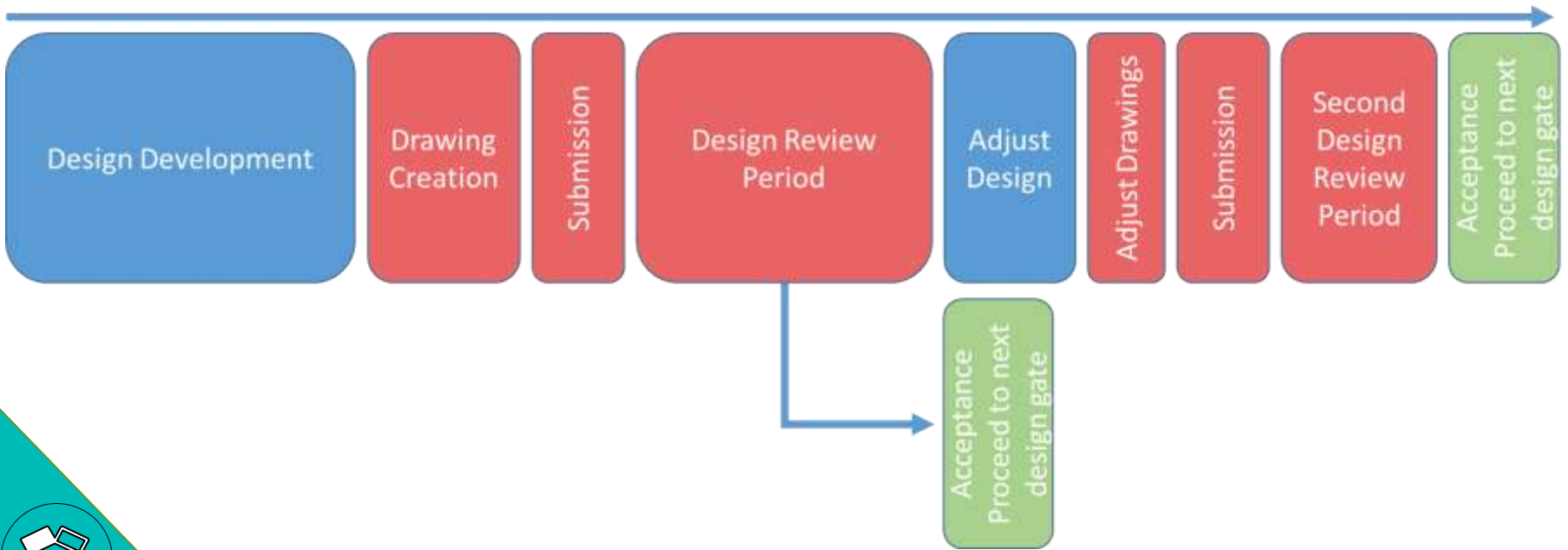


Working closely with all parties

- Reduce deliverables
- Reduce programme (more efficient delivery workflow)
- Build on WI requirement to deliver models
- Implement BIM at the heart of the project

