Product Platform Rulebook

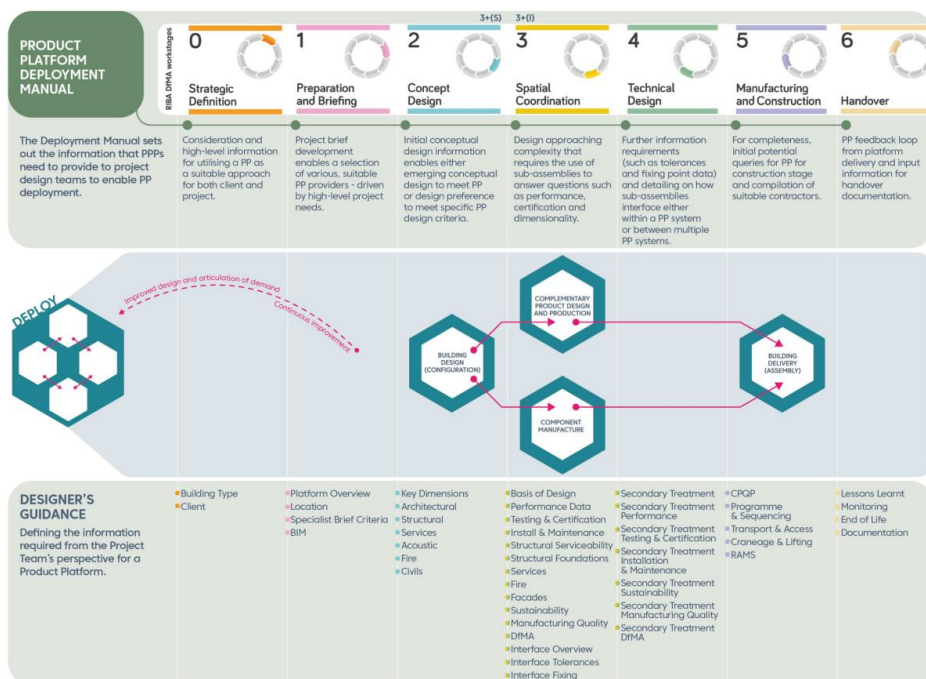# Deployment Manuals Guide

Version 1.0

1. Introduction

As part of the Construction Innovation Hub Bridge period, the Hub design team worked with the Product Platform Rulebook case studies to further progress the definition and contents of Deployment Manuals. A Deployment Manual is part of the DEPLOY stage within the Rulebook process. This work has built on the guidance set out in the Rulebook.

A Product Platform Deployment Manual sets out the information that Product Platform Providers need to provide to the project design teams to enable Product Platform deployment. A directory of information will be created for Product Platform Providers to create a Deployment Manual. This will be used by project teams, so Product Platforms can be used on their projects. The steps shown below have been mapped to the RIBA DfMA work stages.

Having followed the Rulebook process DEMAND, DEVELOP, DEPLOY the product platform provider is now able to provide the following to those operating in the project domain: core repeatable elements that have been designed to meet the majority of client requirements in one or more defined market segments; a variety of peripheral components that are available to be configured for different applications, that interact with the core assets via stable defined interfaces; specification information for the products above, showing that they meet defined quality standards; a deployment manual for assembling, using and configuring all components of the platform; assurance that the products on the platform will be able to be adapted to meet evolving needs in future (as evidenced by the Product Platform Roadmap).

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2. Definition

2.1. What is a Deployment Manual?

A Deployment Manual is concise, technically detailed, and standardised document that enables a Construction Product Platform to be implemented at scale by project teams on different projects.

Rulebook Definition: The Rulebook sets out the type of information that Product Platform Providers need to provide within the Deployment Manual to enable the project design teams to make use of the product platform on their projects. This will be provided in the standardised template provided as part of the rulebook to assist with consistency of information between platforms.

