

**BOPAS +**

Buildoffsite Property  
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Buildoffsite Property  
Assurance Scheme

# BOPAS Forum and Lighthouse factory tour

**30 November 2023**

**Join the conversation**

**@BOPASorg**

**Supported by**

**#MMC #MainstreamingMMC  
#PerformanceSpecifications**



**LIGHTHOUSE**

# Welcome and introduction



**Karl Miller**

Utilities and Construction Sector Manager

LRQA

# Programme

- 10:30 Introduction to Lighthouse
- 10:45 Offsite conversations that count
- 11:05 Panel session: The challenges and opportunities for offsite to achieve mainstream status
- 12:00 Buildoffsite's latest research project: How using performance specifications in construction projects is key to unlocking innovation and moving to net zero
- 12:10 BOPAS certificate presentations
- 12:20 Q&A and interactive discussions
- 12:30 Lunch and networking**
- 13:00 Factory tour
- 13:45 Refreshments and networking**
- 14:00 Forum concludes

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Buildoffsite Property  
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#PerformanceSpecifications**



**LIGHTHOUSE**



# Offsite conversations that count



**Katie Rudin**

Consultant

Akerlof

# OFFSITE CONVERSATIONS THAT COUNT

**BOPAS Forum**  
**December 2023**

Katie Rudin  
Residential Sector Lead

**AKERLOF**



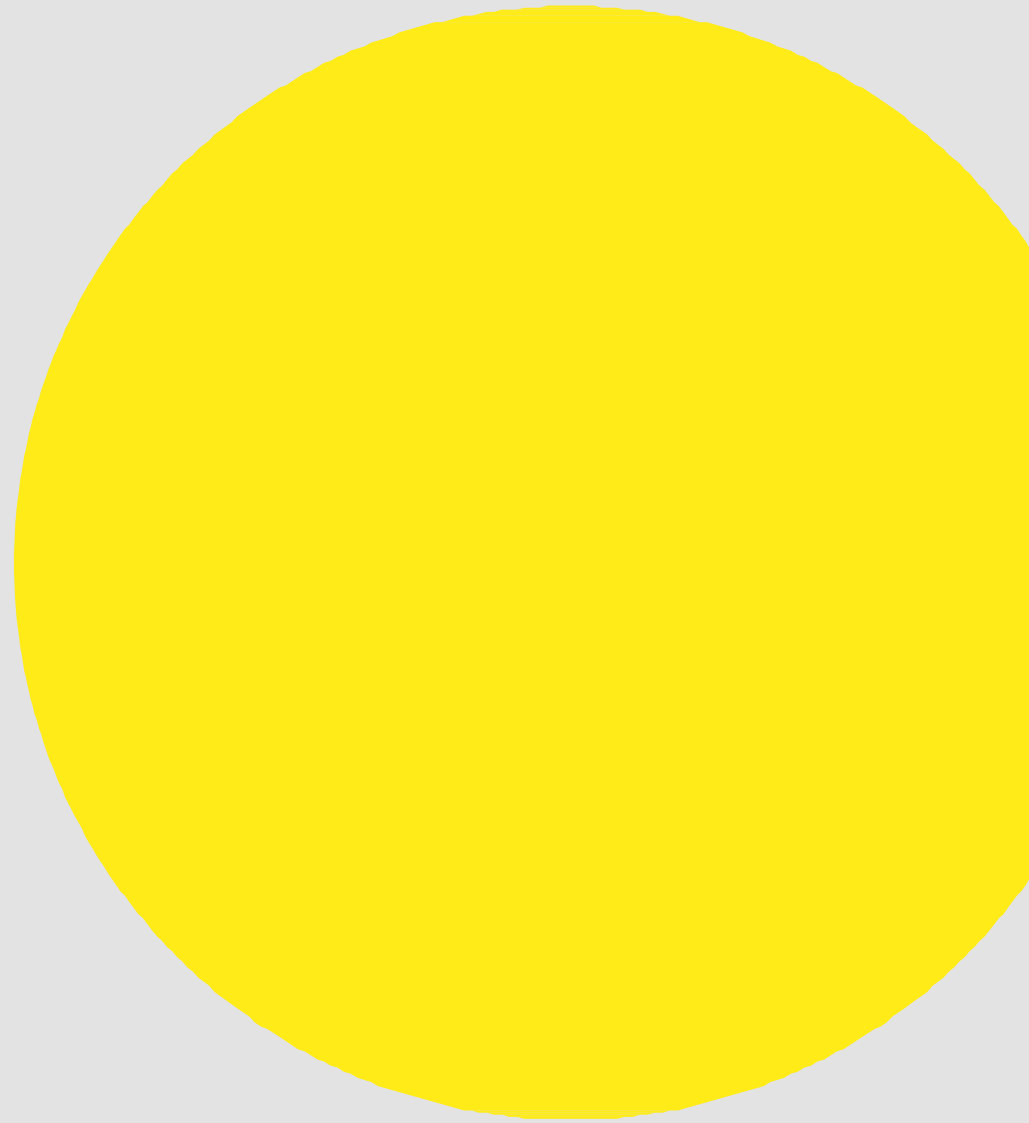
# AGENDA



AKERLOF

- Who are Akerlof... *and what do we do?*
- The MMC landscape
- The DLUHC digital kit of parts
- Feedback from warranty & assurance
- Key takeaways

**WHO ARE  
AKERLOF?**

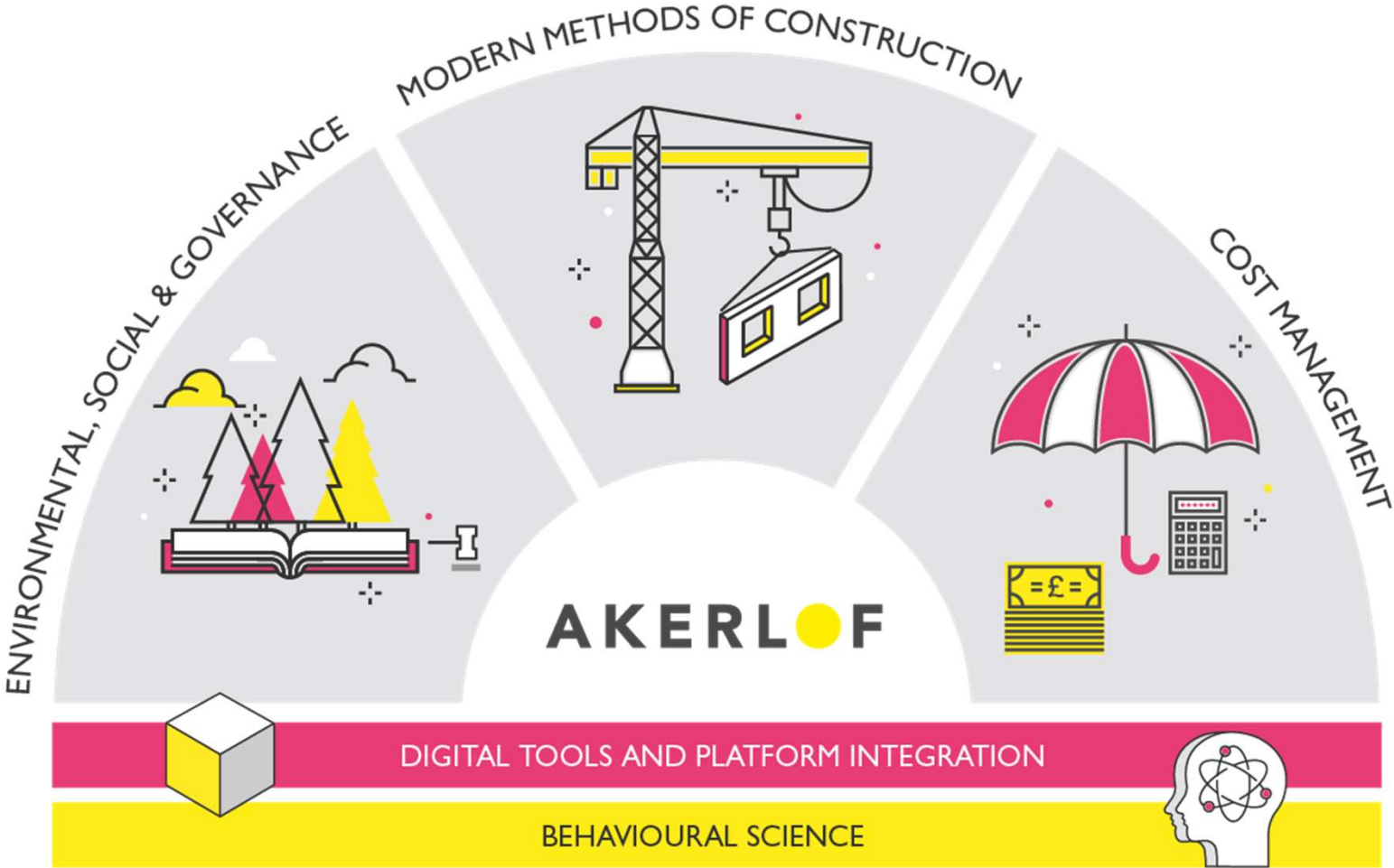


Akerlof is a boutique management consultancy that specialises in delivering **bettors** within the built environment.

