Role of Technology in Sir Robert McAlpine's Evolution :

Vince Lydon
Deputy Managing Director
(London Region)

Nick Leach
Strategic BIM Manager

Sir Robert McAlpine

- Established in 1869
- First contract the repair of a mine chimney for £2.45
- £1b turnover in 2019
- 1500 employees

Our reputation is founded on 150 years of technical excellence and innovation, our entrepreneurial spirit and our future-focused approach.

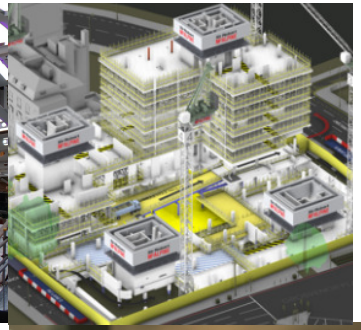
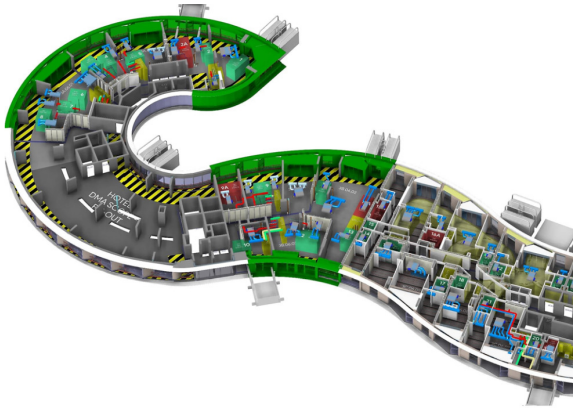
Building for success

Launched in 2018 our five-year strategy supports our ambition to be:

The best builder

The best place to work

The McAlpine technology journey

How the journey began…

Compelling Business Case

Desire for exceptional Project performance was driver for BIM adoption

Greater assurance/ delivery surety	Outturn Predictability
Improved project performance	Increase Profit
Improved project resource productivity	Do more with less
Enhanced work winning	Secure work
Improved reputation	Attract New work/talent
Client requirement (BIM level 2 or Equiv.)	Licence to trade/bid

August 2017…

Recommendations To the Board

Submitted	22
Endorsed	21
Delivered	17
In progress	4

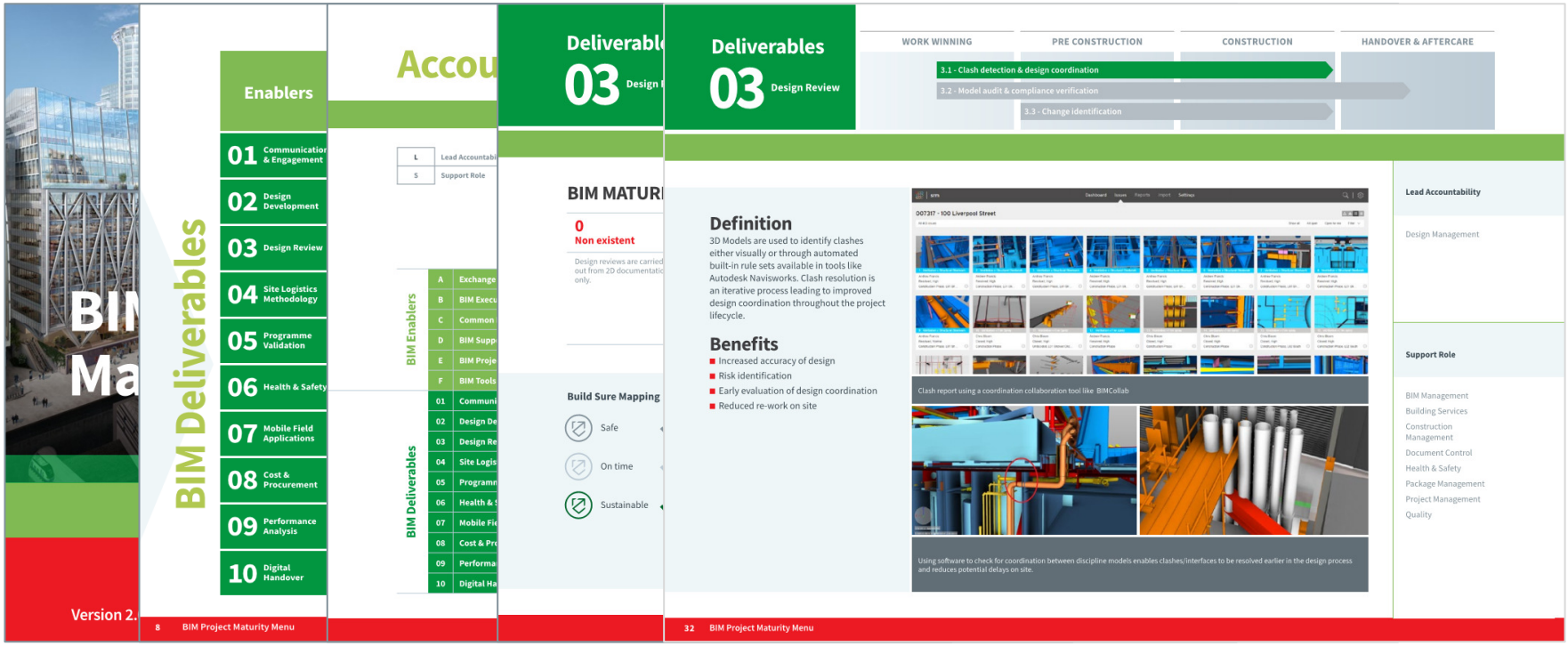
Key recommendations…

- Establish a minimum Group Standard which is clear, consistent and cannot be diluted – **the SRM BIM Maturity Metric**
- Invest in new resources / new roles to manage the strategy and upskill the project teams
- Measure progress and report performance on a regular basis to drive ongoing engagement
- Provide a variety of learning resources to upskill and engage the project teams
- Enable project teams with the necessary software and technology hardware

Driving the understanding

- Face to face learning
- 4 Regional workshops conducted
- Over 150 attendees of Senior management
- Launch of the BIM Maturity Menu Metric

