Wales Digital Best Practice Networking Group Launch

Cardiff

6th September

Sponsored by

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BiM regions
the home of digital construction

ADEILADU ARBENIGRWYDD YNG NGHYMRU
CONSTRUCTING EXCELLENCE IN WALES

Welcome

Milica Kitson
Chief Executive
Constructing Excellence in Wales

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UK BIMALLIANCE

Wales Digital Construction Best Practice Network

UK BIM Level 2 – How did we get here, where are we now, where are we going

UK BIMALLIANCE

Building Information Modelling (BIM):

use of a shared digital representation of a built object to facilitate design, construction and operation processes to form a reliable basis for decisions

UK BIMALLIANCE

UK Government strategy

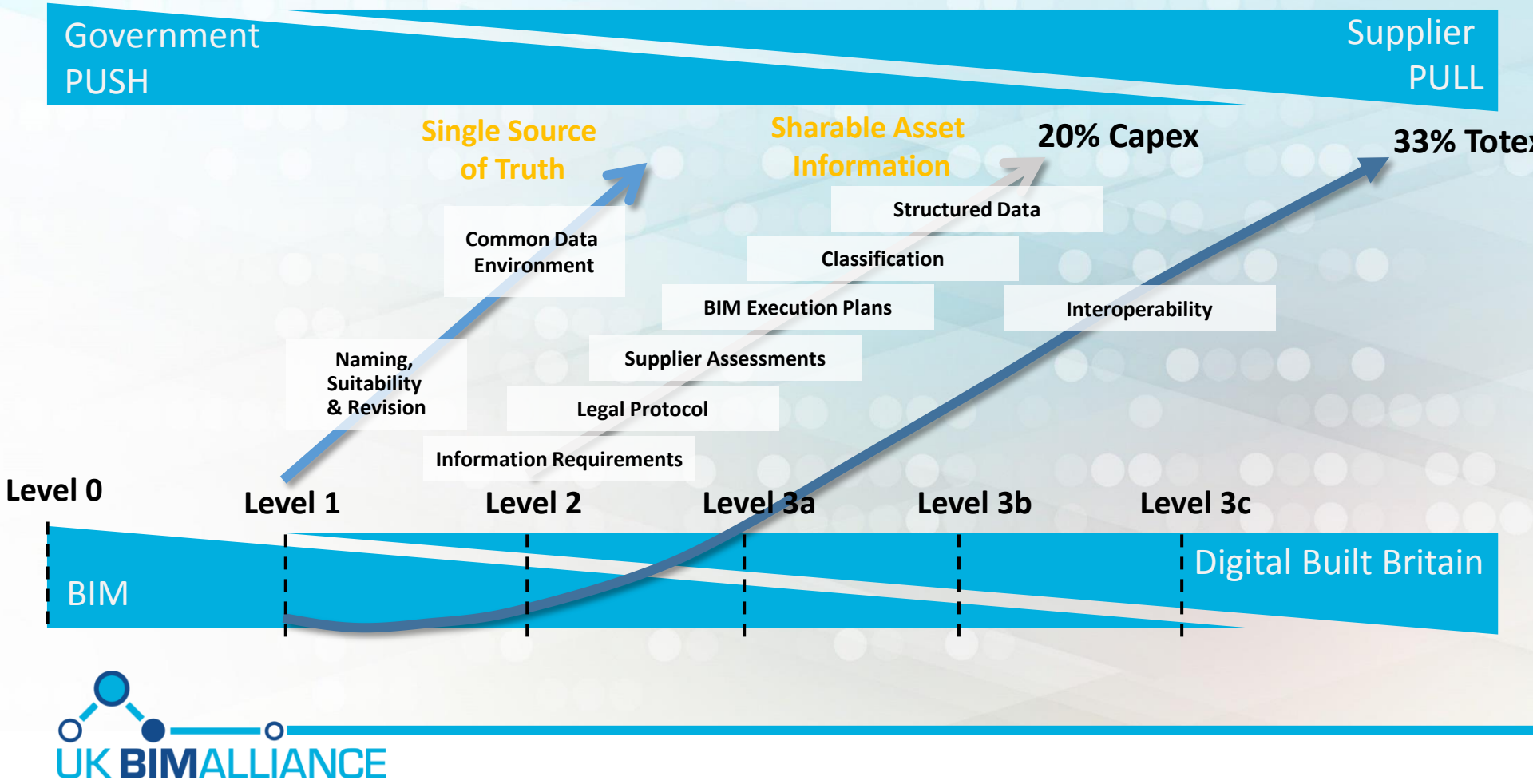
Collaborative 3D BIM with all project and asset information, documentation and data being electronic

By 2016 a staged plan will be published with mandated milestones showing measurable progress at the end of each year impacting 3m people.

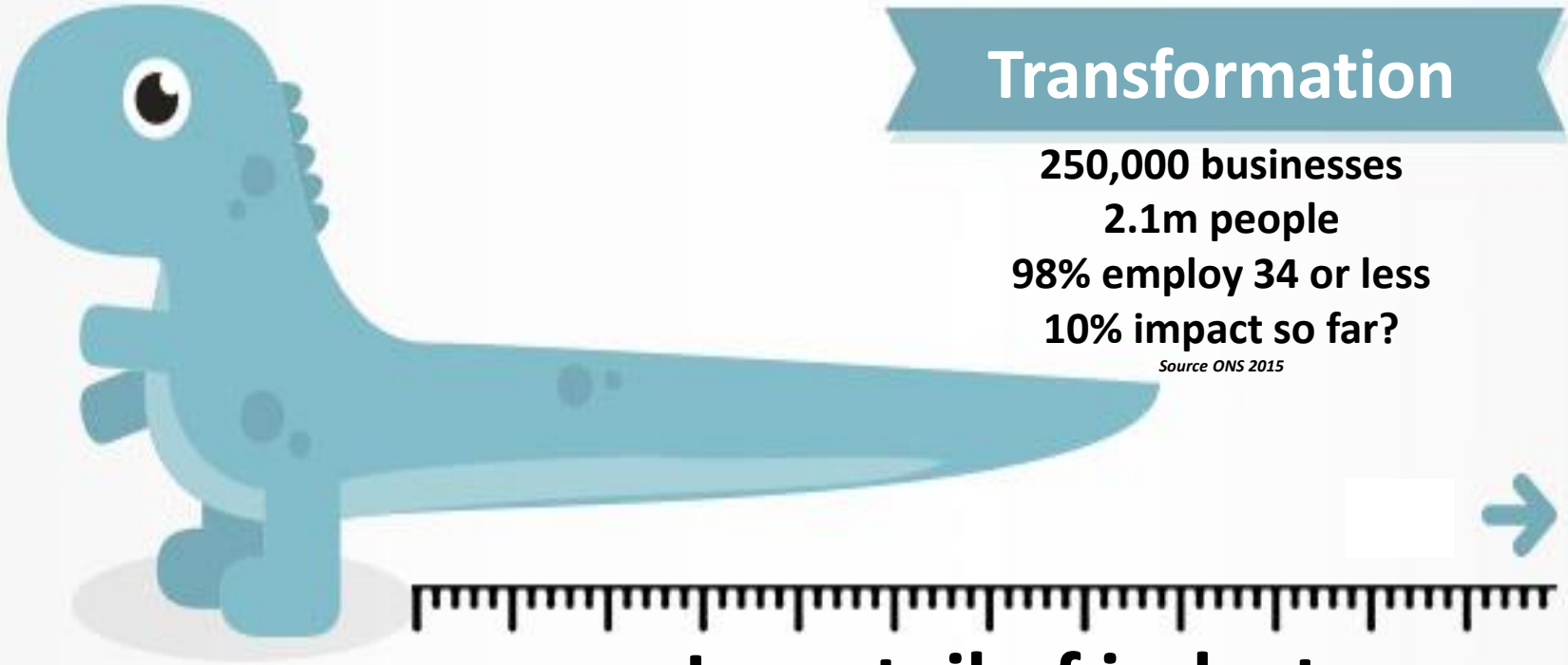
UK BIMALLIANCE

Industry in transition

UK BIMALLIANCE



UK BIMALLIANCE

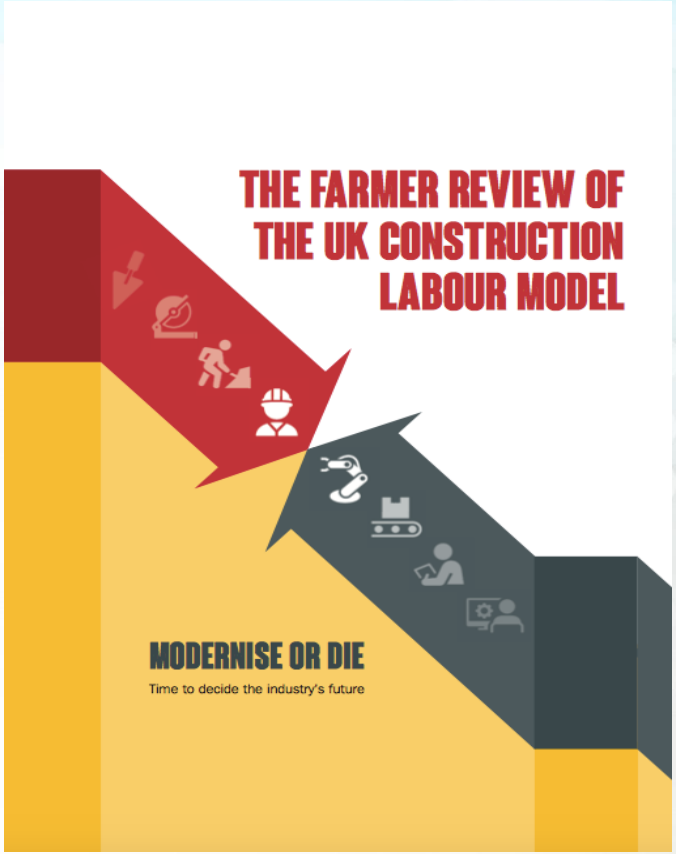


Transformation

250,000 businesses
2.1m people
98% employ 34 or less
10% impact so far?

Source ONS 2015

Long tail of industry



MODERNISE OR DIE – MARK FARMER
CONSTRUCTION LEADERSHIP COUNCIL

- Low productivity
- Low predictability
- Structural fragmentation
- Leadership fragmentation
- Low margins, adversarial, financial fragility
- Training
- Demographics
- Lack of collaboration
- Lack of R&D
- Poor image

http://www.constructionleadershipcouncil.co.uk/news/farmerreport/

Introducing:

UK BIMALLIANCE

Transcending silos

Common understanding; common approach; one voice

Vision: a digitally enabled UK built environment

Mission

To facilitate and ensure the adoption and implementation of BIM Level 2 as business as usual by 2020.