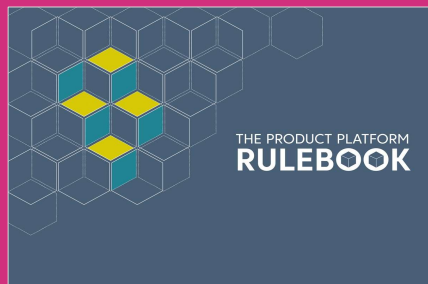
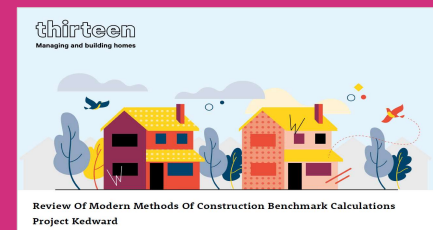
BUILDING  
BETTERS  
NOT JUST GOODS



# Our services



# We shape policy, informed by insight and deliver practical application, to create value.



DEFC: Modern Methods of Construction Standardisation Research and Kit of Parts

## Slide 11

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**KR0**    [@Elizabeth Cook] Add interim report, the temporary housing report and anything else housing related that might be good here! Keep the Value toolkit, MoJ and TIP if we can

Katie Rudin, 2023-11-03T10:23:41.007

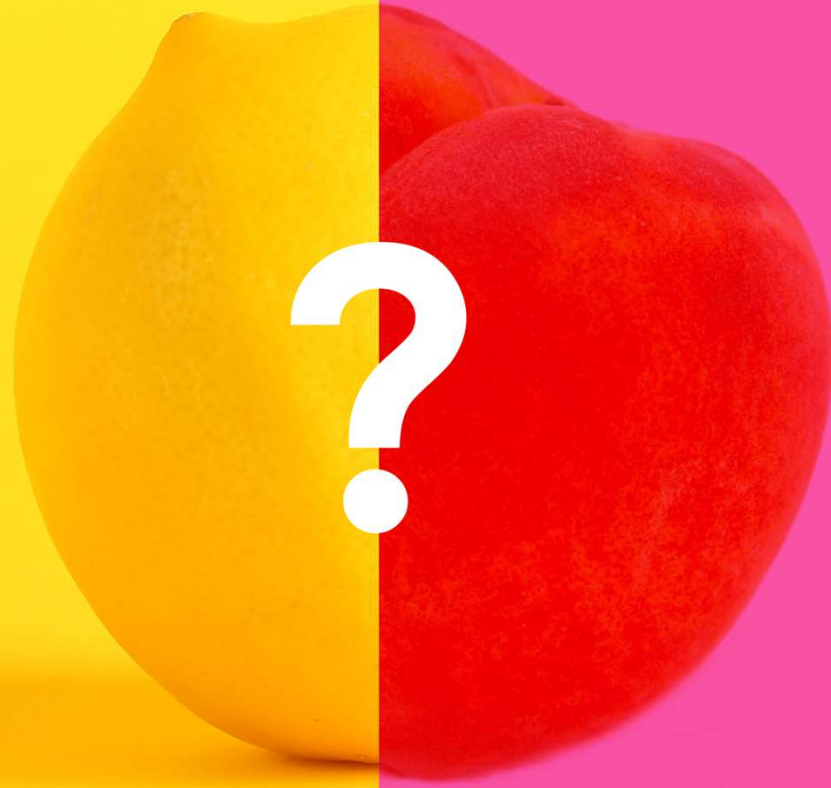
**ECO 0**    Added in Thirteen Group who manage and build homes.

Elizabeth Cook, 2023-11-03T13:20:25.261

**KR0 1**    Looks fab thank you!

Katie Rudin, 2023-11-03T13:35:09.576





**So how can we help you...?**

# HOW WE HELP INDUSTRY...



## MANUFACTURERS & SUPPLY CHAIN

- **MMC & offsite support:** Product development, analysis & benchmarking. End-to-end product & process optimisation
- **Cost consultancy:** cost & product benchmarking, incl. PMV benchmarking and due diligence
- **Social Value Assessment and Strategy:** shaping strategies and robust social impact assessment benchmarking

## POLICY & ASSURANCE

- **MMC & offsite support:** Stakeholder engagement and bespoke market insights. Tailored training for MMC and offsite.
- **Value-based strategic advice:** Strategy and project development. Tailored training to enhance understanding of value-based design making and ESG.

## CLIENTS & CONTRACTORS

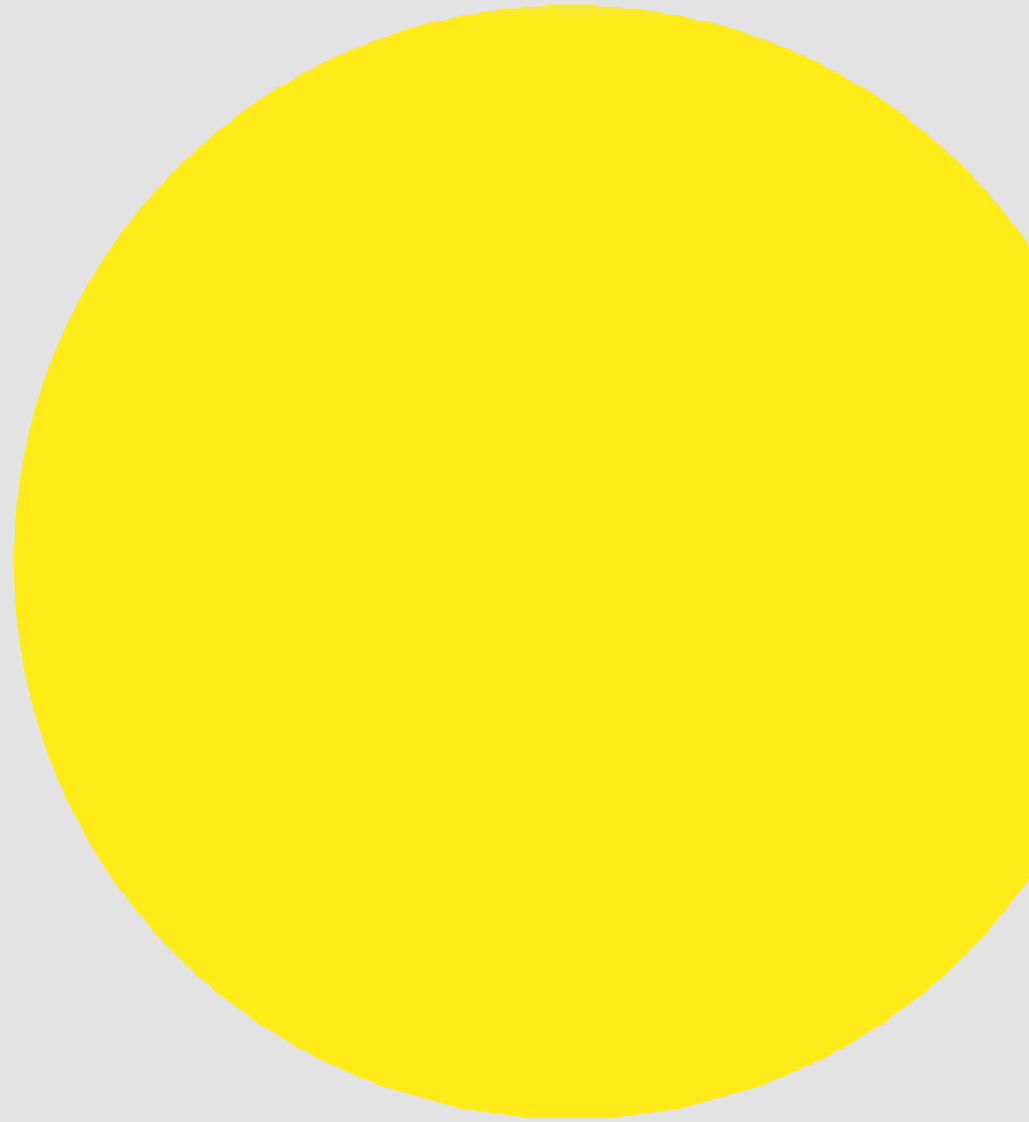
- **MMC & offsite support:** Early contractor insight, standardisation and platform design strategies, buildability and logistics planning
- **Cost consultancy:** PMV benchmarking, end-to-end quantity surveying, analysis and appraisal of direct client procurement options.
- **Social Value Assessment and Strategy:** shaping strategies, guidance on ESG reporting and robust social impact assessment benchmarking

## Slide 13

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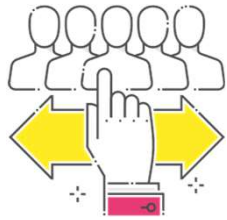
**KR0** [[@Jamie Hillier](#)] - please could you have a read of slides 8-10 and see if they make sense?  
Katie Rudin, 2023-11-24T15:13:49.923

# THE MMC LANDSCAPE



# A FRAGMENTED HOUSING INDUSTRY

AHP is **increasing demand of MMC** by incorporating requirements into programmes and contracts and has delivered **over 6000 homes** so far...however it is doing so in a fragmented industry...



