

Buildoffsite Response to the IPA Platform-DfMA Approach

As an industry body, with members drawn from across the value chain, Buildoffsite is well placed to give a holistic, non-partisan view of the approach to p-DfMA. With such a broad constituency Buildoffsite is responding on behalf of the membership as *trustee* rather than *delegate* representation.

Q1: How can the government best encourage the adoption and implementation of this approach in its capital programmes?

Across all stakeholders the primary ask of government is

- A clear vision of the ambition for the construction sector
- Consistent policy over multiple years to support it
- Increasing levels of practical detail about how industry can engage to deliver

Key asks of government

- Articulate the approach to implementing the Presumption in Favour of Offsite and testing on projects across the 5 Core Departments
- A concern is that the House of Lords Science and Technology Committee recommendations were not adopted in 2018.
- Clarity of the Desired outcomes from the 5 Core Departments from p-DfMA
- Set a roadmap of milestones the industry is mandated to meet to supply HMG
- Link directly to Departmental Capital Investment programmes
- Refine the programme with increasing detail annually

Q2: Within the sector what changes are needed, including in relation to technologies, skills and commercial models, for this approach to succeed?

If p-DfMA and other Offsite innovations are to deliver significant value: the most critical change across the sector is to increase levels of collaborative working.

Key requests for government to encourage industry change:

- **Recognise and reward positive behaviour and investment in capability**
Government delist suppliers that do not meet the behavioural standards
- **Collaborative R&D Funding as a stimulus to develop p-DfMA standards**
Targeted problems from departments, invest and make framework IP open source
- Encourage collaboration with procurement models that recognise its value
Multi-tier Joint Ventures, Project Bank Accounts, Pooled Gain Share.

Q3: How to engage with industry to ensure the approach succeeds?

Key suggestions for government to engage:

- **Industry Bodies** – A clear message that HMG is committed to an industrial approach to construction. CLC as the primary Government – Industry partnership.
- **Clients** – Government clients engage directly with the Core Innovation Hub (CIH) & Buildoffsite to set the industry practical challenges to solve.
- **Consultants** – Government aligned with CIH / CLC to map out the p-DfMA potential for the professions and press for cross-industry collaboration / alignment.
- **Contractors** – Engage through trade bodies (BuildUK, CECA) for dissemination and feedback. Encourage the contracting innovators through Buildoffsite and CIH.
- **Supply Chain** – Cascade challenges to offsite manufacturers and supply chain via CPA / Buildoffsite. Practical activity through Buildoffsite for IPA p-DfMA development.

Q4: How can the benefits of this approach best be measured?

For offsite / p-DfMA progress can be measured by distilling down to two key metrics:

- **Site Productivity: Project Value delivered / site staff hours applied. (£/hr)**
All site logged hours: trades, management, security etc. This will show the trend of increasing work offsite in factories and is an easily measurable proxy for PMV.
- **Value Delivered: Project Capital Investment / Area delivered (£/m²)**
Comparisons are only valid between similar projects (e.g. schools or roads)

- **In tandem Productivity & Value show the impact of p-DfMA**
These are 'lagging' metrics and will support or challenge the success of p-DfMA
- **Whole Life Value: Project Whole Life Cost / Area Delivered (£/m²)**
Takes in to account the cost of operation, maintenance and repairs for each /m² built

Key requests for government use of metrics:

- Specify outcome metrics rather than inputs: e.g.: Programme reduction not PMV
- **Use existing data where possible** – do not add to the burden of data collection.
- **Planned 'ratcheting up' of metrics** – Clarity of direction and rate of change.
e.g. Home Energy performance mapped out in the Code for sustainable homes.
- Recognise suppliers that meet or exceed metrics with additional projects.
- **IPA Hold anonymised benchmark data** (by sector, by stage, concept, design, cost)
- Metrics should Not be procurement led
- Plan to include Whole Life Cost - as digital data delivers insight.
- **Keep metrics simple** - to Improve ability to audit and test transparency

Q5: What risks and costs (including hidden and associated costs) would this approach create for your organisation or sector?

Key requests for government support to mitigate Risks / Costs:

- **Government to adopt procurement models that support p-DfMA:**
To manage up-front design investment, cash-flow and shared risk and reward.
- **Minimise duplicated work flows with mandated rationalised design**
Limit the level of design change per iteration of the platform delivery.
- **Cross-government alignment with p-DfMA:** In planning, building control, and a firm mandate to avoid proliferation of competing standards that add cost not value.
- **IPA (for example) to act as investor in p-DfMA approaches.** With the expectation of recouping the investment through reduced project cost over multiple iterations.
- **Creation of a government backed Business Investment Guarantee:** To act as an underwriter of accredited suppliers to avoid the burden of commercial finance bonds.