Goal

To reach adoption levels of 75% for the supply and demand chain.

Our Values

Innovative	Inclusive	Collaborative
Supportive	Transparent	Forward Thinking

UK BIMALLIANCE

UK BIM Alliance Manifesto

- We aim to represent and coordinate the digital transformation of our industry by supporting the industry's implementation of Level 2 BIM.
- Our representation is independent and transparent, supported by a network that is empowered to work in partnership with government, institutions and industry.
- We invite any group, organisation and individual to join the Alliance and utilise the resources available to maximise the impact of the implementation on BIM Level 2.
- We will implement initiatives via projects that are independently funded and focused on achieving progressive outcomes in small achievable steps.

Join Us

UK BIMALLIANCE

UK BIM Alliance

UK BIMALLIANCE

Get Involved - signatories

ACE AD4 AECOM Arup Atkins Autodesk Babcock Balfour Beatty BAM BEAMA Bentley Systems Black & Veatch Bouygues BRE BRS BSI BuildingSmart International Buro Happold Cavendish CH2M CIAT CIBSE CIC CIOB City & Guilds Class of Your Own CLC Construction Excellence Construction Youth Trust Costain Crossrail Ferrovial Agroman Gleeds Heathrow HS2 IBM ICE ICES IET Infrastructure Client Group Institute of Town Planning IPA ISS Jacobs JCT Kier Knauf Insulation KTN Laing O'Rourke Landscape Institute Leica Mace Mapaction Mott McDonald MWH part of Stantec National Infrastructure Council NBS Network Rail/MPA Ordnance Survey Oxford Brookes University RICS Rolls Royce RSFM Scottish Futures Skanska Specialist Engineering Contractors Tarmac Tata Steel The Cubicle Centre TSA Turner and Townsend University of Cambridge Vinci Construction Wates Wienerberger Westminster University Willmott Dixon……and growing...

UK BIMALLIANCE

Our 3 C’s

Co-ordination

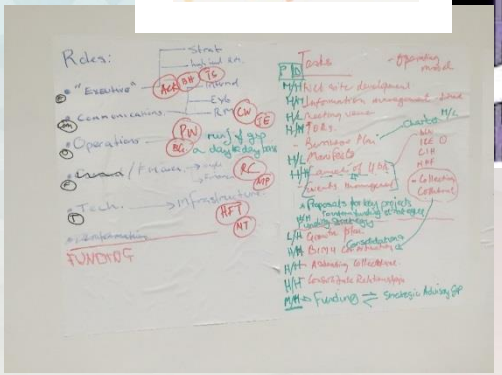
avoid gaps and overlap in team members work

Co-operation

obtain mutual benefit by sharing work

Collaboration

achieved results which could not be accomplished alone



UK BIMALLIANCE

Strategies

- **Engagement (Awareness)**

  Champion BIM Level 2 and the BIM level 2 mandate.

- **Upskilling (previously Education)**

  Direct a programme for change that targets those stakeholders with the most to gain.

- **Knowledge Bank (previously Case Study)**

  Celebrate the successful implementation of BIM Level 2 on projects and on through the life cycle, examining the benefits achieved.

- **Business Case**

  Demonstrate how the adoption of BIM Level 2 positively affects the bottom line, and the business outcomes.

- **Optimisation**

  Support consolidation of existing and developing tools and supporting infrastructure, whilst encouraging new approaches, new ideas and the creation of new tools to help the industry optimise its use of BIM Level 2.

Digital Construction best Practice Network - Wales

UKBIMA Wales Region Programme objectives;

- Share good and best practice on BIM and other digital construction technologies and processes e.g. GIS, IOT etc
- Create a network/movement (open to all) of construction professionals in Wales implementing digital processes and technologies
- Showcase the benefits of BIM etc and encourage client adoption

Digital Construction best Practice Network - Wales

Quarterly sessions

Would like you to recommend themes and projects/programmes to showcase

Contacts

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Rhys Lewis – Revizto - r.lewis@revizto.com