**353** local authorities and  
**1594** Registered  
Providers...



**608 MMC Products** on  
the market...



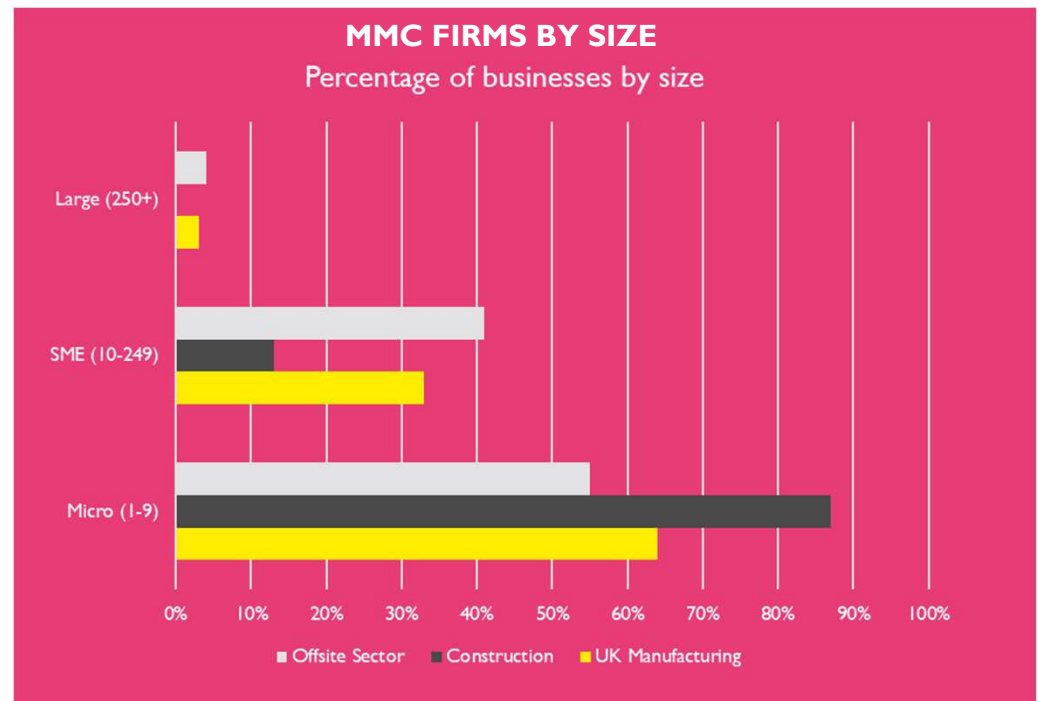
Circa **4 warranty providers** with established  
offsite/MMC warranty  
routes within housing

# SUPPORTING SME'S

The MMC Market is majority SME's. To support them we need to...

- **Improve certainty** in the MMC sector and reduce supply chain risk
- **Build capacity** and help the SMEs
- **Unlock Cost and ESG benefits** to drive greater efficiency and productivity within housing

...to help MMC help the housing industry meet it's ambitions.



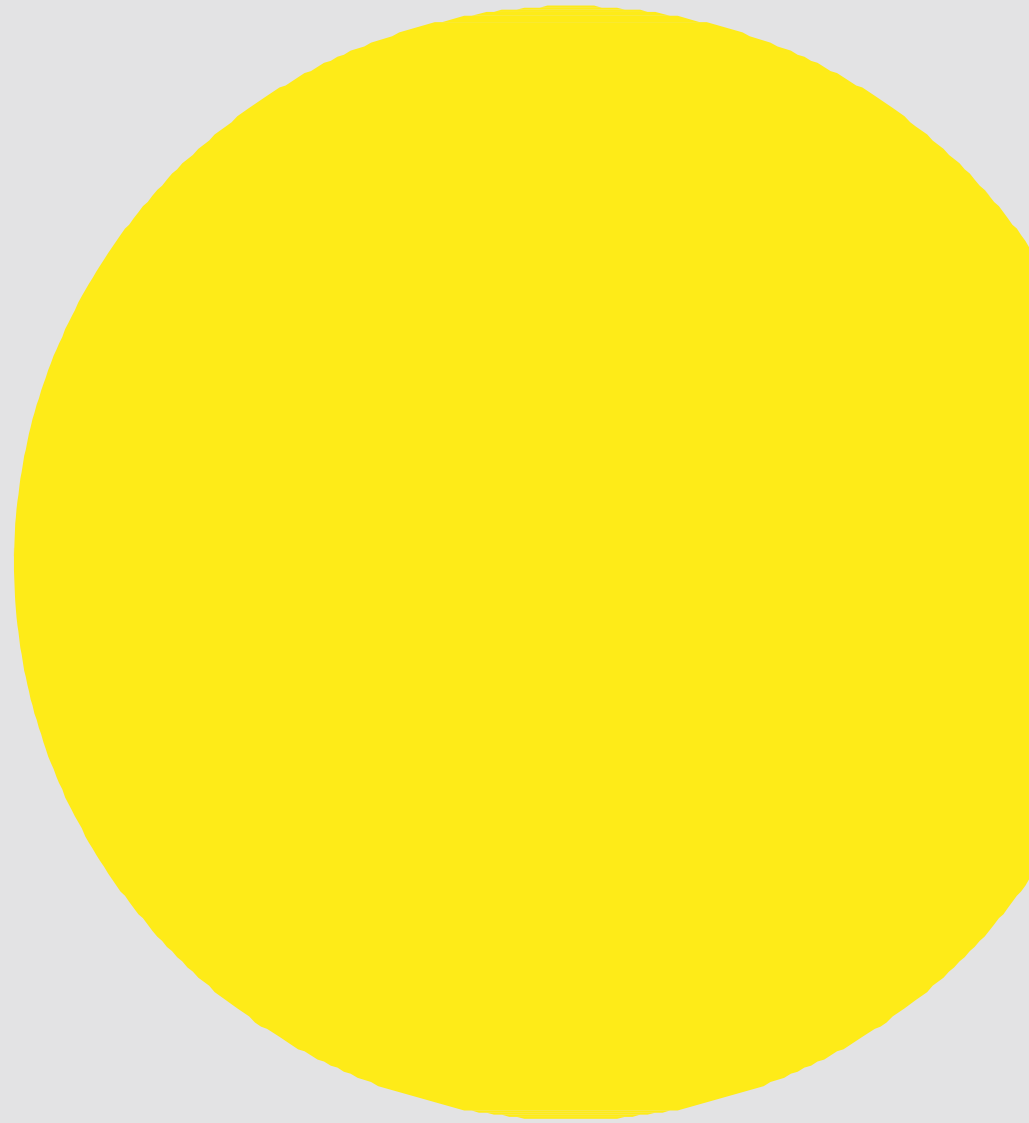
# GROW THE PIE



- Majority of manufacturers share **more in common** than they typically acknowledge.
- Individual USPs have ironically fashioned a market barrier – **perception of risk**.
- Supply chain has the unique ability to address the **challenge of perception and anxiety** surrounding interchangeability.
- The Seismic consortium has successfully **enhanced the unique propositions** of Algeco and McAvoy.

# DLUHC D-KOP

*What is the  
project?*





KRO



AKERLOF

## Slide 19

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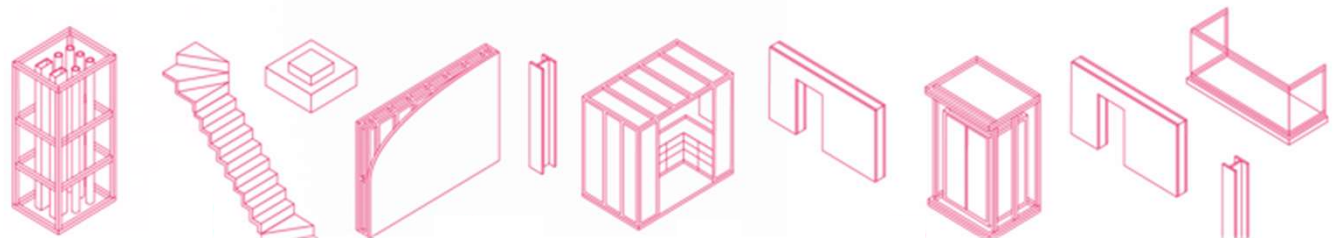
- KR0**     [@Sue Harley-Mills] Any change we can focus on this slide next? I think the pug can come last 😊  
Katie Rudin, 2023-10-20T07:58:46.512
- SH0 0**   [@Katie Rudin] This ok? I may need to up-res some of the background images at bit more - but should be ok for your meeting today  
Sue Harley-Mills, 2023-10-20T10:53:33.928
- SH0 1**   [@Katie Rudin] I have a call 12-1pm - but free after if you need anything else ahead of the meeting 😊  
Sue Harley-Mills, 2023-10-20T10:54:33.570
- KR0 2**   Any chance there could be a waste bin with waste paper in balls within it on the left image? I think otherwise the deck is good for today! Thanks so much  
Katie Rudin, 2023-10-20T11:00:16.869
- SH0 3**   [@Katie Rudin] Is this ok? I will improve this for the final presentation!  
Sue Harley-Mills, 2023-10-20T12:50:23.482
- KR0 4**   Yeah this is good for now! I'm thinking having an email with some frustrations over the screen could help but we can have a chat about it on Monday :)  
Katie Rudin, 2023-10-20T13:13:32.979
- KR0 5**   [@Sue Harley-Mills] Could we tidy up the middle monitor on the middle image?  
Katie Rudin, 2023-10-25T16:40:00.375
- SH0 6**   done.  
Sue Harley-Mills, 2023-10-31T11:20:11.340

