

Integrating Geospatial with BIM to Resolve the Most Complex Construction Challenges:

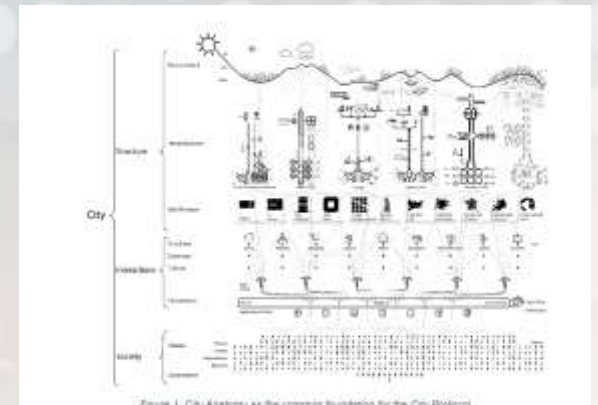
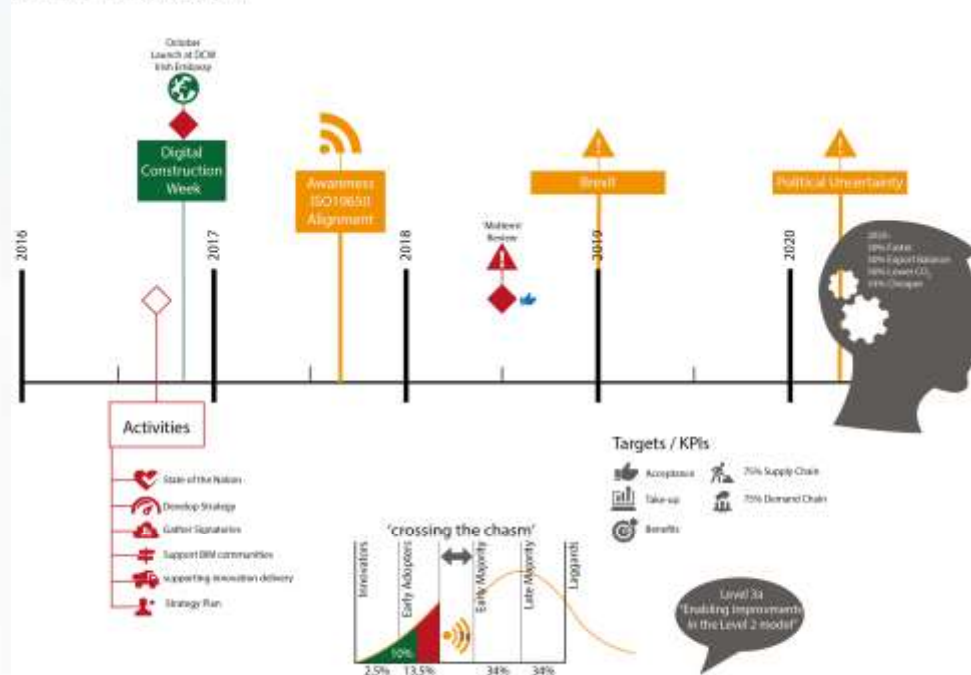
The tipping point

Dr Anne Kemp, Director and Fellow, Atkins
Chair of UK BIM Alliance

GeoBIM, 25th November 2016

Our evolving landscape....

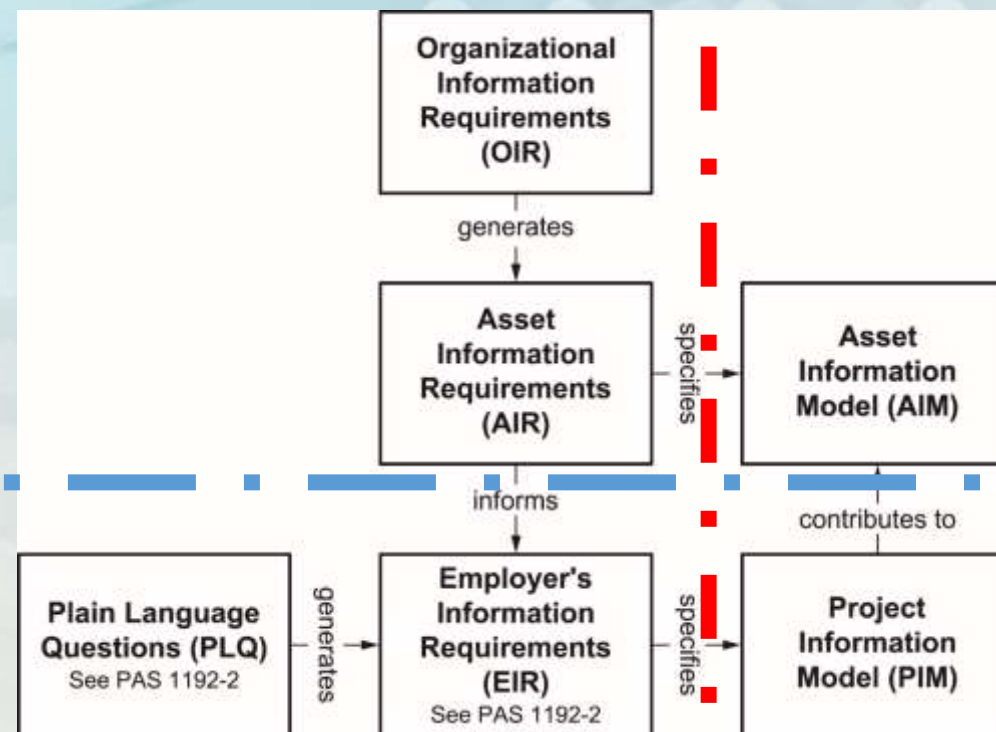
The Future of Our BIM Journey ...a foundation for a digitally built Britain





