

Summary Report

BIM Competency Framework: SCOPING WORKSHOP

13 February 2018



BIM Academic Forum



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EXECUTIVE SUMMARY

The following document provides an overview of the workshop held in relation to the development of a BIM Competency Framework that was held on the 23rd October 2017. The purpose of the workshop was to get input from a wide range of stakeholders in order to establish key guiding principles for the framework.

This report summarises the finding of the day and outcomes from the workshop. Where possible the views of members have been summarised. For any further information in regard to this report, please contact the Scottish BIM Delivery Group (bimdeliverygroup@scottishfuturestrust.org.uk).

Scottish Futures Trust and Construction Scotland Innovation Centre would like to thank the organisations who attended and contributed to the knowledge sharing event.

1. Background & purpose

On 23 October 2017 the Scottish Futures Trust, with support from Construction Scotland Innovation Centre, hosted a workshop to commence scoping a BIM Competency Framework. The purpose of the workshop was to get input from a wide range of stakeholders in order to establish key guiding principles for the framework. Workshop participants included members of the BIM Public Sector Buyers Group, the BIM Suppliers Group and the BIM 4 Academia Group. This document outlines the findings from the workshop that will inform future research in this area.

The workshop commenced with an overview of the BIM Programme Scotland including reference to the:

- Scottish Procurement Policy Note (SPPN 01/2017) of March 2017 which states that the Scottish Government and relevant bodies in scope of the Scottish Public Finance Manual must assess projects above £2,000,000 using the BIM Grading Tool. Those under £2,000,000 are also asked to assess their projects for BIM and where applicable adopt the BIM Guidance.
- The Building Information Modelling guidance portal for the public sector procurers within Scotland which includes the:
 - BIM Navigator
 - BIM Grading Tool
 - Return on Investment calculator.



An overview of the key elements and stakeholders within the BIM Programme Scotland was also presented (see Figure 1).

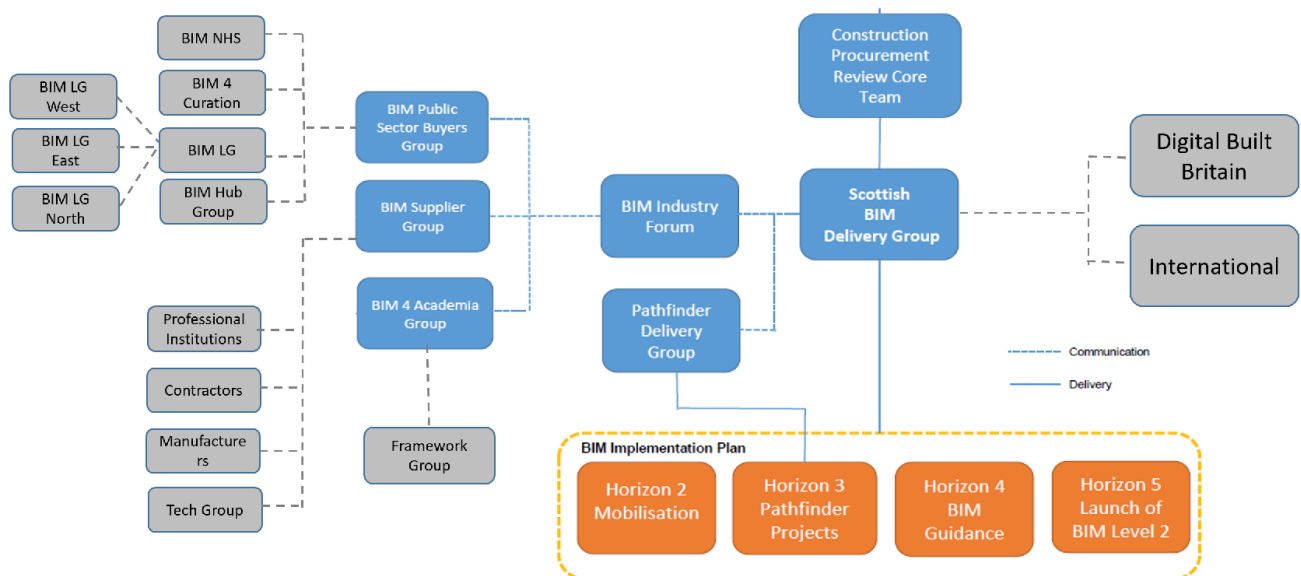


Figure 1: BIM Programme Scotland – key elements

2. Update from UK BIM Alliance – Upskilling workstream

Martin Simpson, Reader in Civil Engineering and Industrial Design at the University of Liverpool, gave an update on the skills work happening within the UK BIM Alliance. Key points from the presentation are summarised below:

- The upskilling workstream of the UK BIM Alliance was set up: *“To determine how to best support professionals of the built environment to learn, develop and enhance the skills and knowledge they need to ensure Level 2 BIM is business as Usual by 2020.”*
- The workstream has developed a roadmap of projects and initiatives needed to make progress on this (see Figure 2 below).
- The critical issue is competence –a combination of knowledge, skills, abilities, behaviours and attitudes. It’s important to recognise that formal training is only one part of this.
- BIM is a combination of technologies, processes and people. To date the investment has largely been in technology, and the least investment has occurred in people.
- There are different elements to competence –definition, how to develop, management and assurance of competence.
- The Standardized Vocational Education and Training for BIM in EU (BIM4VET) is a research project aimed at promoting the coordination of BIM training offer in EU and raising awareness about the necessity to adopt a EU transparency of this offer. The project started in September 2017.
- Bilal Succar, who is based in Melbourne, has also done a lot of work in this area <http://www.bimthinkspace.com/> . His approach is activity based and from an international perspective. Need to consider whether it has the right sort of activities in the UK context.

- There is little alignment and standardization in training in the UK at the moment. Range of options include:
 - MSc / PGCert providers – there are a surprising number of providers, about 50% appear to follow the Learning Outcomes Framework.
 - Paid for CPD e.g. RICS, ICE, BRE, BSI – some are following the Learning Outcomes Framework.
 - Free CPD – e.g. ThinkBIM, buildingSMART – large variations
 - Online – B1M, MOOC's.



Figure 2: Roadmap of the upskilling workstream - UK BIM Alliance

3. Introductory discussion and themes

Following the presentation a range of topics and issues were discussed amongst all participants. The key themes have been summarised below:

- **Credibility** - Concerns were expressed about the credibility of some of the BIM training being offered. It's difficult to assess whether it's a high quality course, except through knowledge of the individuals presenting. In addition one often only gets a small percentage of the course content that is relevant to one's particular role in a project. Developing a standardised body of knowledge was seen as critical. Many training providers say they would use a body of knowledge if it was provided to them.
- **Other related initiatives** - There is an EU project looking at reviewing and updating the Learning Outcomes Framework (Richard Laing from RGU is involved in this). The most recent version was completed in 2013 and 50% of the current standards weren't released then. There has been a pause in updating it while the EU project is ongoing. Some participants expressed concern that the EU work only has 4 roles in it – some professions are going to need to know a lot more.
- **Mandatory** - Concerns were expressed about whether people will use the framework unless its mandatory in some way. Some people felt that the framework could drive uptake by only signposting to courses which were aligned to the framework.
- **Supporting individuals** - Some people felt that it would be helpful if the framework could support individuals to assess where they are at in their learning journey, and do a gap analysis.



Figure 3 : Workshop participants

- **Overall scope** - Some participants felt that the framework should be scoped in relation to information management, rather than to BIM.
- **Move away from role to activity** – Some participants felt that activities or tasks should be the key focus, rather than profession or role. This would help us be a more agile workforce, and focus on competency.
- **On the job learning** – Some participants felt that most upskilling happened on the job in industry and that little formal training focused on the practical skills needed to deliver a

project. It's very challenging to assess the competency of a supply chain – there needs to be more feedback between the formal training providers and industry experience.

- **All levels** – Some participants felt that the focus should be on the introductory levels of knowledge, whereas others felt the framework should address everyone from school aged children to senior professionals.