Dan Rossiter – BRE – Rossiterd@bre.co.uk

Unlocking Data to Benefit Railway Electrification

THE GREATER WEST PROGRAMME
A modern railway for a better connected West

NetworkRail

ARUP

Project Context

Electrification Map

Electrification Map – Route Section 8, 9

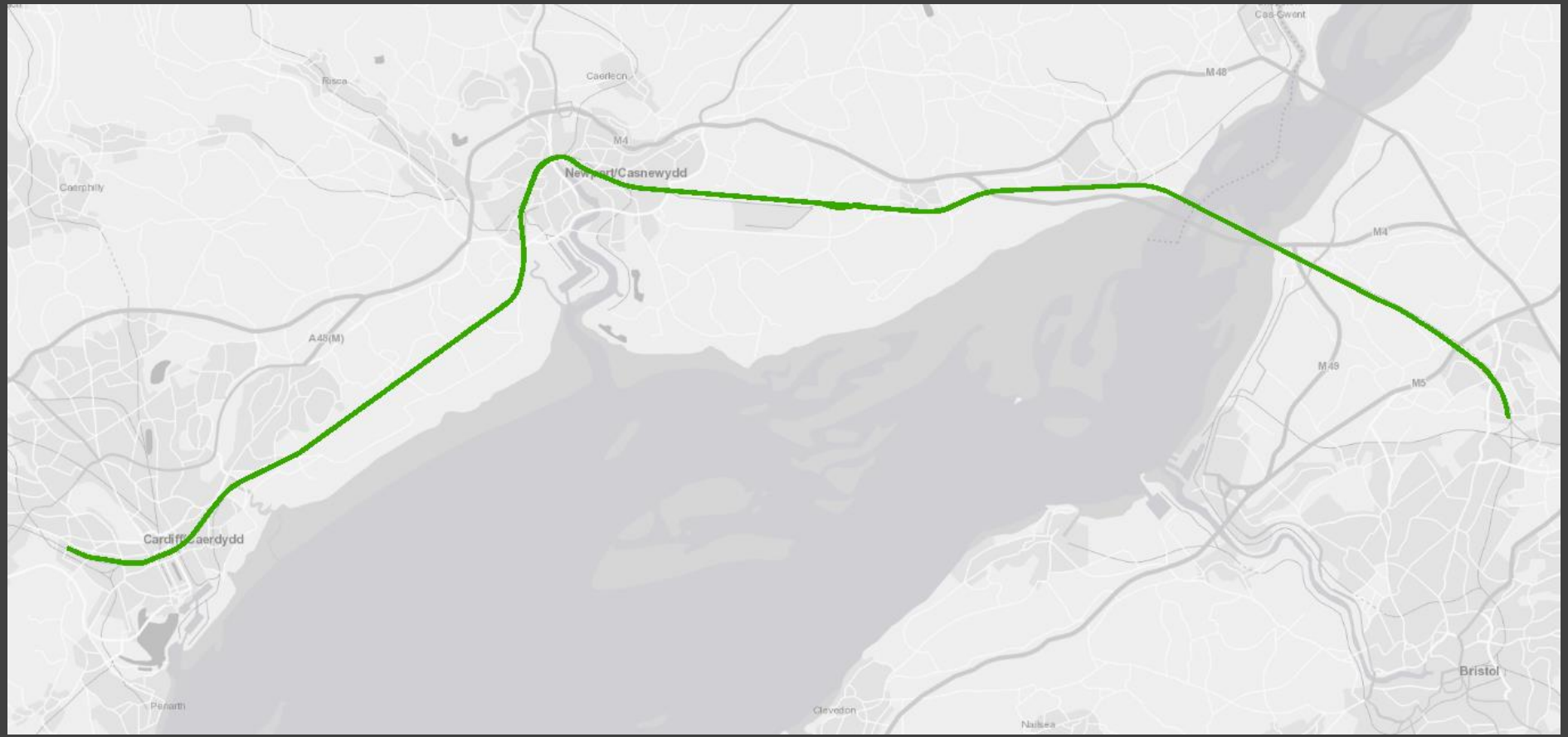


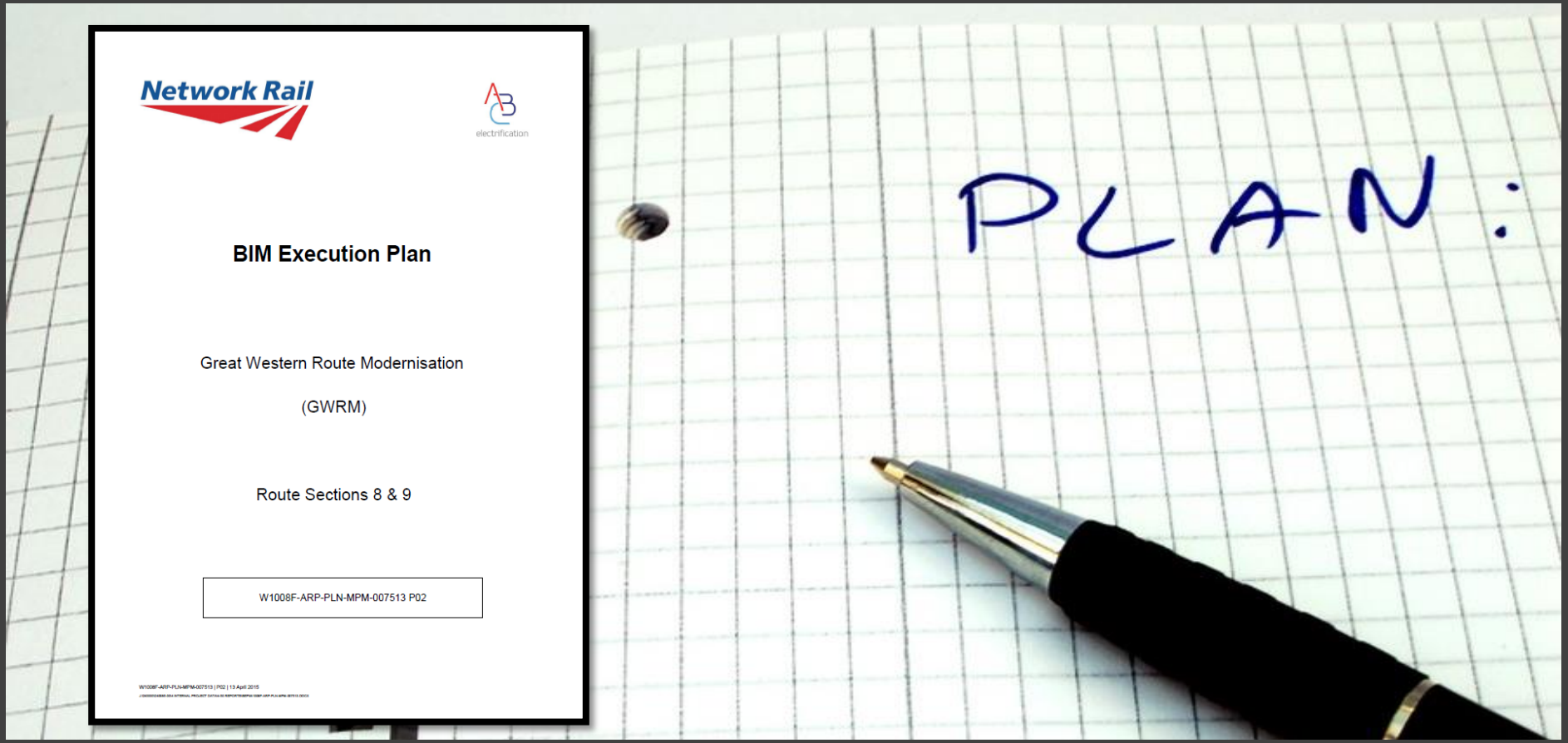
Image Credit: Network Rail

Specific Innovations

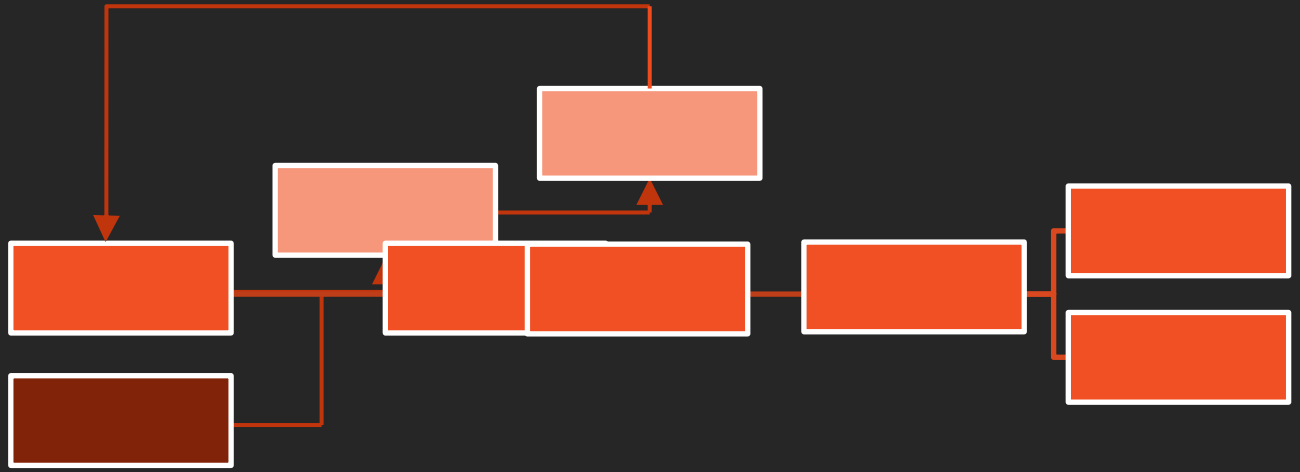
Data Storage

Image Credit: Flickr CC

BIM Execution Plan



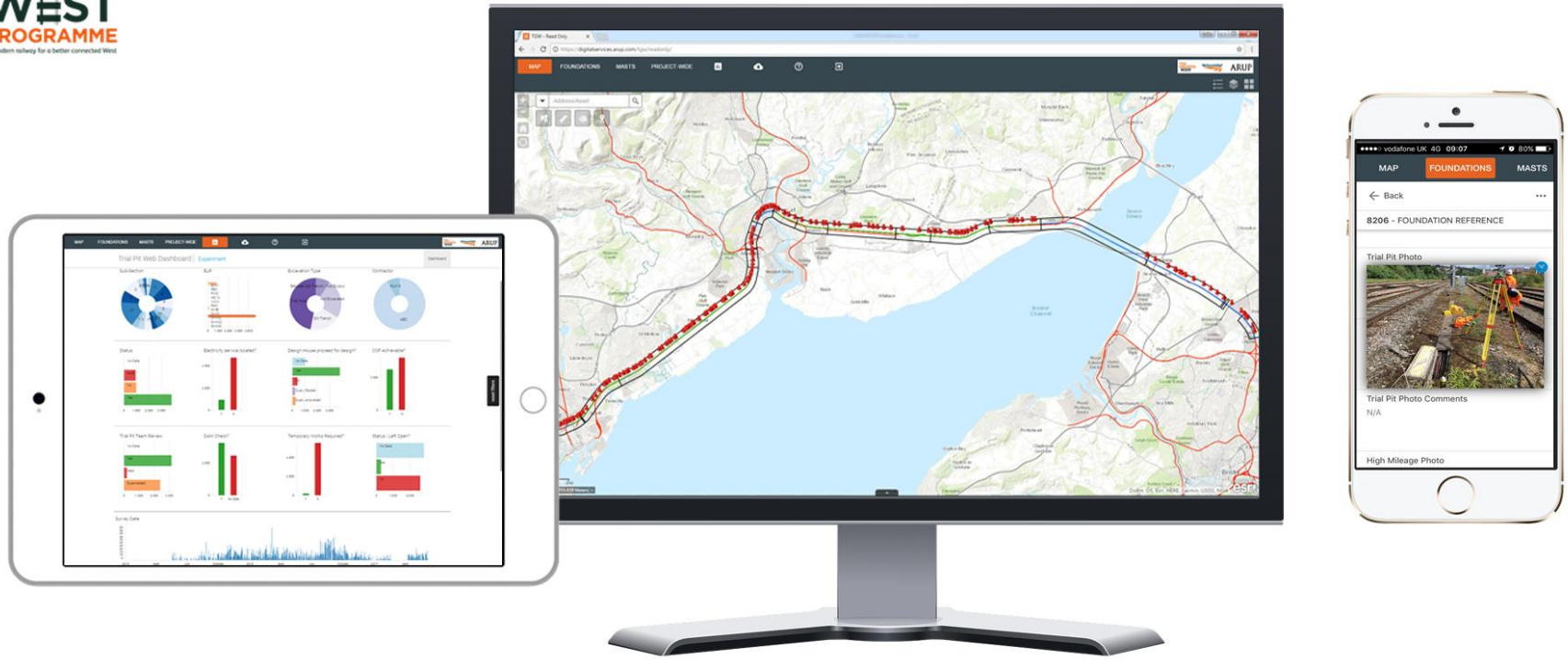
Mirroring Process in the Data



ARUP

THE GREATER WEST PROGRAMME

A modern railway for a better connected West

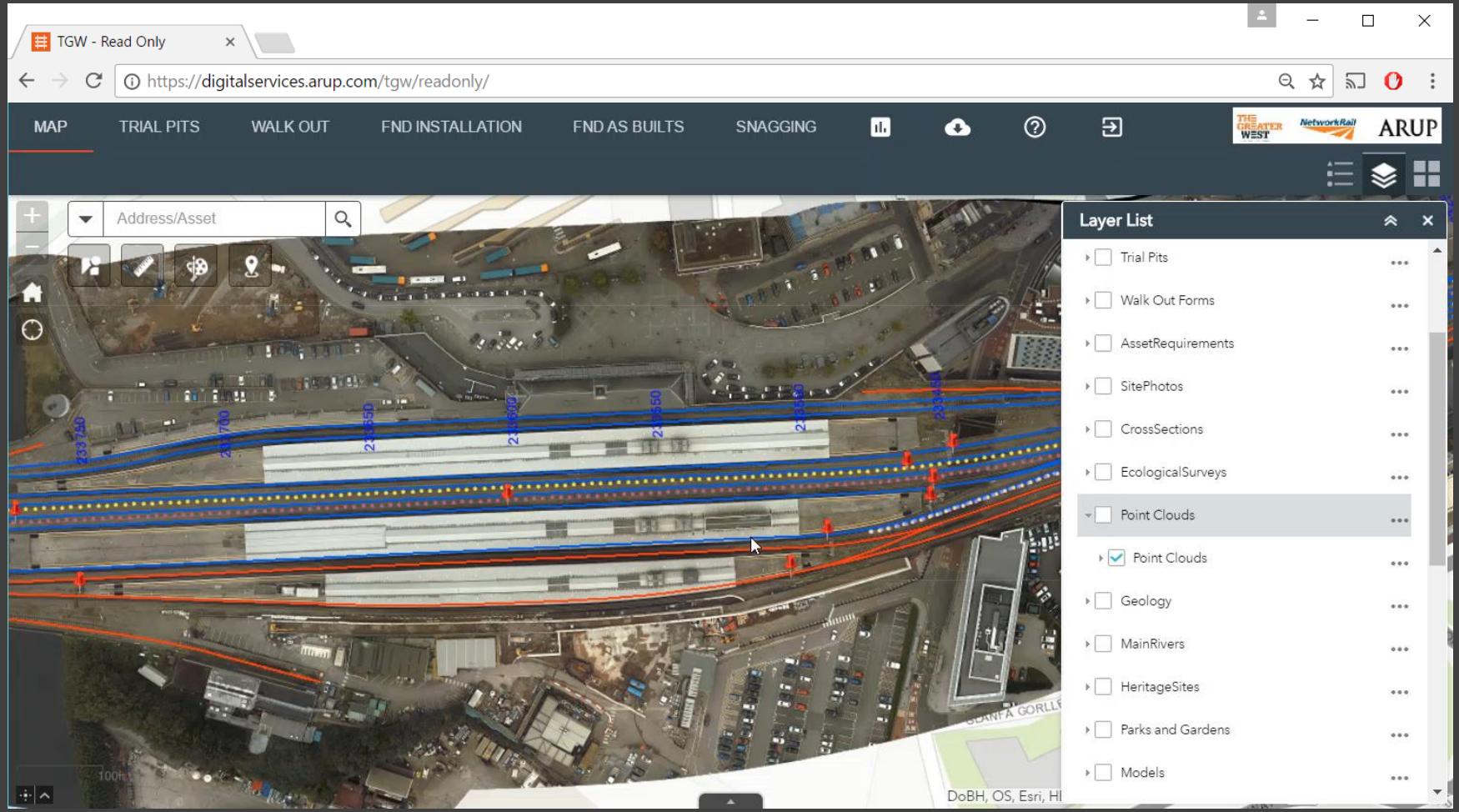


The rail specific web viewer allows all parties to interrogate various data sets from multiple devices and locations. © Arup