2.2. Deployment Manual Stakeholders?

1. **Project Design Team** - designers who will use Product Platform
2. **End user client -** the end user / owner of the building
3. **Contractors –** those who will eventually procure the PP and manage the assembly on site
4. **Supply Chain Partners** - manufacturers of core or peripheral component parts
   - o Develop - If the supply chain partner is designing components for the PP
   - o Use - If the supply chain partner is receiving drawings to manufacture components/sub assemblies
5. **Commercial partners** - collaborators within a consortium of PPPs.
6. **Other Product Platform Providers** - Developers of other PPs who may need to interface with a specific PP,
7. **Regulatory Partners** - third party organisations that provide certification of the product and its assurance process: BSI, BRE, Building Control, insurance providers and other construction quality organisations

2.3. Why is a Deployment Manual required?

A Deployment Manual enables sufficient technical information to be supplied to stakeholders identified above, for them to understand if and how a specific Product Platform can be deployed on a project and how it will interface with other products and product platforms in a building. Where the platform is not constrained to one manufacturer, it defines key roles and responsibilities. It is a pre-requisite of satisfying **Rule 7 - Structured Information.**

2.4. How does it differ from the Product Platform Rulebook?

The **Rulebook** sets out the process to develop a Product Platform through the DEMAND, DEVELOP, DEPLOY framework. A **Deployment Manual** is an output of the DEMAND, DEVELOP, DEPLOY framework set out in the product platform Rulebook. A **Deployment Manual** is the 'How to Design with' guide for using a Product Platform.

2.5. What is the added value from a Deployment Manual?

A Deployment Manual provides easily accessible information for the designers, enabling them to incorporate a product platform into their design with speed and efficiency. It ensures the information is clearly set out in a common format, allowing ease of use and comparability between different product platforms. A Deployment Manual provides the benefits of repeatability, efficiency, clarity, comparability, pre-defined testing & assurance, and pre-defined coordination areas, pre-defined spatial rules.

3. Contents

3.1. Data Sheet or Digital?

Data Sheet

The initial deployment manual is envisaged as being a succinct standalone data sheet/pdf document.

Digital

However, the aspiration is that in time - with sufficient alignment of template contents between platforms - these can be moved into a standardised digital format. This opens up the opportunities for more digitally enabled design and procurement tools.

To do this we need:

- Standardised Ontology – a standardised set of building product definitions (see example below):

- Common product descriptions – a standardised schedule of product descriptors, properties and performance metrics (see example below):

3.2.   System/Product, Open/Closed Platform

The Product Platform Rulebook defines the 8 Rules & Principles that a system must comply with to be considered a platform:

8 Product Platform Rules & Principles:

THE RULES
1. Deployable
2. Configurable
3. Common Repeatable Elements
4. Interfaces
5. Open

THE PRINCIPLES
6. Quality
7. Structured Information
8. Circularity

3.3.   Contents – High Level

From the Designer's point of view the contents of the Deployment Manual should answer the following questions, and this helps to define and organise the Deployment Manual contents.

1.	**What is it?**	Define the product
2.	**Can I use it?**	Is the product applicable to the required use? (e.g. Geometry limits, performance limits, region etc)
3.	**How do I use it?**	Elements, Spatial layout, performance, interfaces etc
4.	**How do I know it will perform?**	Quality and compliance assurances
5.	**How will it be installed and maintained?**	Installation, maintenance and circular economy etc
6.	**How do I communicate my design?**	Specifying the resulting configuration

3.4. Contents – Data Sheet

Required Information:

Blue = Content will vary depending on the Platform type (ideally standard list for each agreed platform type is established)

1. Platform Overview

Section	Guidance Notes to Content
1.1. Platform Details	
1.1.1. Name	Platform Name
1.1.2. Website	For further technical information and access to supplementary information
1.1.3. Contact Email	For technical support
1.1.4. Contact Telephone	For technical support
1.2. Platform Types covered	Need to establish standard platform type descriptors: (e.g. floor structure, frame, MEP risers, ceiling, internal wall, external wall etc)

1.3. Platform overview	Very brief high-level overview of the platform To include:
	  - Brief description of the platform
	  - Diagrammatic image
	  - As-installed photos