BIM maturity menu



Digital BIM journey targets

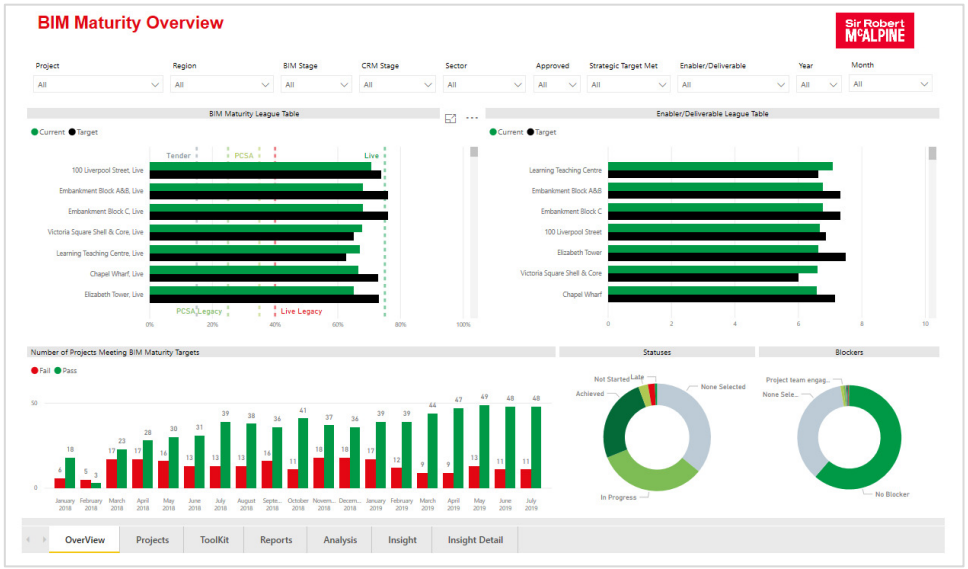
Business Target: Improve efficiency, productivity and outturn predictability through industry-leading use of BIM

Year 1 Target (2018): All new projects to reach a minimum **40%** target as measured against the SRM defined **BIM Maturity Metric**

Year 2 Target (2019): All new projects to reach a minimum **75%** target as measured against the SRM defined **BIM Maturity Metric**

Utilising BIM maturity data captured

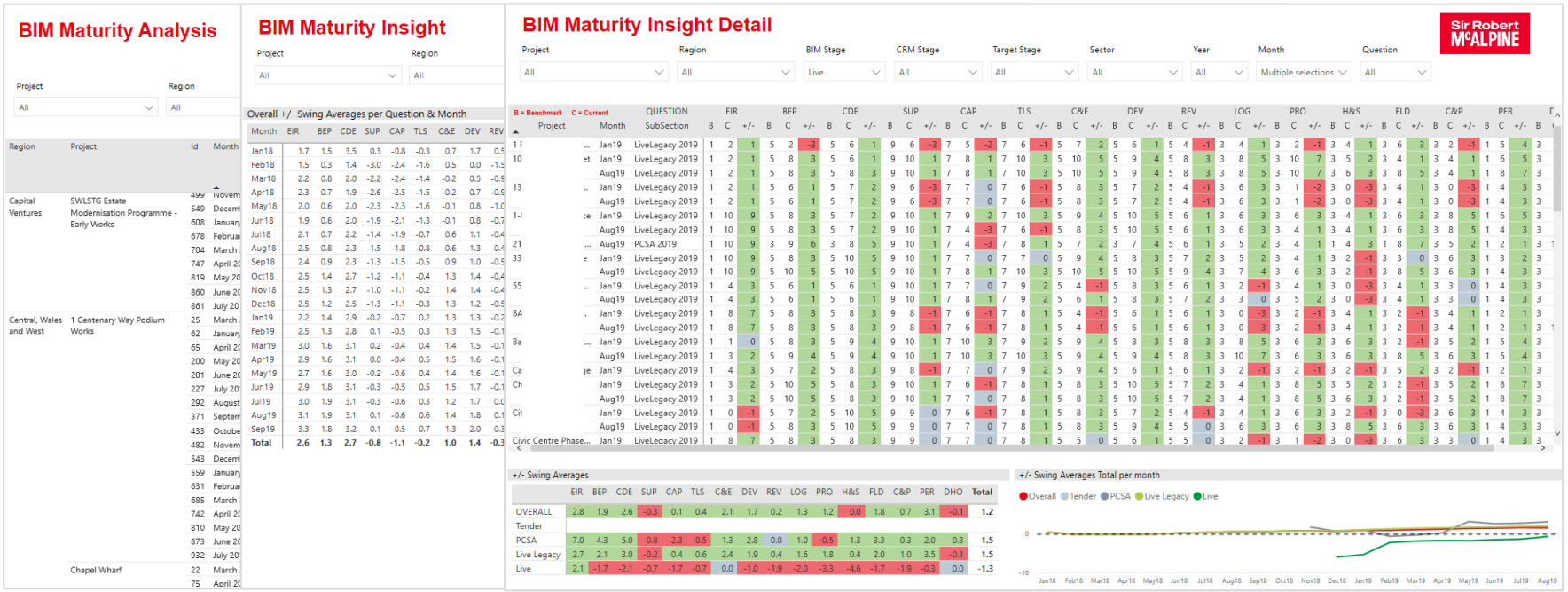
Monthly project BIM maturity reporting is captured in an App…



…and results are displayed graphically in PowerBI

Utilising BIM maturity data captured

Further in depth analysis can be harnessed from the way data can be viewed…



BIM Maturity Analysis

Project: All | Region: All

Region	Project	Id	Month
Capital Ventures	SWLSTG Estate Modernisation Programme - Early Works	499	Novem
		549	Decem
		608	January
		678	Februa
		704	March
		747	April 20
		819	May 20
		860	June 20
		861	July 20
Central, Wales and West	1 Centenary Way Podium Works	25	March
		62	January
		65	April 20
		200	May 20
		201	June 20
		227	July 20
		292	August
		371	Septem
		433	Octobe
		482	Novem
		543	Decem
		559	January
		631	Februa
		685	March
		742	April 20
		810	May 20
		873	June 20
		932	July 20
	Chapel Wharf	22	March
		75	April 20