NetworkRail

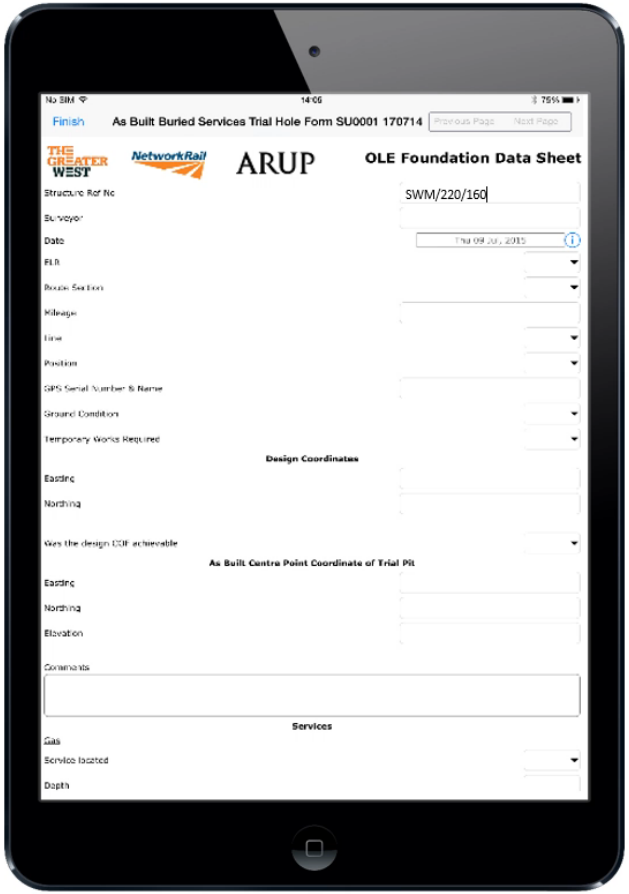
ARUP

Survey Data

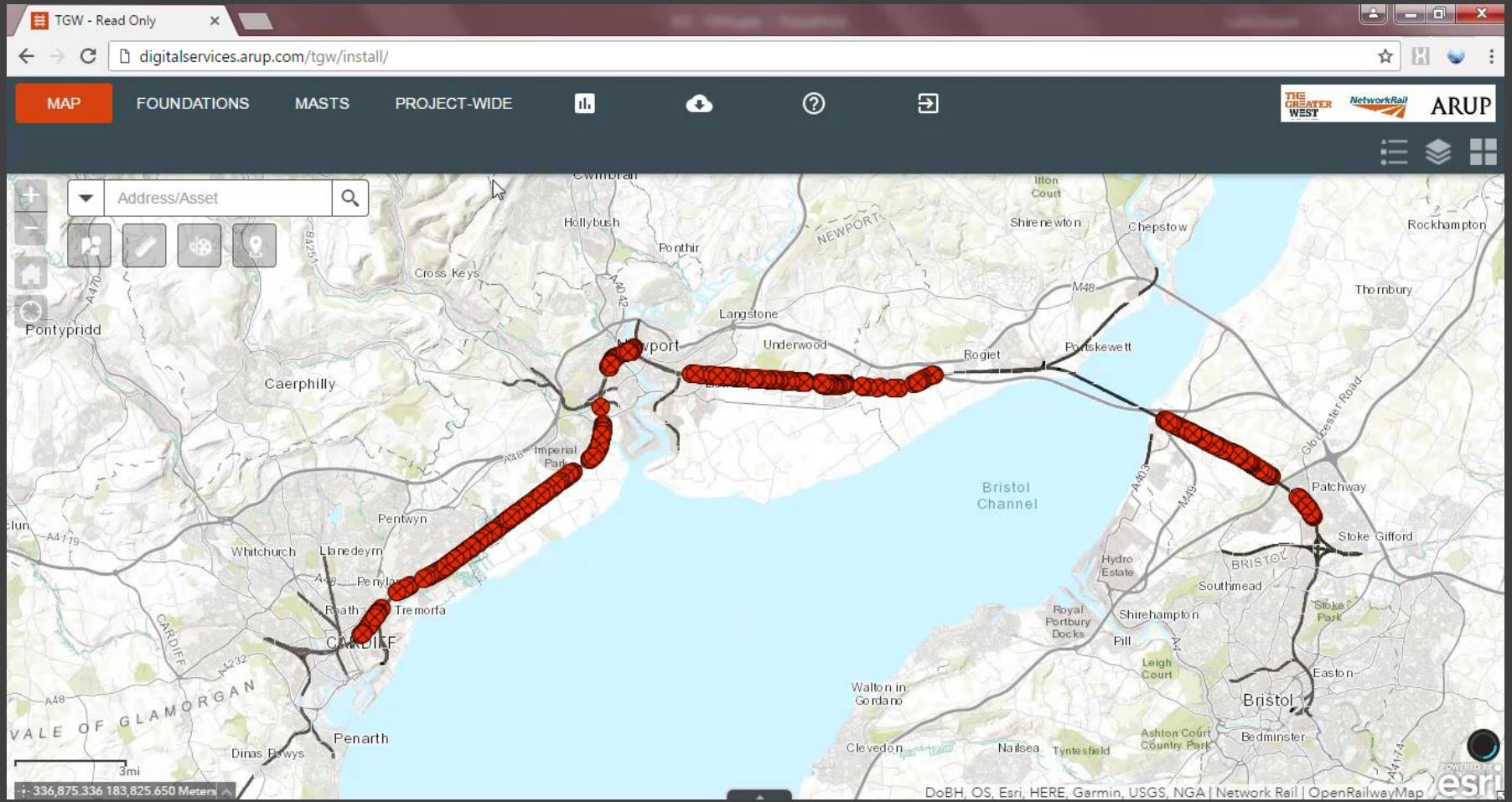

TGW - Read Only
https://digitalservices.arup.com/tgw/readonly/
MAP
TRIAL PITS
WALK OUT
FND INSTALLATION
FND AS BUILTS
SNAGGING
ARUP
Address/Asset
Layer List
Trial Pits
Walk Out Forms
AssetRequirements
SitePhotos
CrossSections
EcologicalSurveys
Point Clouds
Point Clouds
Geology
MainRivers
HeritageSites
Parks and Gardens
Models