PAS 1192:3
Asset

PAS 1192:2
Project



“BIM-enabled” Through to Operations and Maintenance

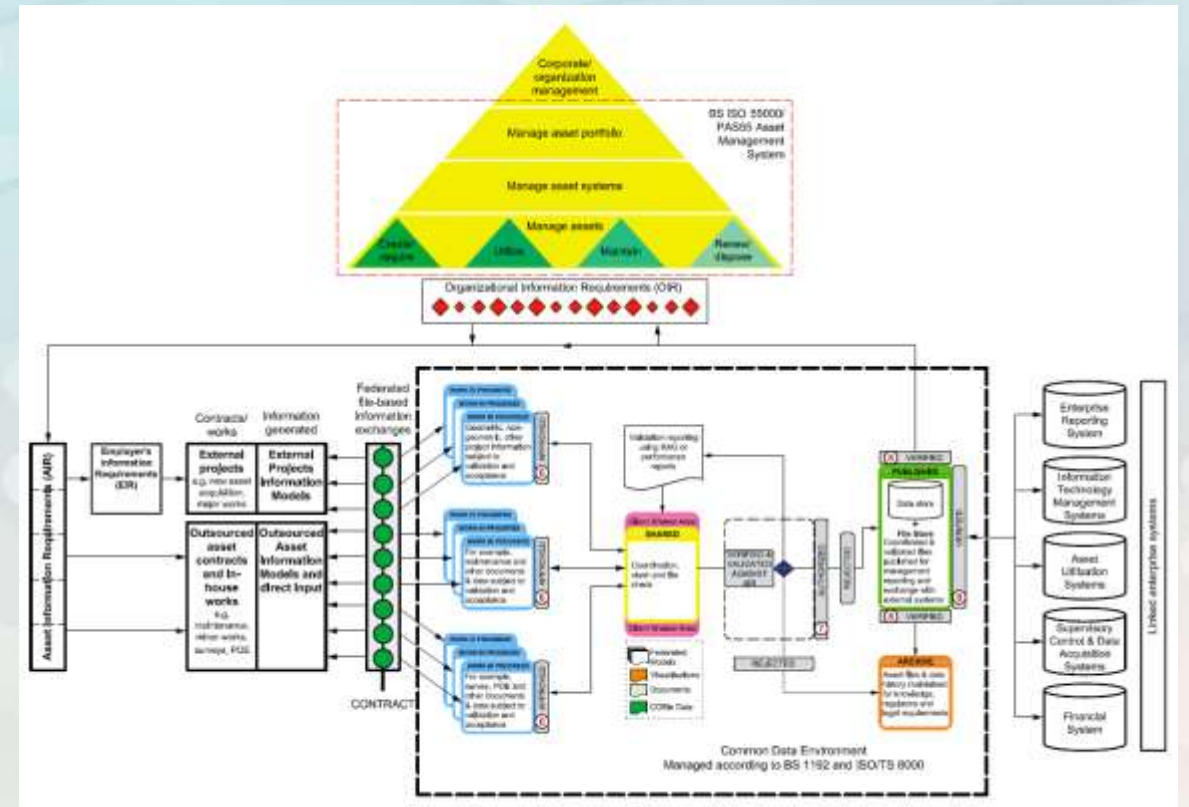


Relationship with other publications

This PAS builds on the existing code of practice for the collaborative production of architectural, engineering and construction information, defined within BS 1192:2007.