4. Introduction to the BIM Competency Framework

The workshop participants were presented with the proposed objective of the Competency Framework. The objective was discussed and generally supported by the workshop participants:

Objective: “Develop an easy to navigate resource to support industry and academia align BIM curriculum, training and upskilling to a recognised standard of performance, knowledge and skills.”

The approach to the framework was outlined to participants as set out in the diagram below. This demonstrates the importance of having input from industry, academia and institutions as well as from the public sector to enhance alignment across all sectors.

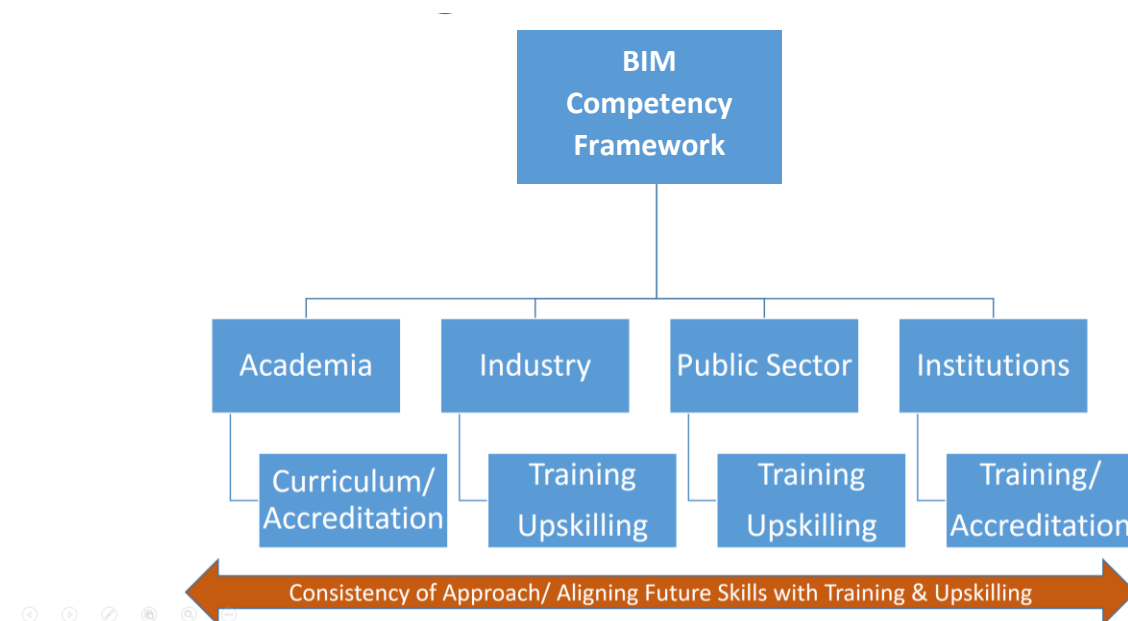


Figure 4: Approach to development of the framework

The approach to developing the framework was presented to participants. The development of the framework has been split into two phases:

1. **Phase 1** – Scoping phase to develop the proof of concept, develop key principles and overall structure, and deliver report on proposed next steps.
2. **Phase 2** – Development phase to create the framework, populate the finalised online version, engage with industry and promote and launch.

A project board will be established for the overall project with representatives from CITB, the BIM Supplier Group and the BIM Academia Group, and chaired by the Scottish Futures Trust.

5. Workshop exercises

The workshop participants were then divided into three groups and set a series of exercises to undertake. Each group recorded their responses on the blank sheets provided. At the conclusion of each exercise one representative provided a brief summary of the group's results. The results from all three groups were combined after the workshop and the key findings are set out below. The main discussion points following each exercise have also been recorded.