Supply Chain

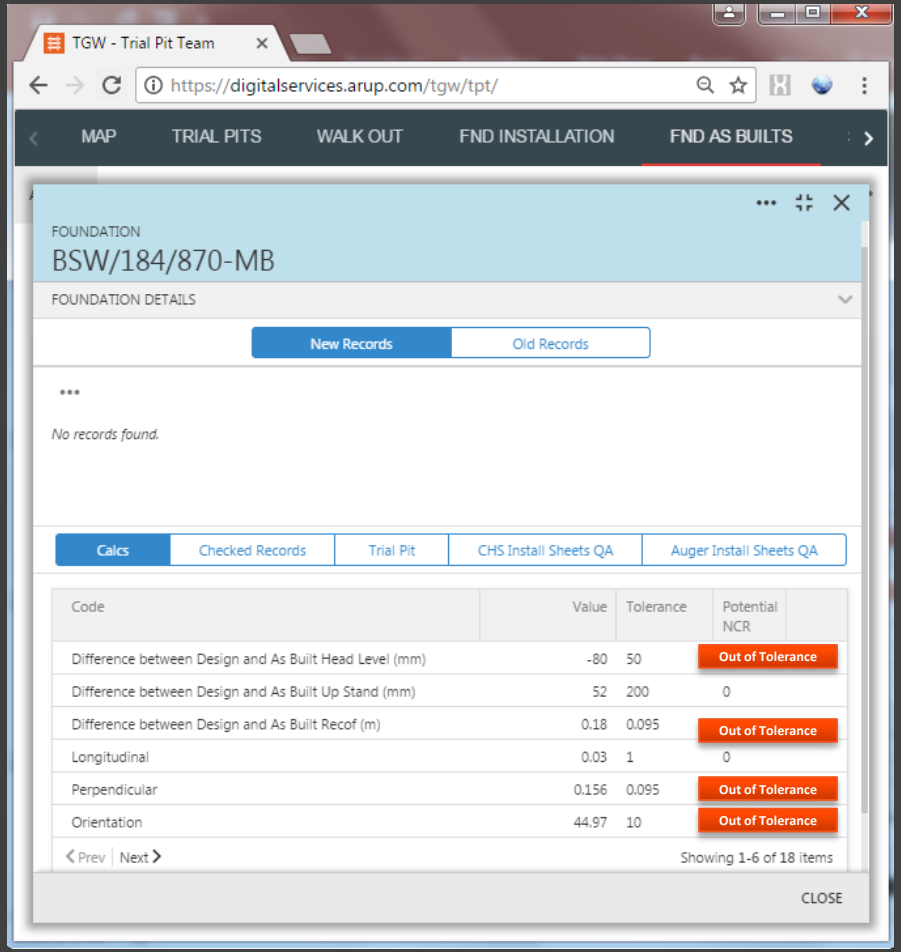
Trial Pit Surveys

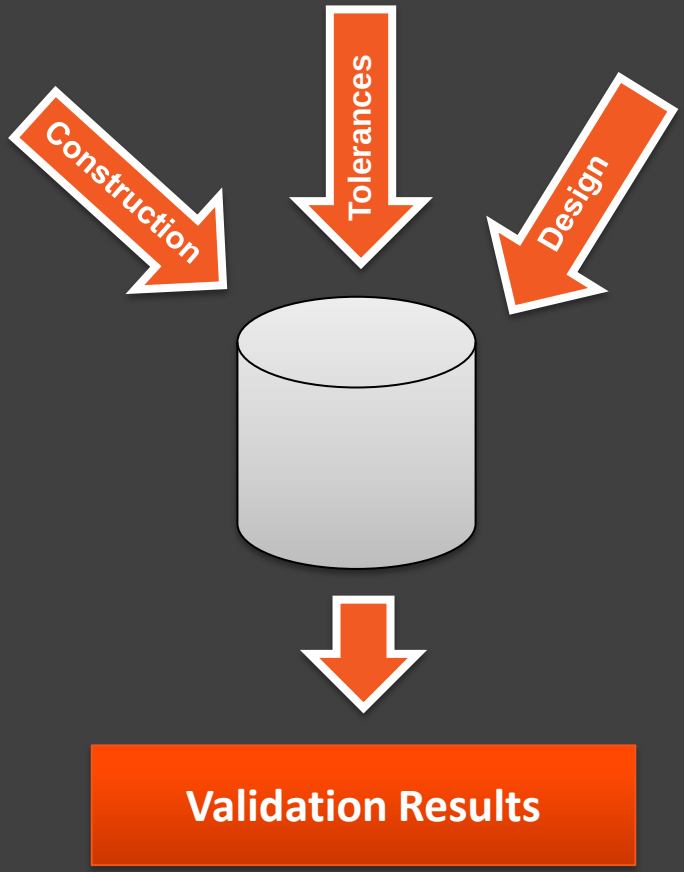


Installation Recording

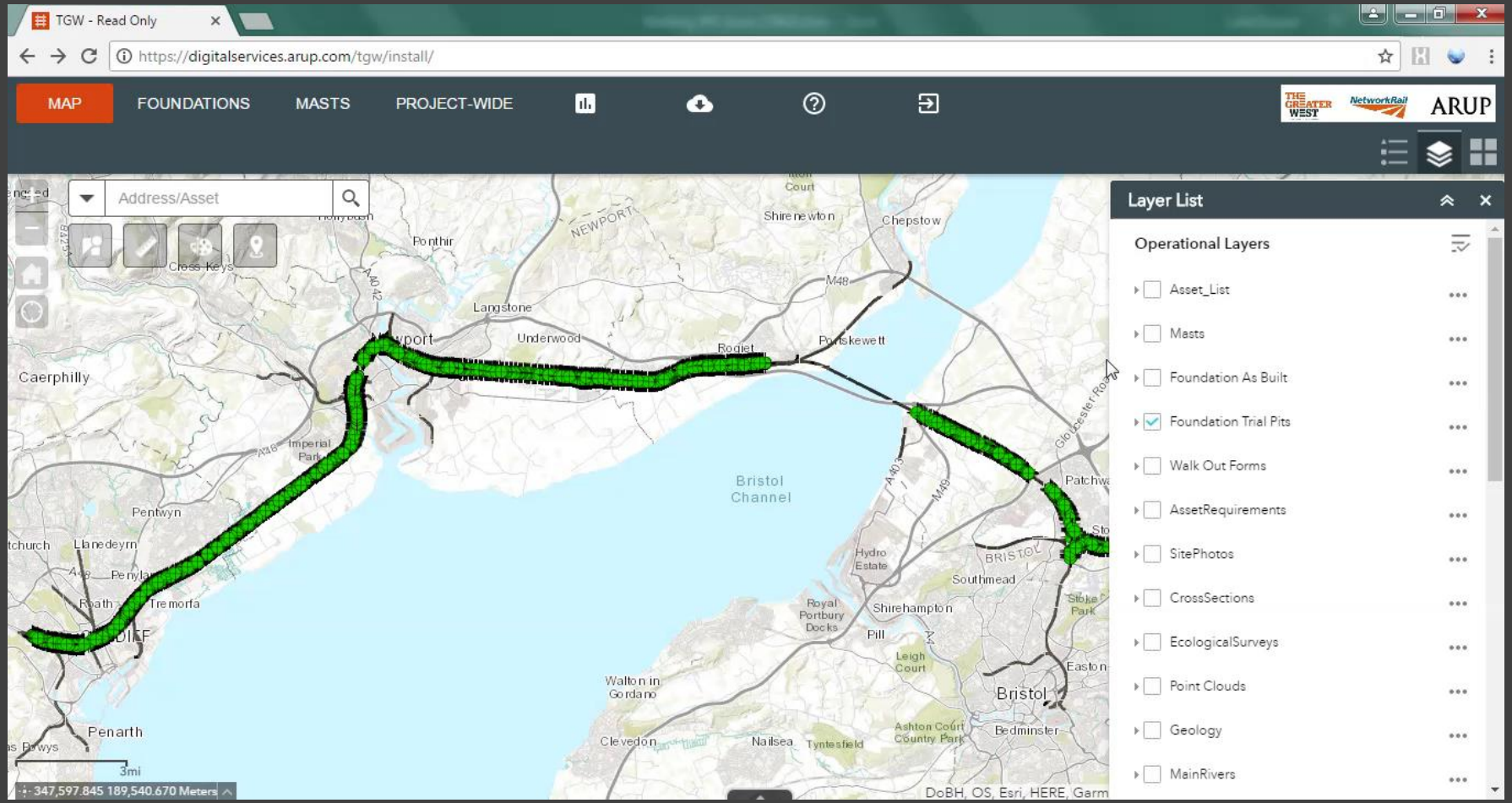


Construction Validation





Project Reporting



Usage and Savings

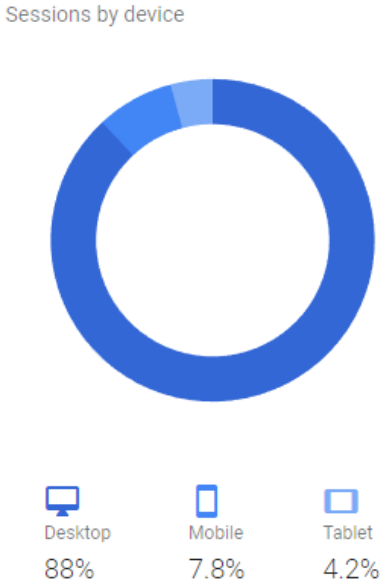
Users

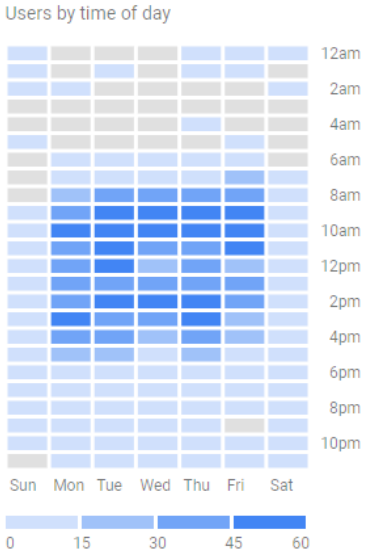
Organisation	Number of users with access
ABC	4
AGH	9
Alun Griffiths	15
Amey	5
Andromeda UK	11
Arup	169
Balfour Beatty	25
Capita	1
Critical Rail	2
GSE Systems	3
Keltbray	6
Network Rail	48
Opus International	6
PB World	4
Rees	1
SNC Lavalin	7
TSP	95
Wentworth House	5
WSP	5
Grand Total	421

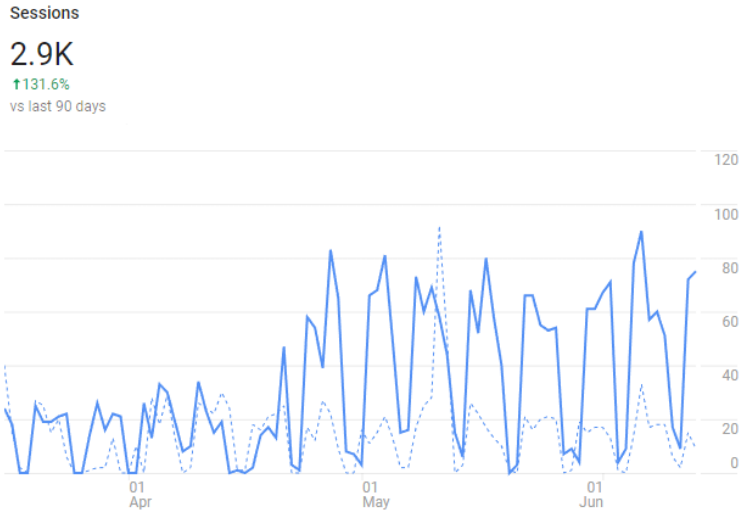
Average Stats (based on last 90 days)

- 700+ hits a week
- 90+ unique users a week

Usage Stats


Sessions by device
Desktop
88%
Mobile
7.8%
Tablet
4.2%


Users by time of day
12am
2am
4am
6am
8am
10am
12pm
2pm
4pm
6pm
8pm
10pm
Sun
Mon
Tue
Wed
Thu
Fri
Sat
0
15
30
45
60


Sessions
2.9K
↑131.6%
vs last 90 days
120
100
80
60
40
20
0
01
Apr
01
May
01
Jun

Savings

Carbon Saving
>1.75 tonne yr

Time
Savings

Reduction in resource
12.8 FTE

Source: ABC, Network Rail, Arup Design Team
Image Credit: Flat Icon

Summary

Asset Lifecycle

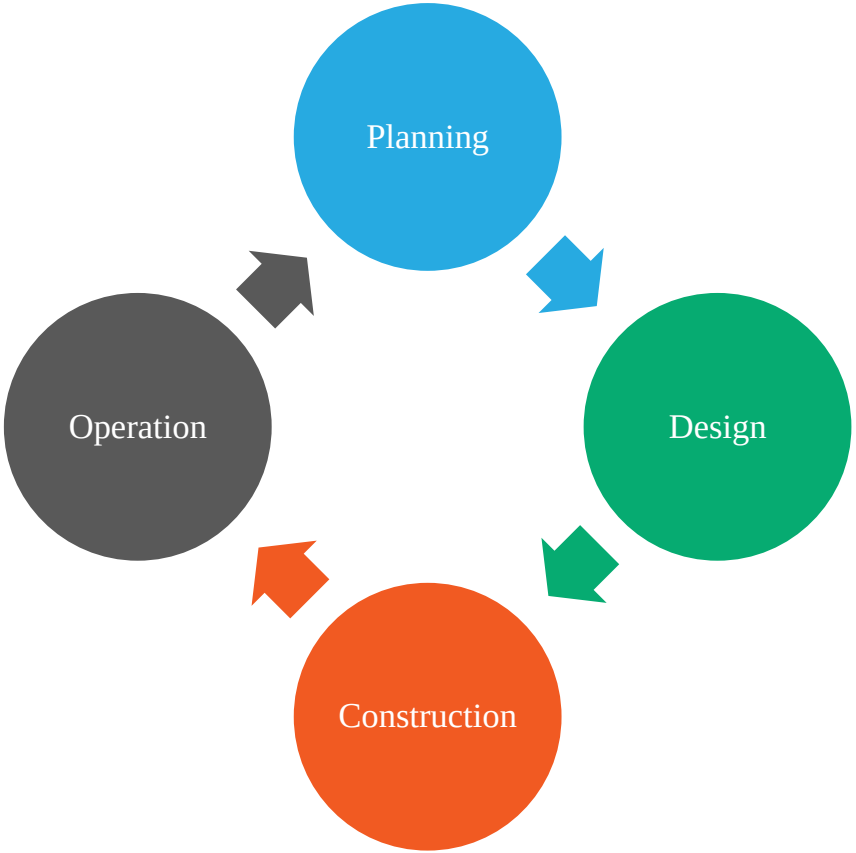


Image Credit: Flick Stu CC

Any Questions?

school
students
learning
community
space
area
Learning
Design
curriculum
located
provision
spaces
within
Reception
School
main
facilities
dining
Additional
required
environment
Requirements
needs
Caldicot
facility
need
work
including
social
range
opportunities
staff
building
access
areas
support
Needs
Community
site
development
collaboration
delivered
skills
provide
new
addition
vocational
supervision
parents
Century
separate
Centre
courses
visitors
ICT
Key
children
cater
Education
training
Brief
secure
Hall
central
one
group
passive
specialist
pupils
accommodate
design
include
environments
teaching
kitchen
based
develop
Sustainability
Provision
Caldicot School
Committed to Achievement
Ysgol Cil-y-Coed
Calon i Lwyddo
monmouthshire
BDP.
Interserve
Ingenuity at work

