

# Construction knowledge task group

## Position paper v4

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This is a draft document that will be developed over time with feedback from participants and other interested parties. If you would like to contribute ideas or suggest changes, email:

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## What is the construction knowledge gap?

The construction knowledge gap is the difference between the knowledge that is currently available and the knowledge that would optimise industry performance.

Knowledge is a vital and expensive asset. It creates the framework within which the construction industry operates, setting the boundaries for acceptable practice, describing what we need to know and defining what is possible. Significant resources are allocated to the creation of construction industry knowledge, with an increasing number of research papers, standards, regulations, policies and other guidance that are issued, revised, revoked and superseded ever more frequently.

But the industry is not maximising the value it extracts from these knowledge assets, and many of them do not affect practice on the ground. This is because practitioners and other stakeholders; may be unaware of them, they may not have access to them, they may not have the time or capability to understand them, or they may be in a form that is difficult to apply. As a result, the industry is less productive, less innovative and more likely to make mistakes than it should be.

## How has the knowledge gap emerged?

The construction industry has tended to follow a traditional model for knowledge creation. Broad strategic subjects are identified by high-level assessment of what the future challenges are likely to be, then funding programmes are established to support the creation of specific pieces of knowledge within those areas.

This knowledge is then published in the form of papers, policy statements, best practice guidance, standards and so on. These publications are often long and complex and are almost always stand-alone documents in a large-scale pdf format that is copyright protected and is not machine readable. In many cases, they are hidden behind a sign-up barrier.

This sort of knowledge is difficult to find, difficult to access, difficult to understand, difficult to connect to other assets, difficult to use and difficult to apply.

## Policy context

Tackling this problem is consistent with government objectives to reduce project costs and timescales and to increase productivity:

- Construction 2025, published by the government in 2013, highlighted; a failure to capture learning and take this forward to future projects, 'patchy' collaboration between industry, academia and research organisations, limited knowledge transfer, and an 'earn or learn' dilemma faced by the high number of self-employed people in the industry. <sup>1</sup>
- Digital Built Britain, published by the government in 2015, suggested that; 'Our aim must be to present the day to day user with useful easy to consume and interact with information and knowledge'. <sup>2</sup>
- Modernise or Die, commissioned by the Construction Leadership Council in 2016 called for the creation of innovation hubs and centres of excellence for skills and knowledge to share ideas and best practice, inspire collaboration and showcase new opportunities. <sup>3</sup>
- From Transactions to Enterprise, published by ICE's Infrastructure Client Group in 2017 highlighted the problems consultants have acquiring the knowledge and expertise needed to design the right project or identify emerging technologies. <sup>4</sup>
- The Construction Sector Deal, published by the Department for Business, Energy & Industrial Strategy in 2018, called for a standard methodology for procuring for the whole-life performance of built assets supported by a single body of knowledge; 'a shared digital asset that is accessible to all and enables the rapid sharing of expertise and best practice'. <sup>5</sup>
- Procuring for Value, published by the Construction Leadership Council in 2018 suggested that the widespread and consistent use of industry best practice would produce immediate productivity gains across the whole sector, and proposed the creation of a digital, industry-wide, knowledge platform, where best practice is curated, shared and challenged, that is easy to understand and that is accessible. <sup>6</sup>

## Industry response

On 21 September 2017 Designing Buildings Ltd held an event at RSH+P's offices in the Leadenhall Building to launch a new report 'Fit for purpose?' exposing the widening knowledge gap in the construction industry. <sup>7</sup>

On 9 May 2018, twenty industry representatives met at the offices of BuroHappold to discuss the problems posed by the construction knowledge gap and to consider whether there was support for tackling these problems collaboratively. <sup>8</sup>

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<sup>1</sup> [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/210099/bis-13-955-construction-2025-industrial-strategy.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/210099/bis-13-955-construction-2025-industrial-strategy.pdf)

<sup>2</sup> <https://www.cdcb.cam.ac.uk/Resources/ResourcePublications/bis15155digitalbuiltbritainlevel3strategy.pdf>

<sup>3</sup> <http://www.cast-consultancy.com/news-casts/farmer-review-uk-construction-labour-model-3/>

<sup>4</sup> <https://www.ice.org.uk/ICEDevelopmentWebPortal/media/Disciplines-Resources/Briefing%20Sheet/from-transactions-to-enterprises.pdf>

<sup>5</sup> <https://www.gov.uk/government/publications/construction-sector-deal/construction-sector-deal>

<sup>6</sup> <http://www.constructionleadershipcouncil.co.uk/news/procuring-for-value/>

