Constructing Excellence 2020

Review of 2019





Our mission



" Positively disrupting the industry delivery processes to transform performance Value Trans ΜМ Iransto Disruption Outcomes Standardisation Excellence Positive Po Sitive Digital Disruption Delivery Transform Ve Positive Value Value PositivemmcInnovation Transformation Digital Disruption Transform Perform ~P Standardisa tion



- A client-led transformation by procuring for outcomes and value
- Increased standardisation and premanufactured content

Our vision

Digitally enabled integrated teams
 working collaboratively with long-term relationships
 and aligned commercial arrangements



ONSTRUCTING

FXCFLLENCE

delivered with bre







Leadership











Phil Wilbraham Director of Expansion, Heathrow Airport Ltd

Infrastructure Clients Group, Chair 'Project 13' Capable Owner workstream Mark Farmer Founding Director, Cast Consultancy

Author, *Modernise or Die, the independent Review of the UK Construction Labour Model,* CLC, 2016 **David Whysall** Managing Director, Infrastructure, Turner & Townsend

G4C Chair 2008-2010

Alison Nicholl Head of Constructing Excellence

G4C national co-chairs







Robin Lapish HS2, supply chain manager, rolling stock

Caroline Key

CITB, shared apprenticeship scheme coordinator G4C (Generation for Change) is the young professional voice of the UK built environment industry



Themes 2020







Performance Measurement





Offsite, Manufacturing & Technology











Sustainable Infrastructure



Nuclear



Collaborative Working Mentors

Regional Partnership



8 regional centres and
 37 best practice clubs
 make us the leading
 platform for change in
 the built environment



Award winners 2019







Strategic Partnership with the Construction Innovation Hub

- The Hub aims to change the way buildings and infrastructure are designed, manufactured, integrated and connected
- Partnership between the MTC, BRE and the Centre for Digital Built Britain
- Key role for Constructing Excellence movement in ensuring solutions can be **adopted** by industry.
- Current areas of joint focus:
 - Procuring for Value
 - Quality
 - Future Skills Requirements
 - Digital





- Collaborative Working Mentors 6 March
- Offsite Group Visit to JLR 10 March
- Performance Measurement March TBC
- Procurement Group 17 April
- Sustainable Infrastructure April
- ECI Collaboration on Major Projects April
- Members Forum 23 June & 20 October
- National Awards 6 November



building a better world together





Future skills requirements workshop To enable effective asset and project performance

Dr Robert Illes Skills and Training Lead Construction Innovation Hub February 2020



Desired workshop outcomes



- Identify and share skills challenges for the construction industry
- Build on, prioritise and refine skills needs for 'project and asset performance' under the themes of 'quality', 'whole-life value' and 'assurance/compliance'
- Develop ideas for future construction training:
 - one-liners (course/module titles)
 - applications (use cases)
 - requirements (target audience, learning objectives)
- Discuss next steps; what we will do with this information

"Find out what you need..."



YOUR SKILLS PRIORITIES



Your other priorities: diversity, continuous improvement, collaborative working, process skills, engineering skills, productivity, logistics

Your greatest frustrations: tapping diverse communities, joining up industry & education; developing these relationships long-term

"Insufficient understanding of the Client's needs for asset management and the lack of focus on opportunities for offsite manufacture suitable for refurbishment projects"



Construction Innovation Hub and skills needs

Construction Innovation Hub



Manufacturing Technology Centre

- Product Family Architectures and Standardised Component sets
- Process Engineering Solutions
- Government Department Discovery and Analysis
- Physical Demonstrators

bre

- Engagement and Skills
- Demonstration, Testin and Validation
- Built Environment Performance
- Digital Product Data and Building Regulations

- Digital Transformation across Asset Lifecycle
- Asset Management and Digital Twins
- Contracting and Business Models for the Digitally Enabled Built Environment
- Impact Assessment
- Driving Change and Growth

Catalyst for transformation





Core Hub themes



Value

- Procure for value
- Commercial models
- New business models
- Future skills

Digital

- Digital twin
- Information management framework
- International BIM programme

Applying across all projects, whether manufactured, traditionally constructed or retrofit:

Assurance

- Testing
- Certification
- Digital standards

Manufacturing

Enabling platform based solutions to be adopted at scale:

- Improving performance
- Boosting productivity
- Reducing carbon

To deliver measurable outcomes, we need PEOPLE

Construction skills problems



Causes:

- Aging current workforce, substantial number set to retire incoming decade.
- Poor image of construction, young people favouring other vocations.
- Quality and competencies coming into construction.
- The time and cost involved in up-skilling or re-skilling.
- 'Boom and bust': people train and qualify and then jobs may not be there.

Symptoms:

- Poor uptake of construction apprenticeships.
- Poor uptake, conversion and retention of people in construction jobs.
- Role variations i.e. some roles have critical shortages compared to others.
- Lack of diversity, demographic and cultural variations.

'War on two fronts'



We have a 'war on (at least) two fronts'.

- A need to address traditional trades skills shortages in the short and medium term.
- A need to provide new skills to support the uptake of digitalised, productionised and performance-led construction.