BIM Maturity Insight

Project: All | Region: All

Overall +/- Swing Averages per Question & Month

Month	EIR	BEP	CDE	SUP	CAP	TLS	C&E	DEV	REV
Jan18	1.7	1.5	3.5	0.3	-0.8	-0.3	0.7	1.7	0.5
Feb18	1.5	0.3	1.4	-3.0	-2.4	-1.6	0.5	0.0	-1.5
Mar18	2.2	0.8	2.0	-2.2	-2.4	-1.4	-0.2	0.5	-0.9
Apr18	2.3	0.7	1.9	-2.6	-2.5	-1.5	-0.2	0.7	-0.9
May18	2.0	0.6	2.0	-2.3	-2.3	-1.6	-0.1	0.8	-1.0
Jun18	1.9	0.6	2.0	-1.9	-2.1	-1.3	-0.1	0.8	-0.7
Jul18	2.1	0.7	2.2	-1.4	-1.9	-0.7	0.6	1.1	-0.4
Aug18	2.5	0.8	2.3	-1.5	-1.8	-0.8	0.6	1.3	-0.4
Sep18	2.4	0.9	2.3	-1.3	-1.5	-0.5	0.9	1.0	-0.5
Oct18	2.5	1.4	2.7	-1.2	-1.1	-0.4	1.3	1.4	-0.4
Nov18	2.5	1.3	2.7	-1.0	-1.1	-0.2	1.4	1.4	-0.4
Dec18	2.5	1.2	2.5	-1.3	-1.1	-0.3	1.3	1.2	-0.5
Jan19	2.2	1.4	2.9	-0.2	-0.7	0.2	1.3	1.3	-0.2
Feb19	2.5	1.3	2.8	0.1	-0.5	0.3	1.3	1.5	-0.1
Mar19	3.0	1.6	3.1	0.2	-0.4	0.4	1.4	1.5	-0.1
Apr19	2.9	1.6	3.1	0.0	-0.4	0.5	1.5	1.6	-0.1
May19	2.7	1.6	3.0	-0.2	-0.6	0.4	1.4	1.6	-0.1
Jun19	2.9	1.8	3.1	-0.3	-0.5	0.5	1.5	1.7	-0.1
Jul19	3.0	1.9	3.1	-0.3	-0.6	0.3	1.2	1.7	0.0
Aug19	3.1	1.9	3.1	0.1	-0.6	0.6	1.4	1.8	0.1
Sep19	3.3	1.8	3.2	0.1	-0.5	0.7	1.3	2.0	0.3
Total	**2.6**	**1.3**	**2.7**	**-0.8**	**-1.1**	**-0.2**	**1.0**	**1.4**	**-0.3**

BIM Maturity Insight Detail

Sir Robert McALPINE

Project: All | Region: All | BIM Stage: Live | CRM Stage: All | Target Stage: All | Sector: All | Year: All | Month: Multiple selections | Question: All

