

Proportionality, Policy & Payback Learning from Scotlands BIM Programme

Building Capabilities in Complex Environments

Agenda

- 1.Scottish Futures Trust
- 2.Drivers to Scottish Governments BIM Adoption
- 3.Scotland's BIM Programme
- 4.BIM Portal – Proportionality, Policy & Payback
- 5.BIM Adoption In Scotland
- 6.Continuing The Journey

Scottish Futures Trust

SCOTTISH
FUTURES
TRUST

‘To improve the efficiency and effectiveness of infrastructure investment and its use in Scotland by working collaboratively with public bodies and industry, leading to better value and improved public services.’

SFT build



SFT invest



SFT connect



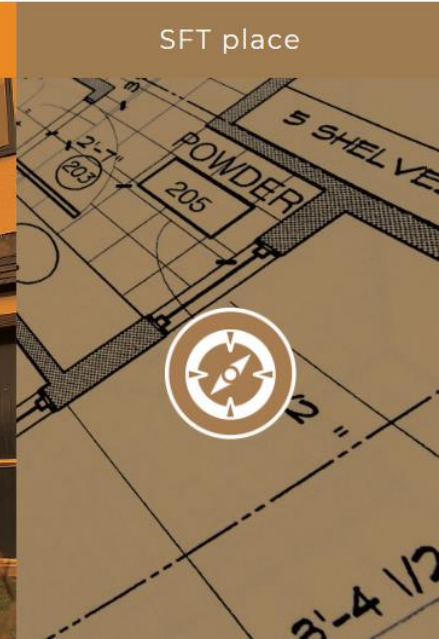
SFT green



SFT home



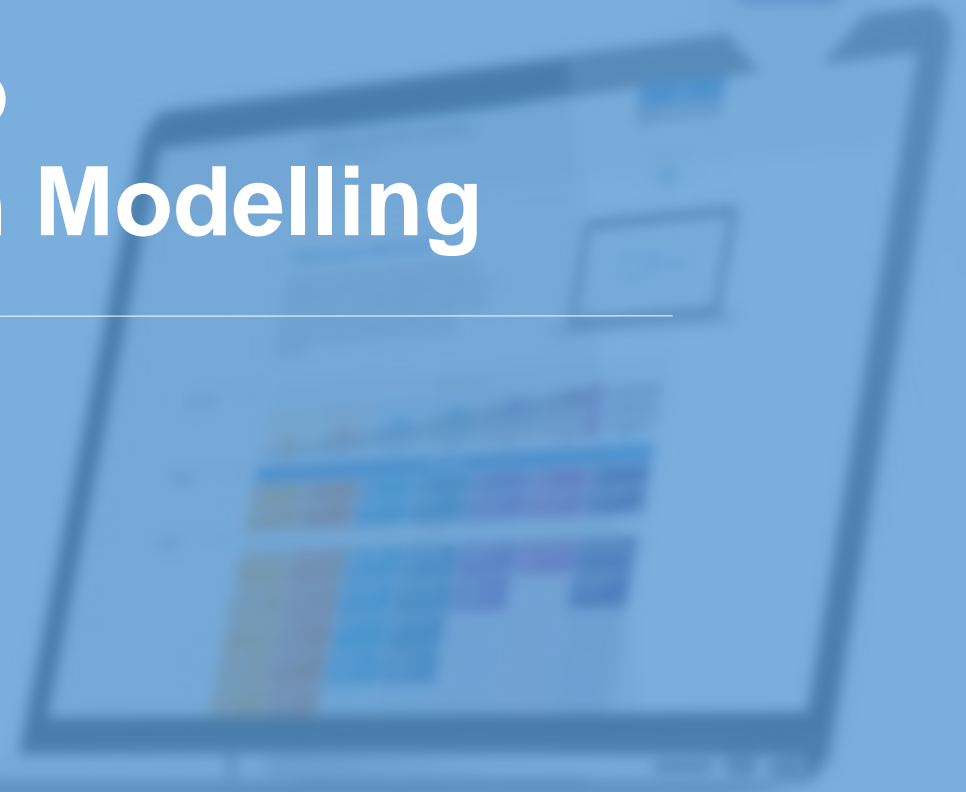
SFT place



Drivers To Building Information Modelling

Welcome to the new Building Information Modelling public sector Procurement within Scotland.

This portal provides clear guidance in the implementation of BIM within public sector procurement. This is to support the Public Sector derive greater value from their built assets through a collaborative and digitised way of working.



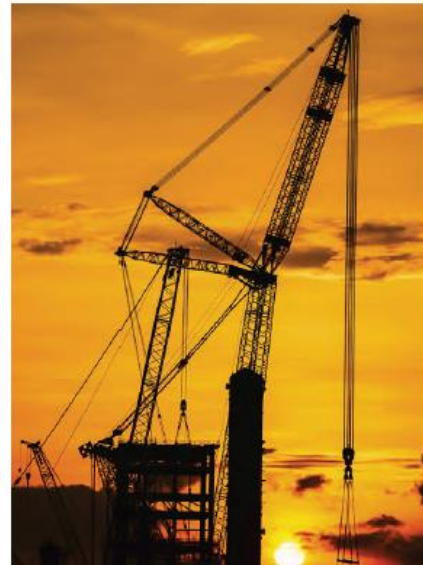


Review: Industry's symptoms		
	Low productivity	A dysfunctional training funding & delivery model
	Low predictability	Workforce size & demographics
	Structural fragmentation	Lack of collaboration & improvement culture
	Leadership fragmentation	Lack of R&D investment in innovation
	Low margins, adversarial pricing models, financial fragility	Poor industry image

SOURCE: MARK FARMER REVIEW

The construction productivity imperative

McKinsey Productivity Sciences Center June 2015



Srinam Changili
Azam Mohammad
Mark van Nieuwend

Think Modular/Pre-fab
Standardise design
Maintain Life-Cycle perspective
Focus on quality
Minimise waste

Industrial Strategy: government and industry in partnership



Construction 2025

July 2013

33% Reduction in const cost
50% in delivery reduction
50% reduction in emissions
50% reduction in trade gap

Review of Procurement In Construction

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Review of Scottish Public Sector
Procurement in Construction