1.4. Platform principles:	High level overview of the platform principles
1.4.1. Element types	What are the typical parts that make up this platform
1.4.2. Configuration options	What are the kinds of configuration options available with these elements
1.4.3. Interfacing strategy	What are the high level interfacing strategies at boundaries of this platform
1.5. - Pros & Cons of the platform	High level positives and negatives of the platform
1.5.1. Key Advantages	
1.5.2. Key Disadvantages	
1.6. - Sustainability	Key sustainability metrics of the platform
1.6.1. EPD criteria	Performance against EN 15804 EPD criteria (e.g. embodied carbon per unit etc)
1.6.2. Sustainable Sourcing	Details of organisations sustainable sourcing certification to BES 6001

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2. Platform Applicability

Section	Description

2.1. – Applicable Regions	e.g. UK, Europe etc
2.2. – Applicable Sector	e.g. Resi, office etc
2.3. – Key Platform limitations	Key platform limitations that could impact someone's decision to consider the platform
2.3.1. Geometry Limitations	Key limits on geometric arrangements relevant to the nature of the platform (e.g. max span, max height etc)
2.3.2. Performance Limitations	Key limits on performance relevant to the nature of the platform (e.g. maximum load, highest fire rating, maximum acoustic rating etc)

3. Designing with the platform

Section	Description
3.1. – Platform Parts	Can be omitted is platform is very simple (e.g., floor cassette)
3.1.1. Common parts	What are common/repeatable parts that make up the platform
3.1.2. Variable parts	What are the variable/adaptable parts of the platform that can have properties adjusted to suit project specific needs
3.1.3. Bespoke parts	What are the parts of the platform that can be made totally bespoke to meet the project needs
3.1.4. Excluded Parts	Things not included in platform but may be required to complete
3.2. – Geometry Rules	Rules/Guidance to the designer on setting out and geometry related aspects of the platform
3.2.1. Dimension Rules	Rules for dimensions of the platform parts (e.g. span/load tables, height increments, panel width increments etc)
3.2.2. Setting out rules	Rules for the layout and setting out of platform parts (e.g. holes no closer than xxmm, maximum opening sizes
3.2.3. Build-up Dimensions	Any key rules for thickness/build-up of platform parts (where not covered by dimension rule) (e.g. Wall thickness no greater than XXmm)
3.2.4. Other Geometry Rules	Other rules not covered by above (e.g. maximum hole sizes)
3.3. Performance Rules	Guidance to the designer on what the platform can achieve and options available related to the performance

Rules will depend on the platform type (e.g. Fire Rating, Loading, Acoustic performance, U-values, temperature ranges, natural frequency, slip resistance etc) |

3.4. Interface Rules	Key Rules relating to interfaces both between the internal parts of the platform and with other external parts sourced from others
3.4.1. Internal interfaces	Rules or details of internal interfaces between the parts that make up the platform. This may be items that the designer would want to know about the interface (e.g. maximum acoustic performance) or rules the designer need to follow in developing their solution using the platform (e.g. Floor type A can only be supported on wall Type D or E)
3.4.2. External Interface	List of the external interfaces that are addressed by the platform: (e.g.for a partition walling system it may include – floors, ceilings, horizontal MEP distribution, vertical in wall MEP distribution etc)
3.4.2.1. Interface XXXX	For each interface type the following should be provided in order to: - Inform the designer about the platform - Guide the designer in designing with the platform where the interfaces may impact their chosen solution - Inform the designers selection of other parts that could be influenced by this platforms compatibility - Collect information that is required from the designer to allow the platform to be provided The information provided will depend on the platform type and the nature of the interface but should broadly cover: - Compatibility with other parts (e.g. concrete, timber floors) - Geometry and associated details (e.g. Fixing detail) - Interface Performance (e.g. Fire Rating) - Critical Assumptions (e.g. interface is always a horizontal surface) - Tolerances (e.g. platform can accommodate +/- 10mm at this interface) - Site finishing or secondary treatment requirements - (e.g. final air tightness seals to be completed on site using product X)
3.4.2.2. Interface YYYY	As above for each subsequent interface type