B = Benchmark C = Current

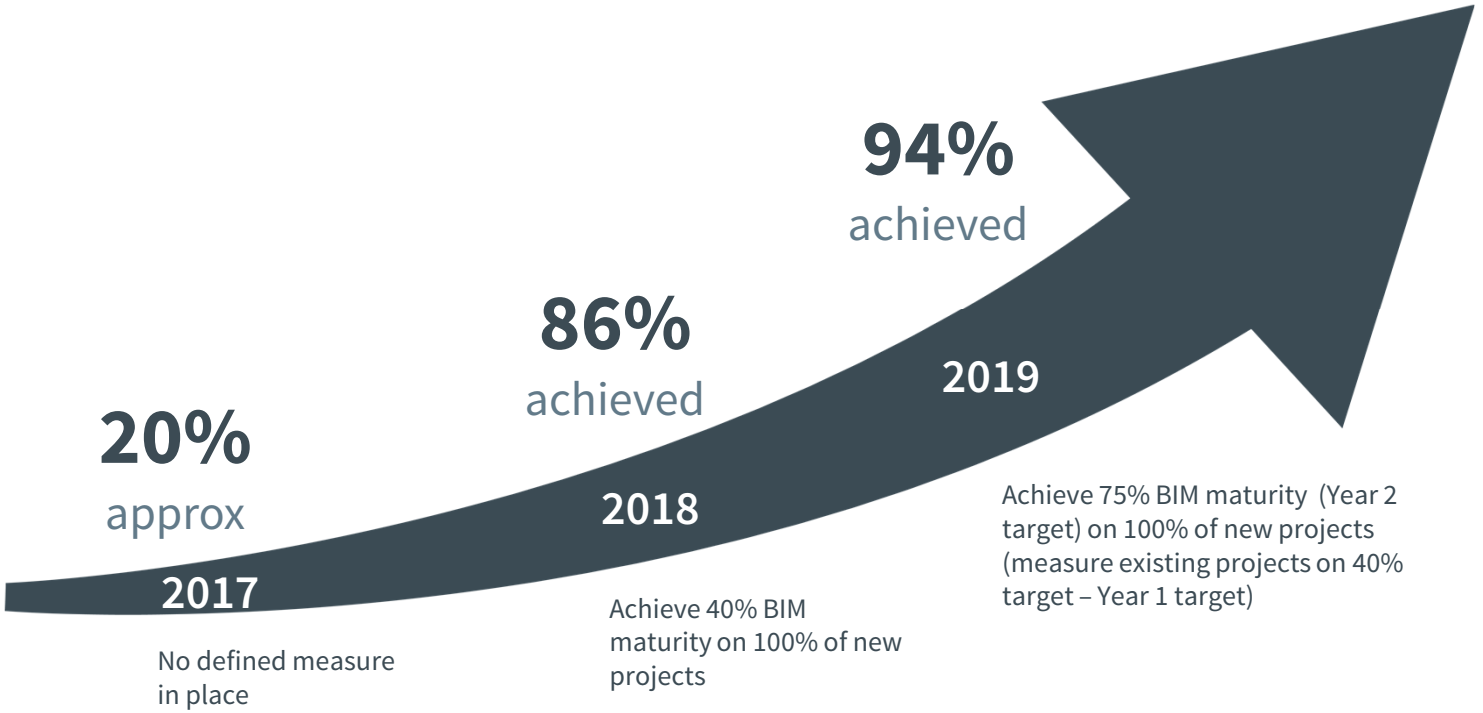
Project	Month	QUESTION SubSection	EIR B	EIR C	EIR +/-	BEP B	BEP C	BEP +/-	CDE B	CDE C	CDE +/-	SUP B	SUP C	SUP +/-	CAP B	CAP C	CAP +/-	TLS B	TLS C	TLS +/-	C&E B	C&E C	C&E +/-	DEV B	DEV C	DEV +/-	REV B	REV C	REV +/-	LOG B	LOG C	LOG +/-	PRO B	PRO C	PRO +/-	H&S B	H&S C	H&S +/-	FLD B	FLD C	FLD +/-	C&P B	C&P C	C&P +/-	PER B	PER C	PER +/-
1 f	...	Jan19 LiveLegacy 2019	1	2	1	5	2	-3	5	6	1	9	6	-3	7	5	-2	7	6	-1	5	7	2	5	6	1	5	4	-1	3	4	1	3	2	-1	3	4	1	3	6	3	3	2	-1	1	5	4	3
10	et	Jan19 LiveLegacy 2019	1	2	1	5	8	3	5	6	1	9	10	1	7	8	1	7	10	3	5	10	5	5	9	4	5	8	3	3	8	5	3	10	7	3	5	2	3	4	1	3	4	1	1	6	5	3
		Aug19 LiveLegacy 2019	1	2	1	5	8	3	5	8	3	9	10	1	7	8	1	7	10	3	5	10	5	5	9	4	5	8	3	3	8	5	3	10	7	3	6	3	3	8	5	3	4	1	1	8	7	3
13	..	Jan19 LiveLegacy 2019	1	2	1	5	6	1	5	7	2	9	6	-3	7	7	0	7	6	-1	5	8	3	5	7	2	5	4	-1	3	6	3	3	1	-2	3	0	-3	3	4	1	3	0	-3	1	4	3	3
		Aug19 LiveLegacy 2019	1	2	1	5	6	1	5	7	2	9	6	-3	7	7	0	7	6	-1	5	8	3	5	7	2	5	4	-1	3	6	3	3	1	-2	3	0	-3	3	4	1	3	0	-3	1	4	3	3
1-!	:e	Jan19 LiveLegacy 2019	1	10	9	5	8	3	5	7	2	9	10	1	7	9	2	7	10	3	5	9	4	5	10	5	5	6	1	3	6	3	3	6	3	3	4	1	3	6	3	3	8	5	1	6	5	3
		Aug19 LiveLegacy 2019	1	10	9	5	8	3	5	7	2	9	10	1	7	4	-3	7	6	-1	5	8	3	5	10	5	5	6	1	3	6	3	3	4	1	3	4	1	3	6	3	3	8	5	1	4	3	3
21	...	Aug19 PCSA 2019	1	10	9	3	9	6	3	8	5	9	10	1	7	4	-3	7	8	1	5	7	2	3	7	4	5	6	1	3	5	2	3	4	1	1	4	3	1	8	7	3	5	2	1	2	1	3
33	e	Jan19 LiveLegacy 2019	1	10	9	5	8	3	5	10	5	9	10	1	7	7	0	7	7	0	5	9	4	5	8	3	5	7	2	3	5	2	3	4	1	3	2	-1	3	3	0	3	6	3	1	3	2	3
		Aug19 LiveLegacy 2019	1	10	9	5	10	5	5	10	5	9	10	1	7	8	1	7	10	3	5	10	5	5	10	5	5	9	4	3	7	4	3	6	3	3	2	-1	3	8	5	3	6	3	1	4	3	3
55	...	Jan19 LiveLegacy 2019	1	4	3	5	6	1	5	6	1	9	10	1	7	7	0	7	9	2	5	4	-1	5	8	3	5	6	1	3	2	-1	3	4	1	3	0	-3	3	4	1	3	3	0	1	4	3	3
		Aug19 LiveLegacy 2019	1	4	3	5	6	1	5	6	1	9	10	1	7	8	1	7	9	2	5	4	-1	5	8	3	5	6	1	3	2	-1	3	4	1	3	0	-3	3	4	1	3	3	0	1	4	3	3
BA	..	Jan19 LiveLegacy 2019	1	8	7	5	8	3	5	8	3	9	8	-1	7	6	-1	7	8	1	5	4	-1	5	6	1	5	6	1	3	0	-3	3	2	-1	3	4	1	3	2	-1	3	4	1	1	2	1	3
		Aug19 LiveLegacy 2019	1	8	7	5	8	3	5	8	3	9	8	-1	7	6	-1	7	8	1	5	4	-1	5	6	1	5	6	1	3	0	-3	3	2	-1	3	4	1	3	2	-1	3	4	1	1	2	1	3
Ba	:...	Jan19 LiveLegacy 2019	1	1	0	5	8	3	5	9	4	9	10	1	7	10	3	7	9	2	5	9	4	5	8	3	5	8	3	3	8	5	3	6	3	3	6	3	3	2	-1	3	5	2	1	5	4	3
		Aug19 LiveLegacy 2019	1	3	2	5	9	4	5	9	4	9	10	1	7	10	3	7	10	3	5	9	4	5	9	4	5	8	3	3	10	7	3	6	3	3	6	3	3	8	5	3	6	3	1	5	4	3
Ca	je	Jan19 LiveLegacy 2019	1	4	3	5	7	2	5	8	3	9	8	-1	7	7	0	7	9	2	5	9	4	5	6	1	5	6	1	3	2	-1	3	2	-1	3	2	-1	3	5	2	3	2	-1	1	2	1	3
Ch		Jan19 LiveLegacy 2019	1	3	2	5	10	5	5	8	3	9	10	1	7	6	-1	7	8	1	5	8	3	5	10	5	5	7	2	3	4	1	3	8	5	3	5	2	3	2	-1	3	5	2	1	8	7	3
		Aug19 LiveLegacy 2019	1	3	2	5	10	5	5	8	3	9	10	1	7	7	0	7	8	1	5	8	3	5	9	4	5	7	2	3	4	1	3	8	5	3	6	3	3	2	-1	3	5	2	1	8	7	3
Cit		Jan19 LiveLegacy 2019	1	0	-1	5	7	2	5	10	5	9	9	0	7	6	-1	7	8	1	5	8	3	5	7	2	5	4	-1	3	4	1	3	6	3	3	2	-1	3	0	-3	3	6	3	1	4	3	3
		Aug19 LiveLegacy 2019	1	0	-1	5	8	3	5	10	5	9	9	0	7	7	0	7	8	1	5	8	3	5	9	4	5	5	0	3	6	3	3	6	3	3	8	5	3	6	3	3	6	3	1	4	3	3
Civic Centre Phase...		Jan19 LiveLegacy 2019	1	8	7	5	8	3	5	8	3	9	9	0	7	7	0	7	8	1	5	5	0	5	6	1	5	5	0	3	2	-1	3	1	-2	3	0	-3	3	6	3	3	3	0	1	4	3	3