October 2013

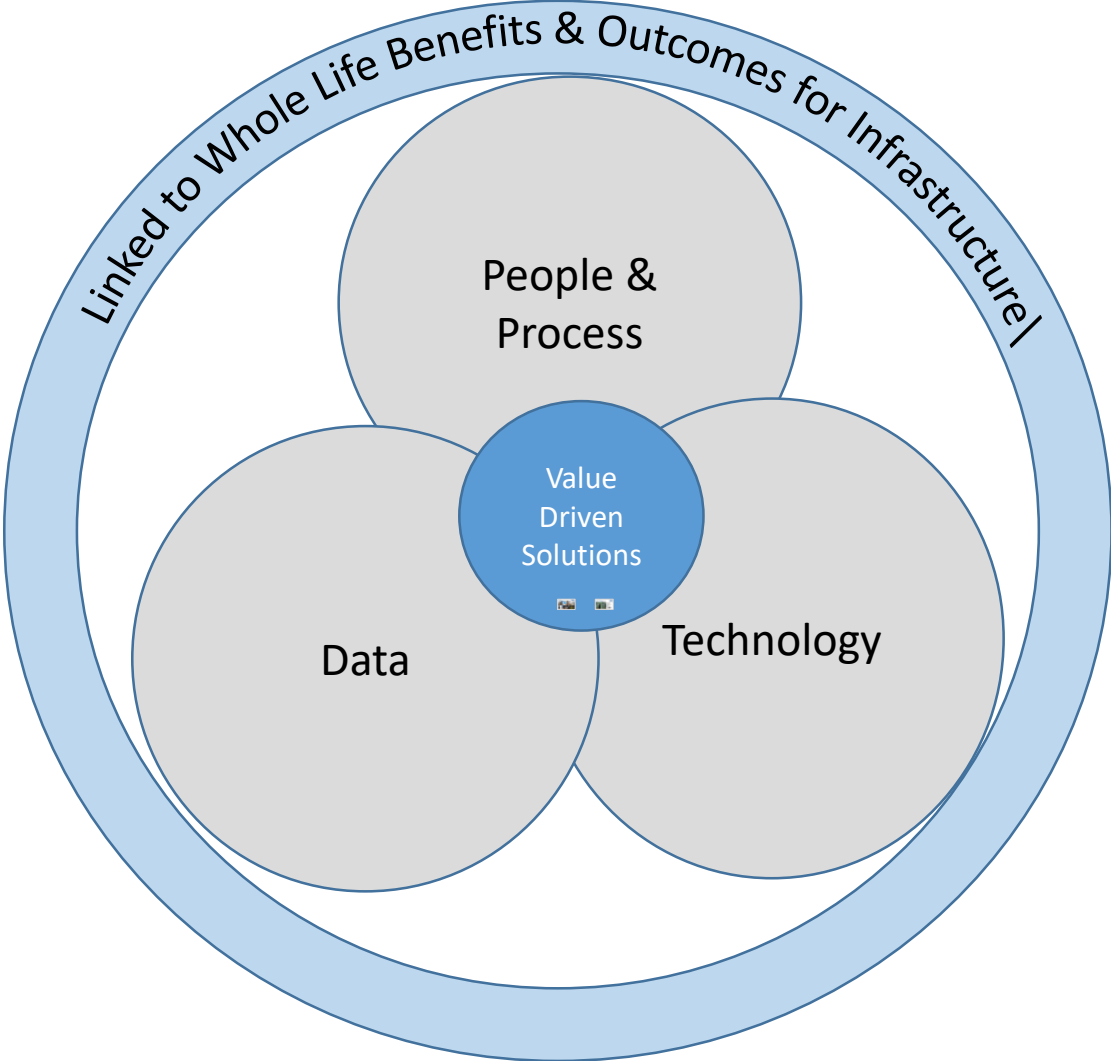


“ BIM should be introduced in central government with a view to encouraging adoption across the public sector. The objective should be that, where appropriate, projects across the public sector adopt BIM level 2 by April 2017.”

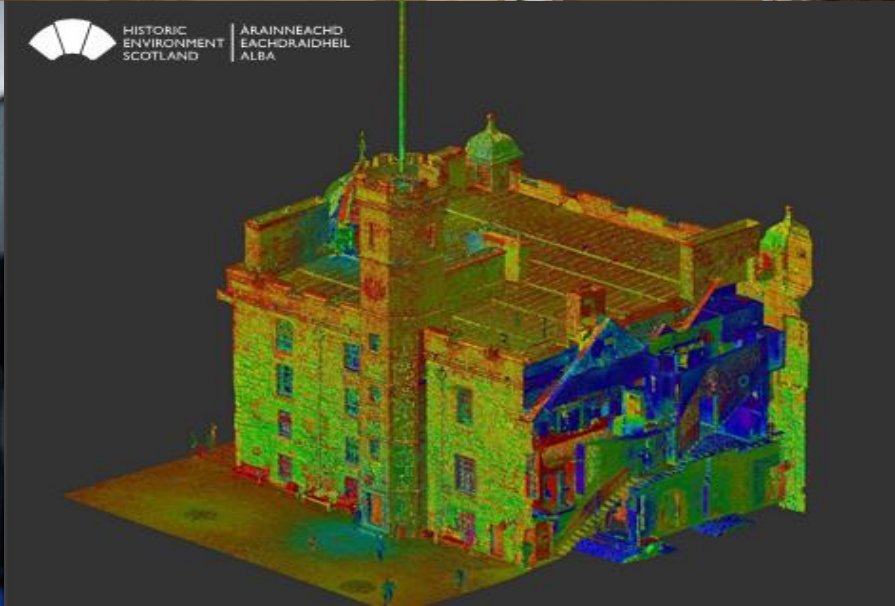
Review of Scottish Public Sector Procurement In Construction

"What is BIM?"

BIM & Digital Working



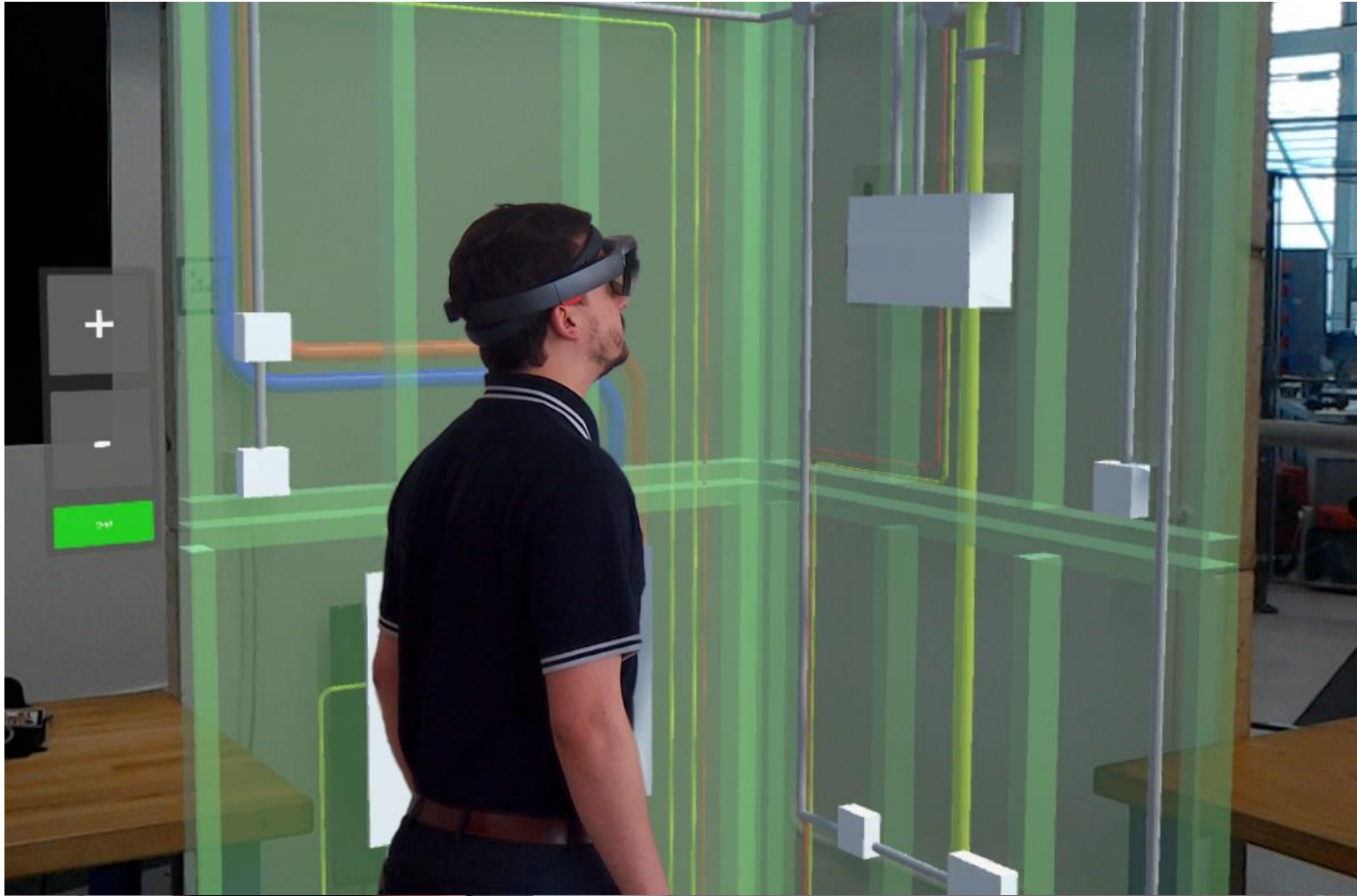
Technology



Engagement with Data

VR & AR Technology

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Soluis Group
Carbon Dynamic
University of Strathclyde's
Boeing (AMRC)
AECOM
Laing O'Rourke



Scotland's BIM Programme

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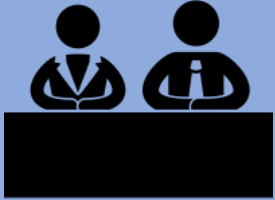
In the Beginning - ~~Challenges~~ Opportunities



“ BIM should be introduced in central government with a view to encouraging adoption across the public sector. The objective should be that, **where appropriate**, projects across the public sector adopt **BIM level 2 by April 2017.**”

*Review of Scottish Public Sector
Procurement In Construction*

- Defined deadline of April 17.
- Deliver Government Push/create demand
- Communicate benefits – Why ?
- Define “where appropriate” – When?
- Support implementation – How?
- How should we engage – Who?
- Supporting capability & skills
- Wider procurement reform.