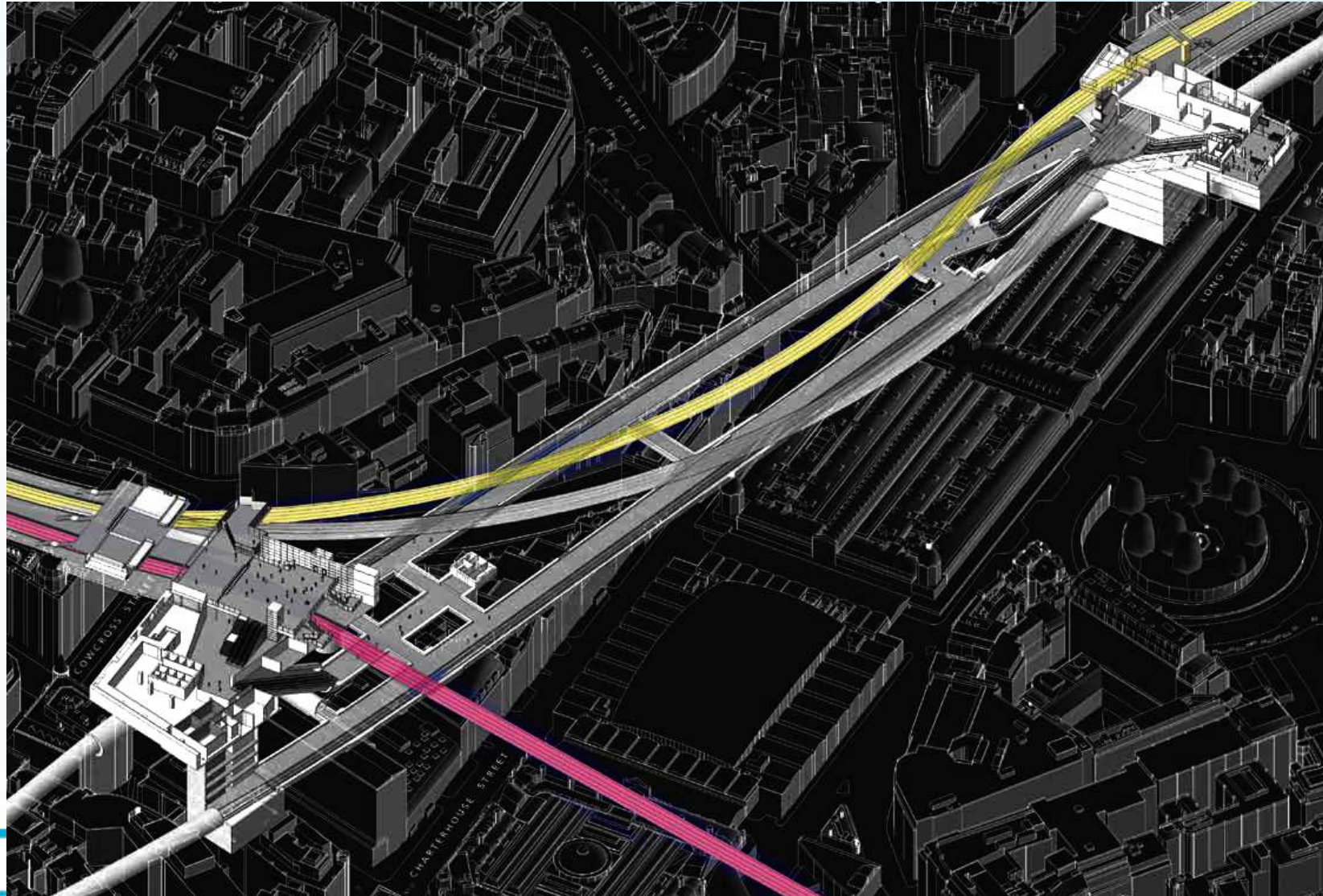
It is a companion document of, and refers heavily to PAS 1192-2:2013, *Specification for information management for the capital/delivery phase of construction projects using building information modelling*.

It also refers heavily to the BS ISO 55000 series, *Asset management*, PAS 55:2008, *Asset management*, and to existing facilities management standards BS 8210:2012 and BS 8587:2012. BS 8536:2010 and BS 8572:2011 have also been useful source documents in relation to facilities management.



Crossrail, Farringdon Station

Overall Site coordinated with existing London Underground lines



Help

Layers Tools Display

BIM Viewer

<https://eb.crossrail.co.uk/ebFramework/Object.aspx>

Construction Products\GT&RP\Land & water ret

Unit Code	Component
CRL1	CR501-CRS
Revision	Change Co
000	Yes
Asset Description	Class
Wall, Diaphragm, South	Construction ret(Dwall
Approval Status	Operational
Not Approved	Planned
Serial Q	System Co
1.00000	CRS
U LCS1	Tag Ha
CR501 - Royal Oak Portal	Yes

- Prototypes
- Responsibilities
- Work Orders

BIM Items

<Selection>

- Cell: Slab Form

General

Description	Cell: Slab Form
Cell Name	Slab Form
Cell Type	Graphic
Class	Primary
Number of elements	4
Template	None
Annotation Purpose	False

Geometry

Origin	75864.2608,36495.2271
Angle	01.4174°
Orientation	Top
Scale X	1.00000
Scale Y	1.00000
Scale Z	1.00000

Extended

Model	Default
Last Modified	11/10/2011 14:10
Modified	Modified
New	Not New
Locked	Unlocked