+/- Swing Averages

	EIR	BEP	CDE	SUP	CAP	TLS	C&E	DEV	REV	LOG	PRO	H&S	FLD	C&P	PER	DHO	Total
OVERALL	2.8	1.9	2.6	-0.3	0.1	0.4	2.1	1.7	0.2	1.3	1.2	0.0	1.8	0.7	3.1	-0.1	1.2
Tender																	
PCSA	7.0	4.3	5.0	-0.8	-2.3	-0.5	1.3	2.8	0.0	1.0	-0.5	1.3	3.3	0.3	2.0	0.3	1.5
Live Legacy	2.7	2.1	3.0	-0.2	0.4	0.6	2.4	1.9	0.4	1.6	1.8	0.4	2.0	1.0	3.5	-0.1	1.5
Live	2.1	-1.7	-2.1	-0.7	-1.7	-0.7	0.0	-1.0	-1.9	-2.0	-3.3	-4.6	-1.7	-1.9	-0.3	0.0	-1.3

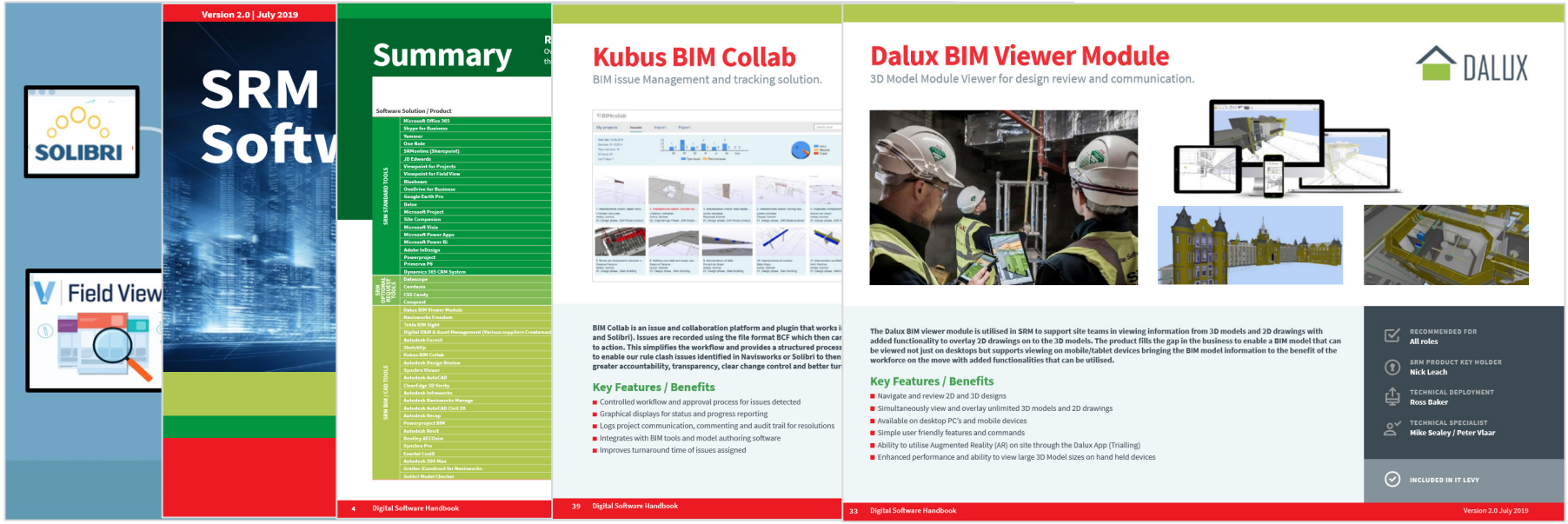
+/- Swing Averages Total per month

Did we achieve our BIM maturity target?

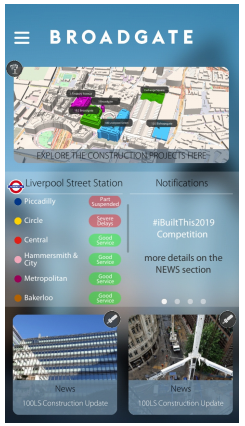


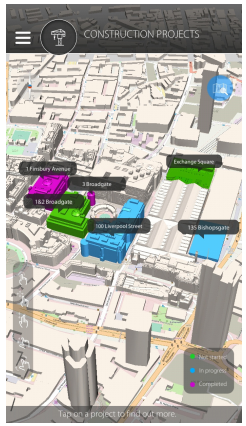
Removing the blockers

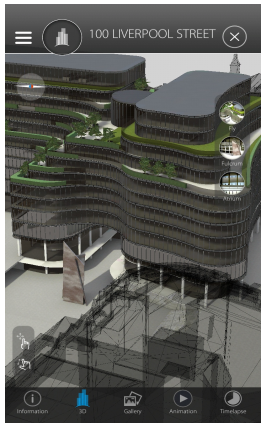
- Ensuring key software incorporated in central group cost and NOT a project preliminaries cost any more
- Awareness of what software tools are available to all through a project defined handbook