SFT BIM Delivery Group Core Members



Paul Dodd MRICS



David Philp FICE, FCIQB, FRICS, FInstCES

Resources/Consultancy/Project Management Support

BIM Implementation Plan

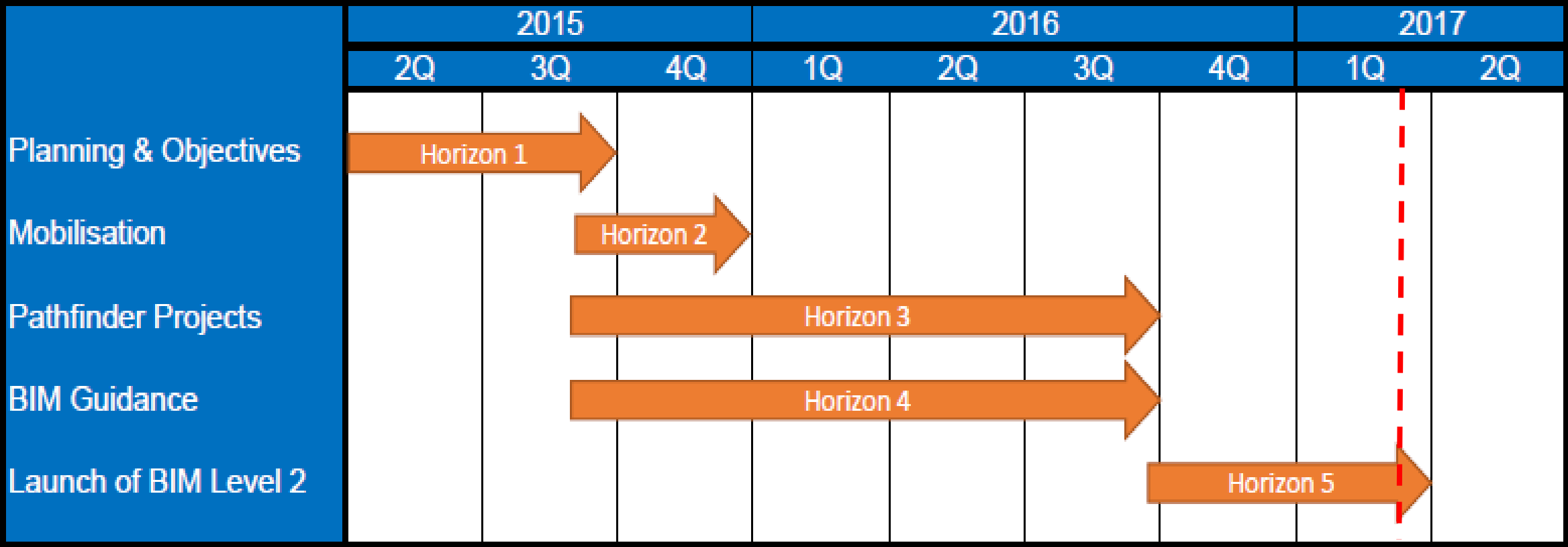


Roadmap for supporting
procuring authorities within
Scotland to implement BIM
Level 2 from April 2017.

This sets out a combination of
focused actions including:

- Pathfinder projects,
- Guidance,
- Training,
- Research

Programme



BIM Programme Scotland April 17



Development of new BIM Guidance Portal for Scotland.



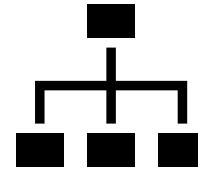
Deliver training to 300 public sector delegates.



Monitor and commission research into 4 Scottish BIM Pathfinder projects



Provide Leadership for digital change in construction.



Create and maintain new national working groups and governance.



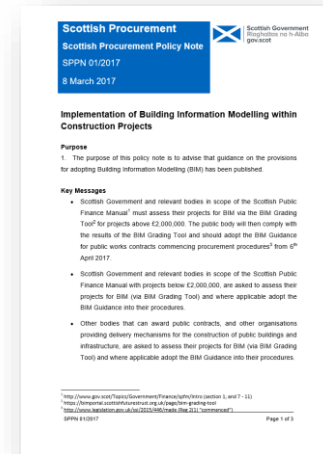
Support in creation of BIM Industry Group for Scotland.



Create innovative new Return on Investment Tool for Public Sector Bodies.



Engage & collaborate within international programmes.



Support and enable Scottish Government to publish BIM policy.



Commission international BIM study.



Where are we now?

Scottish Procurement Scottish Procurement Policy Note

SPPN 01/2017

9 March 2017



Scottish Government
Riaghaltas na h-Alba
gov.scot

Implementation of Building Information Modelling within Construction Projects

Purpose

1. The purpose of this policy note is to advise that guidance on the provisions for adopting Building Information Modelling (BIM) has been published.

Key Messages

- Scottish Government and relevant bodies in scope of the Scottish Public Finance Manual¹ must assess their projects for BIM via the BIM Grading Tool² for projects above £2,000,000. The public body will then comply with the results of the BIM Grading Tool and should adopt the BIM Guidance for public works contracts commencing procurement procedures³ from 6th April 2017.
- Scottish Government and relevant bodies in scope of the Scottish Public Finance Manual with projects below £2,000,000, are asked to assess their projects for BIM (via BIM Grading Tool) and where applicable adopt the BIM Guidance into their procedures.
- Other bodies that can award public contracts, and other organisations providing delivery mechanisms for the construction of public buildings and infrastructure, are asked to assess their projects for BIM (via BIM Grading Tool) and where applicable adopt the BIM Guidance into their procedures.

¹ <http://www.gov.scot/Topics/Government/Finance/spfm/Intro> (section 1; and 7 - 11)

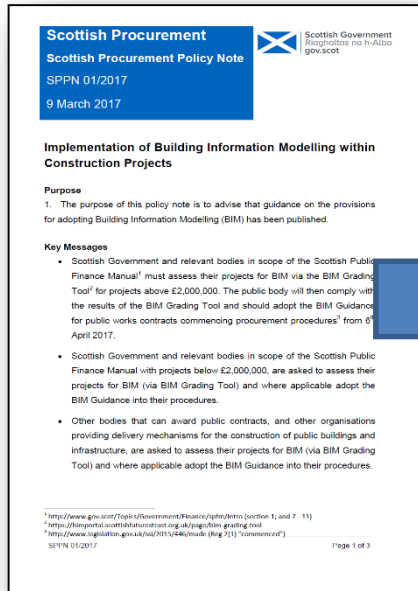
² <https://bimportal.scottishfuturestrust.org.uk/page/bim-grading-tool>

³ [http://www.legislation.gov.uk/ssi/2015/446/made/Reg_2\(1\)](http://www.legislation.gov.uk/ssi/2015/446/made/Reg_2(1)) "commenced"