Raw Data

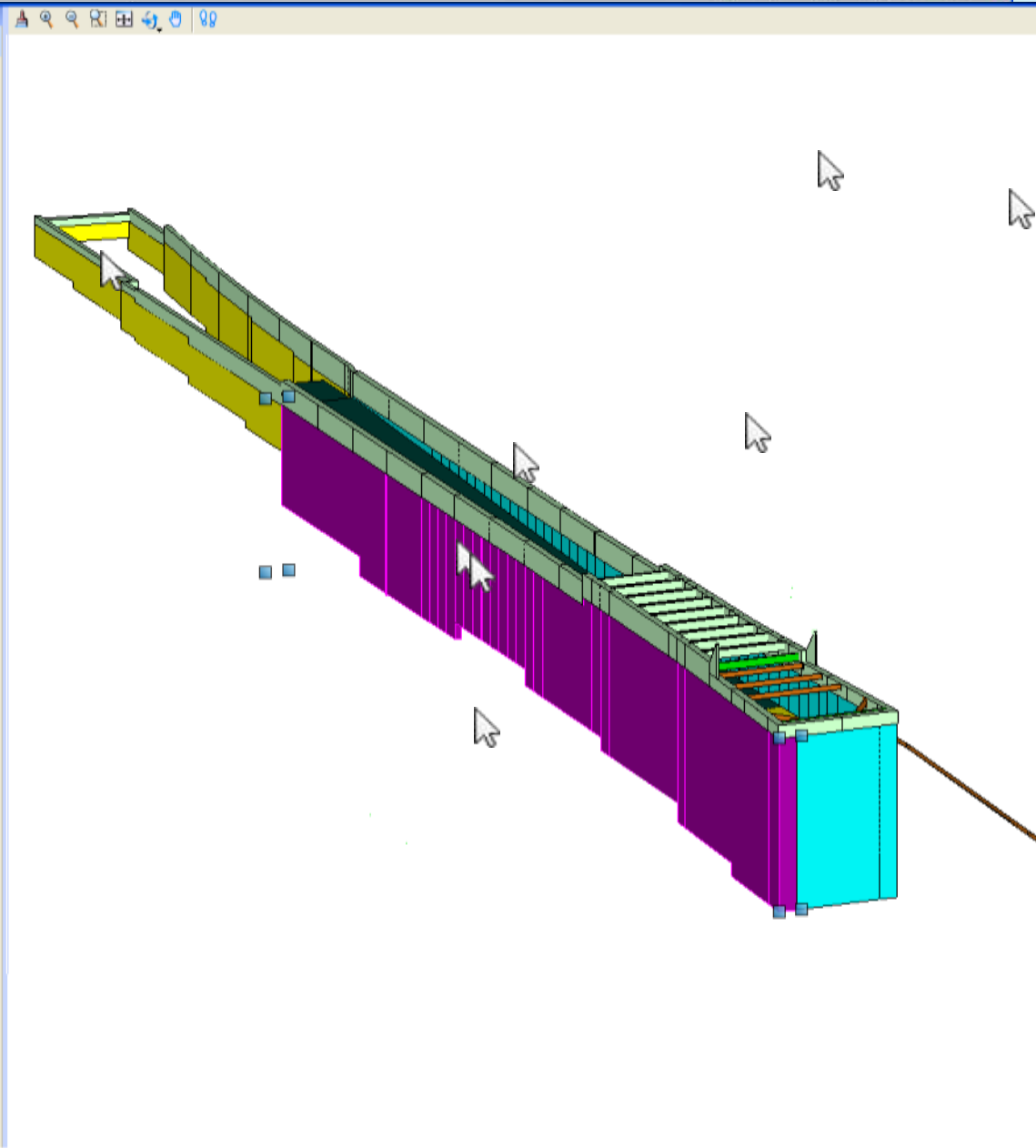
Element ID	284166
Size	352
File Position	4007215
Linkages	16
XAttributes	1

Material

Assigned Materials: (None)

Crossrail X - Attributes

CrossrailDesc	Wall, Diaphragm, South
CrossrailID	CR501-CRS-00006



Project/View | **Image Library** | **Assets**

Zoom to	Tag Code	Name	Funcn
<input type="checkbox"/>	CR501-CDR-00001	Drainage Pump 1	CDR - Drainage
<input type="checkbox"/>	CR501-CRS-00006	Wall, Diaphragm, South	CRS - Retain
<input type="checkbox"/>	CR501-CRS-00008	Floor Slab, 1	CRS - Retain
<input type="checkbox"/>	CR501-CRS-00009	Floor Slab, 2	CRS - Retain
<input type="checkbox"/>	CR501-CRS-00017	Beam, Casing, South	CRS - Retain

Show All Results



Digital Plan of Works



DIGITAL PLAN & WORK
Digital Information

CLICK A BOX BELOW TO VIEW BY DISCIPLINE & WORK STAGE

	WORK STAGE			
Architect	2	3	4	5
Civil / Structural Engineer	2	3	4	5
MEP Engineer	2	3	4	5
DISCIPLINE	PROVIDE FEEDBACK			