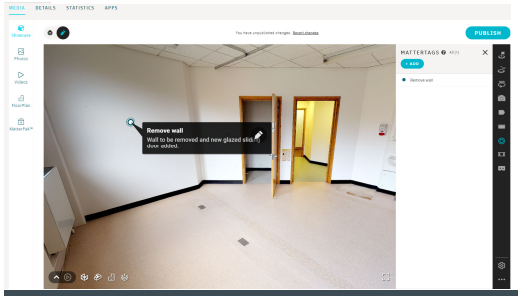


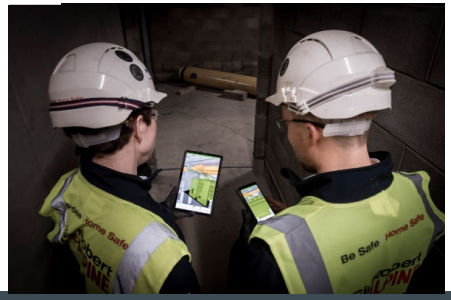
Adopting the tools we have

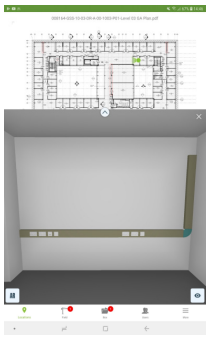






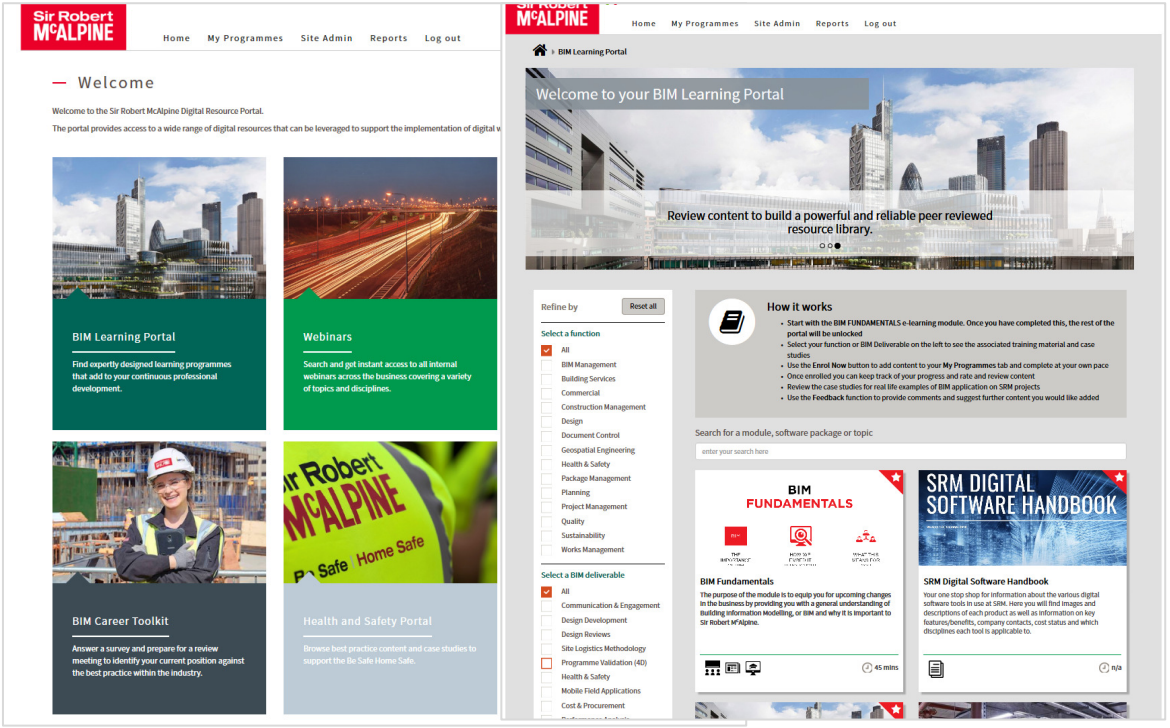






Working closely with IT/Business systems in the requirements for upgrading hardware – Upgraded Mobiles/Tablet's for example

Enabling the implementation



Created a Digital learning portal for training resource internally for business

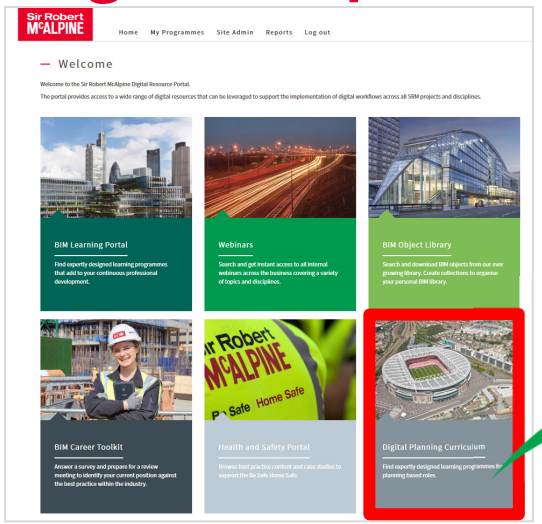
8,000 +

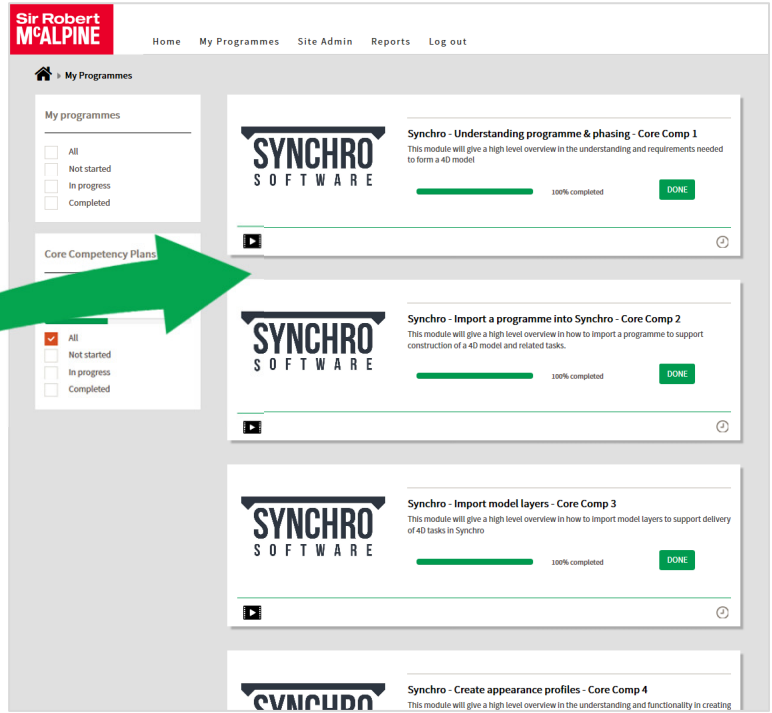
VISITS TO THE
DIGITAL LEARNING PORTAL

1,200 +

COMPLETED THE
BIM FUNDAMENTALS
E-LEARNING MODULE

Enabling the implementation





5 Step Process

- Initial Contact & awareness made
- Presentation/engagement conducted
- Individual Core Competency Modules agreed
- Roadmaps/Strategy Plans Formed
- Reporting on Progress Ongoing

Supply chain portal launched

“It was a very interesting day finding out the views and experiences of other subcontractors”

Andrew Harrison – Technical Director
Hathaway Roofing Ltd

“We were impressed with the commitment SRM has made to its digital transformation. I am particularly interested in the way in which you are extending this transformation through your supply chain”