BIM Policy & Grading



Scottish Government BIM Policy



Relevant Projects

Project above £2m
Procurement within
Scope

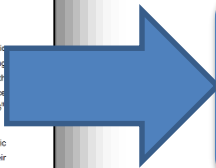
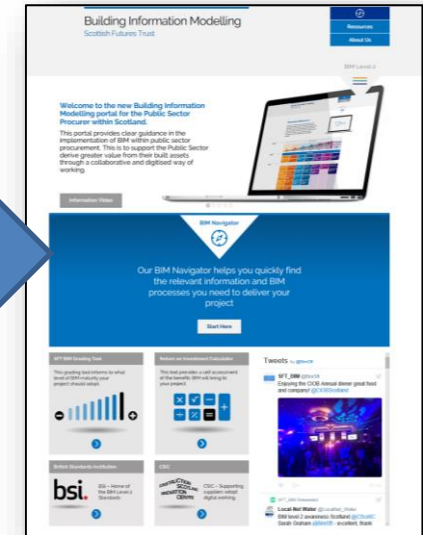
Project Below £2m
Procurement within
Scope

Procurement outwith
Scope
(Councils/Universities)

Assessment Tool Bim Level 1 or 2



Portal & Guidance



Required

Encouraged

Encouraged

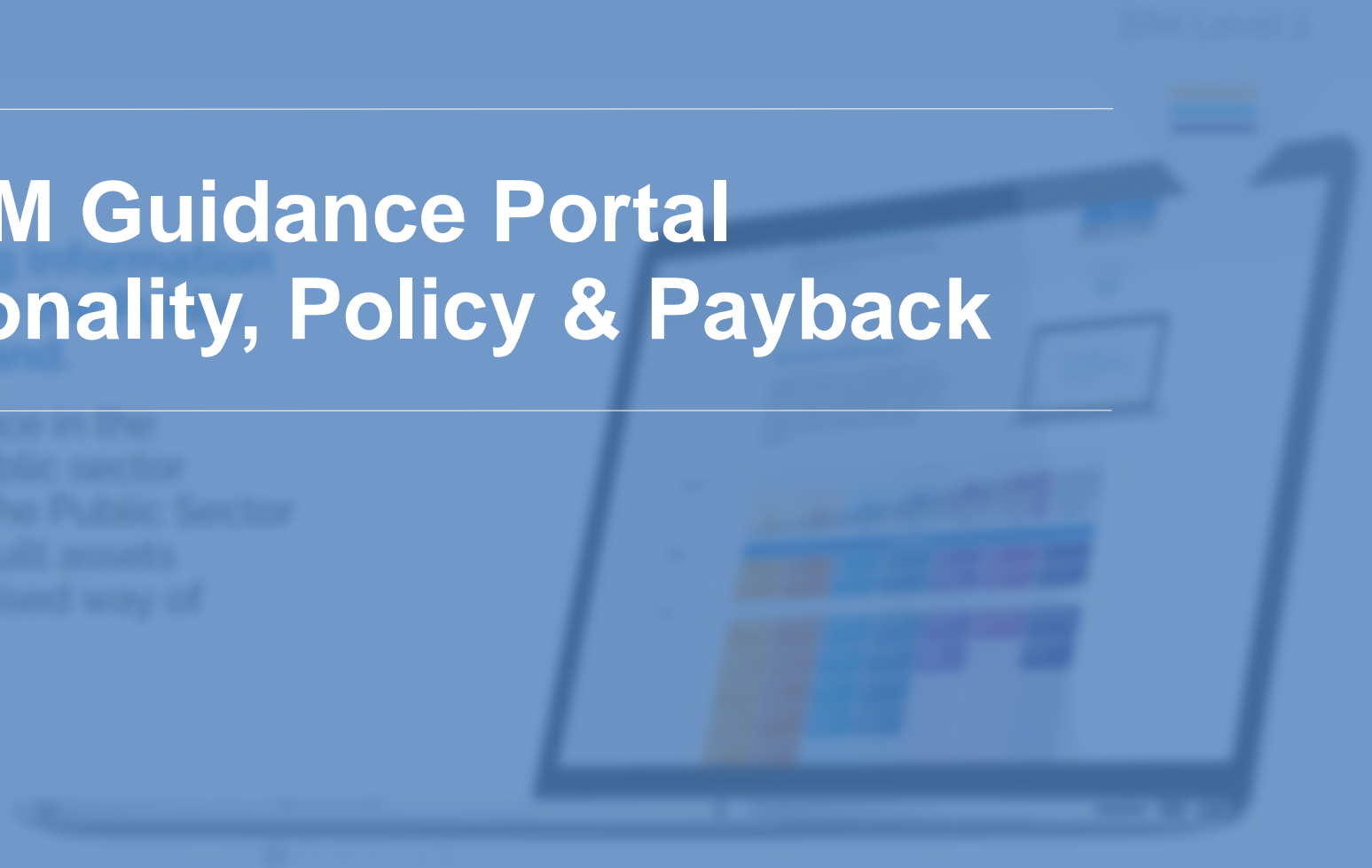


BIM Guidance Portal

Proportionality, Policy & Payback

Welcome to the new Building Information Modelling (BIM) Guidance Portal for the Public Sector Procurement (PSP) Scotland.

This portal provides clear guidance on the implementation of BIM within public sector procurement. This is to support the Public Sector derive greater value from their built assets through a collaborative and digitised way of working.



BIM Portal

Building Information Modelling
Scottish Futures Trust

Resources
About Us

BIM Level 2

"We believe that the savings being suggested both initially and throughout the life cycle of the structure make a compelling case for its adoption. In view of the development of BIM internationally and in the rest of the UK, the Scottish public sector and Scottish contractors risk being left behind."

Review of Public Sector Procurement In Construction 2013

BIM Navigator

Our BIM Navigator helps you quickly find the relevant information and BIM processes you need to deliver your project

Start Here

SFT BIM Grading Tool
This grading tool informs to what level of BIM maturity your project should adopt.

Return on Investment Calculator
This tool provides a self assessment of the benefits BIM will bring to your project.

Tweets by @BimSt

SFT_BIM @BimSt
We are filming our BIM stage task videos today across in Fife. @ThePhilpster hoping for an Oscar!

1. Keep it simple
2. Specific to Scottish Public Sector
3. Not reinventing the wheel
4. Support three key question in relation to BIM adoption
 1. When?
 2. Why?
 3. How?

Approach To Implementation

When?

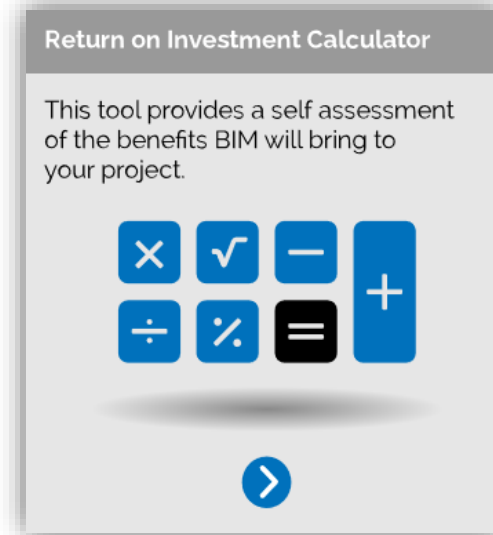
Why?

How?

BIM Level 2 Grading Tool



BIM Level 2 Benefits Tool



BIM Level 2 Guidance





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Start Here

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British Standards Institution

bsi.

BSI - Home of the BIM Level 2 Standards



CSIC

CONSTRUCTION SCOTLAND INNOVATION CENTRE

CSIC - Supporting suppliers adopt digital working.