3.4.2.3. Interface ZZZZ	…

4. Certification and Assurance

Section	Description
4.1. Schedule of Standards Compliance	List of all the relevant standards that the platform has demonstrated compliance with
4.2. Schedule of Testing Certification	List of all the relevant testing certifications that the platform has achieved
4.3. Alignment with CPQP process	Demonstration of the platforms compliance with the CPQP process
4.4. Installation Tests	Details of any testing required post installation
4.5. Warranties	Details of warranty provision

5. Installation, maintenance and circular economy Procurement partners

Section	Description
5.1. Installation	Details of the transportation and installation requirements that could influence design choices and the contractor logistics and programming.
5.1.1. Transport	e.g. Typical delivery sizes, delivery arrangement, number per delivery,
5.1.2. Lifting and Handling	e.g. off loading requirements, weight, lifting points, lifting frame requirements, maximum stacking,
5.1.3. Sequencing	Any specific requirements on installation sequencing of the parts of the platform or in relation to other interfacing parts
5.1.4. Temporary protection	Any details for temporary protection from weather, dust etc and if this supplied with the platform
5.1.5. On site finishing works	Details of any works needing to be completed on site at interfaces (internal to the platform or external to other parts) and/or to the platform parts themselves
5.1.6. Health and Safety	Any specific H&S requirements during the transportation, lifting, fitting and finishing operations
5.2. Maintenance	Details of the design life Details of the design life and maintenance requirements that may effect designer choices and system selection (NB this is not to the detail level or in replacement of O&M manuals)
5.2.1. Lifespan	Design life of the system relative to exposure classifications

Section	Description
5.2.2. Maintenance Cycles and requirements	Maintenance cycles of the platform parts and high level summary of the works required at these maintenance intervals
5.3. Circular Economy	Details of the platform features with regard to achieving a circular economy at end of its use in the building – sufficient to guide designers system selection
5.3.1. Disassembly strategy	High level summary of method and works involved in disassembly
5.3.2. Product reuse	High level summary of any likely checks, maintenance and/or remedial works needed before reuse.

6. Platform Specification

Section	Description
6.1. Specification principles	Principles of how the designer should communicate to the supplier how they have configured the platform on their project
6.2. BIM Requirements	Any specific BIM requirements for the communication of the design intent
6.3. Template specification	Any specific templates for recording project specific configuration and performance requirements

3.5. Supplementary Information/Appendices (open format):
- Further product benefits case (Further Sales Pitch)
- Case Studies
- BIM Tools inc. Configurators (links)
- Key Testing Data
- Prototyping Capacity (e.g. interfaces)
- Sample Availability
- CPQP documentation
- Example System Configurations (see Seismic)

3.6. Information Not Required in the Deployment Manual:
- Product Platform Development History
- Extensive Testing Reports
- Cost – project, order size etc dependant. Always varying to respond to material prices etc
- Programme/Lead Times – very dependent on size of order, time of year, made to order etc
- Handover Documentation (Separate Workstream)
- Prototyping & Benchmarking (Separate Workstream)

4. Next Steps

The following next steps have been identified to continue progress in the development of Construction Product Platform Deployment Manuals:

1. The Deployment Manuals Guide to be updated and enhanced in line with emerging industry standardised approach to elemental breakdown of buildings. This includes the consistent terminology and language aligning with this elemental breakdown method e.g. consistent use of terms, for example: module, component, component part, sub-assembly, product, system, Building Product Platform (BPP) and other terminology.

2. Linked to point 1, development of an industry standard to define industry best practice, defining the content of a Construction Product Platform Deployment Manual, through an appropriate standards organisation.

3. **Digital Deployment Manuals.** This is the critical next step from the hub's design team perspective. Further development of deployment manuals into the digital domain. A written Deployment Manual, as set out in this guide, should be seen as the first step in defining specific product platform's deployment information. Following this first step, development of a digital Deployment Manual hosted on a website or data cloud, enables ease of access to the critical information that designers require and quickly assess if a specific product platform is applicable to their project brief.

4. Linked to point 3, further R&D projects or programmes should identify a digital deployment manual work stream for industry.

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