Vision

The future of learning in Monmouthshire

"…to transform teaching and learning throughout Monmouthshire and to encourage whole communities to reach their full potential as well as provide all with better life chances"

Caldicot School
Committed to Achievement
Ysgol Cil-y-Coed
Calon i Lwyddo

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sir fynwy

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Interserve
Ingenuity at work

Vision

21st Century ICT Visioning in School

"…to contribute sustainable and meaningful change to teaching and learning in Monmouthshire schools that will prepare students for further education, training and to live and work in a digital world"

"When faced with steam-rolling technology, you either become part of the technology or part of the road"

Caldicot School
Committed to Achievement
Ysgol Cil-y-Coed
Calon i Lwyddo

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Interserve
Ingenuity at work

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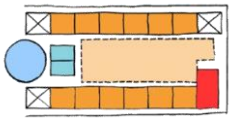
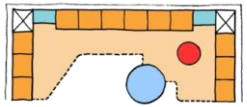
Concept

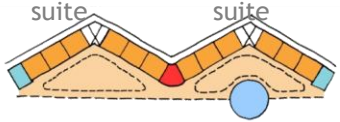


closed

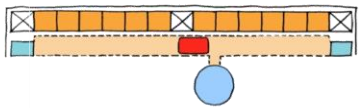


open

suite suite

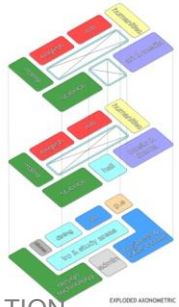


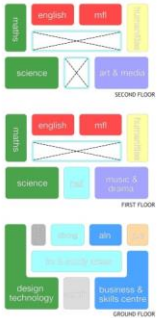
ribbon



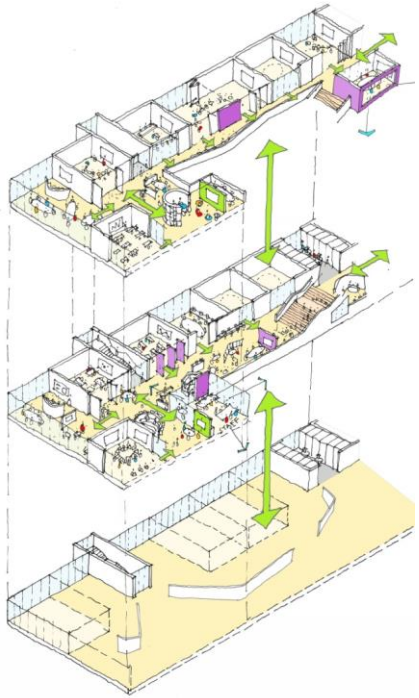
linea

suite





SCHOOL CONFIGURATION



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Concept

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Detail

monmouthshire
sir fynwy

BDP.

Detail

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sir fynwy

BDP.

Detail

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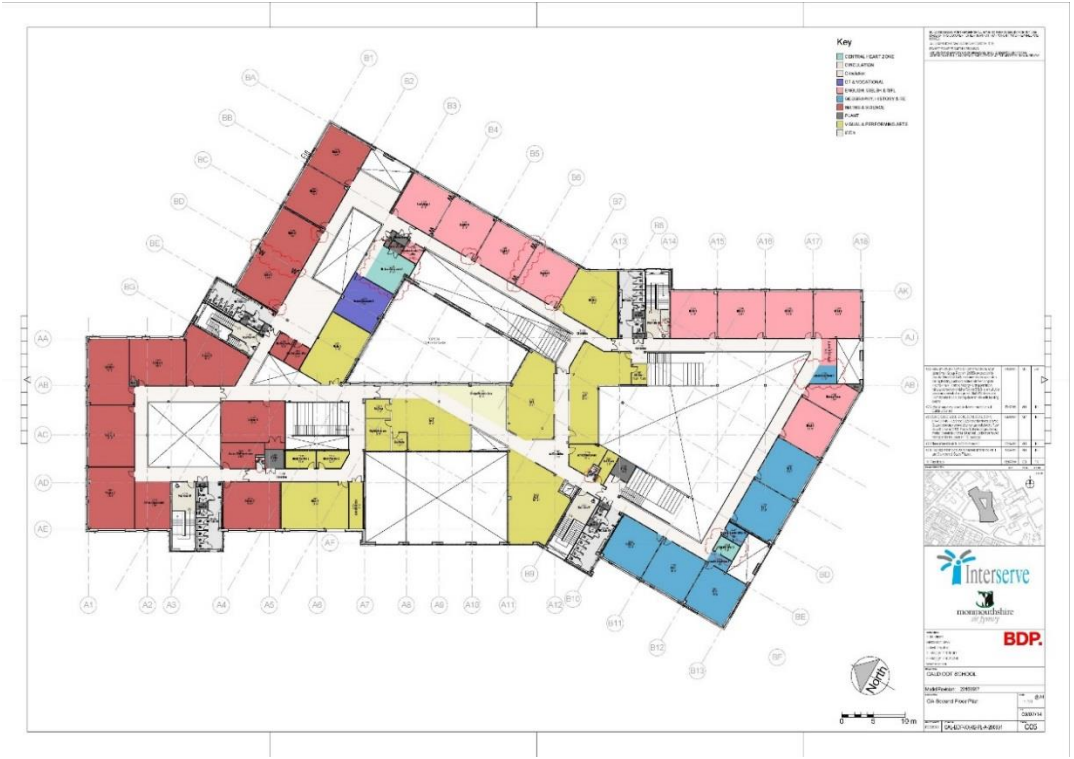

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Visual

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Visua
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Technology

NAVISWORKS

revizto™

AUTODESK
REVIT

LUMION

BDP.

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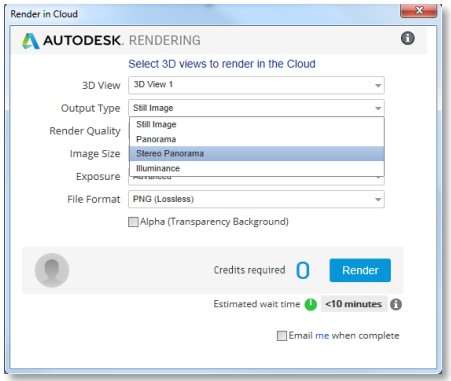
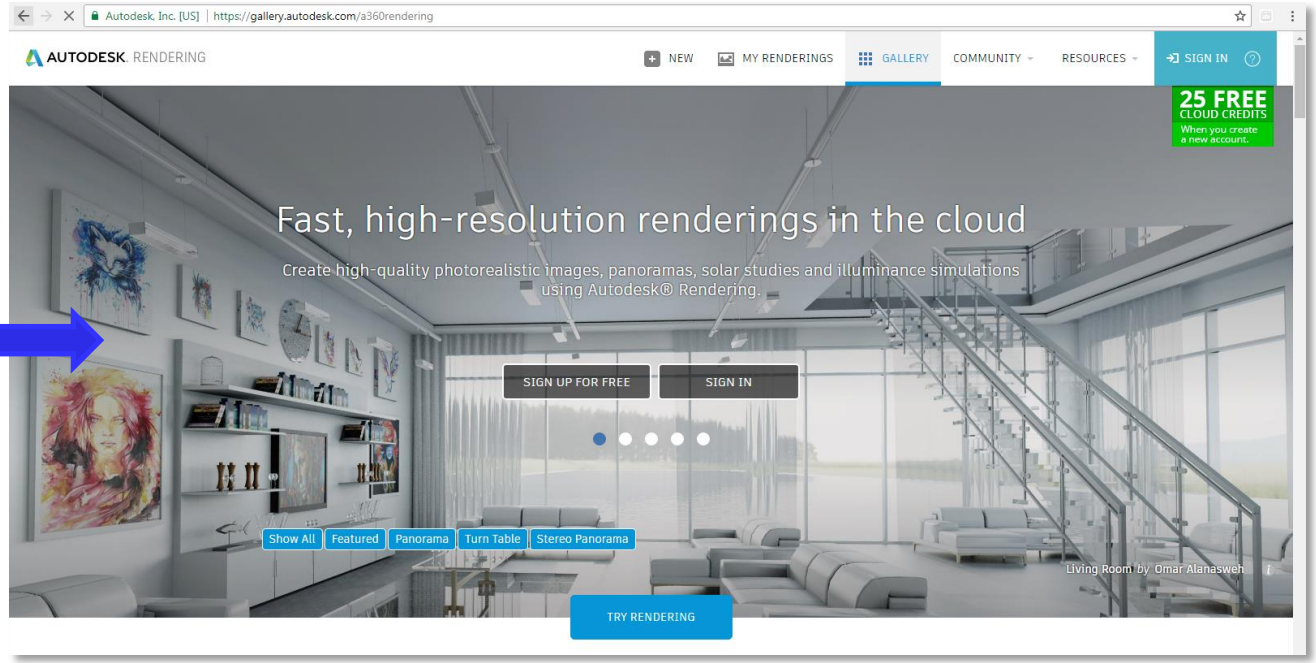
Technology

AUTODESK
REVIT





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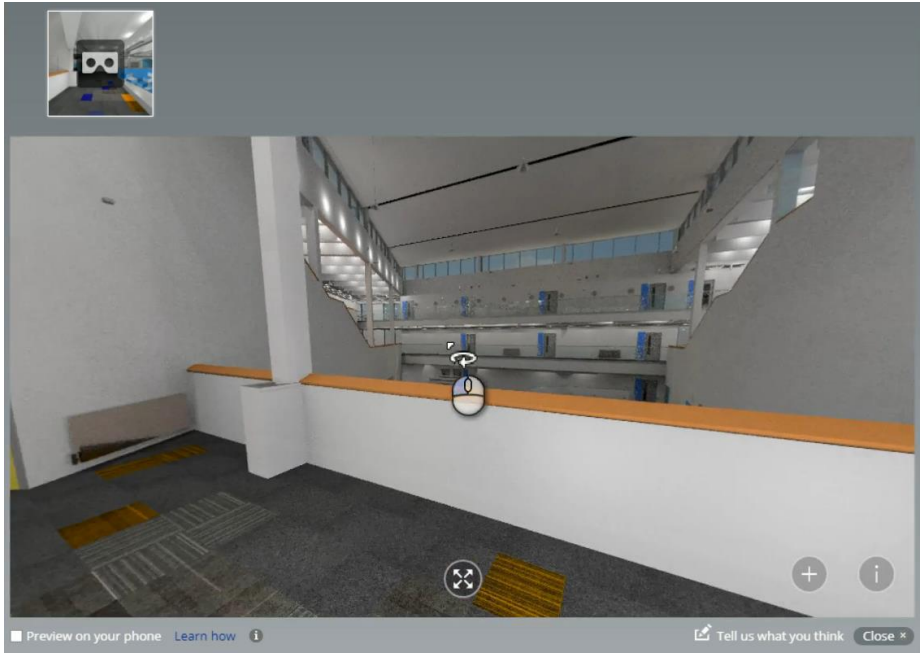
Technology