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Building Information Modelling (BIM)

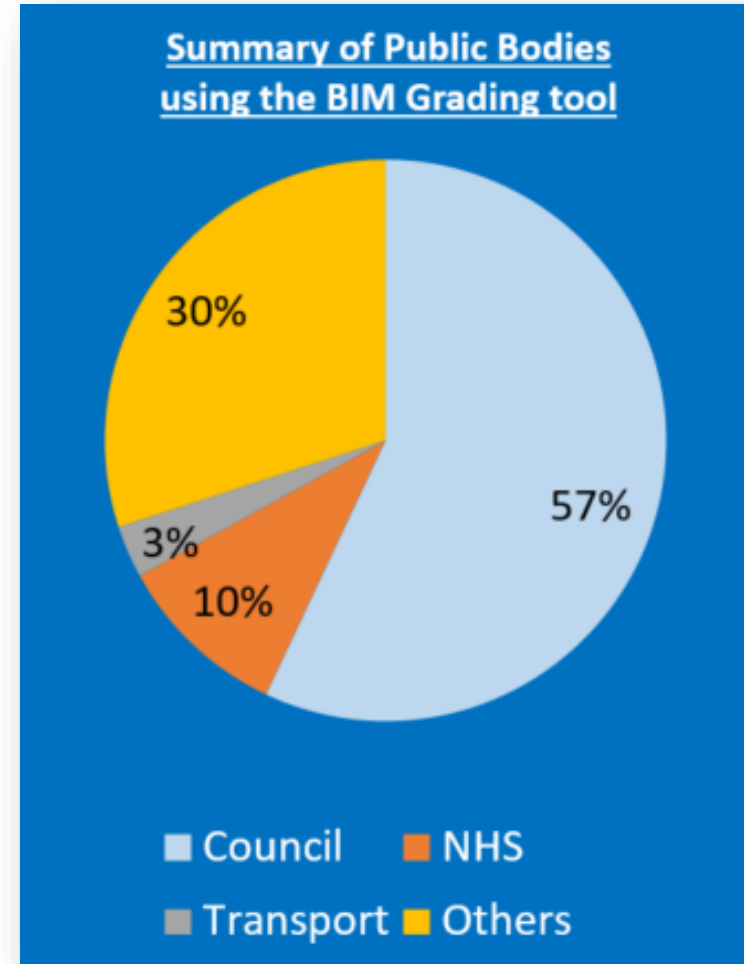
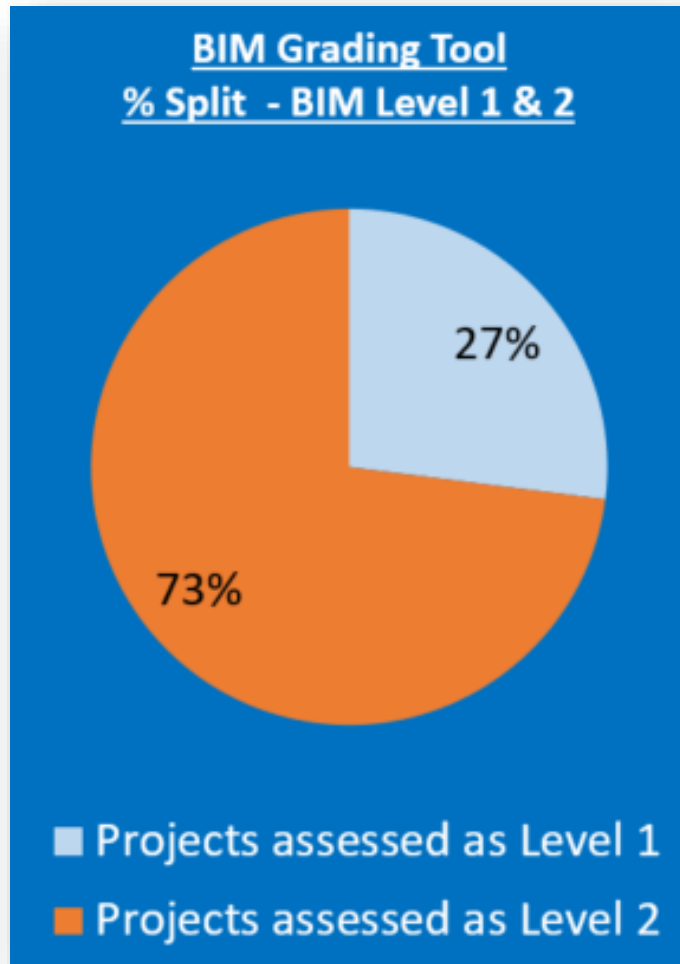
BIM Compass
BIM Level 1
BIM Terminology
Workflows / Case study

Resources

What is BIM?
Level 1 Standards
Level 2 Standards
BIM Terminology
Video 1 library

BIM Grading Tool

£540m of projects have been assessed through the BIM Grading Tool since April 2017.



Return on Investment Tool



Building Information Modelling

Return on Investment Calculator

You will find four main sections to complete, as described below. On completion you will be presented with a dashboard detailing your project which you can revisit at any time.

Step 1
Project Details

Enter key project details to inform ROI assessment.

Step 2
Qualitative Assessment

Complete a qualitative assessment of the benefits BIM Level 2 will bring to the project.

Step 3
Quantitative Assessment

Complete a quantitative assessment of the benefits BIM Level 2 bring will to the project.

Step 4
Investment Details

Complete an assessment of any project specific investment costs required to implement BIM Level 2.

Outcome
ROI Dashboard

Showing the results from all the inputs through Steps 1 to 4.

Continue

Construction start date:	Construction value:	Operational period (years):
12-11-2017	£20,000,000	25
Total Design Fees (%):	Preliminaries:	Tender price inflation (% pa):
10	15	4

The adoption of BIM Level 2 will have an estimated Return on Investment of between

£1,210,000

AND

£1,816,000

This is an estimated assessment when comparing BIM Level 2 adoption against traditional project delivery methods.

Low	Mean	Upper
£1,210,000	£1,513,000	£1,816,000


Furthermore, BIM level 2 will offer

Significant Benefit

when assessed against a variety of qualitative benefits.
This assessment is based on the self assessment and data provided against defined criteria.

Benefits by Stage		
Brief & Design	Procure & Construct	Operation
Quantitative		
No Benefit £-92,000	Significant Benefit £757,000	Significant Benefit £848,000
Qualitative		
Marginal Benefit	Significant Benefit	Significant Benefit

BIM Navigator - Guidance



BIM Navigator

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Start Here

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British Standards Institution



BSI - Home of the BIM Level 2 Standards

>

CSIC



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>

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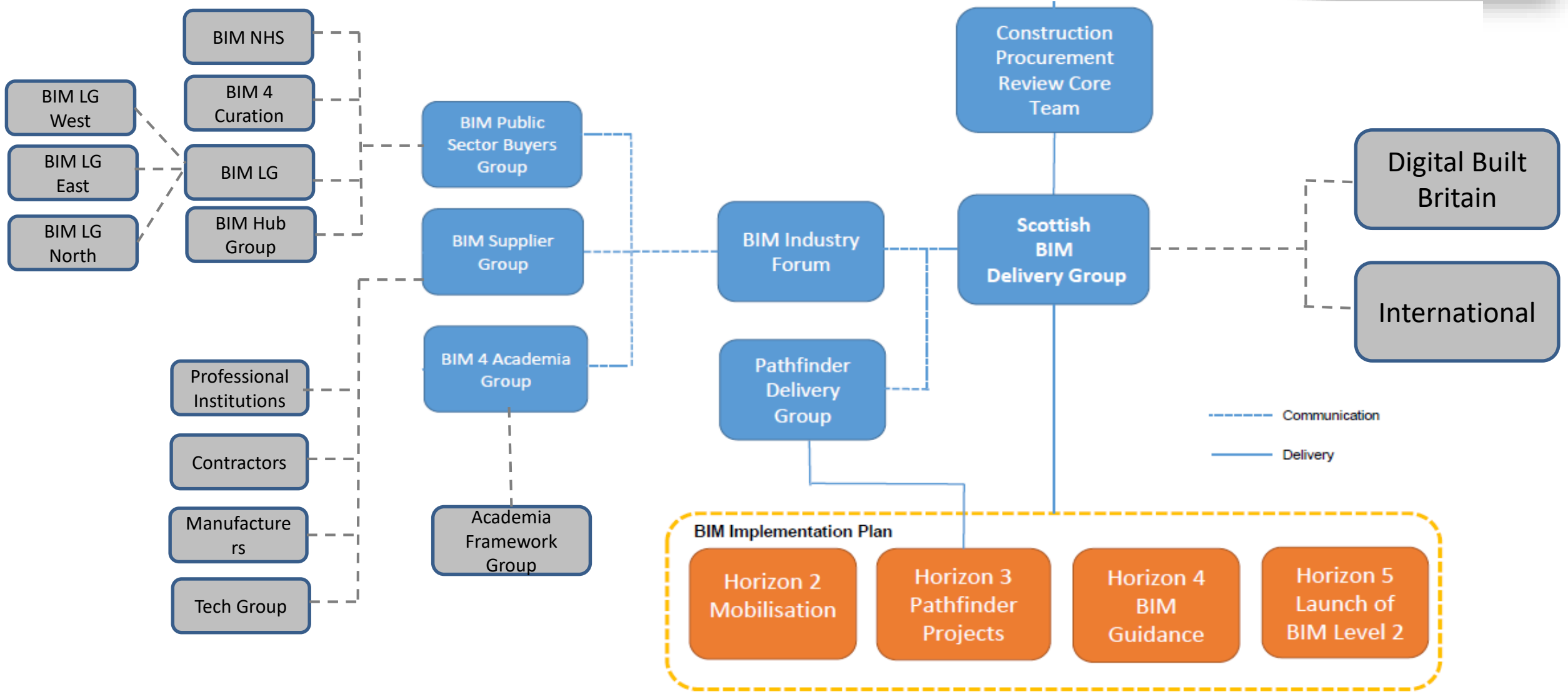
Collaboration & Capability