Q6: How can this approach best be used to support the economy on a local and a national level?

Requests for government support to accelerate National economic benefits of p-DfMA

- Mandate Departments to share their logic where a non p-DfMA approach is used.
- Encourage CIH to align innovation across multiple industries to share best practice.
- Incentivise supply chains to deliver UK Infrastructure ahead of schedule.
- Department of International Trade support for p-DfMA services and product export.
- More MoJ prisons to become p-DfMA manufacturing sites and offender skills centres.
- Align the infrastructure pipeline with the development of p-DfMA capacity / capability.

Requests for government support to accelerate Local economic benefits of p-DfMA

- Enable Local Authorities to incentivise investment in p-DfMA capability and capacity.
- Use of local / pop-up assembly factories to add value locally and reduce transport.
- Align with Higher / Further Education to invest in scalable skills development.

Technical and commercial

Q7: How would current contracting models and building requirements need to change, in order to best facilitate procurement from a product platform?

Requests for government influence on p-DfMA contracting and procurement models:

- Collaborative R&D funding or direct investment in p-DfMA models for public works
- Develop mechanisms to avoid duplication in OJEU tendering for repeatable p-DfMA solutions whilst maintaining competitive tension and encouraging improvement.
- Collaborative contracts with central risk / reward / insurance etc.
- Seek technology based solutions to minimise payment delays and disputes

Q8: What unique requirements, including security, do different government departments currently specify that could (not) be rationalised or simplified?

Opportunities for government standardised p-DfMA solutions across departments:

- Use the current 3 draft platform solutions and test across all 5 lead departments. Identify the level of misalignment of the solutions: Crucial, material, historical.
 - Immediately standardise the historical variations.
 - Challenge the material differences.
 - Analyse the crucial misalignments to identify ways of minimising the impact
- Standardise towards higher rather than lower specification.
- Develop a Cross government catalogue for components, assemblies, spaces, assets.
- Incentivise its use

Q9: How and by whom should product, process and interoperability standards be set, validated and maintained over time?

Proposed approach to standard setting and maintenance is as follows:

- Initial central government investment to research key p-DfMA criteria across multiple departments: Assessing; space standards, services, power U-Values etc.
- Summarised as a p-DfMA requirements specification
- Tackled by
 - an unfunded consortium of potential suppliers or
 - Innovate UK collaborative R&D -e.g. Innovate UK funded SEISMIC project
 - suppliers working with the Construction Innovation Hub
- Maintenance and update:
 - To add credibility and rigour; the inclusion of a recognised standards body (BSI, BRE) would be valuable to independently document and maintain the standard.
 - A key requirement is to ensure the costs to maintain and update the standard are justifiable and that users are not penalised by high costs to access.
- The update process should be designed to refine the standards narrow down the solutions from rationalised, to standardised, to optimised.

Q10: What should the balance be between the core Intellectual Property (IP) which is retained and available to companies in the sector, and the proprietary IP that should be owned by individual firms?

In the construction sector and amongst offsite manufacturers in particular; there is anxiety about the leakage of unique IP. In reality there are very few examples of unique and robustly patentable IP within current designs ahead of platform thinking.

The distinction between core IP and proprietary IP for p-DfMA solutions.

The **core** IP is that which is needed to:

- Define the requirements specification for the p-DfMA solution. The baseline performance of the p-DfMA solution
- Provide the framework / infrastructure within which suppliers can innovate to add additional value whilst maintaining interoperability.
- Set the roadmap for future improvement of standards (e.g. tightening of specification over time akin BIM the maturity mandate)

The **proprietary** IP consists of suppliers know how to:

- Supply the p-DfMA product and service more competitively than alternatives.
- Create added value features and services that the market recognises as beneficial.
- Deliver the same p-DfMA outcomes and interoperability with a more attractive value proposition.

Core IP should either be in the public domain (open-source) or be held on behalf of HM Government and given under license for use by industry if it is of significant national value.

Proprietary IP may be kept secret or protected with patents by the individuals or organisation that generated it. Some proprietary IP may migrate to core IP as the sector matures and suppliers recognise the system benefit of:

- sharing designs and products for others to supply: Open source.
- licencing proprietary designs with a clear innovation valued by other manufacturers