# PROJECT SCOPE

## DLUHC DIGITAL KIT OF PARTS

AKERLOF

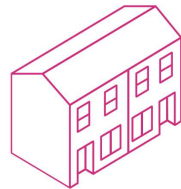
- **1 year research project** for the Department for Levelling Up, Housing and Communities (**DLUHC**)
- **Focussing on MMC Cat 2 & Cat 5** (2D panellised systems and non-structural assemblies)
- Develop a **proof-of-concept digital “kit of parts” for low-rise housing** (1-3 storeys)
- **Improve supply of new homes** by making the process more efficient and higher quality



# WHAT IS THE D-KOP?

The d-KoP is a consistent method of generating performance specifications for MMC components in the construction of low-rise housing

*Clients & designers  
define requirements*



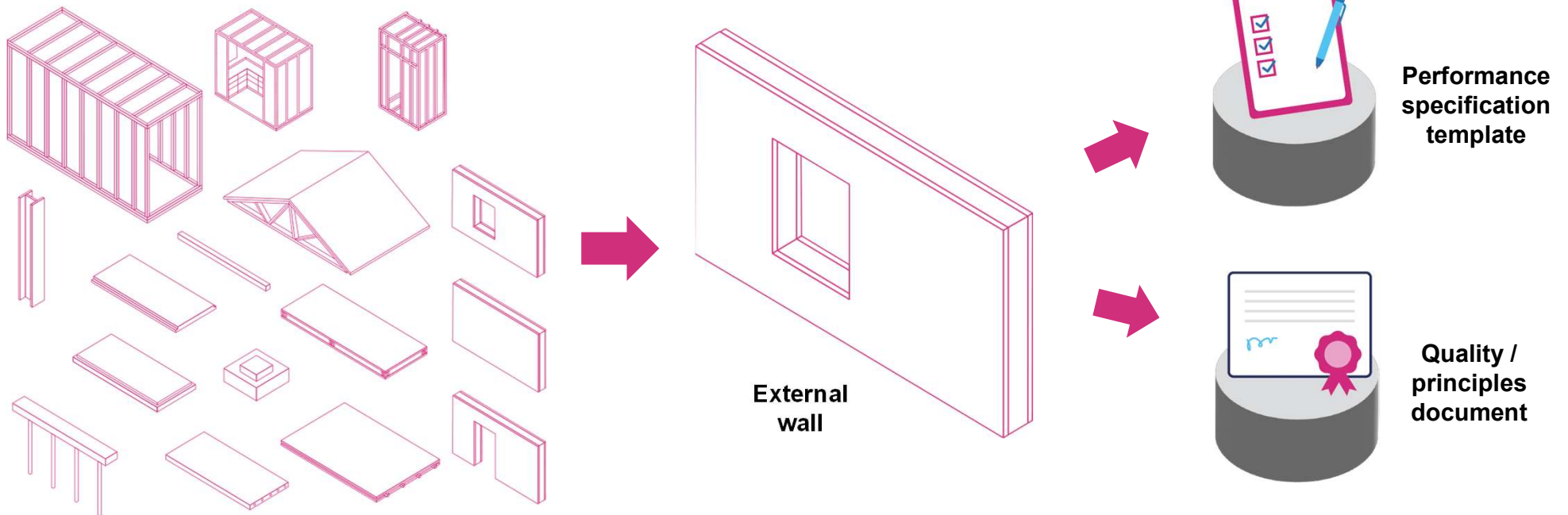
FASTER, GREENER,  
BETTER HOMES



*Supply chain  
proposes solutions*

# WHAT IS THE DLUHC D-KOP?

Each type of Part and relevant interface within the d-KoP is represented by:



**KR0**

SLIDE TO BE PRINTED IN A3

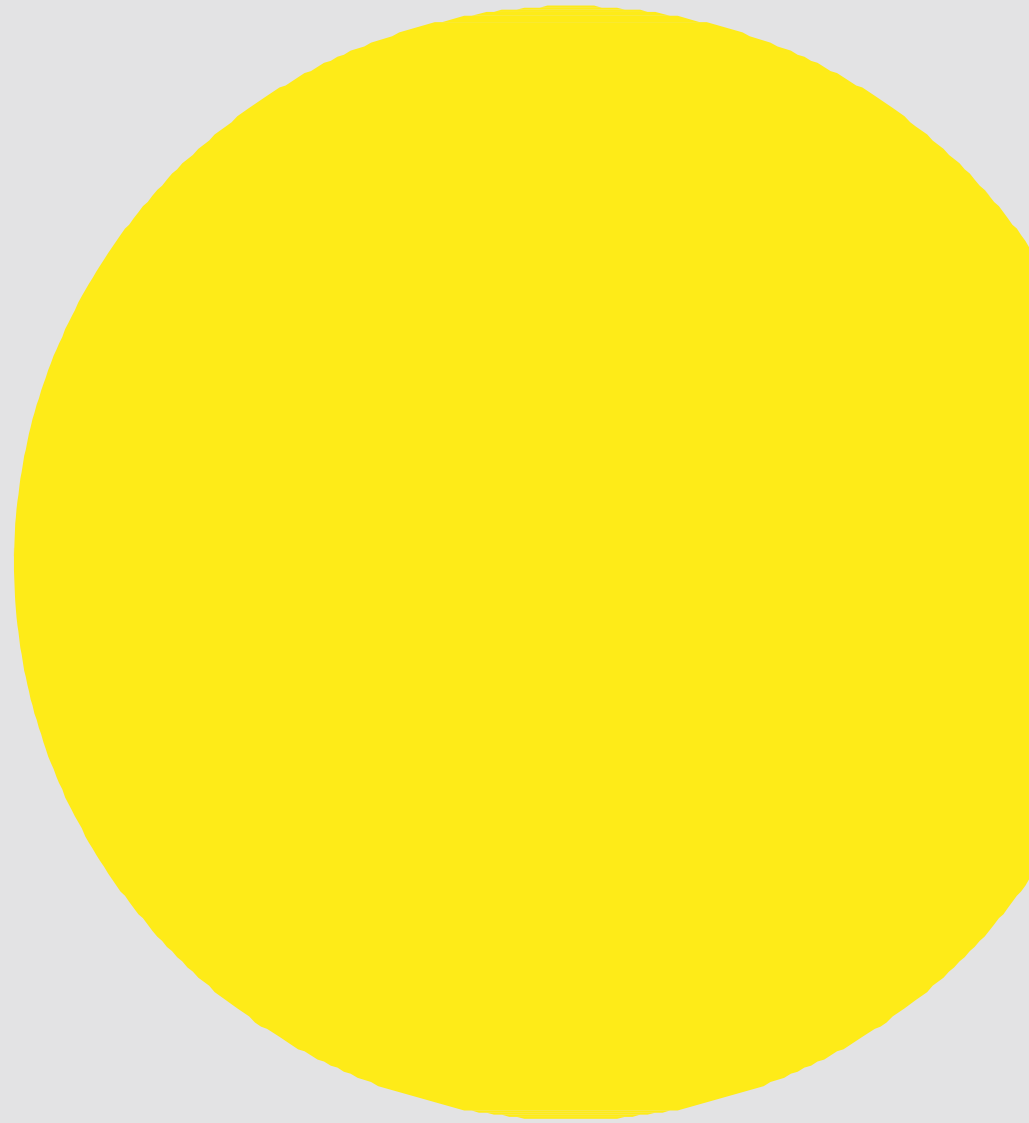
Katie Rudin, 2023-11-24T09:45:48.013

# PROJECT STAGE



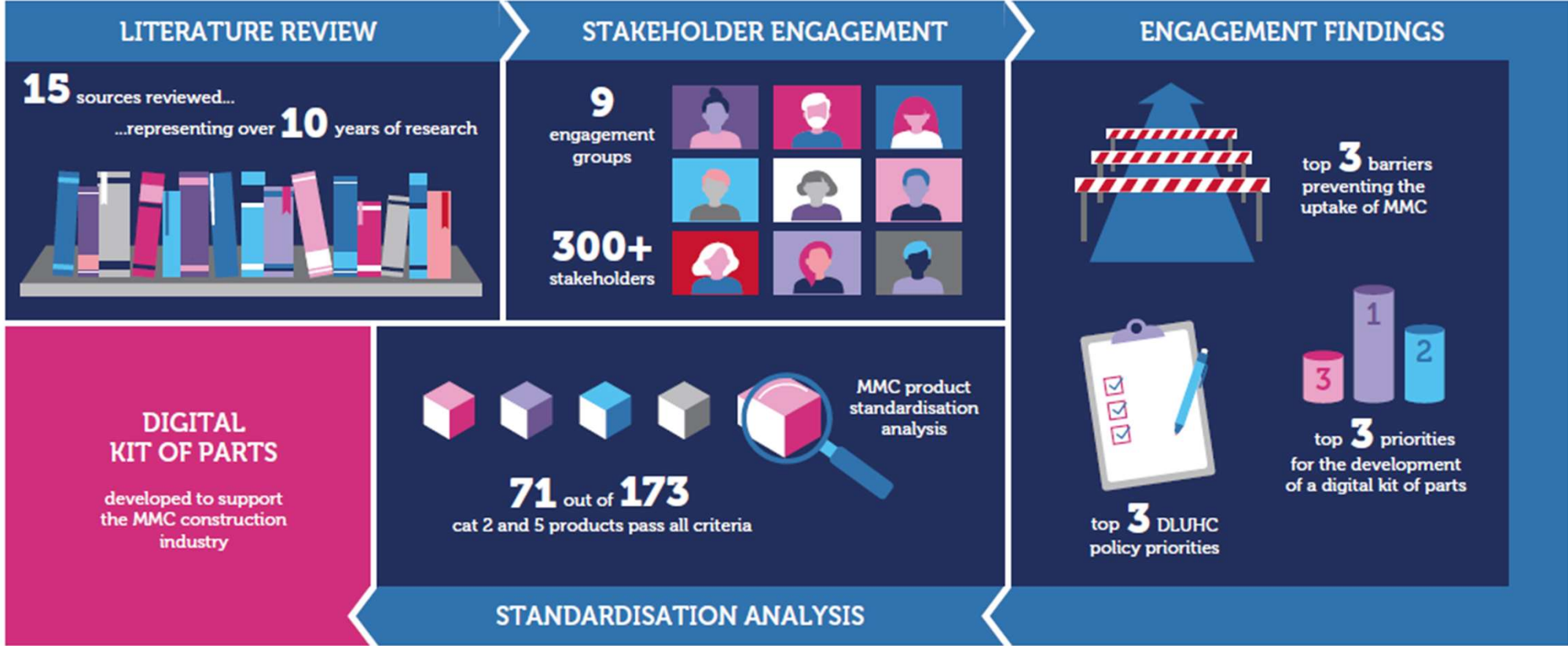
**DLUHC D-KOP**

***Engaging Industry***

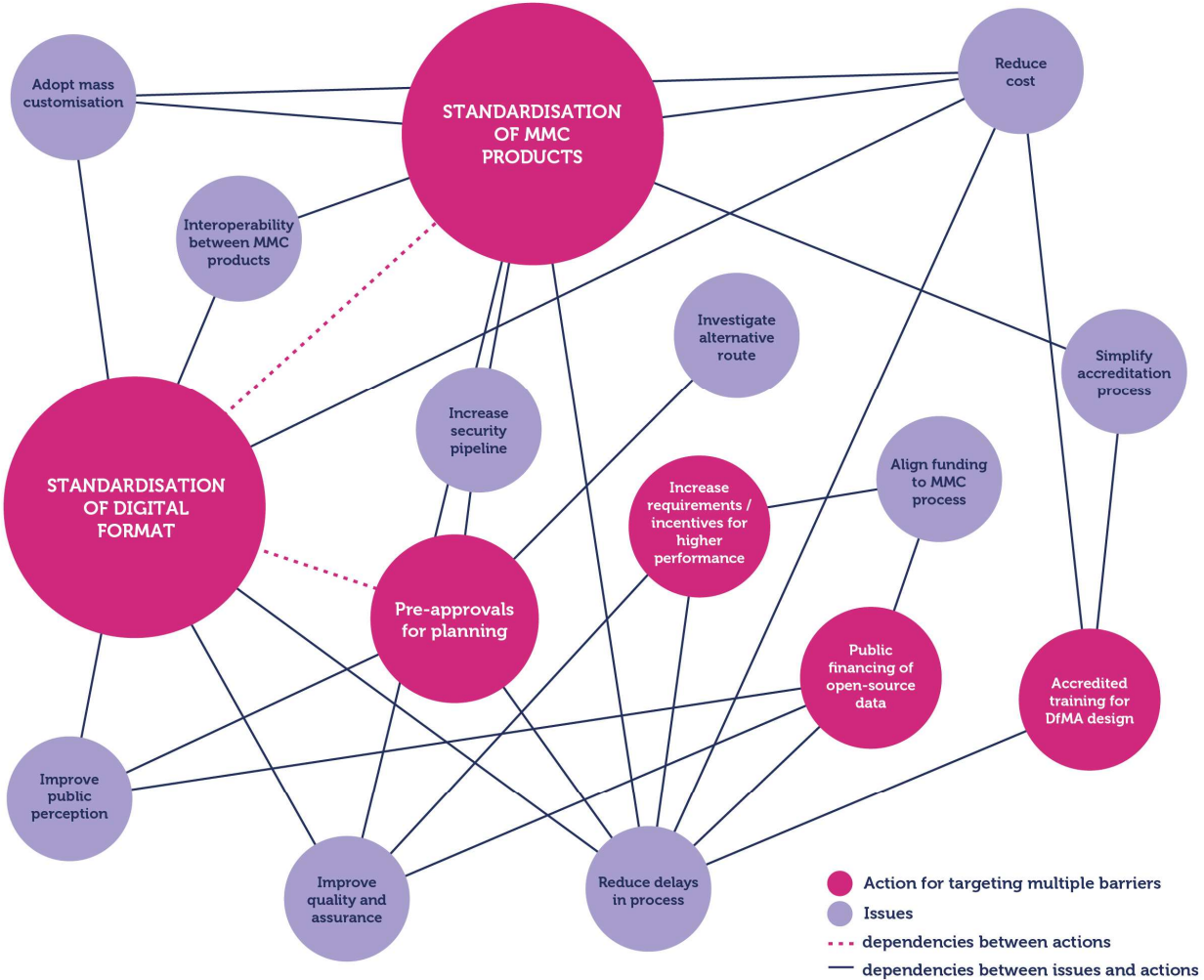




# COLLABORATING FOR SUCCESS

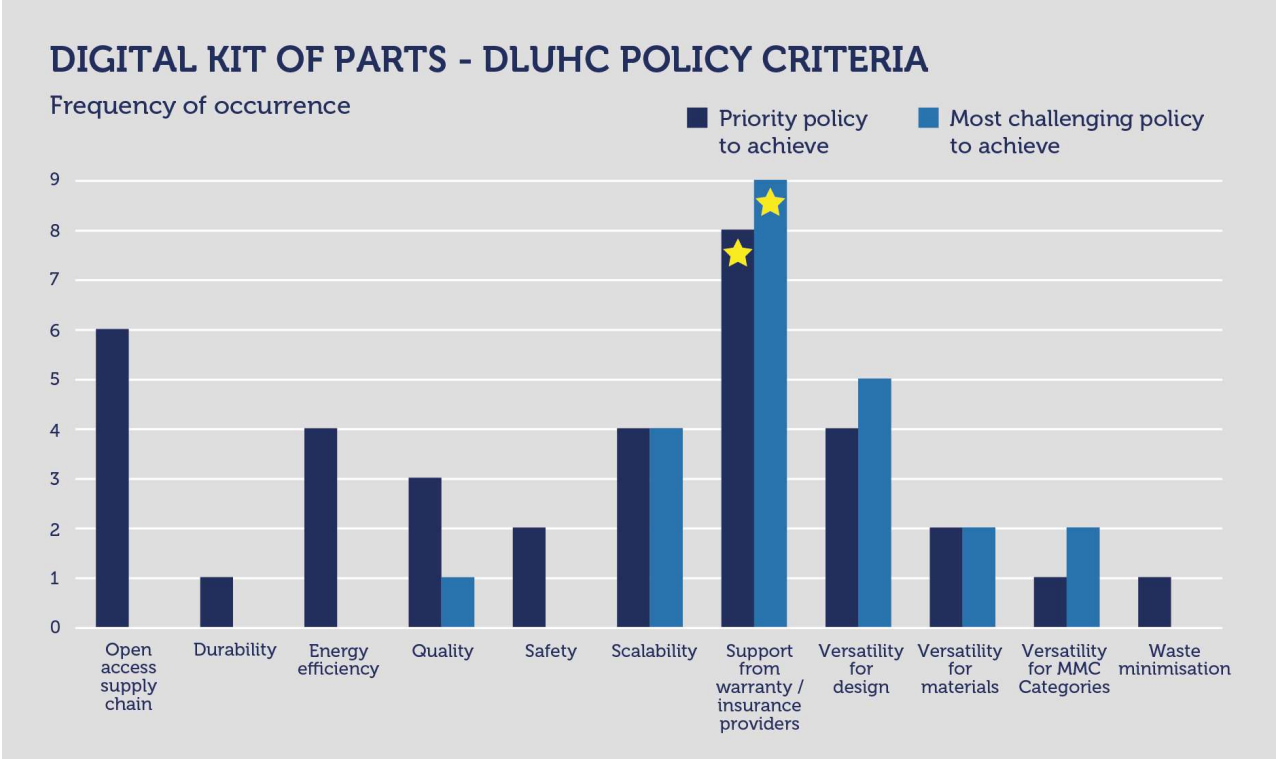
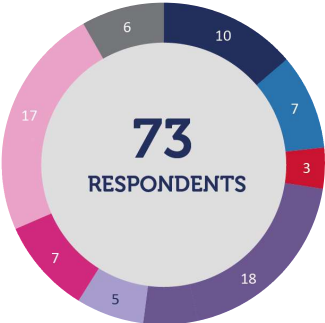


# BARRIERS & MITIGATIONS



# FEEDBACK FROM INDUSTRY (WARRANTY)

Support from warranty/ insurance providers seen as **highest priority** but also **most challenging to achieve**.