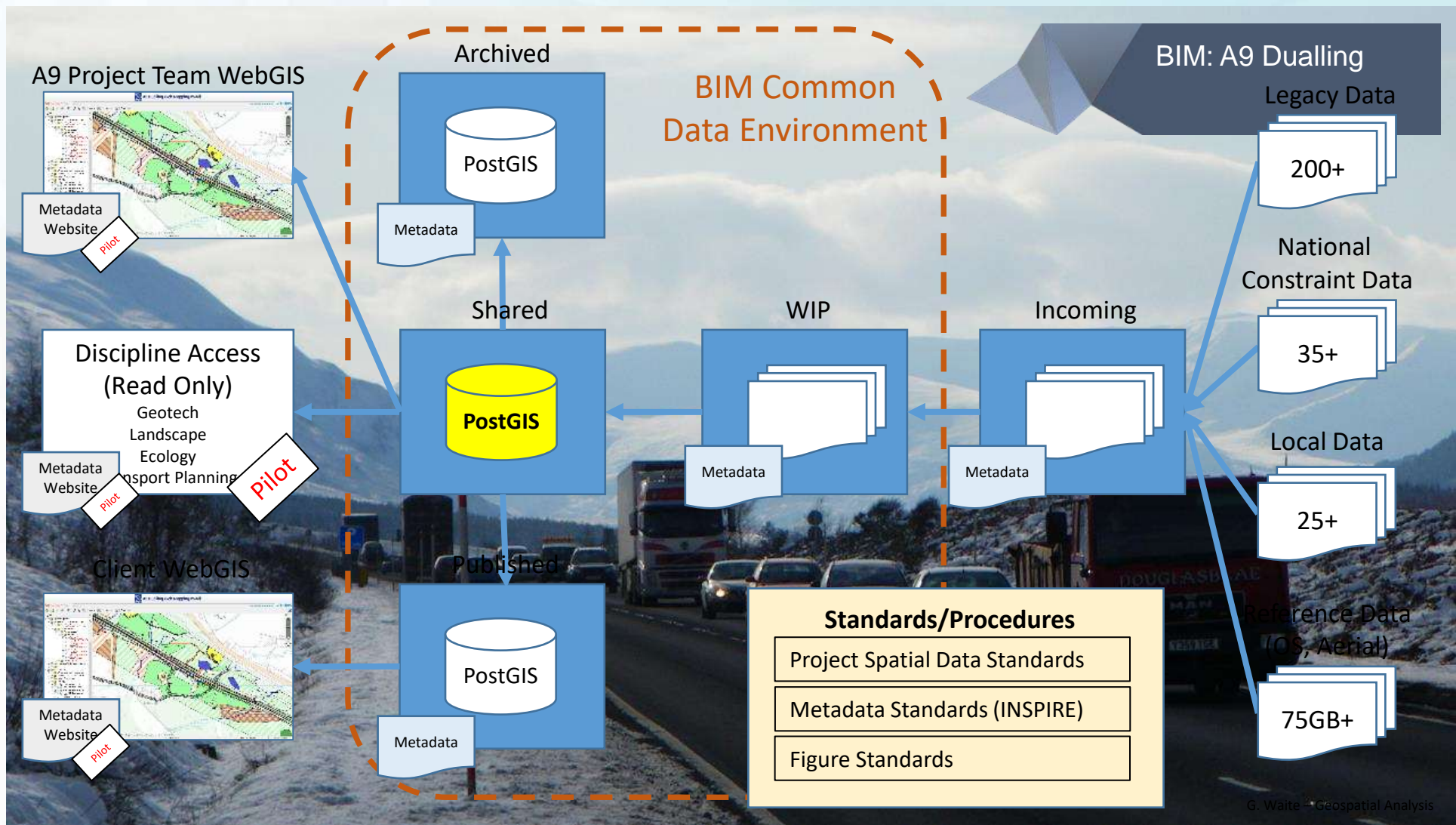
UK BIM ALLIANCE

LOD 200 CIC/RIBA Stage 2	LOD 300 CIC/RIBA Stage 3	LOD 350 CIC/RIBA Stage 4
<p>CONCEPT DESIGN</p> <p>Key outcomes:</p> <ul style="list-style-type: none"> Consolidate brief Propose preferred outline solution Spatial modelling and images to convey the concept design intent to the client <p>Key deliverables:</p> <ul style="list-style-type: none"> Work stage report including final project brief and cost plan Concept Design info as per deliverables list including Basis of Design report, calculations, sketches Scope documentation for additional surveys, investigations, COBie tables & CDM risk assessment updated through subsequent stages 	<p>DEVELOPED DESIGN</p> <p>Key outcomes:</p> <ul style="list-style-type: none"> Freeze brief, define preferred outline solution Submit for planning approval Spatial modelling and images to convey the developed design intent to the client and enable initial coordination and sequencing by the design team <p>Key deliverables:</p> <ul style="list-style-type: none"> Brief and consultations report Outline specification and schedule of accommodation Developed Design info as per deliverables list. Room Data sheets, Work stage report Design and access statement, Planning application 	<p>TECHNICAL DESIGN</p> <p>Key outcomes:</p> <ul style="list-style-type: none"> Define and detail solution to allow tender action and contractor appointment Submit for building control approval Graphical representation should be sufficient for spatial coordination of all main elements and indicative secondary elements. May also be used to demonstrate access <p>Key deliverables:</p> <ul style="list-style-type: none"> Technical Design information as per the deliverables list Detailed specification and final schedule of accommodation Building regulation/control application, Tender package

Stairs Component at LOD 200

Attribute Data / Key Information

Object Type: Stairs; Uniclass 2 Code: TBA; Location: TBA
 Overall F.F.L to F.F.L. (mm): outline - tbc at stage 3
 Clear Width (mm): outline - tbc at stage 3
 Going (mm): 300; Rise (mm): 160; Pitch (degrees): 30
 Does stairs form part of an escape route (Y / N): Y
 Top landing length (mm): tbc at stage 3
 Intermediate landing length (mm): tbc at stage 3
 Bottom landing length (mm): tbc at stage 3
 Weight (kgs): tbc at stage 3
 Pit dimensions (mm x mm x mm): tbc at stage 3





ATKINS

Offering Rail Better Information Services (ORBIS)

Delivering the specification, design, development, and implementation of an enterprise web mapping application to 35,000 end users.

