The Hub Playbook for

Manufacturers

CONSTRUCTION INNOVATION HUB

UK Research and Innovation

The Hub Playbook for Manufacturers

As part of the Transforming Construction Challenge, over the past four years the Hub has worked with government and industry to create solutions that support the transformation of the sector. New tools, processes and standards will boost productivity, supporting a more innovative, safer, higher quality, more sustainable sector ready to deliver the ambitions we have for our society, environment and economy.

The Hub's programme has focused on enabling the market to succeed. We have shaped the policy and regulatory environment, helping clients and policymakers to drive added value in the decisions they take. Our outputs will enable all parts of the supply chain to respond with innovative solutions that exploit the opportunities that new digital, data-centric and manufacturing approaches can bring.

Together, the policy environment and transformation agenda present a growing opportunity for manufacturers to forge a leading role in the construction sector. This Playbook clearly articulates from a manufacturer's perspective what each of the Hub's key outputs are, the key drivers behind their development, and the practical steps to take to accelerate and drive adoption within their organisation.

Value Toolkit

Value Toolkit

What is it?

The Value Toolkit is a pioneering suite of tools that can be used to embed value-based decision making in projects across the construction and built environment sector. Value-based decision making focuses on how an investment can deliver the best outcomes and thus value, rather than focusing exclusively on delivering to the lowest possible price.

Why do it?

The government is driving the construction industry to adopt value-based decision making through policies set out in the Construction Playbook and Transforming Infrastructure Performance Roadmap to 2030.

Both the public and private sector can apply the tools within the Value Toolkit on single projects, across programmes or at an enterprise level.

Use of the Value Toolkit will drive transformational change in the way all stakeholders in the sector are able to create better schools, hospitals, homes and buildings in the future.

The Toolkit can be used to help tackle the increasingly complex challenges our society now faces, from climate change to economic recovery in a post-pandemic world.

The role of manufacturers

Manufacturers can use the Value Toolkit to better understand how the solution they are offering – their 'value proposition' – aligns to the client need. The Value Toolkit supports clients in making balanced decisions that take into account a wider view of value than cost and programme. With the exponential growth of ESG-related funds, the Value Toolkit provides a mechanism to embed environmental and social outcomes into every investment, providing a robust process to define outcomes, evaluate options and measure the value created.

What practical help is available to manufacturers?

The priority for manufacturers is to understand how the value profile and value scorecards are generated, to be prepared to respond to shifting client requirements. The Construction Innovation Hub and partners across industry developed the Value Toolkit as an industry resource. It sets out a series of processes, tools and guidance and two interlinking activity streams: one covering value definition and measurement; the other through a client approach. Both are designed to evolve alongside industry and policy priorities, using continuous feedback loops to deliver insight on performance and effectiveness. Within these streams there are steps, deliverables, and decision points.

The Toolkit also provides a webapp to store the decision points and the evidence behind them, so that these are transferred at every handover point in the lifecycle of an asset. It includes training: a two-day facilitator training course; e-learning for the supply chain on how to respond if a client is using the Value Toolkit; and e-learning for commercial teams looking to understand value-based decision making. This will be supported by overarching guidance, including an overview document, and detailed handbooks.

The Value Toolkit has been created to support the implementation of the policies described in the Construction Playbook. The needs of government, clients and industry lie at the heart of the Toolkit's development and its publication follows extensive stakeholder consultation and industry involvement. The Value Toolkit stands ready to be the blueprint for the adoption of value-based decision making by current and future market players.

What are my first steps?

Explore the applications of the Value Toolkit at project, programme or enterprise level.

Find out more about the Value Toolkit here

Product Platform Rulebook

Product Platform Rulebook

What is it?

Platform construction uses product platforms as standard, repeatable assets with interoperable components. Their use can reduce cost, waste, and carbon and help the infrastructure sector better deliver the future pipeline of projects and programmes.

Platform construction will drive transformational change in the way clients think about how our schools, hospitals, homes and buildings can be created in the future.

It is designed with built-in mechanisms for continuous improvement and the opportunity for synchronisation and streamlining as both capability and capacity grow.

A product platform is a kit-of-parts, associated production processes, and the knowledge, people and relationships required to deliver all or part of construction projects using a platform approach. It provides a stable core which is configured and combined with complementary components (via defined interfaces) to suit a particular project. A product platform also includes the processes, tools and equipment required for assembly.

Why do it?

The Rulebook has been created to support the implementation of the policies described in the Construction Playbook. It also enables the accelerated adoption of platform approaches described in Transforming Infrastructure Performance: Roadmap to 2030 (TIP). The needs of government, clients and industry lie at the heart of the Rulebook's development and its publication follows extensive stakeholder consultation and industry involvement. The Rulebook stands ready to be the blueprint for developing and implementing product platforms for current and future market players.

The role of manufacturers

Platform solutions represent a fundamental change requiring different behaviours from both manufacturers and clients. Product platforms rely on aggregated demand supported by harmonised and rationalised design requirements across a range of asset types and client organisations. Clients will have to provide confidence to manufacturers that the solutions they develop will have a market.

Clients will need to agree on suitable time frames for the publication of pipeline and requirements data. They will have to balance the need for continuous improvement with the need for stable demand.

Organisations across the client domain will be required to work together to agree common standards against which pipeline data and client requirements are communicated. This will need to be done collaboratively across the client base, away from the project environment.

What practical help is available to manufacturers?

Manufacturers can use the methodologies and approaches within the LEXiCON project developed by the Construction Innovation Hub (the Hub), in partnership with the Construction Products Association (CPA). LEXiCON seeks to standardise construction product information and support manufacturers in sharing product information freely across the industry.