EXERCISE 1 – USER PROFILE

Task: Participants were asked to identify the likely user groups of the Competency Framework and place them on a spectrum of:

1. Level of positive impact
2. Likelihood of use of framework

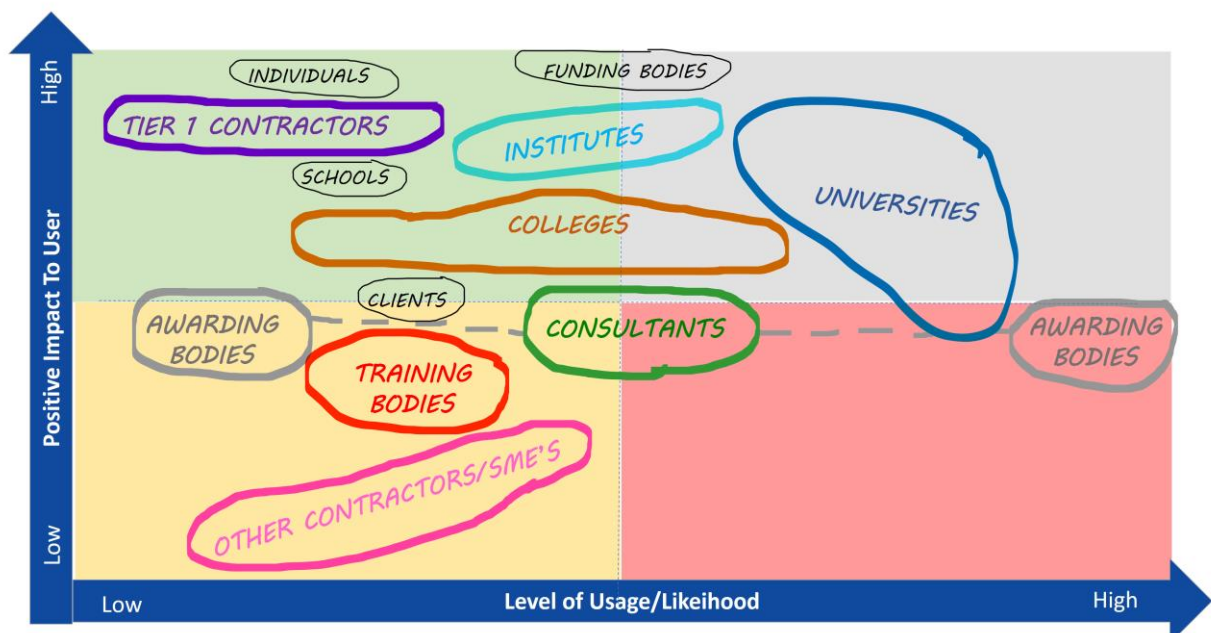


Figure 5: Map of user profiles created

Findings:

- Wide range of likelihood of use within individual user groups. For example, participants identified that whilst some colleges are likely to have high levels of use of the framework other may have very low levels, largely depending on their engagement in BIM and views towards an aligned approach.
- Universities and Colleges delivering Higher Education were identified as having the highest use and value.
- Institutes were also identified as high value, but with a range of likely use from med-low to med-high.
- Tier 1 contractors were notable for very high value, but low likelihood of use.

- Awarding bodies were placed as medium value by most participants, but one group placed them as very high likelihood of use, whilst others as very low likelihood of use.
- Individuals, schools, clients and funding bodies were only identified as user groups by some participants, therefore they have less emphasis in the summary graphic.

Discussion points:

- The framework would help someone who was either setting up a course or updating an existing one.
- There are huge numbers of people going through apprenticeships – how much BIOM content is in their training currently? BIM will become the norm, but it will take time.
- Training Boards may be resistant to the framework.
- Individuals are also important users – when you are choosing a course, or a career move.
- Has anyone done any mapping from different roles/experience levels through a learning journey to increased competency?
- We want to get to a point where there's no such thing as a BIM specialist, and therefore no BIM “masters”.
- The project will look at job roles and consider NOS – the question is how far you go with this in the framework.