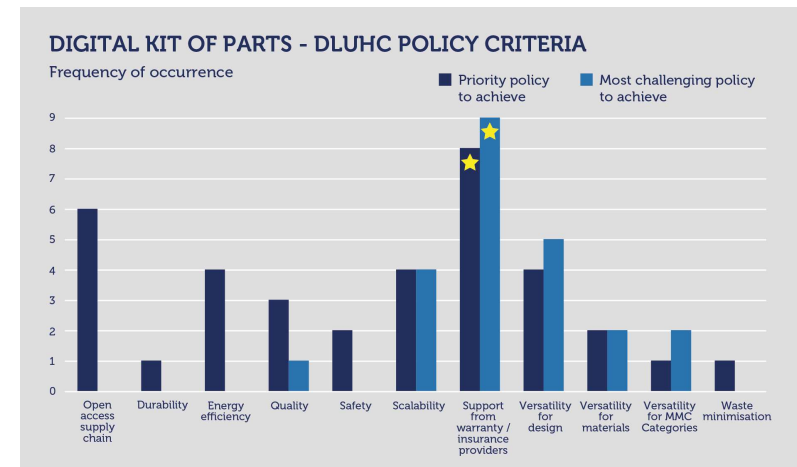


# FEEDBACK FROM INDUSTRY (WARRANTY)

Support from warranty/ insurance providers seen as highest priority but also most challenging to achieve.

Reasons for this included...

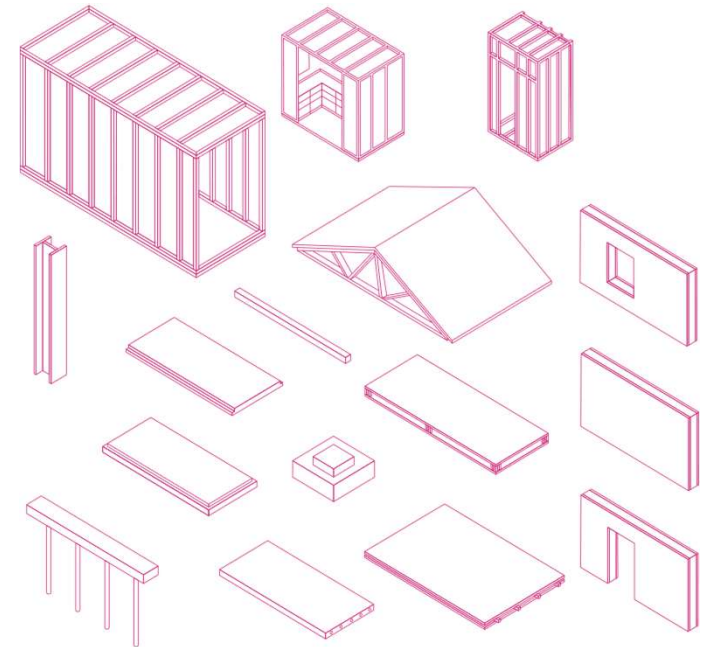
- Lack of **common language** between industry and warranty providers
- Perceived **risk**
- Need **clarity around standards** for manufacturers
- Need for **consistency in submittals** from the supply chain
- Existing work habits and **lack of interoperability/ interchangeability**



# FEEDBACK FROM MORTGAGE LENDERS

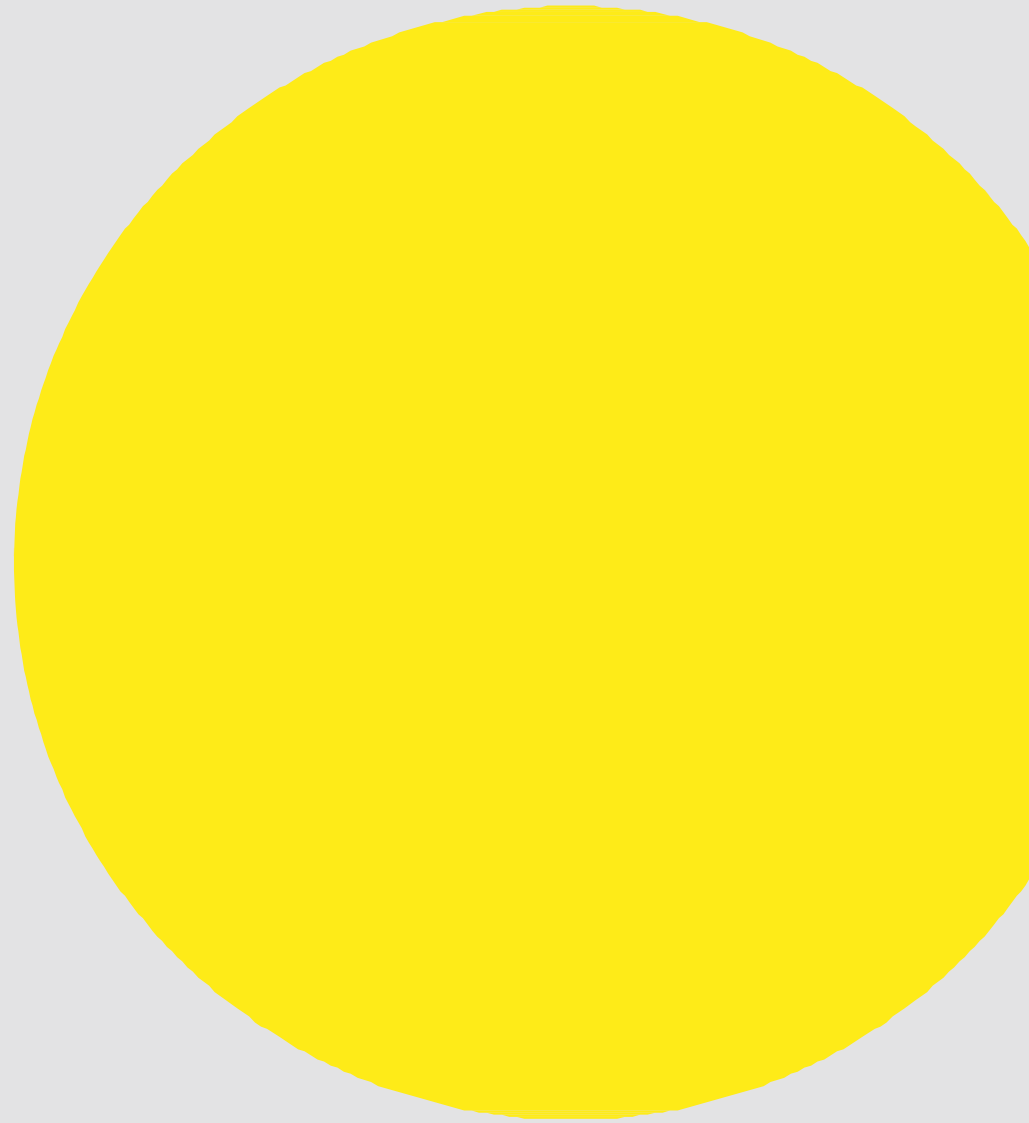
- **90% believed industry would benefit from a common standard** for warranties
- **Longevity and durability** seen as the biggest risk
- Majority **perceived MMC market to be challenging**

**We need to work together to find solutions that work for the industry**



# **DLUHC D-KOP**

***How could the  
d-KoP help?***



# HOW COULD IT HELP WARRANTY PROVIDERS?



**Improved system  
comparison and  
benchmarking**



**Risk mitigation**



**Streamlined  
approvals**



**Support skills  
development**

**KR0**

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Katie Rudin, 2023-11-24T09:45:48.013



# HOW COULD IT HELP WIDER INDUSTRY?



**Variations in Demand** from Housing Providers & Designers

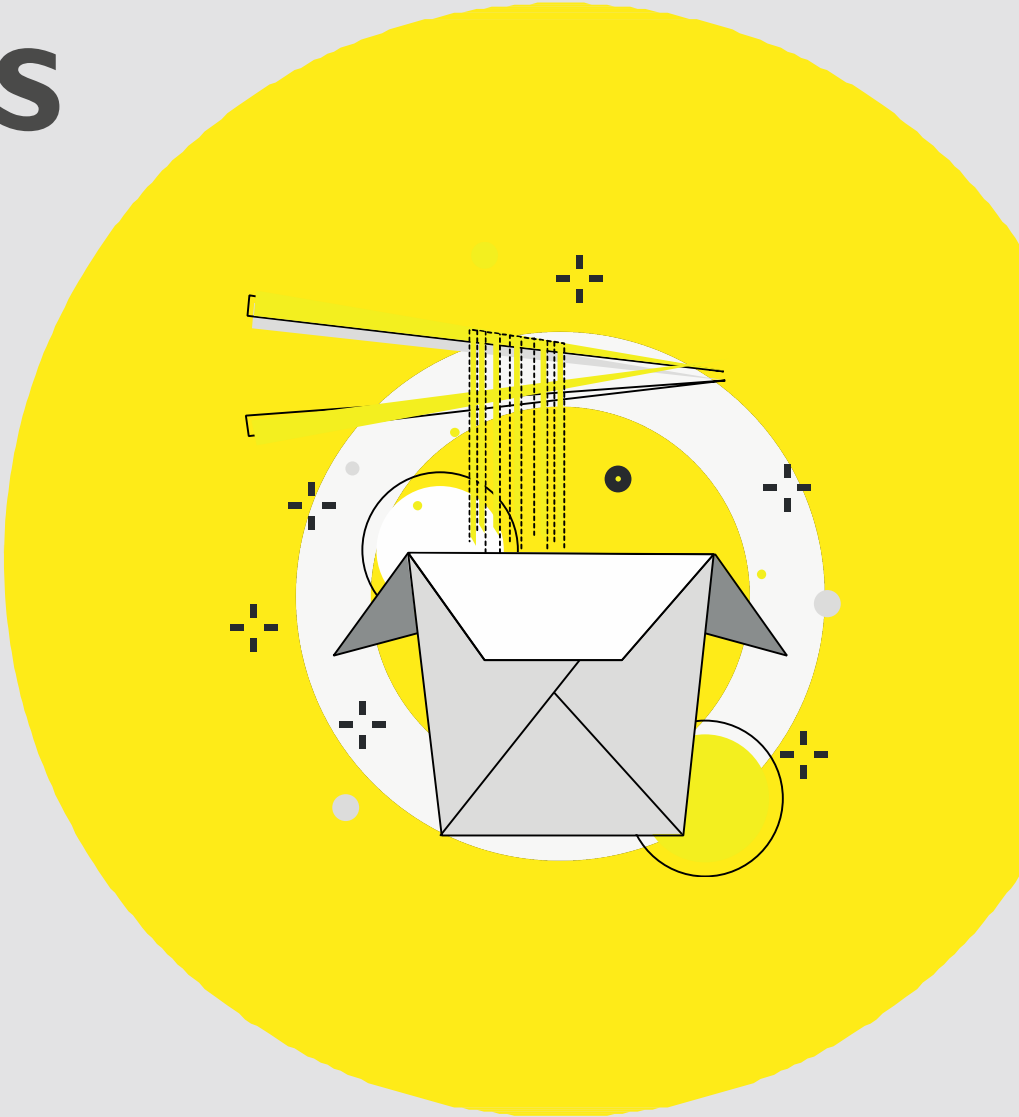
**DLUHC d-KoP informs housing providers & designers** the best points of standardisation to align with the supply chain