Nicola Pearson – Head of Change and Knowledge Transfer
Centre for Digital Built Britain (CDBB)

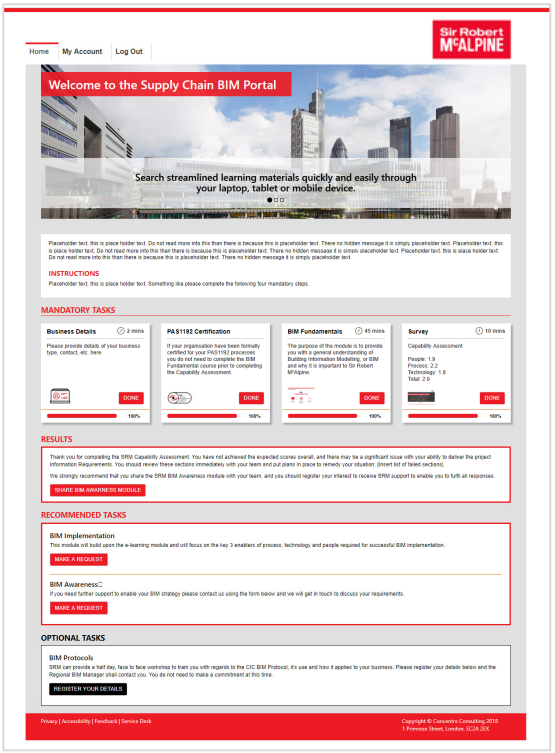
“Very informative, and a first for us from any Main Contractor”

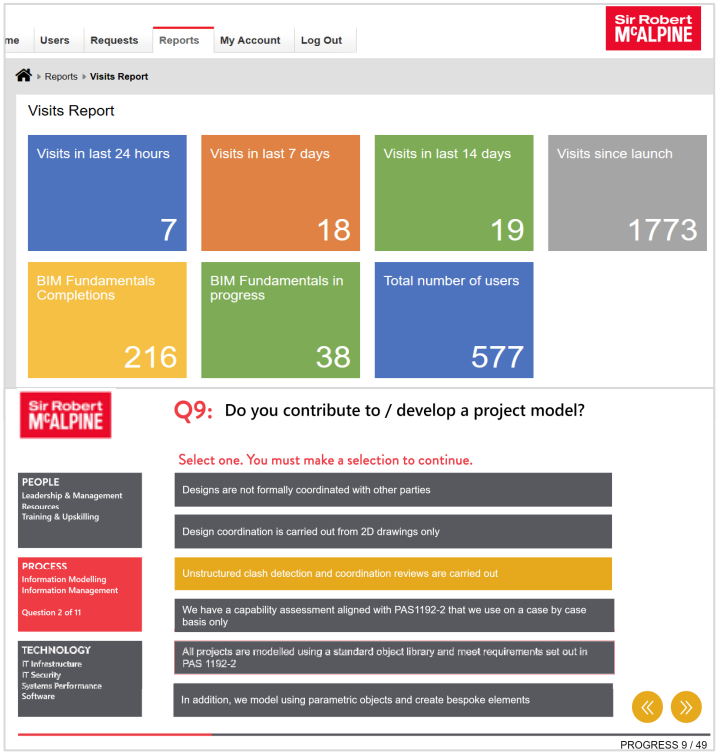
Gary Fry – Technical Director
Hillcrest Structural Limited

“A refreshing approach”

Andrew Wright – Design Manager
Thorp Precast Limited

Supply chain portal



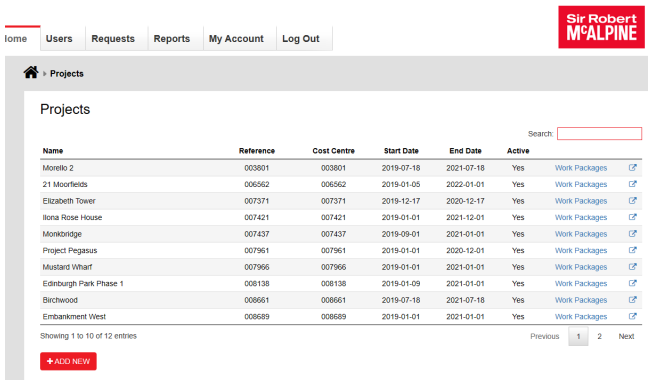


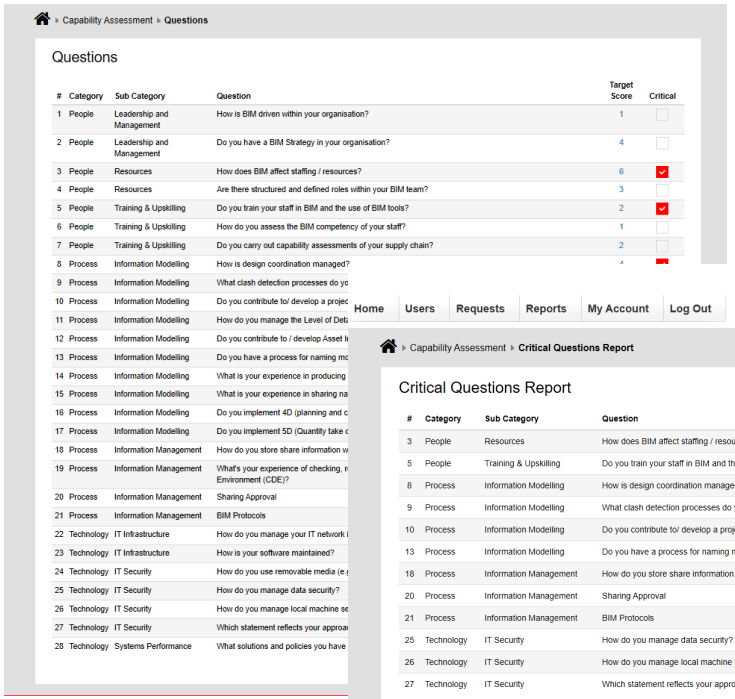
Targeted **200** sub contractors in **2019**