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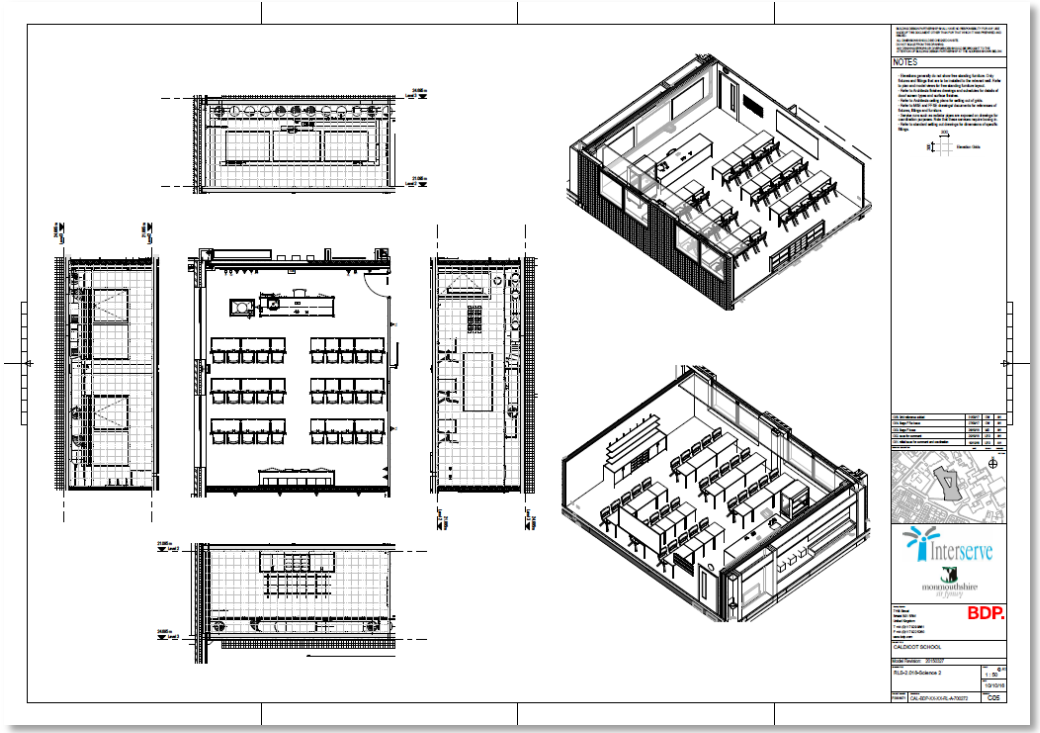

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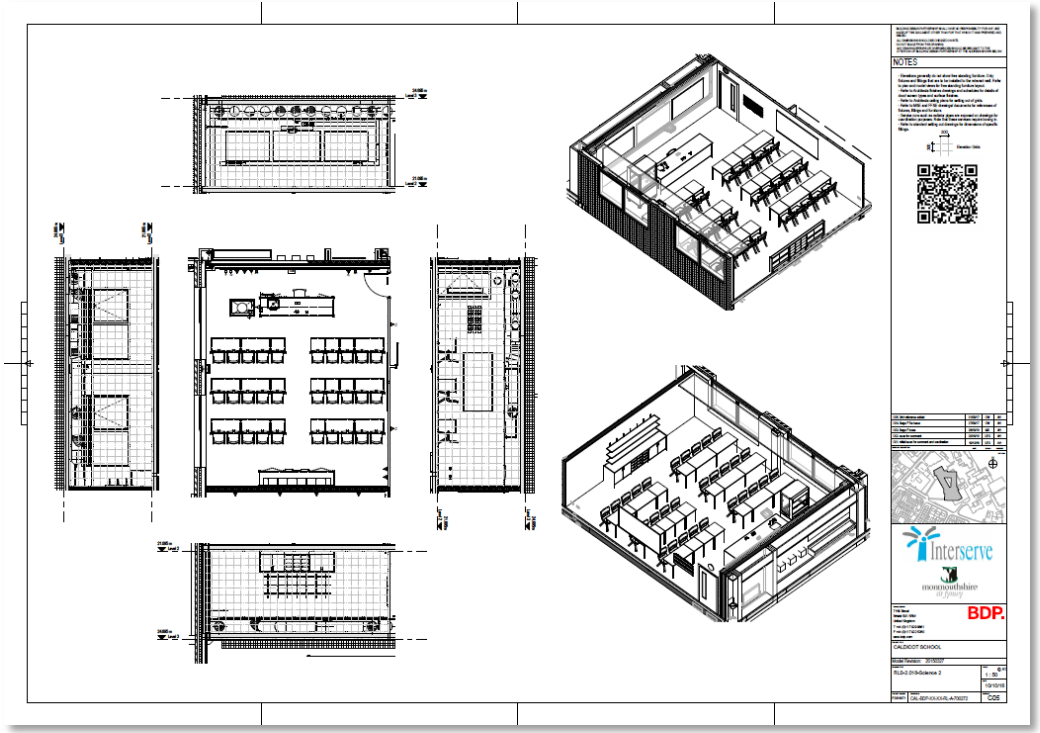

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Technology

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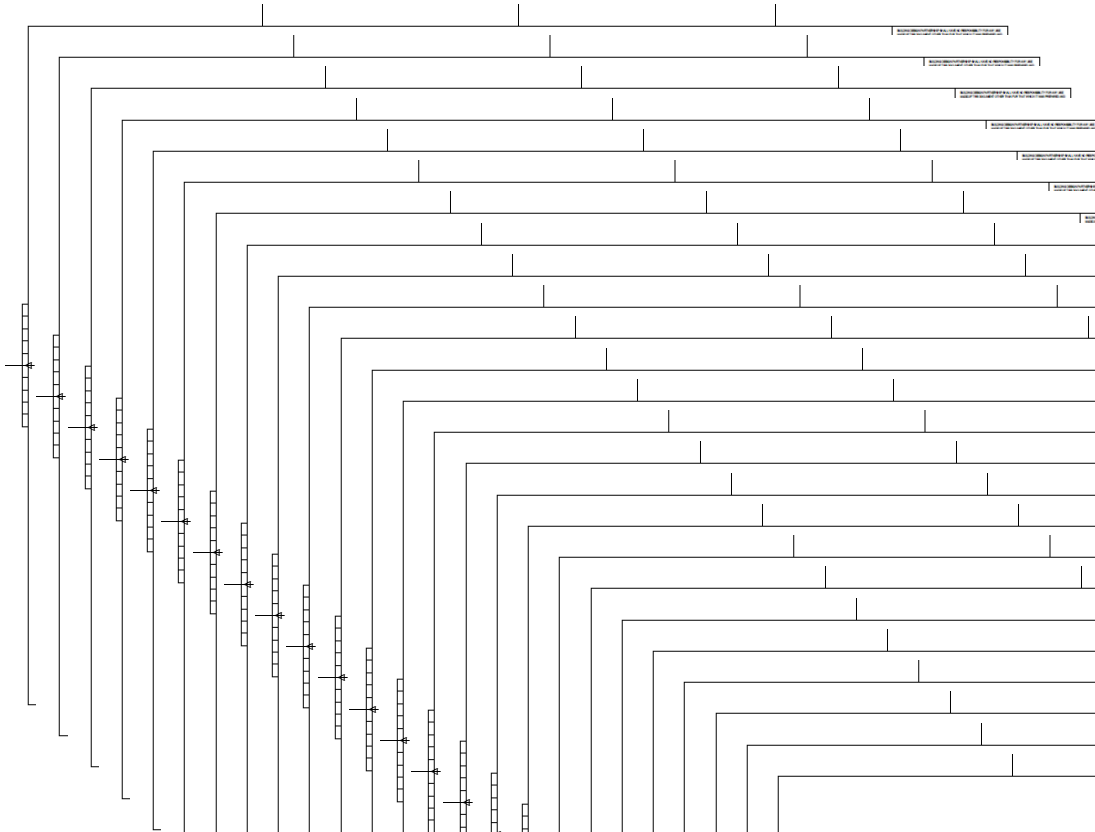
Technology



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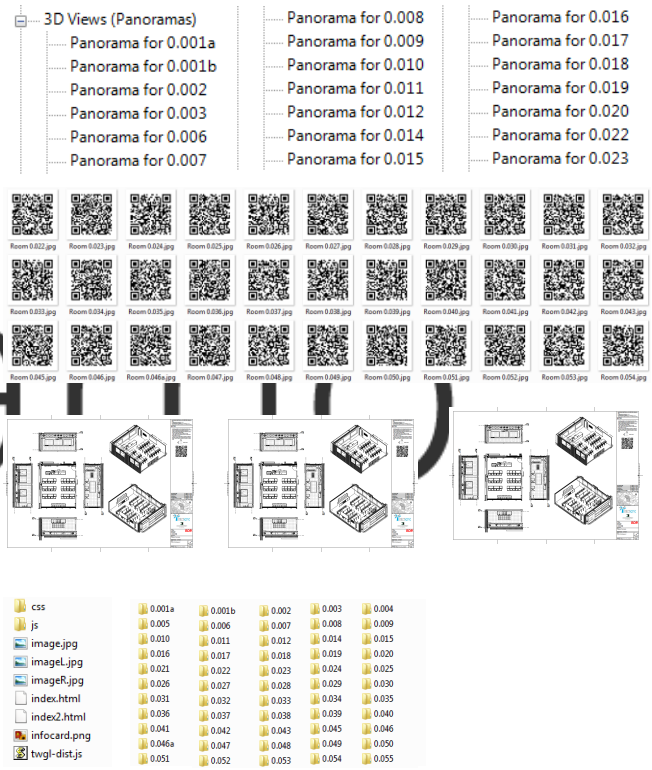
Dyna