**Demand is better aligned** to supply chain standardisation.

**SME manufacturers can concentrate their efforts** on the aggregated demand.

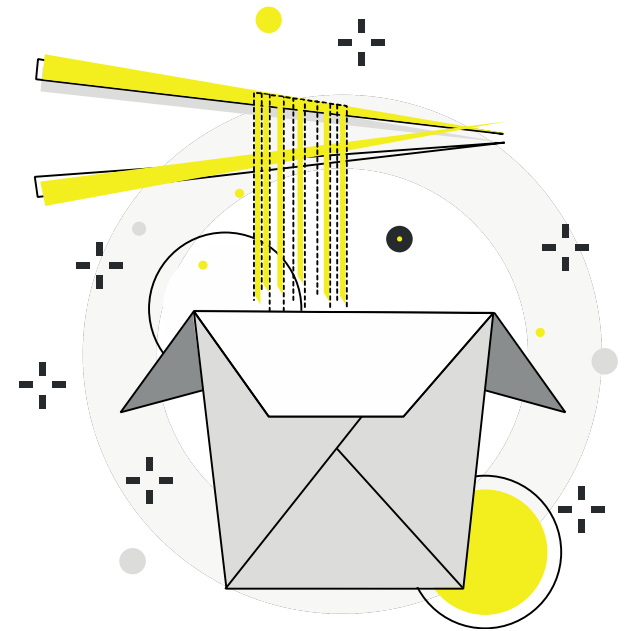
**Multiple suppliers can deliver the same performance and appearance** – risk is reduced for everyone.

# KEY TAKE AWAYS



# KEY TAKE AWAYS

- **Improving certainty** will support the growth of micro and SME MMC developers
- **Must connect the fragmented industry** to work together and improve the outcomes for the industry
- **Talk to those outside your echo chamber**
- **Grow the pie:** Understand where commonalities are to help reduce perception of risk



**AKERLOF**

**Experts in Modern Methods of Construction**

**[akerlof.co.uk](http://akerlof.co.uk)**

# MANUFACTURERS & THE SUPPLY CHAIN

## MMC & OFFSITE SUPPORT

### PRODUCT DEVELOPMENT AND ANALYSIS

- End-to-end product & process optimisation
- Industrialisation of on-site, near-site and off-site
- Product benchmarking

## COST CONSULTANCY

### COST AND PRODUCT BENCHMARKING

- Cost and product benchmarking
- PMV benchmarking and outcome analysis
- Due diligence and third-party project cost reviews

## ESG (Environmental Social & Governance)

### SOCIAL VALUE ASSESSMENT AND STRATEGY

- Shaping strategies to maximise social impact
- Robust social impact assessment benchmarking
- Engagement strategies between businesses & their communities



## Slide 36

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**KR0** [[@Jamie Hillier](#)] - please could you have a read of slides 8-10 and see if they make sense?  
Katie Rudin, 2023-11-24T15:13:49.923

# POLICY & ASSURANCE

**MMC & OFFSITE SUPPORT**

**STRATEGIC ADVISORY SERVICES**

- Policy and strategy design
- Contemporary MMC & platform-based approaches
- Stakeholder engagement
- Bespoke market insights

**ESG (Environmental Social & Governance)**

**VALUE-BASED STRATEGIC ADVICE**

- Value based strategy and project development
- Tailored training sessions to enhance understanding of value-based design making and ESG



# CLIENTS & CONTRACTORS

## MMC & OFFSITE SUPPORT

### STRATEGIC ADVICE AND PROJECT DELIVERY

- Early contractor insight (left of stage 3)
- End-to-end product and process optimisation
- Standardisation and platform design strategies and analysis
- Buildability and logistics planning

## COST CONSULTANCY

### SUPPLY CHAIN AND PROCUREMENT

- PMV Calculations and benchmarking
- End-to-end quantity surveying and cashflow analysis
- Cost planning and analysis including third party due diligence
- Analysis and appraisal of direct client procurement options

## ESG (Environmental Social & Governance)

### SOCIAL VALUE ASSESSMENT AND STRATEGY

- Shaping strategies to maximise social impact
- Guidance on ESG reporting and disclosure
- Robust social impact assessment benchmarking
- Engagement strategies between businesses & their communities





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**LIGHTHOUSE**

The challenges and opportunities for  
offsite to **OPTION 1** in status



**Andrew Smith**  
Savills



**Paul Broadhead**  
BSA



**Eva Magnisali**  
DataForm Lab



**Karen Shanks**  
Lighthouse



**Jeff Maxted**  
BLP TIS



**Ray Tierney**  
Lloyd's Banking Group

# The challenges and opportunities for offsite to achieve mainstream status



**Andrew Smith**  
Savills



**Paul Broadhead**  
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BLP TIS



**Ray Tierney**  
Lloyd's Banking Group



**Karen Rudin**  
Akerlof



**Terry Mundy**  
LRQA

# Why are UK new builds so rubbish?



**Terry Mundy**

Consultant

LRQA

# Why are UK new builds so rubbish?



# HBF annual new home owner survey

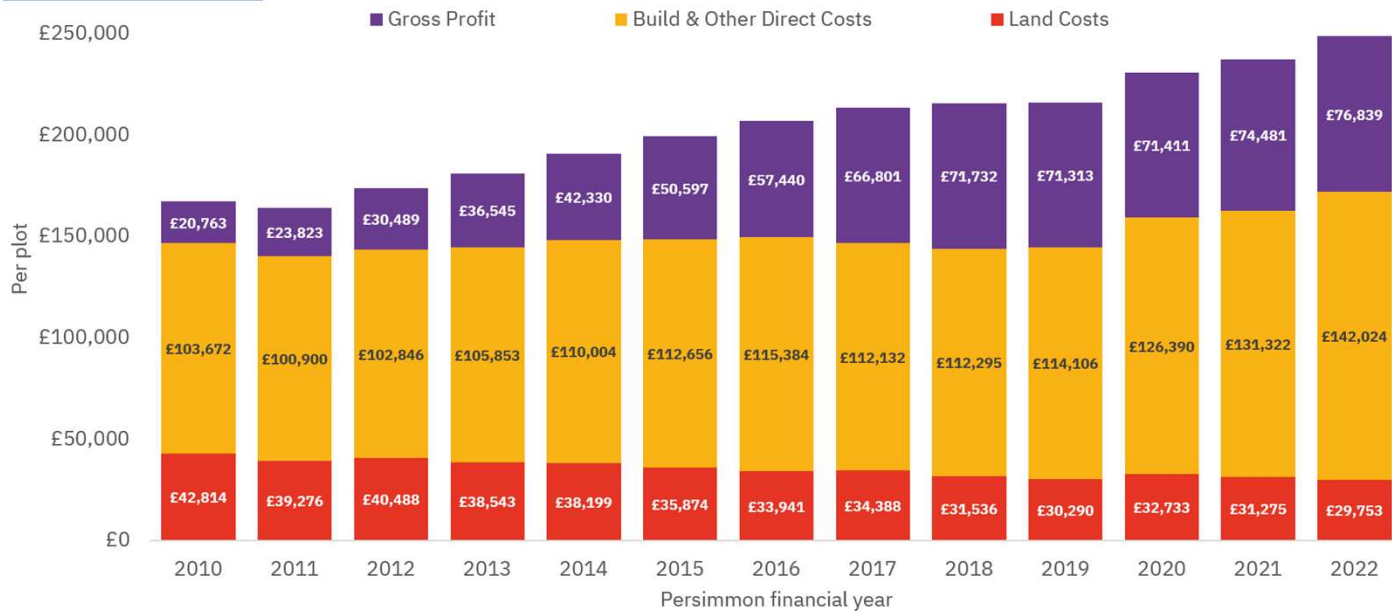
% Respondents >16 reportable defects



**BuiltPlace**

# Housebuilder Costs & Gross Profit

Source: Persimmon Accounts & Presentations





## How do they do that!

### Structural flexibility:

- The ability to expand and contract painlessly in accordance with fluctuations in demand
- They have removed themselves from the physical task of construction



## Passing risk down the supply chain

They have successfully shed overheads such as training, direct employment and investing in productivity and at the same time pushing risk down thro' the supply chain

### Implications:

- Lack of investment in training has resulted in projected shortage of construction related trades >200,000
- Productivity has not increased >30 years

## Is there developer collaboration?

Main developer defined strategy:  
'Profit before volume'

8 of the 9 biggest developers share the same 3 principal investors.....