What are my first steps?

Manufacturers can use the Rulebook as an open access resource to educate, enable, and empower their management and staff. It outlines additional guidance, case studies and definitions. Manufacturers can consider the requirements for harmonisation of demand and act on specification maturity recommendations, in conjunction with the Construction Playbook.

They can also access the LEXiCON Methodology Report.

Find out more about the Product Platform Rulebook here

Information Management

Information Management

What is it?

The Hub's Information Management project developed tools and guidance designed to support industry to adapt and thrive within an evolving digital landscape. Information management is the key to unlocking industry's potential, providing the Golden Thread that enables transformation to evolve and improve our infrastructure. The Hub-developed resources include: policies and standards; operating models, processes and tools; and a library of case studies and evidence to support business cases.

Why do it?

The future of construction and infrastructure is focused on digital advancement. There's no winding the clock back, only forward.

The government is driving the adoption of information management through policies set out in the TIP Roadmap to 2030 (Information Management Mandate) and the application of the UK BIM Framework, and through the introduction of the National Digital Twin Programme.

Enhanced information management practices and processes will enable manufacturers to play their part in helping to build back better and promote a green industrial revolution in the transition to Net Zero.

The role of manufacturers

Manufacturers can work with public and private sector clients and other sector partners to develop capability and capacity in information management.

Manufacturers can use the methodologies and approaches within the LEXiCON project developed by the Construction Innovation Hub (the Hub), in partnership with the Construction Products Association (CPA). LEXiCON seeks to standardise construction product information and support manufacturers in sharing product information freely across the industry.

It contains a methodology for the creation and ongoing management of 'Product Data Templates'. By creating a consistent approach across the building industry, LEXiCON will make it easier for people to upload, categorise and compare data between products. Machine-readable 'Product Data Templates' will drive efficiencies in product selection and make it easier to reduce costs and carbon.

By applying effective information management processes, the market can benefit from greater efficiencies, improved quality and consistency, reduced costs and increased resilience and agility.

What practical help is available to manufacturers?

The Hub was worked in partnership with industry, government and academia to produce open-source outputs that support manufacturers on the transformation journey. This includes: The UK BIM Framework – a series of guidance documents for using BIM in the UK; Digital Twin Navigator – an interactive guide for considering digital twins in business cases and capital project procurement; Energy and Carbon Framework – guidance that defines operation energy and carbon dioxide emissions; information exchanges for Government Soft Landings (GSL); Local Authorities Soft Landings Navigators – an interactive navigator for implementing GSL; LEXiCON – methodology for creating and managing Product Data Templates; Information Requirements Tool – to support client information managers; and a Skills and Competency Framework – guidance to support the development of information management capabilities.

What are my first steps?

Access the LEXiCON Methodology Report.

Find out more about Information Management here

Quality Assurance

Quality Assurance

What is it?

The Hub's work into quality assurance provides the guidance and tools for construction product manufacturers to deliver higher quality, safer, more sustainable outputs, whether a provider of traditional products or producer of offsite, platform-based solutions. It focuses on two main areas. Quality – CPQP offers a toolbox of resources to help manufacturers produce products and components in line with best practice quality standards, ensure legal compliance and improve the efficiency of their operations. Product verification and validation offers a clear route to product validation as part of a platform-based approach to construction. This helps ensure finished products meet all requirements set out at design stage.

Why do it?

Our tools and guidelines set the level of quality assurance and risk assessment that should be embedded within both the design and production stages of product manufacturing. They will help businesses conform with new standards such as BS 99001 and ensure compliance with legislation, including the new Building Safety Act. The Construction Playbook and Transforming Infrastructure Performance Roadmap to 2030 both set out a vision for a manufacturing-led construction sector. CPQP is part of a suite of tools that the Hub has developed to meet these ambitions.

The role of manufacturers

The introduction of Modern Methods of Construction and Platform approaches brings about new challenges and ways of working that the industry must adapt to.

Manufacturers can help contractors to provide evidence that satisfactory attempts to mitigate risk have been taken. This is where the Hub's Quality Assurance outputs can add real value.

What practical help is available to manufacturers?

The Construction Innovation Hub and partners across industry have developed the CPQP Quality Framework process that should be followed during the creation of new construction products. It includes five phases, ranging from product definition to product launch.

A Verification & Validation Guide (VV) has been designed to help constructors efficiently and effectively navigate the verification and validation processes in line with shifting regulatory landscapes. The guide focuses on the testing of components and their integration as part of a system during the product development process. It is designed to fit within the CPQP framework.

Manufacturers can also use the methodologies and approaches within the LEXiCON project developed by the Construction Innovation Hub (the Hub), in partnership with the Construction Products Association (CPA). LEXiCON seeks to standardise construction product information and support manufacturers in sharing product information freely across the industry.

What are my first steps?

Adopt the CPQP process for the creation of construction products, and encourage its use. The Hub has created a range of resources to support Quality Assurance and Product Validation and Testing that are available open access. CPQP directly supports the Hub's Product Platform Programme. It provides practical tools for the quality assurance of product platforms developed using the guiding rules set out in the Hub's Product Platform Rulebook.

CPQP aims to ensure that quality is built into any new manufacturing processes and final products from the start and supports the creation of a live control document for the Golden Thread.

Manufacturers can also access the LEXiCON Methodology Report.

Find out more about Quality Assurance here

The Construction Innovation Hub is funded by UK Research and Innovation through the Industrial Strategy Challenge Fund

The Construction Innovation Hub is a partnership between:

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