The web mapping solution handles over 150 layers of data across a range of business themes and asset types.

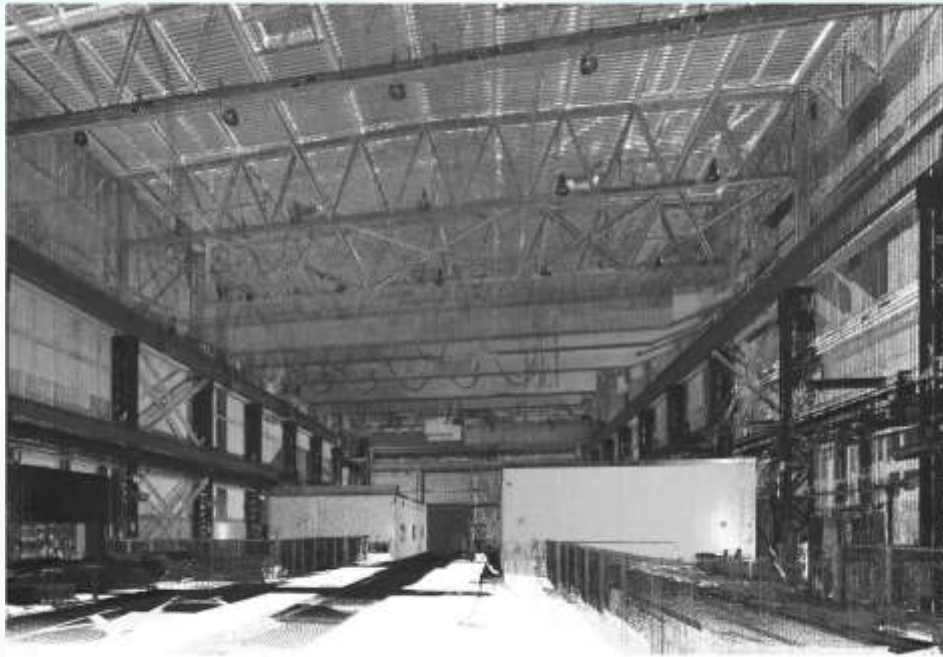


01 December 2016



ATKINS



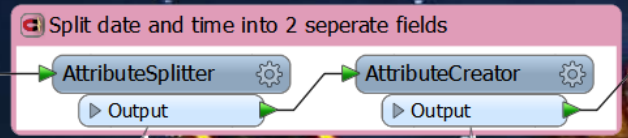
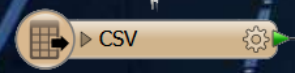




M25 Journey Time Analysis Atkins & EE Collaboration

We're working in partnership to keep the traffic moving around London. Delivering to Connect Plus Services we are working with EE to use mobile phone data to determine average journey times around the M25.

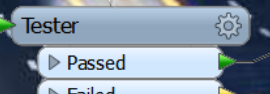
Monthly folder containing all files per month - run on a month by month basis and set to read all files in folder



AttributeSplitter [AttributeSplitter]
Attribute to Split: DateTime
Delimiter or Format String:
Trim Whitespace: Both
List Name: _datetime
Drop Empty Parts: No

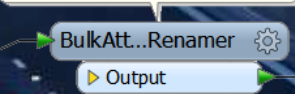
AttributeCreator [AttributeCreator]
Date = @Value(_datetime{0})
Time = @Value(_datetime{1})

Filter 6am - 10pm



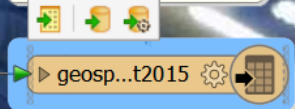
Tester [Tester]
Test Description: ""
TEST @Value(Time) >= 06:00
TEST @Value(Time) <= 22:00
Condition: AND

Change attributes to lowercase for PostGIS database

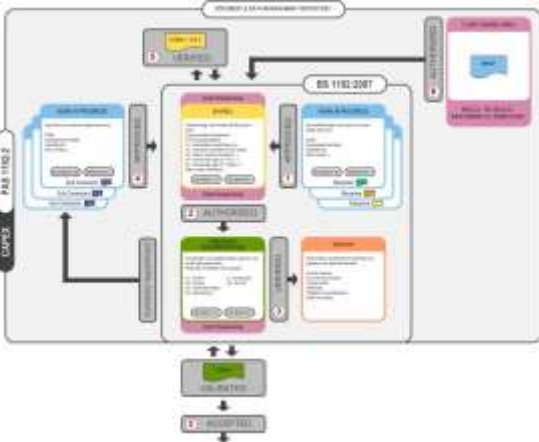
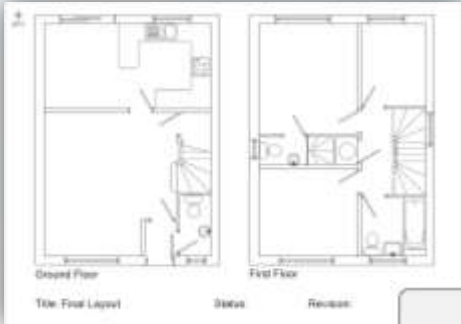