CITB 2018 skills gaps: various regions



Gaps in multiple regions

CONSTRUCTION

London	Essex	Humber	SE Midlands
 Other construction professionals 	 Specialist building operatives 	Wood trades & interior fit out	 Wood trades and interior fit out
 Bricklayers 	Surveyors	 Plumbing & HVAC trades 	Plumbing & HVAC trades
Plant mechanics / fitters	Labourers	Painters & decorators	Painters and decorators
 Plant operatives 	Roofers	Other construction	Bricklayers
Surveyors	Civil engineers	process managers	 Specialist building
 Plumbing & HVAC trades 		Labourers	operatives
Civil engineers		Building envelope	Surveyors
Labourers	Website - Salts Call Control C	specialists	 Plasterers and dry liners
Electrical trades	Orithexaste Grandsaction skills gap anelysis for the Bond Earth Millionis area	Bricklayers	Roofers
Other construction	Areas en transmissioners	Specialist building	
process managers		operatives	

Construction trades
 supervisors

Gaps in the construction skills arena



Value

- Procure for value
- Commercial models
- New business models
- Future skills

Quality

- New product introduction & accreditation
- QA/QC throughout full project lifecycle
- Measurement validation

Whole-life Value

- Embedding in all asset lifecycle phases
- Smart technologies (digitalisation)
 Assurance and Compliance
- Product validation, testing, certification
- Building systems compliance process
- Standards development

Assurance

Applying across all projects, whether manufactured, traditionally constructed or retrofit:

- Testing
- Certification
- Digital standards

Gaps in the construction skills arena



Quality

How can we ensure new and complex products are introduced through a standardised process, and that projects are executed consistently across the full lifecycle?

Whole-life Value

 How can projects and assets move beyond economics and serve all pillars of sustainability?

Assurance and Compliance

 How will we ensure assurance and compliance of components and assemblies over the full lifecycle?

Whole-life value workstream



"Developing, validating and embedding within industry, a consistent and transparent approach to the definition and assessment of whole-life value across all asset lifecycle phases".



Aligned with Constructing Excellence 'Performance Measurement' theme focusing on:

"...best practice in collecting and analysing project data, enabling Constructing Excellence members to share data in a trusted, safe-space and extract meaningful insights."

Applying the 'Five Capitals' Model



The Value Framework will be based on the Five Capitals model, covering:

- Natural Capital: embodied carbon, operational energy, water use, biodiversity...
- Financial Capital: capital cost, operational cost...
- Manufactured Capital: quality, time, productivity...
- Human Capital: employment, apprenticeships, skills & training, health & wellbeing...
- Social Capital: community engagement & benefits, supply chain accessibility, responsible sourcing...



Procuring for Value project



- Software tool, based on the Hub's Value Framework, to support value-based decision-making during procurement of new asset delivery projects.
- Practical tool to drive a change of behaviour in the procurement process, greater alignment between policy and procurement behaviour.
- Joint initiative between the Construction Innovation Hub and the Construction Leadership Council's Procuring for Value working group.
- Building on IPA's Transforming Infrastructure Performance programme and CLC work, supported by industry (CIC, Constructing Excellence, ACE, RIBA, RICS, Arup, etc).





CITB future skills

Support the ambitions of a modernised industry New & emerging skills priorities

Research

Technology transformation

New ways of learning

Funding Standards Qualifications

Advocate

Immersive learning

Policy

MMC & Offsite

Digitalisation

Future skills – offsite



Citb

Faster, Smarter, More Efficient: Building Skills for Offsite Construction



Potential benefits

Efficiency

- Offset skills shortages
- Productivity
- Quality & environment

Digital & data led

- Appeal to digital-native generation
- Higher level skills

Comfort & safety of a factory

Widen appeal & increase longevity

Challenge

Structure & content of training not keeping pace

FE & Training providers not equipped or motivated

Common taxonomy

Fragmentation

Future skills – offsite



Citb

Faster, Smarter, More Efficient: Building Skills for Offsite Construction



£1.25million				
Construction Scotland Innovation Centre		Manufacturing Technology Centre		
Existing resource consolidation				
Competency framew				
Standardised body of knowledge				
Follow-on trades content		Trainer training content		
Module development		Module development		
Online platform – user guidance		Learner diagnostic		
		Immersive learning content		
Trainer upskilling		Trainer training		
		Trainer upskilling		
School engagement		Industry CPD		
		Pilot with students		
Distribution, industry adoption, exit strategy				

f1 25million

Future skills – digital

Citb

UNLOCKING CONSTRUCTION'S DIGITAL FUTURE: A skills plan for industry



This research is part of CITB's Changing Construction -**Changing Skills** programme





Flexible mindset

- Curiosity ٠
- Problem-solving ٠
- Creativity ٠
- Emotional intelligence ٠
- Communication ٠



Understanding tools and data

- Knowledge of how ٠ specific tech works
- ٠ Range of tech available/ being developed
- How data can support ٠ tech development
- Collecting, storing, sharing, using data













Our intentions for information generated today and at similar workshops

- Roll up and disseminate future skills requirements
- Use to develop training content: available open-source from the Hub (and from others)
- Constructing Excellence 2021 conference: begin to feed out for adoption
- Emerging actions...
- Your suggestions...

Workshop delivery partners









Join the transformation