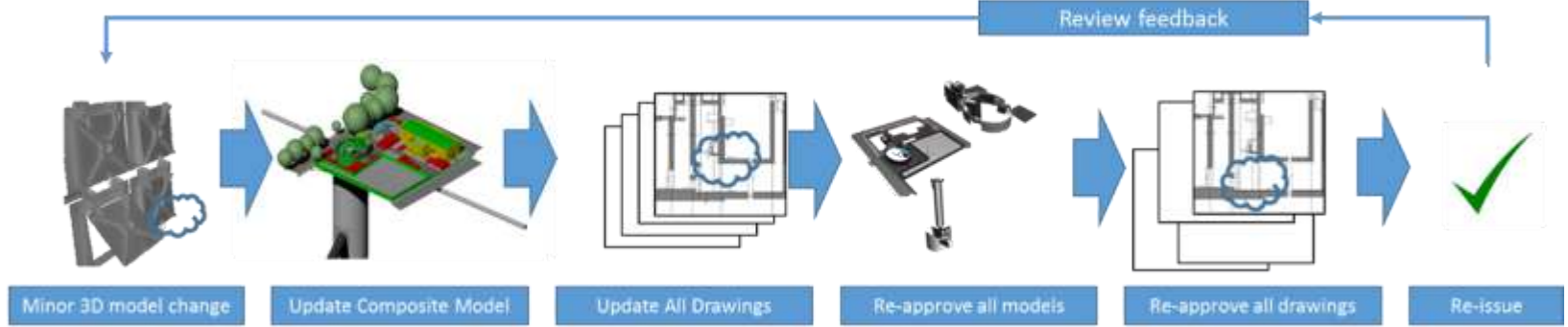


The Benefits

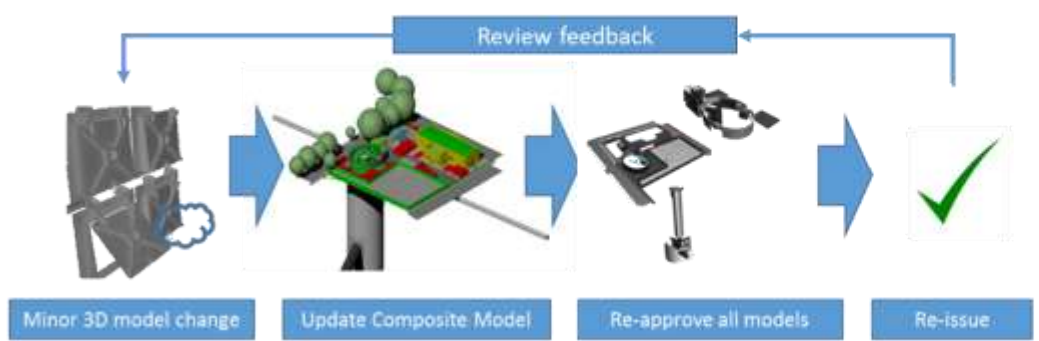


The Benefits

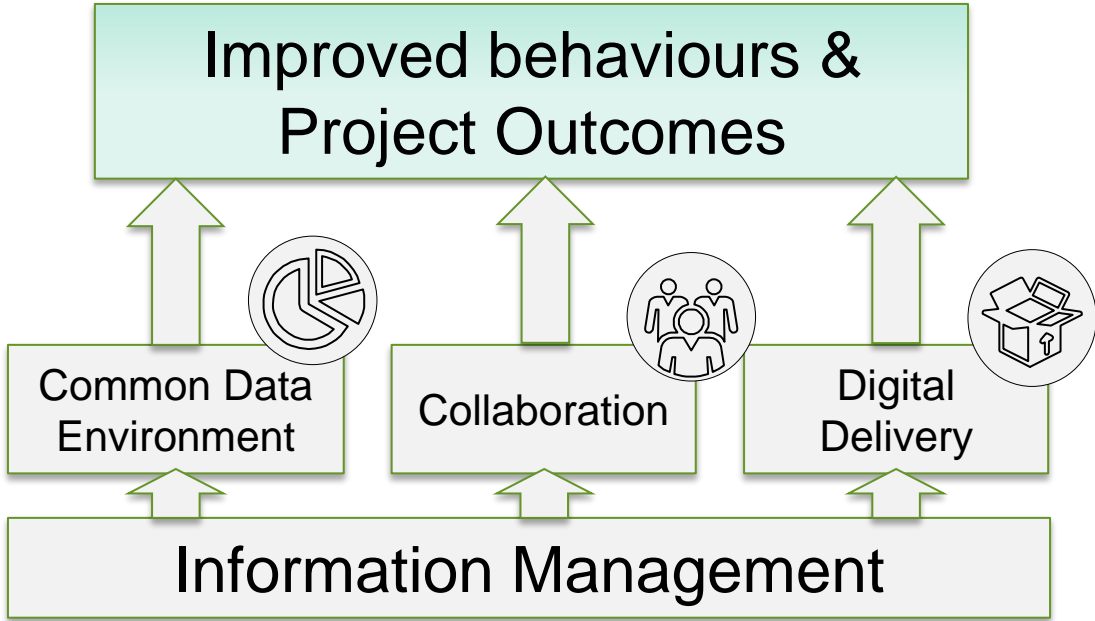
Drawing Based Delivery



Model Based Delivery



Improved Project Outcomes



Execution – Model Based Delivery

Solution

Bentley AECOsim Dynamic Views used to create federated design models with embedded annotations during Scheme Design.

Outcome

Removal of abortive drawing production, the client received high quality design models earlier in the programme.