BulkAttributeRenamer [BulkAttributeRenamer]
Rename: All Attributes
Action: Change Case
Case Change Type: lowercase

Write into postgis database



The speed of trust – and the role of reliable data

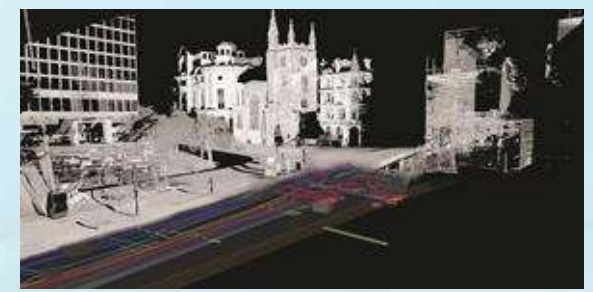
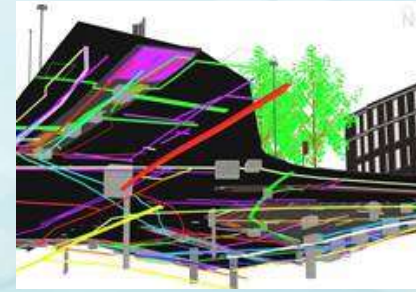
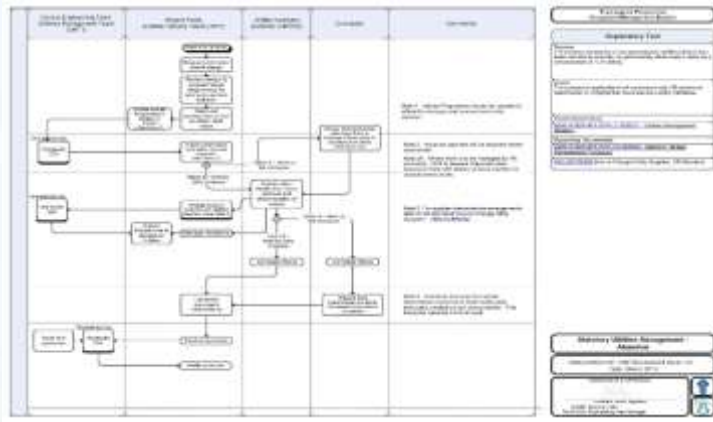


The need for better learning and development, under-pinned by on-going support 'on-the-job', which is where 70% of embedded learning occurs.



The Moral

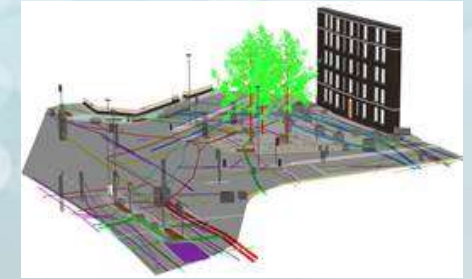
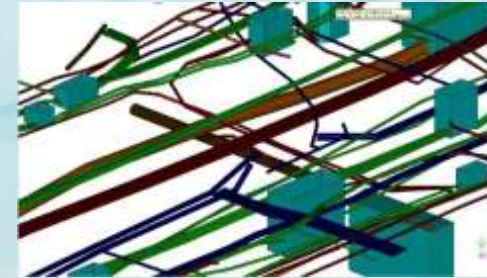
Utilities Process Maps and Procedures



ATKINS

Never ever take anything for granted,

.....no matter how many times you have done it before !