<sup>7</sup> [https://www.designingbuildings.co.uk/wiki/Fit\\_for\\_purpose\\_-\\_Big\\_data\\_reveals\\_the\\_construction\\_knowledge\\_gap](https://www.designingbuildings.co.uk/wiki/Fit_for_purpose_-_Big_data_reveals_the_construction_knowledge_gap)

<sup>8</sup> [https://www.designingbuildings.co.uk/wiki/Construction\\_knowledge\\_gap\\_meeting](https://www.designingbuildings.co.uk/wiki/Construction_knowledge_gap_meeting)

This was followed up by an industry survey which found 93% of respondents believed tackling the construction knowledge gap was 'very important' or 'extremely important' for the industry. 22 individuals from 20 different organisations said they would like to be part of a task group to tackle the construction knowledge gap (see the list at the end of this paper). <sup>9</sup>

## The opportunity

The emergence of the internet means knowledge is no longer supply-driven from the top down by knowledge producers, it is now demand-driven from the bottom up by knowledge consumers performing digital searches. This, along with technological advances in smart indexing, artificial intelligence and plain language programming, means it is increasingly easy to create, disseminate, find, map and connect knowledge.

At the same time, the construction industry itself is digitising, now leading the world in asset information management, with connected graphical and non-graphical data, information and metadata for the design, development and operation of built assets.

These developments create extensive untapped opportunities to extract the maximum possible value from construction knowledge, to connect digital assets throughout the construction industry and to optimise performance.

## Construction knowledge task group

To take advantage of this opportunity, a construction knowledge gap task group will be established, building on the momentum of the 9 May working group meeting.

The task group will be formed from representatives of institutes and the wider industry who attended the working group and expressed a willingness to be part of tackling the construction knowledge gap. It will focus on optimising the creation and dissemination of documented, practical, applicable knowledge that enhances productivity and supports compliance.

Its broad objective will be to make it as easy as possible for practitioners and other industry stakeholders to:

- Find out what knowledge exists when it is needed.
- Access that knowledge.
- Extract the maximum value from that knowledge.

It is likely that this work will involve a combination of activities:

- Carrying out research to better understand the problem and potential solutions.
- Drafting or adopting standard templates, guidelines and licences for commissioning, creating and disseminating knowledge in a way that is more accessible, machine readable and useable. [Note: Early examples of a knowledge preparation standard and a research findings template have already been drafted. <sup>10 11</sup>]
- Developing or adopting an industry schema or ontology making construction knowledge more machine readable, accessible and useable. [Note: A very simple custom search

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<sup>9</sup> [https://www.designingbuildings.co.uk/wiki/Knowledge\\_gap\\_survey\\_responses](https://www.designingbuildings.co.uk/wiki/Knowledge_gap_survey_responses)

<sup>10</sup> [https://www.designingbuildings.co.uk/wiki/Construction\\_industry\\_knowledge\\_standard](https://www.designingbuildings.co.uk/wiki/Construction_industry_knowledge_standard)

<sup>11</sup> [https://www.designingbuildings.co.uk/wiki/Research\\_findings\\_dissemination\\_template](https://www.designingbuildings.co.uk/wiki/Research_findings_dissemination_template)

- engine that searches only the websites of the attendees at the 9 May working group has been created to give a basic indication of what is possible. <sup>12]</sup>
- Piloting these techniques, either by re-purposing existing knowledge, or identifying subjects for which more knowledge is needed.

## Next steps

Because of the wide range possible approaches that could be taken, the task group will need to meet to clarify its objectives, before a clear strategy is agreed.

This initial meeting will:

- Confirm the members of the task group.
- Develop or agree this position paper.
- Agree terms of reference.
- Determine an initial direction of travel.
- Assess resource requirements.

Members will then return to their own organisations to seek approval for any resource commitment necessary before the final membership and objectives of the task group are agreed.

## Membership

Organisations that have initially expressed an interest in joining the task group include:

- Arup
- Association for Project Safety
- BRE
- BSRIA
- BuroHappold Engineering
- CIAT
- CIBSE
- CIOB
- Hawkins & Associates Ltd
- HRS Ltd, Stroma Group
- ICE
- KR.eativ: Architects Ltd
- NORR Consultants
- OM Safety Solutions Ltd
- Polypipe
- Rider Levett Bucknall
- The Get It Right Initiative
- UKGBC
- University of Dundee
- Workman llp

If you would like to express interest in joining the task group, or receiving updates on progress, email [gregor.harvie@designingbuildings.co.uk](mailto:gregor.harvie@designingbuildings.co.uk).

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<sup>12</sup> <https://cse.google.com/cse/publicurl?cx=000396381348080777119:q-qnI9coikq>