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Collaborative Working



BIM Industry Programme



CONSTRUCTION SCOTLAND INNOVATION CENTRE

Home About us Business support Case studies Initiatives Skills Facility Events Contact us

Skills
Postgraduate
BIM
Why BIM?
BIM FAQ
What are the barriers to BIM?
Top 10 Acronyms Explained
Assess your BIM Capability
Our Events
BIM Standards
BIM Guidance
BIM Wiki
BIM Tools
BIM Dictionary
BIM Protocols
BIM Accreditation
BIM Knowledge Base
DIMA
OSM

Preparing for BIM

BIM will be adopted, where appropriate, in projects across the public sector by April 2017. BIM will support the creation of a more efficient built environment that is more sustainable and with more intelligent infrastructure fit for the 21st century.

CSIC, supported by Scottish Enterprise and in partnership with the Scottish Futures Trust, BIM Region Scotland and the Scottish BIM Suppliers Group will be helping Scottish SME's get ready for BIM Level 2 with a programme of free awareness & implementation events and free impartial advisory service.

For general FAQs go [here](#).

Join our BIM Network

We are also initiating a network so that SME's can keep up to date with our free training opportunities, the latest BIM guidance, best practice and case studies.

[→ Sign Up](#) to join our BIM network & newsletter

Building Information Modelling

Advisory Service
Impartial advice to Scottish SME's supported by Scottish Enterprise and delivered by Construction Scotland Innovation Centre in partnership with BIM Region Scotland and the Scottish BIM suppliers Group.

[Start here →](#)

WHAT DOES BIM MEAN TO ME?

Follow us to keep up to date: #CSICBIM

f t in g+

	2016				2017				2018				2019				2020	
Year Quarters	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2
BIM Level 2 Awareness	█	█	█	█	█													
BIM Level 2 Implementation									█	█	█	█						
BIM, Asset Management + Future Cities									█	█	█	█	█	█	█	█	█	
April 2017 BIM Level 2 Implementation																		