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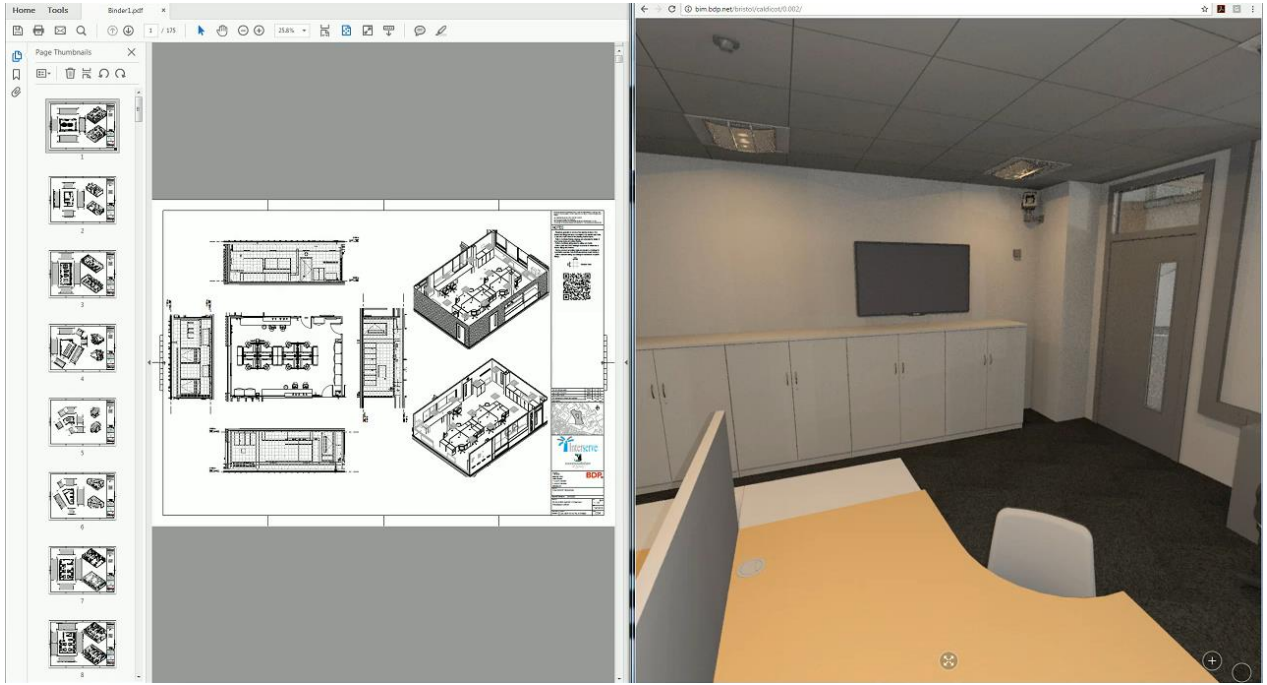
Technology



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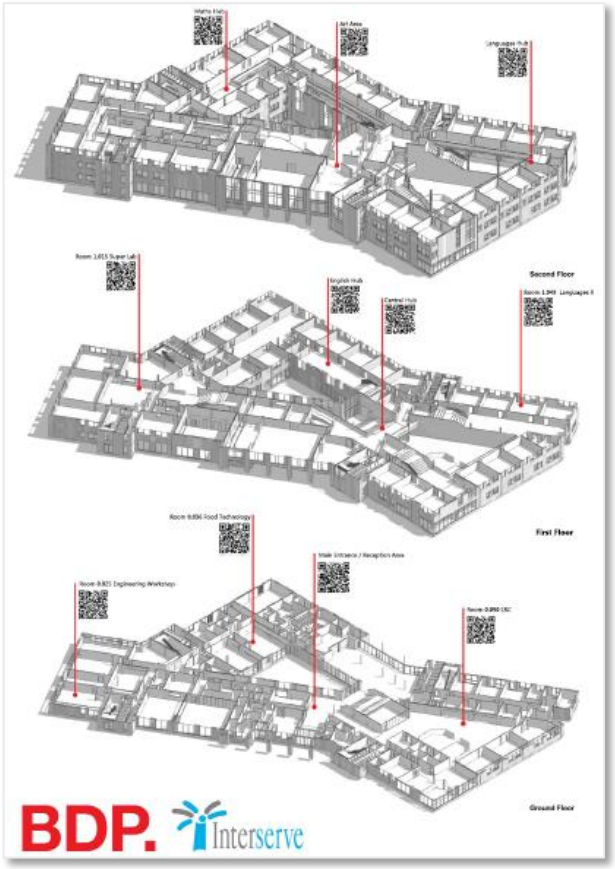
sir fynwy

Technology



BDP.

monmouthshire
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Technology

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Interface

BDP.

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Interface

BDP.

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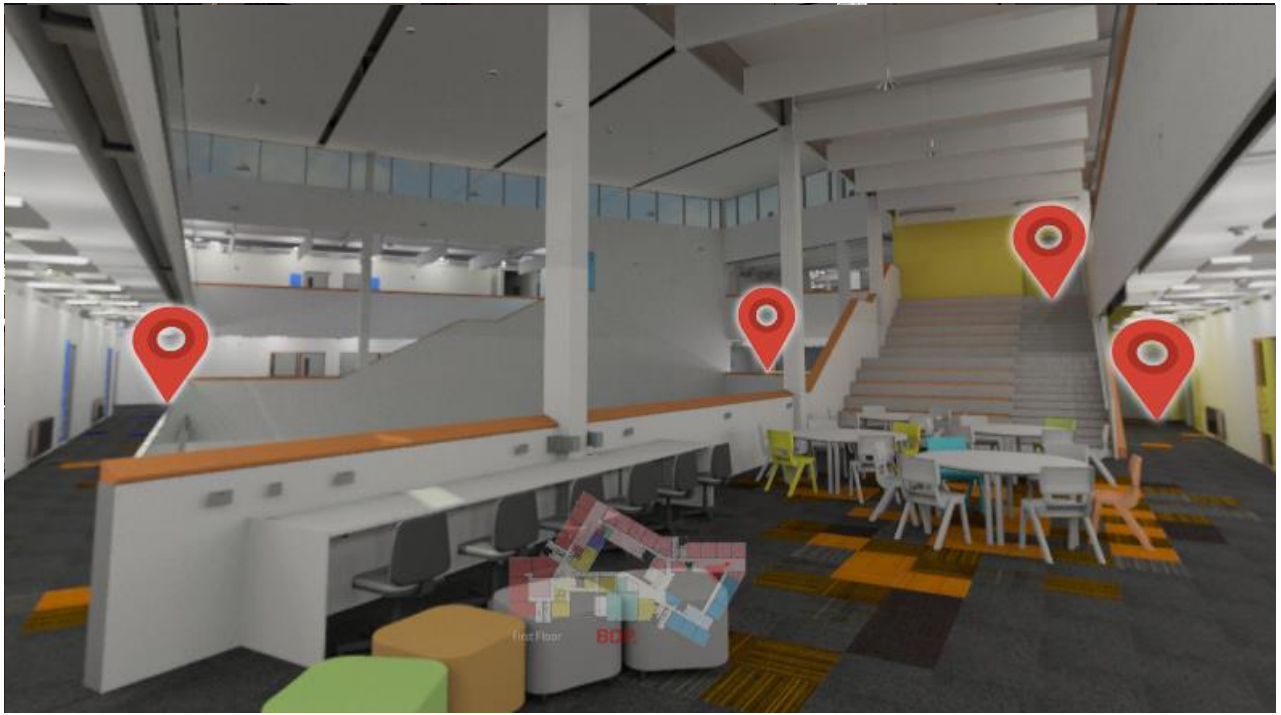
Virtual



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Reality

Benefitting Stakeholders

- A fundamental tool for the development of an intelligent client
- Clarity of vision / product before commitment.
- Active engagement of all stakeholders via a virtual environment
- Development and testing of new educational thinking in real time
- Testing the daily management of the built environment
- Inform real change management strategies and ideas
- Educational training tool, preparing stakeholders how to use the new school from day one.
- Know where every penny is spent

school
students
learning
community
space
area
Design
within
provision
curriculum
located
spaces
Learning
access
areas
support
Reception
Additional
facilities
dining
environment
Requirements
needs
Caldicot
facility
need
work
including
social
range
opportunities
building
staff
enable
use
also
main
School
new
addition
provide
skills
delivered
collaboration
development
site
Needs
Community
Sustainability
Key
children
cater
Education
Hall
central
one
Caldicot School
Committed to Achievement
Ysgol Cil-y-Coed
Calon i Lwyddo
monmouthshire
BDP.
Interserve
Ingenuity at work

BLAKE MORGAN

CEW WALES & BLAKE MORGAN
BIM and Legals

Jo Rees
Partner – Blake Morgan

Recent Case Law

- Trant Engineering Ltd –v- Mott MacDonald Ltd
- 5 July 2017 TCC Decision before Mrs Justice O'Farrell

Mount Pleasant Complex

- Project: £55m power station in The Falklands
- Client: MOD
- Contractor: Trant
- Engineer: Mott MacDonald
- Dispute: Payment due to Motts

Motts' scope

- design consultancy services
- full design
- design co-ordinator
- preparation & implementation of BIM
- Using Projectwise as collaborative platform
- principal designer
- DREAM assessment

Payment Dispute

- was there a contract?
- what terms?
- effect of payment £250k x 2?
- Motts denied access to Projectwise – revoking passwords issued to Trant

Injunction

- Serious issue to be tried?
- Will damages will be an adequate remedy?
- Motts argued Trent exaggerated problem of withholding design date as had been supplied in pdf.
- Trent argued if there was no contract and no right to design result in loss of bargaining position.
- Damages would not be an adequate remedy.
- Judge found that Balance of convenience – which course of action is likely to carry risk of least injustice if it turns out to be wrong?

Judicial Decision (I)

- "The Claimant's position is that without restoring access to the relevant database on the ProjectWise platform, the project cannot be progressed. The claimant would be forced to start the project from square one, having lost a year of progress. In those circumstances, it would be appropriate for the court to permit the status quo by allowing the claimant access to the design data that had already been completed by MML at the time that the suspension/termination occurred, so as to allow the claimant to progress the project. It is said, with some force by the claimant, that there is very little by way of harm to the defendant if it is required to provide access to the design data that it has already provided, particularly in circumstances where the claimant has undertaken or is offering to undertake to pay any compensation whether by way of outstanding fees or damages that might subsequently be ordered".

Judicial Decision (II)

- "The claimant is entitled to the design data that has already been carried out by MML and that is currently sitting in the public database area of ProjectWise on the basis that it has either been done under the contract produced by MML or a simple contract. Even if there was no contract, MML has already accepted payment on account in respect of the work that it has carried out".

What does this mean for BIM and Collaborative Platform

- Courts not allow parties to use Collaborative Platform as a ransom
- Payment made to party providing design – unlikely to be able to withhold access.
- Unclear what turns on the fact payment had been made.
- Hosting party?

Who should host the Collaborative Platform?

- Employer?
- Terms – right to revoke access.
- Revoke access to the party if dispute arose
- Does employer have the technical knowhow and capability?
- Project team with regular extraction
- Split hosting/gateways
- Need for clarity and understanding what happens in a dispute situation.

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Workshop Discussion

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CONSTRUCTING EXCELLENCE IN WALES