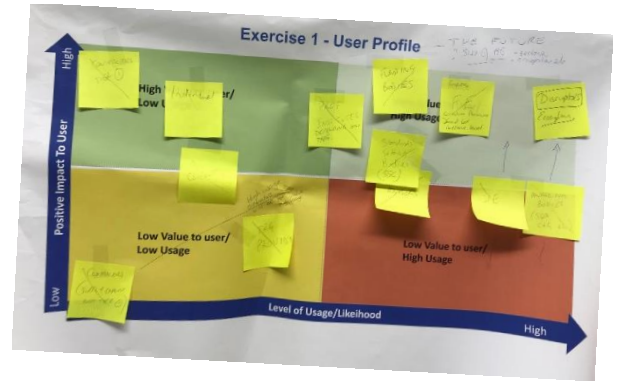


Figure 6: Workshop participants

EXERCISE 2 – CONTENT OF COMPETENCY FRAMEWORK

Task: Participants were asked to identify the content which should be included in the Competency Framework and identify whether the content was:

1. A core element of the framework
2. A supplementary element of the framework.

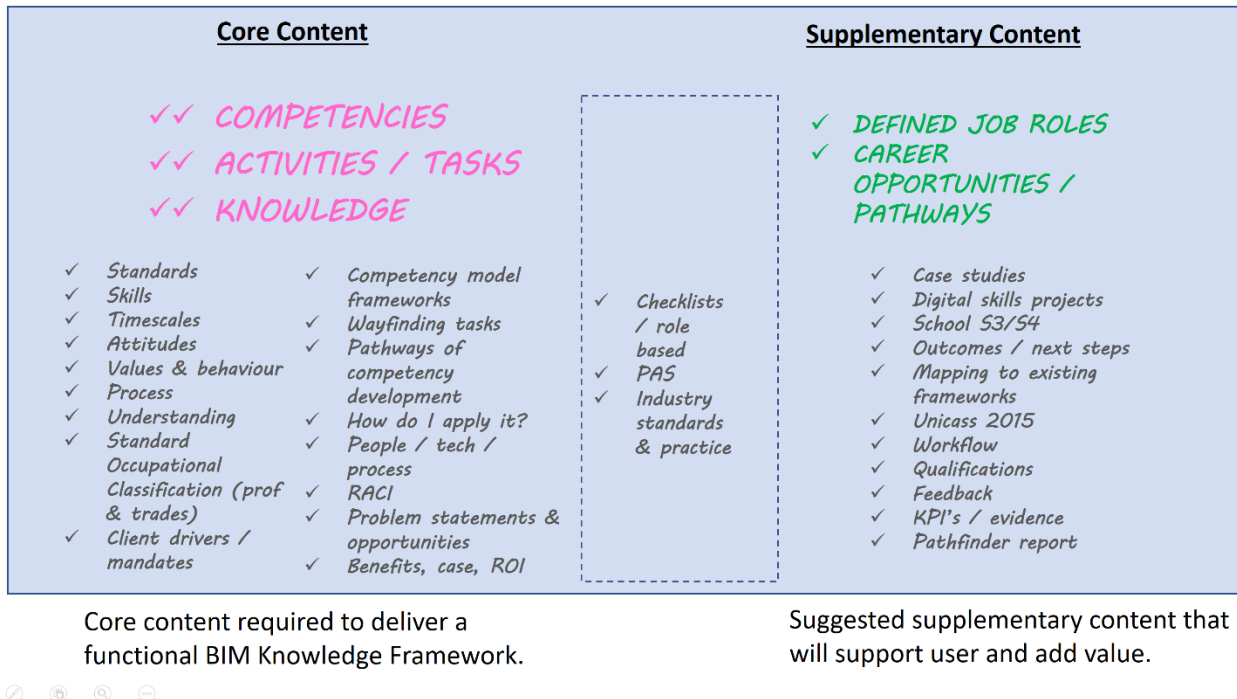


Figure 7: Proposed content of the framework

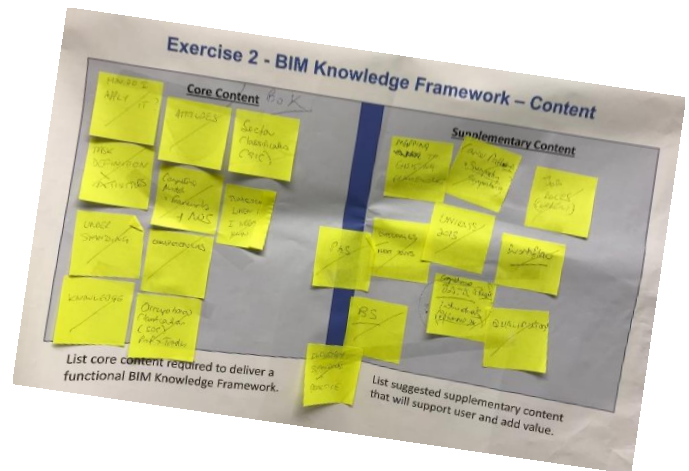
Findings:

- There was strong agreement amongst workshop participants on three core elements of the content:
 - o Competencies
 - o Activities and tasks
 - o Knowledge
- There was a moderate level of agreement on two areas of supplementary content:
 - o Defined job roles
 - o Career pathways
- Some participants wanted a very wide range of content incorporated into the framework including the benefits and return on investment, and client drivers.
- Most participants supported having core content and supplementary information.

Discussion points:

- National Occupational Standards helpful to test ideas. Some felt that we shouldn't start by trying to align with what's existing, but instead start by getting the framework right.

- Focus on competency not professional roles. If the competence is 'writing a good client brief' focus on what should they be able to know, do and understand, rather than who should be writing it. Consider: what's their attitude, their knowledge base, their understanding, their skills.
- Also consider the timescale- when does this competency need to be known.
- Supplementary information should only be there for people who want to go deeper.
- Difficulty of addressing attitudes – how can the framework address this. And how does competence relate to attitude. How much can you teach values and behaviours?



EXERCISE 3 – BENEFITS AND DELIVERABLES

Task: Participants were asked to identify the main benefits which would arise from the development and implementation of the Competency Framework and place these on a spectrum of low to high significance. Participants were also asked to identify what the framework should aim to deliver and place these on the same spectrum.

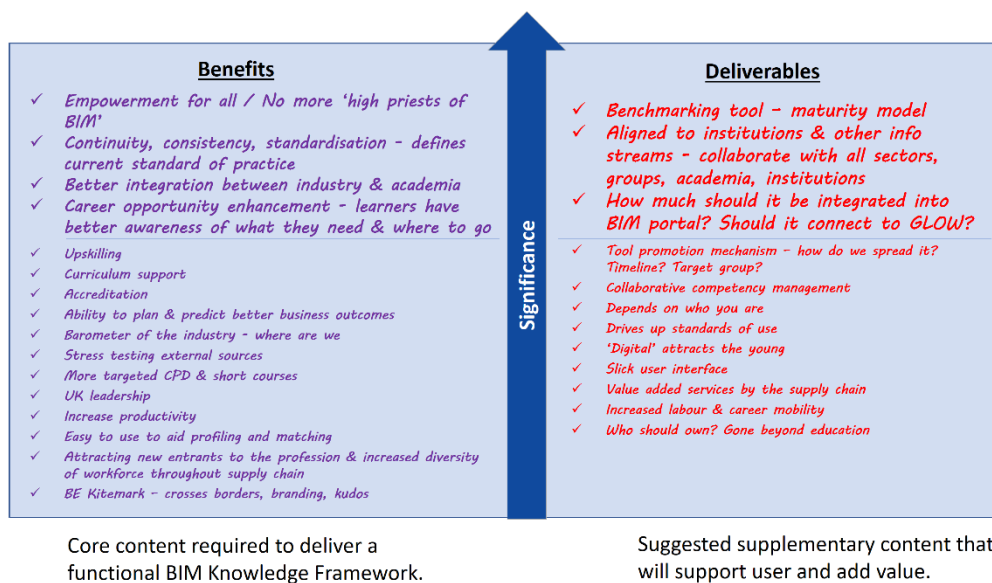


Figure 8 : Proposed benefits and deliverables

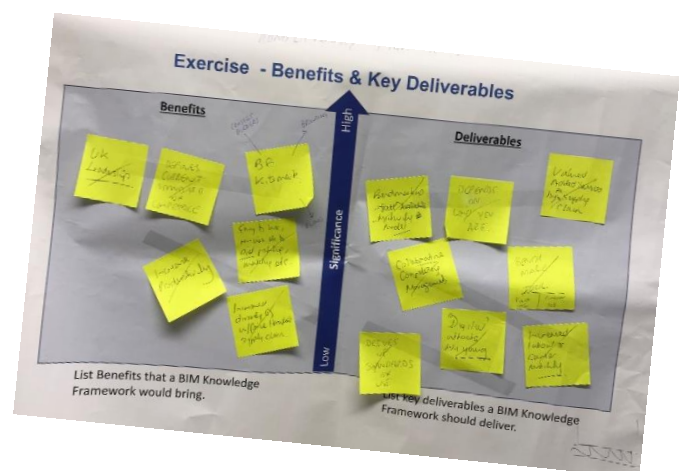
Findings:

- A wide range of benefits were identified, however four emerged most strongly:
 - Empowerment for all / No more 'high priests of BIM'
 - Continuity, consistency, standardisation - defines current standard of practice
 - Better integration between industry & academia

- Career opportunity enhancement - learners have better awareness of what they need & where to go.
- Two deliverables emerged most strongly and they were:
 - Benchmarking tool – to support the maturity model
 - Aligned to institutions & other info streams - collaborate with all sectors, groups, academia, institutions
- The participants also raised a number of questions about the deliverables. These were:
 - Tool location and integration - How much should the be integrated into BIM portal? Should it connect to GLOW?
 - Tool promotion and adoption – How do we spread it? Timeline? Target group?
 - Tool ownership - Who should own? Gone beyond education

Discussion points:

- Needs to be an online platform – but how intelligent it is will largely be determined by level of funding available.
- It may be a challenge to get the institutions and academics to engage with the framework. And will it impact on their role.
- Who should own the framework – ideally it would be beyond a single organization. But there is a resourcing implication to hosting, updating and managing. This will need to be addressed in the use case. However ownership could help address some of the potential barriers to adoption.
- Importance of getting to a point where there is a UK-wide approach. If the framework is successful its likely that it could also get used internationally.
- Important to stay focused on the highest users and what the framework could do to help them. There is a risk of building something great that no-one uses. Ideally adopt a user centred design approach or agile product development approach. Develop it in sprint phases. Identify 5 users and build a story around each.
- Important to consider other methodologies that are already out there. And to consider how wide the scope of it should be – the whole built environment? Where should the boundary be?
- Question of whether the framework should mention individual providers.



6. Concluding discussion

At the conclusion of the workshop the participants discussed a range of issues and feedback on the Competency Framework. These are summarised below:

- **Terminology** – there’s no mention of “digital” in the objective statement. There should be less focus on BIM.
- **Existing work** – consider where we can align with existing approaches and resources. For example the BIM grading tool could be linked to the framework and used for gap analysis.
- **Phased development** – there is a need to get quick wins. Very little has happened in the area of education in the last four years. Could benchmarking be the first step if that is the priority.
- **Case studies** – it would be helpful to have case studies at a user level, not a project level. For example an MEP subcontractor – there’s nowhere you can go and find that. Could an industry organization develop these and then transfer the knowledge back to academia.

Appendix A – Attendees List

Organisation	Working Group	Contact
CITB	Bim Academia Group	Paul Alford
RICS	Bim Academia Group	Kirsty Summer
Glasgow Caledonian University/BAFF	Bim Academia Group	Bimal Kumar
Energy Skills Partnership	Bim Academia Group	John Renwick
CITB	UK BIM Alliance	Ben Lever
Liverpool University	UK BIM Alliance	Martin Simpson
	UK BIM Alliance	Debbie Carlton
WSP	BIM Supplier Group	Ryan Tennyson
Galliford Try	BIM Regions Scotland	Adrian Shilliday
SFT	BIM Delivery Group	Paul Dodd
AECOM	BIM Delivery Group	David Philp
Edinburgh Napier University	BIM Academia Group	Melanie Robinson
Health Facilities Scotland	BIM Buyers' Group	Stuart Brown
Construction Scotland Innovation Centre	Project delivery group	Lisa Deane
Construction Scotland Innovation Centre	Project delivery group	Rohan Bush
Glasgow City Council	BIM Buyers' Group	Ian Kelly
Mast Architects	RIAS	Ryan Cossar