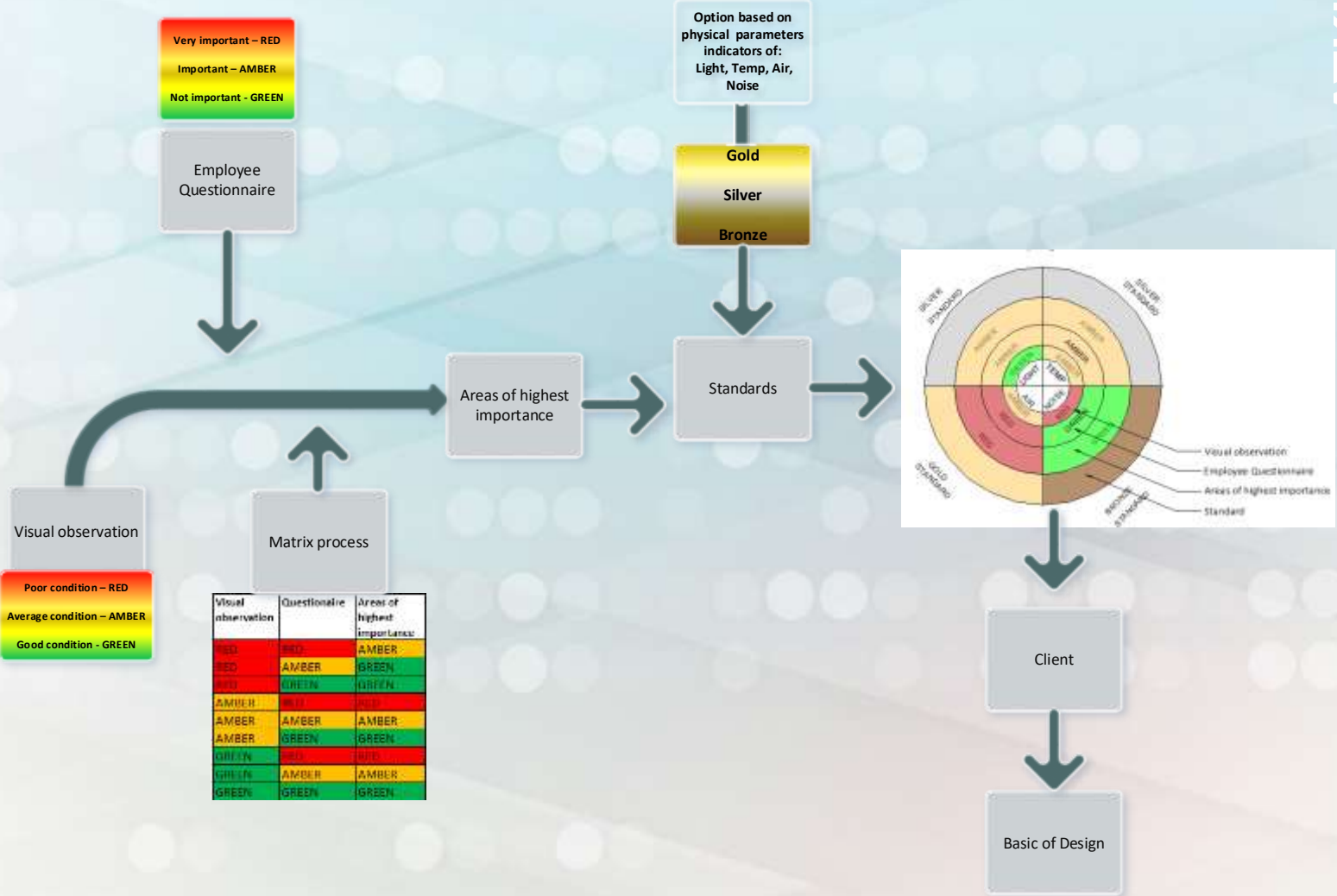
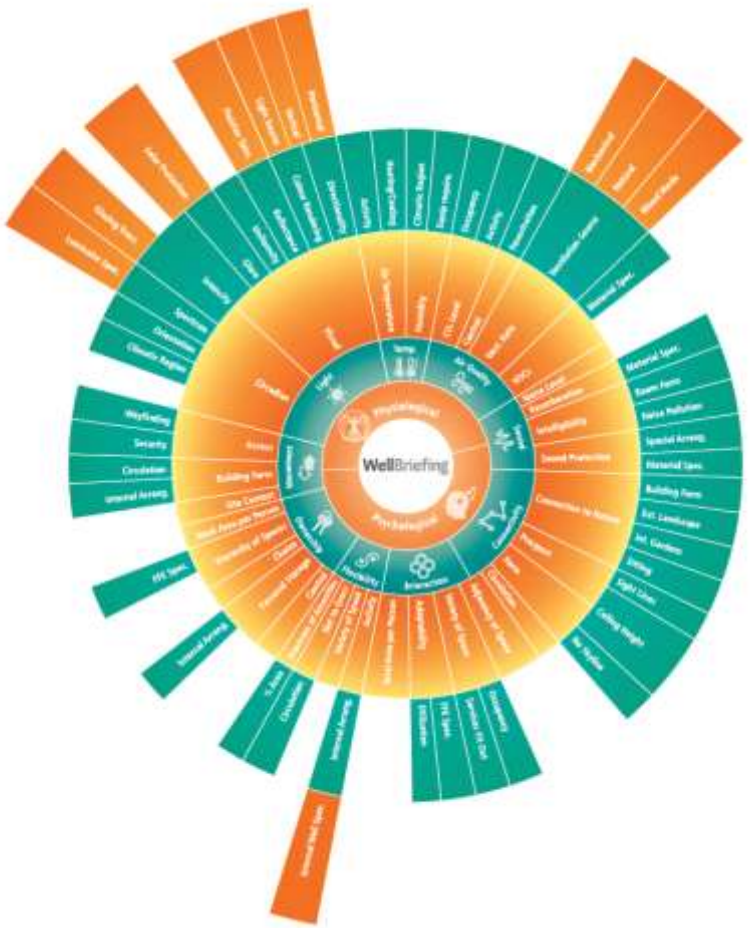
3D Route Finding



Road Works

<http://roadworks.org/>

Well Briefing



Contributions of digital transformation

CLARITY	Clarity of delivery
TECHNICAL JUDGEMENT AND ASSURANCE	Converging information production with sound engineering judgement and design
ACCESS	Wider, faster access to comprehensible and integrated information
LATERAL THINKING	Enabling reflective, adaptive thinking to incorporate whole life and integrated systems approach within the wider geographic context.
INNOVATION	Harnessing innovative technologies and harvesting intelligence from big data
DECISIONS	Fostering instinctive but rigorous collaboration and better decision making

Disruptive technology changes the face of industries. We are also in an *age of disruptive data*.

... you have to have your people work through, understand, and tailor themselves to a new world.