190 contractors attended face to face workshops across Regions to date

Target for **2020** to aim for total of 250 Sub-contractors

Supply chain portal





Evolution of BIM resources

bsi.
BIM Verified
Design & Construction
Capital/Delivery
ISO 19650-1 and -2

Business process and standards verified by BSI

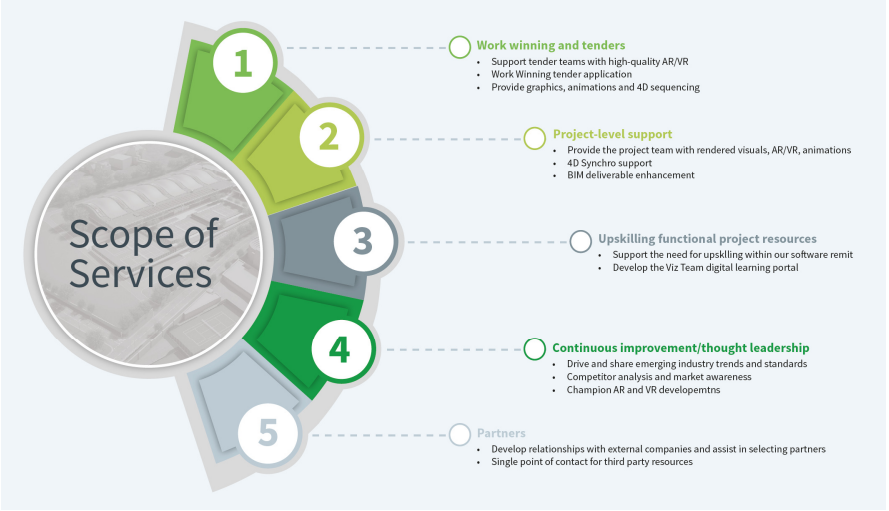
Oct 2019
41

Oct 2018
25

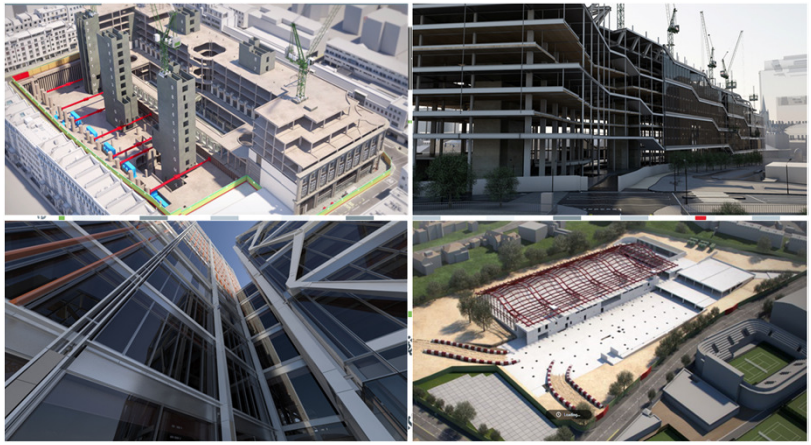
Oct 2017
12

- Head of BIM
- 2 Strategic BIM Managers
- 4 Regional BIM Managers
- 19 BIM Managers
- 5 BIM Coordinators
- 4 Graduate roles
- 6 Visualisation Specialists

Visualisation Team



Software capabilities within the Visualisation team



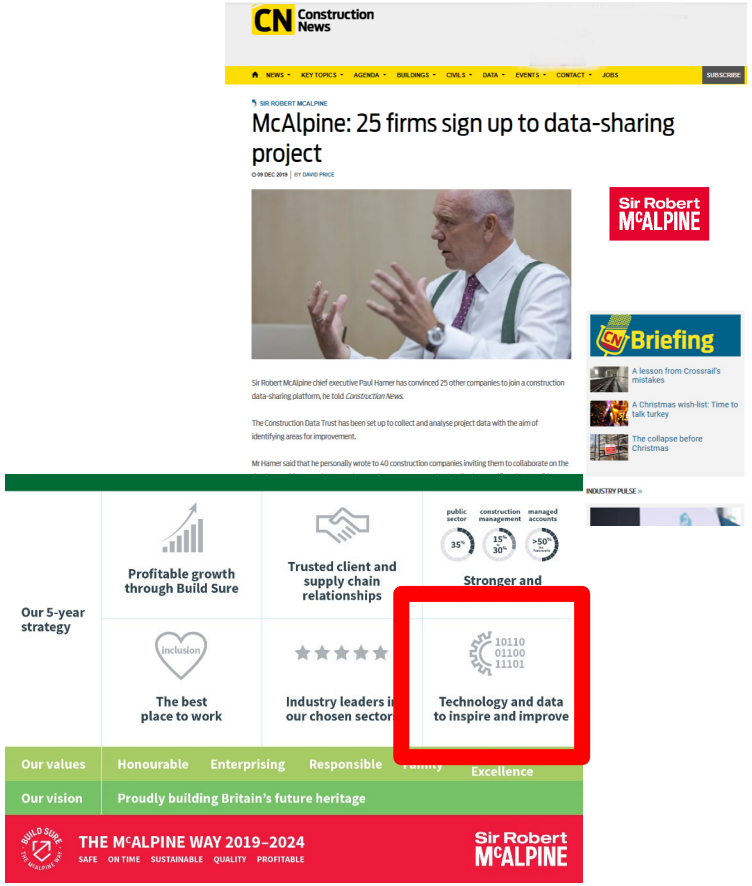
3DS Max	Modelling, rendering and animating - VRay render engine used
InfraWorks	Terrain modelling based on Google Earth
Photoshop	Photo editing
After Effects	Post production
Premiere Pro	Video editing
Unity	Game engine - used for creating interactive apps
Unreal	Games engine - used for creating interactive apps and VR/AR production
TwinMotion	Live link to model - real time rendering with fast outputs
Synchro	4D Planning software
Revit	Modelling
NavisWorks	Model interrogation

Summary

- Ensuring both a top down and bottom up approach
- Eliminate the blockers before they arise
- Use technology for a purpose not just for the sake of using it
- Understand what you can use the data for and outputs required
- Involve the wider team (Internal/supply chain)
- Drive the importance around skilled Digitally enabled people on projects (Internally & Externally)
- Ensure individuals know what is available to them – hardware/software

Looking forward…

- Driving continued consistency in how we use digital tools and technology
- Harness more ways of data production to inform greater business decisions and project efficiencies
- Greater functional/role training plans and agendas developed for Digital competency
- Utilise as the foundations for supporting the wider business digital agenda and culture



We want to stay Competitive for next 150 years!

Thanks…

Vince Lydon
Deputy Managing Director
(London Region)

Nick Leach
Strategic BIM Manager