BIM Level 2 Awareness

A 10-Month Programme of Events from July 2016 – April 2017

BIM Level 2 Implementation

A 24-Month Programme of Workshops & Training from April 2017 – December 2018

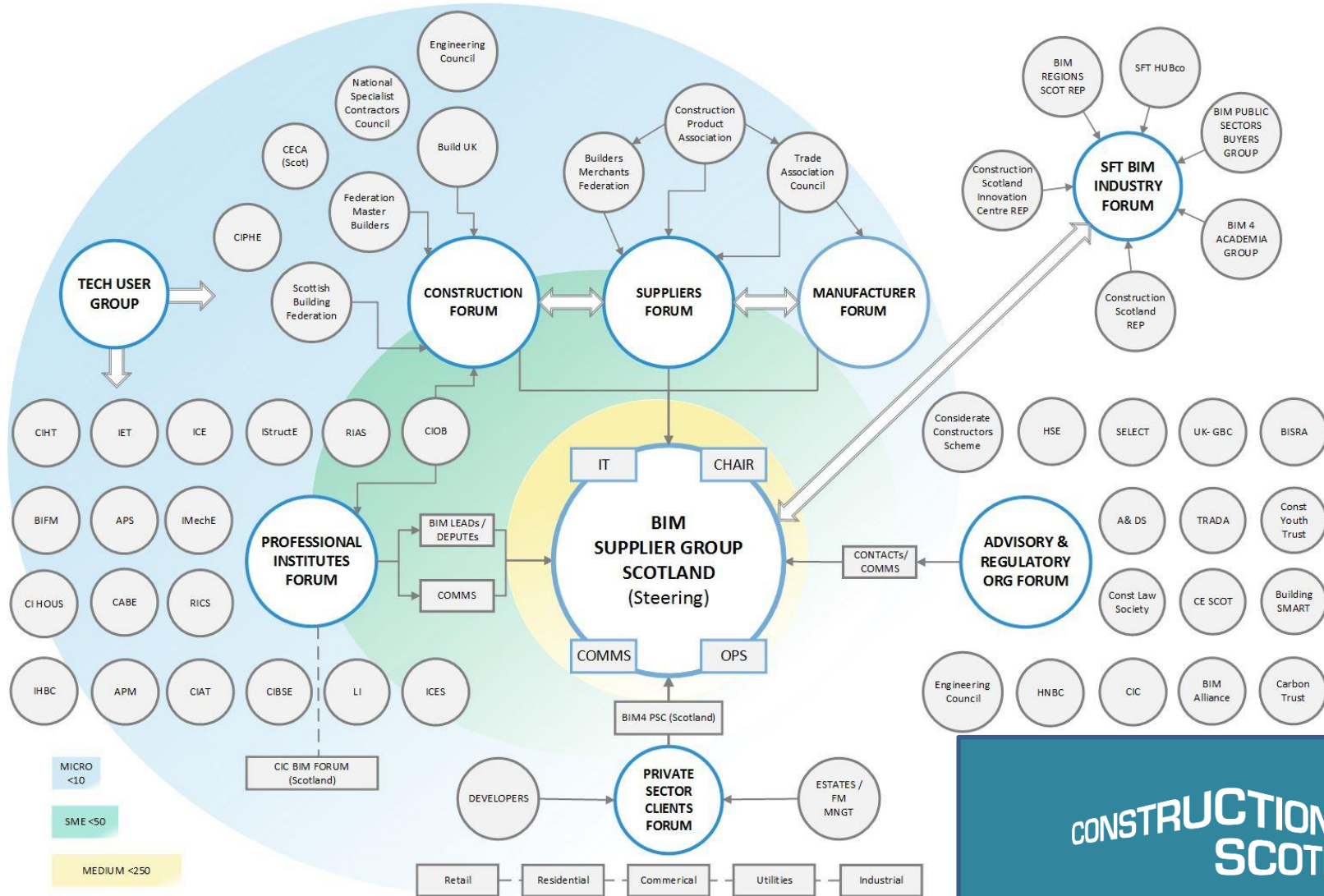
BIM, Asset Management + Future Cities

A 24-Month Programme of Fore Sighting Events from 2018 +



Join the network today, register at www.cs-ic.org/BIM

BIM Supplier Group



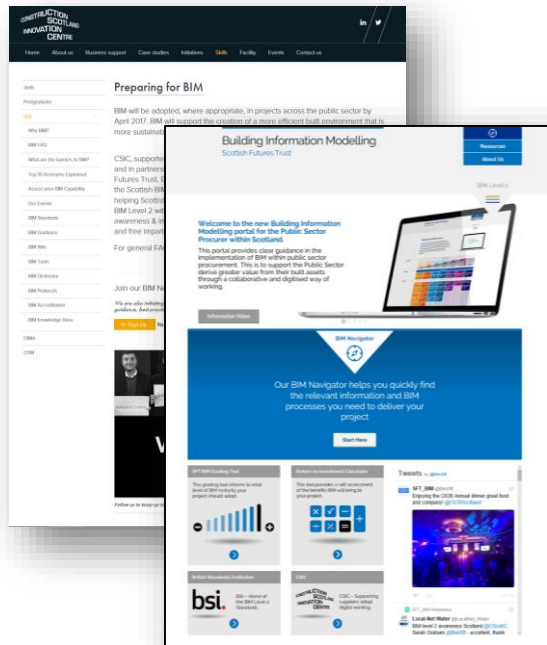
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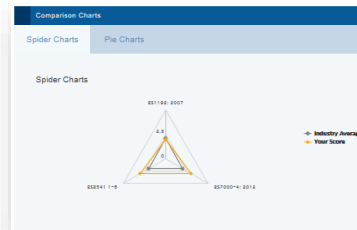
Supporting Upskilling



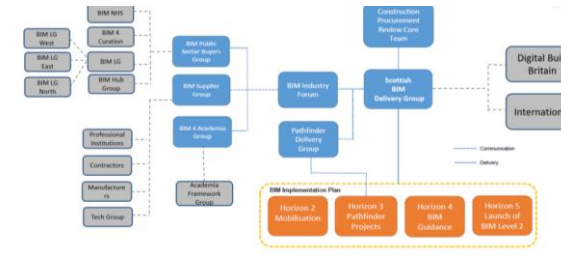
Guidance & Resources



Assessment Tools BIM Compass



New communities



BIM Knowledge Framework



Training & Awareness.



BIM Adoption



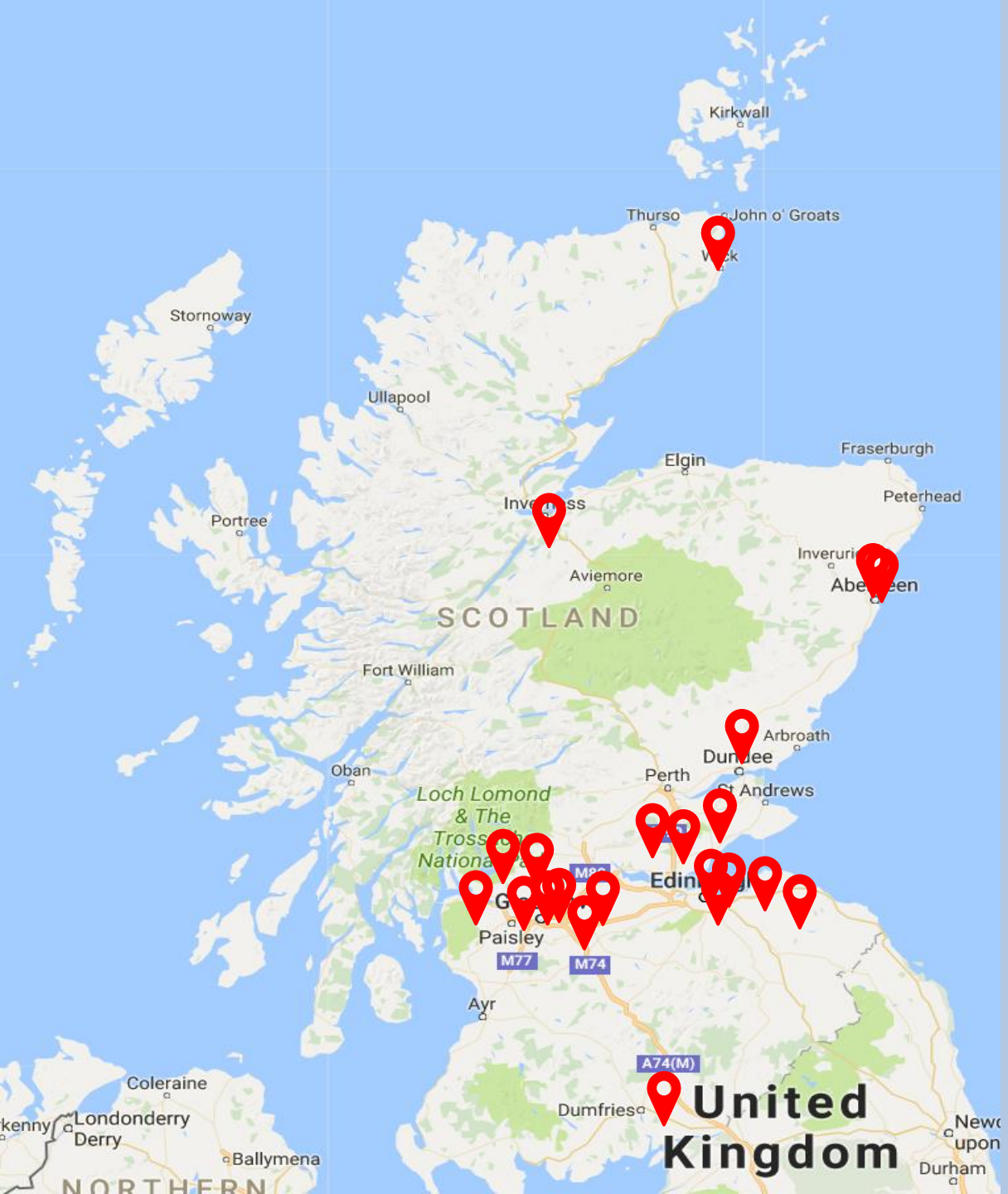
Creating Demand for BIM

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Modelling guidance portal for the Public
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implementation of BIM within public sector
procurement. This is to support the Public Sector
derive greater value from their built assets
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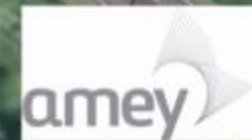
Adoption of Digital Working