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**LIGHTHOUSE**

# Buildoffsite's latest research project: How using performance specifications in construction projects is key to unlocking innovation and moving to net zero



**Sam Hopkins**

Associate

Offsite Manufacturing and MMC

Arup



## Buildoffsite's latest research project (P3279)

How using performance specifications in construction projects is key to unlocking innovation and moving to net zero.

**Sam Hopkins, Associate**

November 2023

ARUP



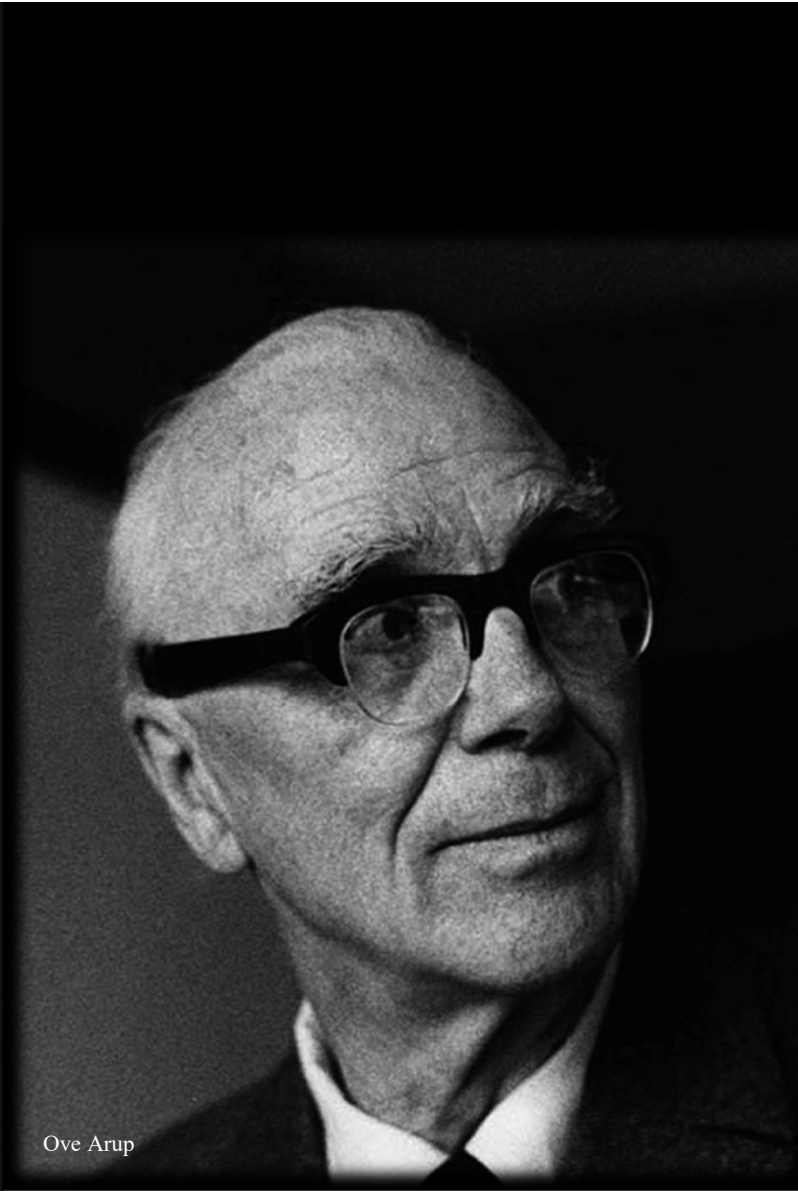
Innovation only happens  
when we bring new  
perspectives.

# BOS

## BUILD-OFFSITE

“We strive to be the recognised authority in the construction industry for offsite and pre-manufacturing, providing comprehensive support to our members and stakeholders.”

- Established in 2004 as the industry’s leading voice.
- Actively addressing perceived challenges, facilitating offsite solutions, and providing valuable guidance to instigate meaningful change.
- By normalising and embracing MMC, BUILD-OFFSITE enables efficient project delivery and strives to overcome barriers to widespread adoption of offsite solutions.



Ove Arup

# ARUP

▼ Arcon House



### OUR EXPERIENCE

- Delivering offsite and prefabricated solutions since inception.
- Ove Arup - government’s prefabrication committee 1944.
- Arcon house for post war regeneration - ~39,000 much needed homes.
- Founding members of Build Offsite.
- Actively advising clients & governments around the world as well as providing engineering and specialist design input.

### WIDER PRACTICE

- Established 75 years.
- ~19,000 designers, advisors and experts working across 140 countries.
- Dedicated to sustainable development – under our Group Strategy ‘Sustainable Futures + Arup’.

# Background

The UK Government's Industrial Strategy - Construction Sector Deal aims to revolutionise the construction industry by **embracing digital techniques, offsite manufacturing, and whole life asset performance**. Despite the government's clear commitment to offsite manufacturing and MMC, **traditional construction methods still dominate the industry**.

**BOS ARUP**





# Part of the Challenge

## It's what we know...

Conventional approach to procurement documentation, which tends to favour traditional construction methods. Performance specifications inadvertently encouraging a default reliance on established practices.

## Inadvertent Barriers in Bidding Process...

Offsite bidders investing significant time in developing customised solutions, only to find that their bids are deemed non-compliant due to a misalignment with traditional construction practices framed in the initial information.

## Discouragement of Innovation...

The lack of performance specifications tailored to these methods restricts the ability of designers, suppliers, and constructors to fully engage with and capitalise on the advantages offered by offsite construction.



# BOS Client Group Proposals

2023

- P3279 Performance Specification Guidance
- IP Management Guidance

**BOS** ARUP



# Further Justification

P3279



**Limited Guidance**



**Supporting  
Industry Players**



**Removing  
Barriers**

# Objectives

P3279



**Improved  
Understanding**



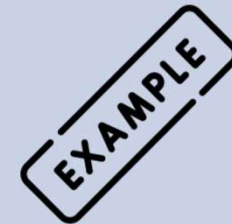
**Principles for  
Defining  
Functional  
Requirements**



**Maximising Use  
Cross Sectors**

# Output

P3279



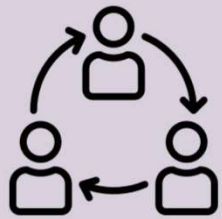
**Complementary to  
Existing Initiatives**

**Accessible  
Formats**

**Real-World  
Examples**

# Approach

P3279



## Collaborative Development

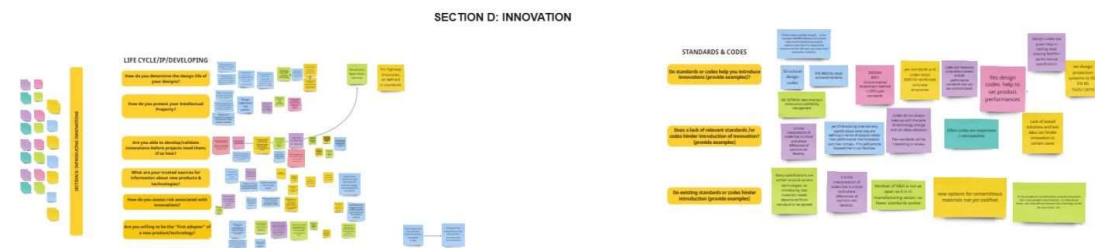
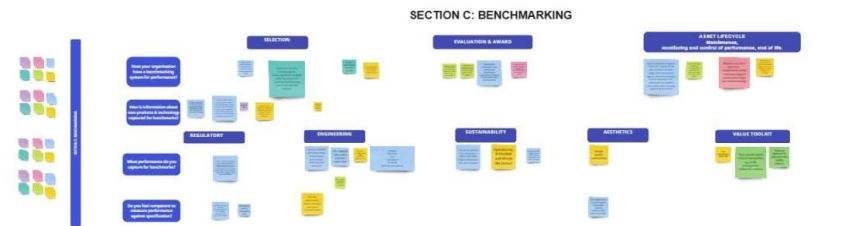
Workshops  
Key Stakeholders



## Expert Technical Author Team



## Independent Peer-Review



# Next Steps

P3279

- Briefing the Authoring Team
- Key Takeaways
- Outputs

**BOS ARUP**

**Want to get involved?**

<https://www.buildoffsite.com/membership/join-us/>





# Promotion & Launch

P3279

Post-Publication Promotion



Launch Event

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