32%

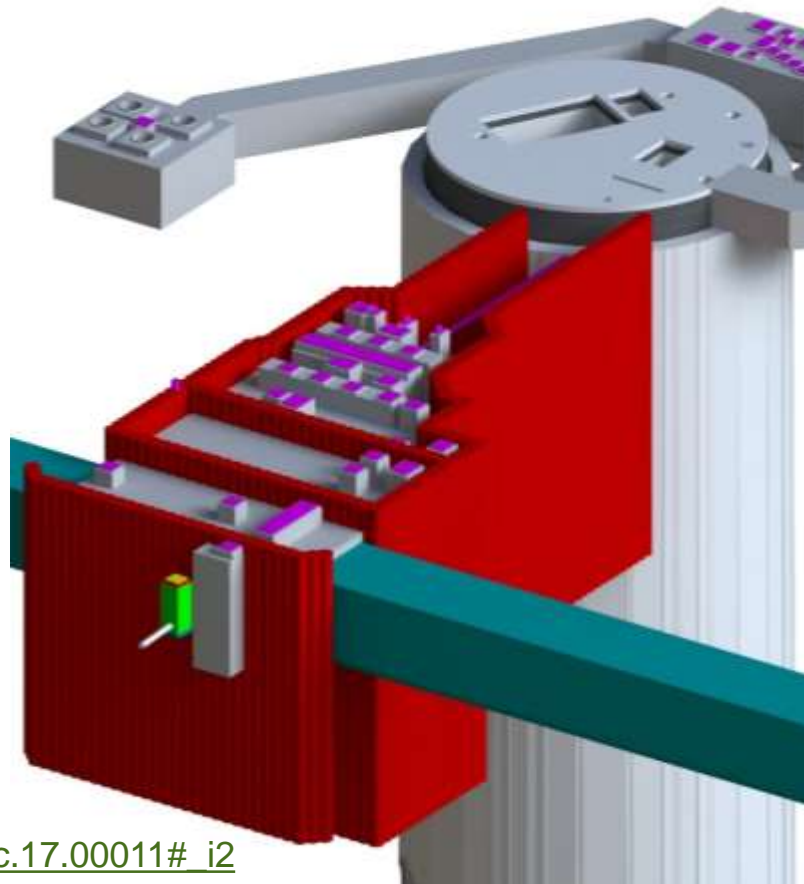
Design production Savings in comparison to traditional delivery methods

6 month

Reduction in design programme

350

Drawing deliverables replaced with intelligent 3D models



Improved behaviours & Project Outcomes

80%
Quicker Information Transfer on delivery. Compared to previous major project.

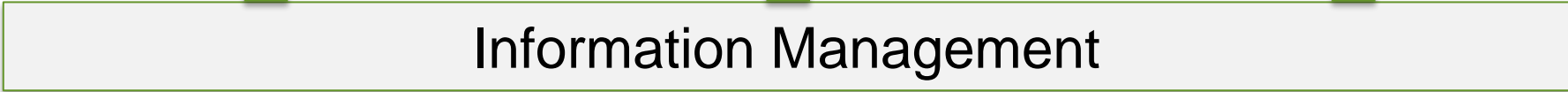
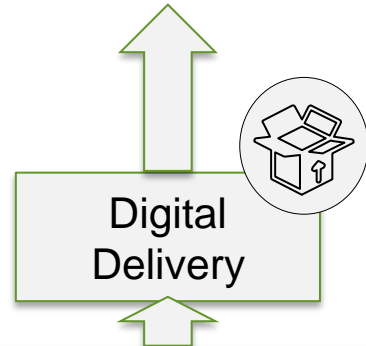
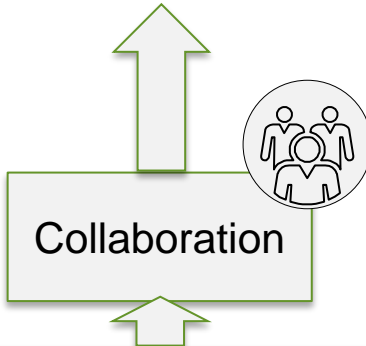
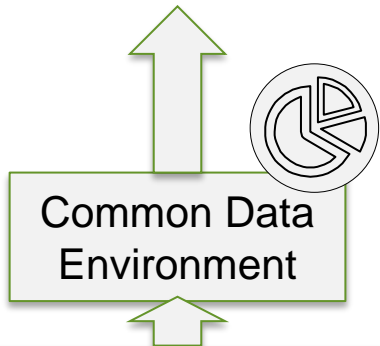
Instant
Delivery via workflows to Client

960
Documents shared informally with the client

4.7
Days – average time for client approval

6 month
Reduction in design programme

10%
Reduction in CAD costs against budget



Lessons Learnt



Strong Leadership implemented via a digitally enabled strategy



Collaboration requires common goals and honesty



Team with the capabilities and mindset to make use of the data



Training & Information Champions – provide the facilities to learn



Enhanced hardware required across the project

8-10% potential global productivity improvement through best practise implementation in Design and Engineering

- **Improved Collaboration and Behaviours** founded on Information Management
- **Demonstrable productivity improvements through design leadership**
- **Enabling Technology implementation such as Model Based Delivery**
- **Delivering enhanced Project Productivity estimated at 7%**