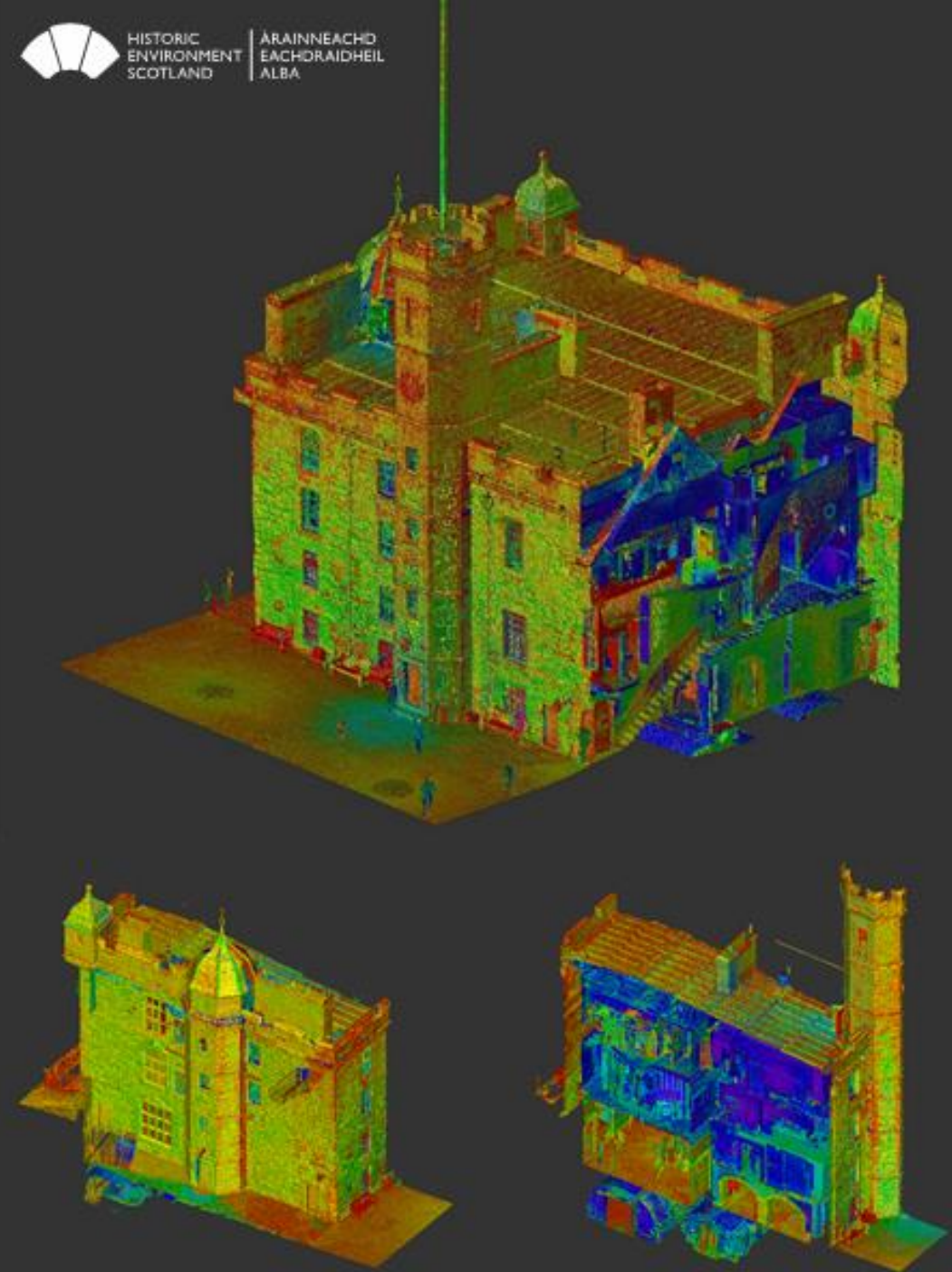
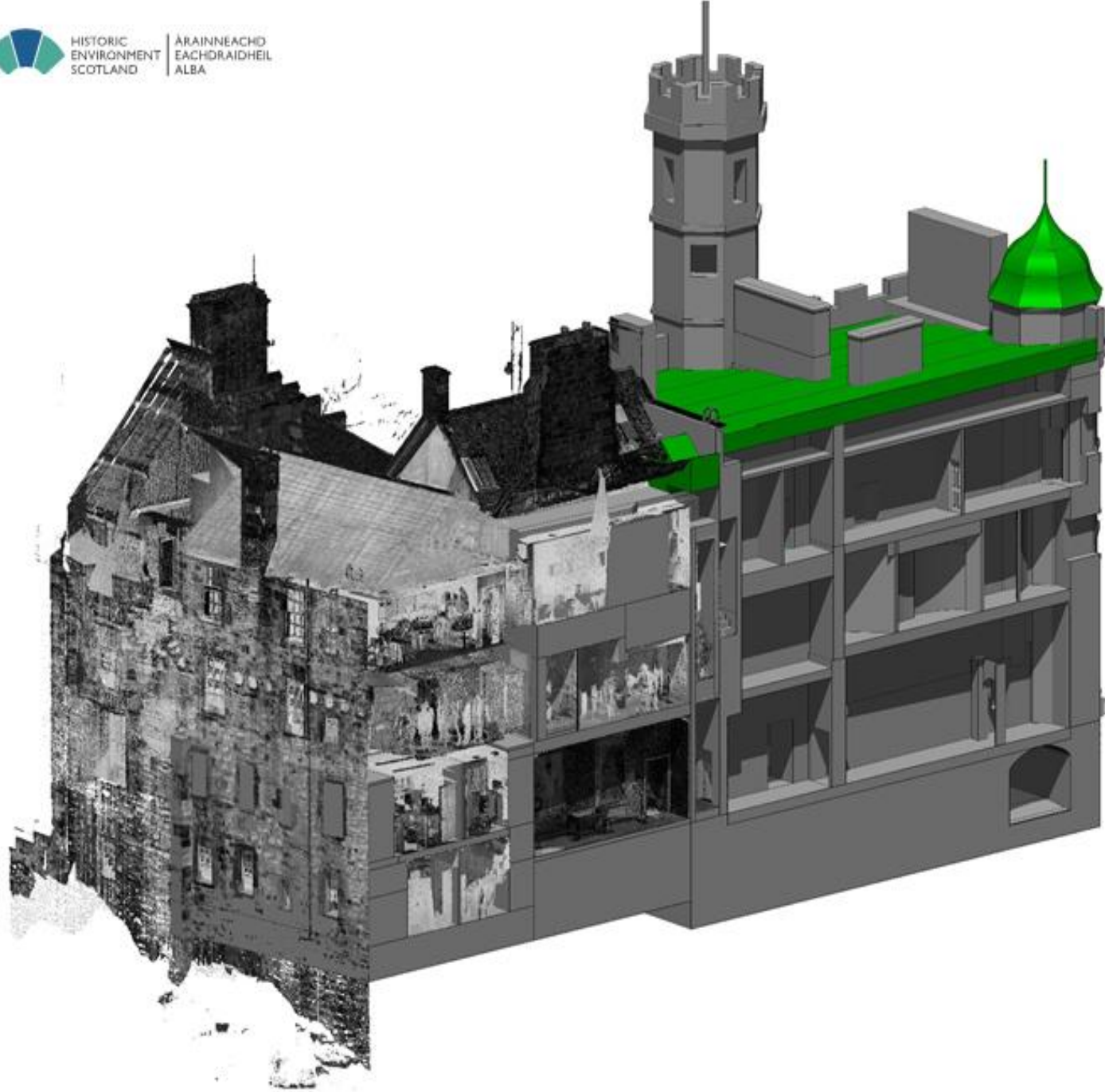


Projects that have implemented elements of BIM and digital workings



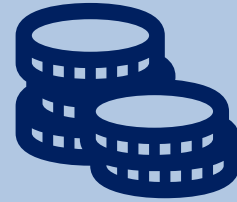
Improved Stakeholder Communications



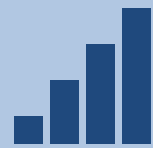




**Projects in development
committing to implement BIM
within Scotland as of Nov 17.**



£620m of BIM Projects



£510m BIM Level 2

£110m BIM Level 1

**70% of public bodies who responded
have BIM Champions.**



Embedding Adoption

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BIM Working Group Strategy



Provide strategic leadership & training to help embed BIM Level 2 BIM as “Business As Usual” within Departments



Ensure Department’s senior leaders are committed and accountable for BIM Level 2 adoption.



Support Department’s continued adoption and development of common practices with regards to implementing BIM Level 2, cognisant of each Department’s operating model.



Gain leadership commitment to develop internal capability, a whole life approach and support for the adoption of any new ways of working.



Develop framework/process and provide support to Departments to develop their OIR and AIR and project EIRs to include IDPs

Key Lessons from the Programme

- **Governments commitment to BIM is key.** (BIM Programme/Policy/Pipeline)
- **Get the basics right!**
 - Basic understanding of BIM/How does it effect me.
 - Don't forget BIM Level 1. (More work on CDE/Info management)
- **Level of change is significant** (Organisational & behavioural)
- **An aligned industry programme invaluable**
- **Delivering BIM key to success**
 - Delivering BIM on a project is the best learning available.
 - Creating more advocates!

**BIM is a journey
not a destination**

**Scotland and Ireland
continuing to
collaborate in their
BIM Journeys.**



CitA
BIM GATHERING



Thank you

Paul Dodd



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bimdeliverygroup@scottishfuturetrust.org.uk



WEBSITE

<http://www.scottishfuturetrust.org.uk/>