Ministry of Justice

New Prisons Programme

Modern Methods of Construction Delivery Plan

July 2020

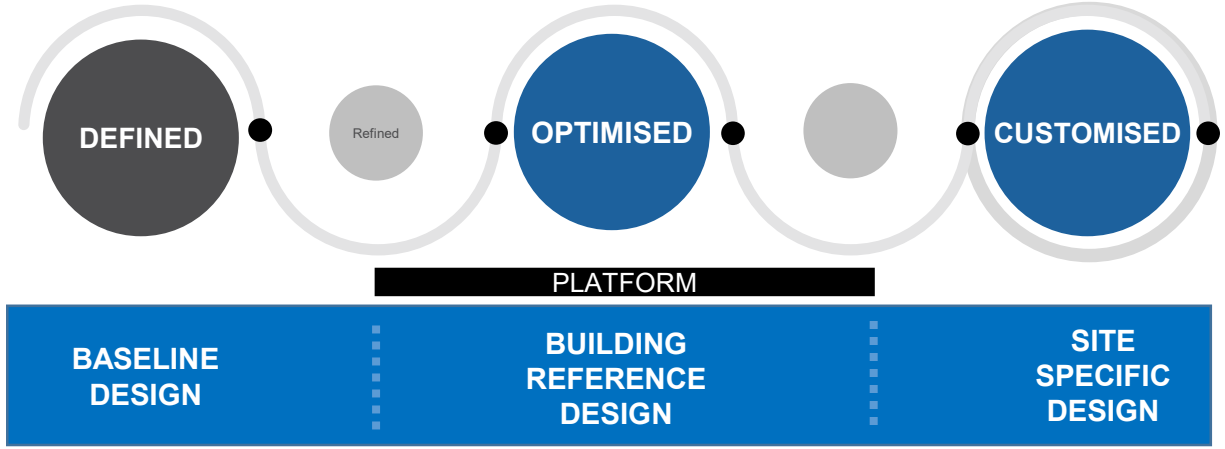
Doc Ref: 888888-5310-MAC-NPP000-XX-RP-J-0002-C0900-MMC Strategy

Overview:

The prison population is forecast to rise significantly during the 2020s and project demand for places is expected to outstrip supply. The Prime Minister announced in August 2019 that capital investment would be made to create 10 000 additional prison places. The plan to deliver these include the building of the prison at Full Sutton and a further three prisons, at locations to be determined – the programme of '4 New Prisons'.

The design principles in modernising the estate are founded upon rehabilitative themes - modern, efficient prisons with a strongly evidenced-based design are the most effective environments to improve safety, reduce violence, rehabilitate offenders, and therefore reduce reoffending.

In seeking to maximise these outcomes and in support of the Government drive to transform the construction sector, the MoJ remain committed to delivery via Modern Methods of Construction. The Department has a strong history of applying digital solutions and off-site technologies to maximise value for money – the platform-based principles behind the 4 New Prison programme are planned to build upon this foundation.

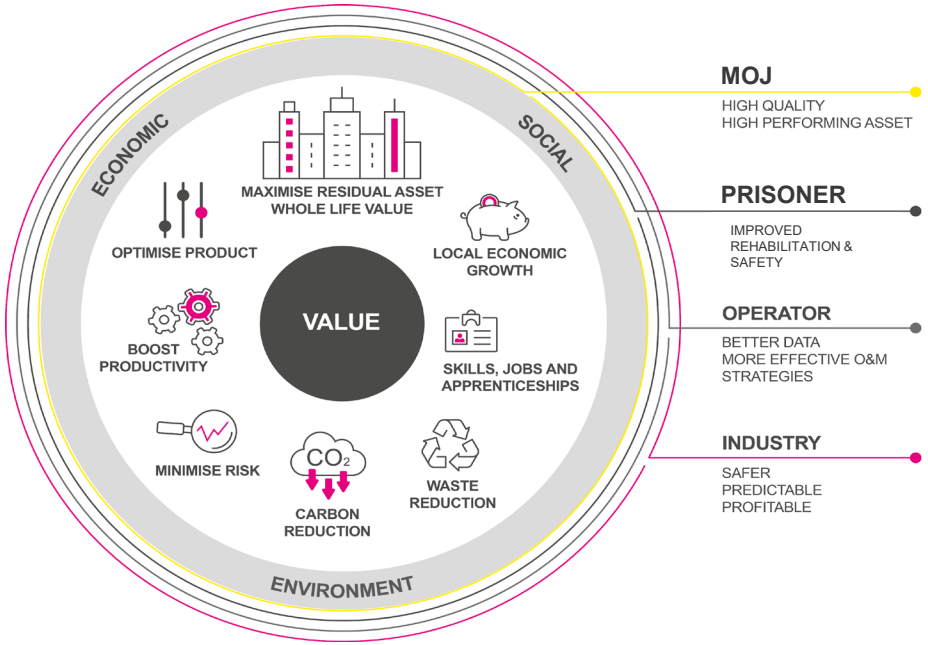


The enclosed strategy provides an overview around the platform principles and pivotal role of the Designer in developing the Building Reference Design as an optimised solution that can be customised through configuration of standard components , taking due cognisance of site specific constraints, to create site specific designs.

MoJ's Commitment to MMC

With a long history of delivering projects through manufactured solutions, the MOJ remain committed to supported the Government drive to transform the construction sector via adoption of 'Modern Methods of Construction'. The model underpinning the 'Baseline Design' was based upon a 'Platform' of standard construction components, manufactured in a factory environment for assembly on site.

The platform based principles, delivered via manufactured components, has been applied to realise benefits identified below:-

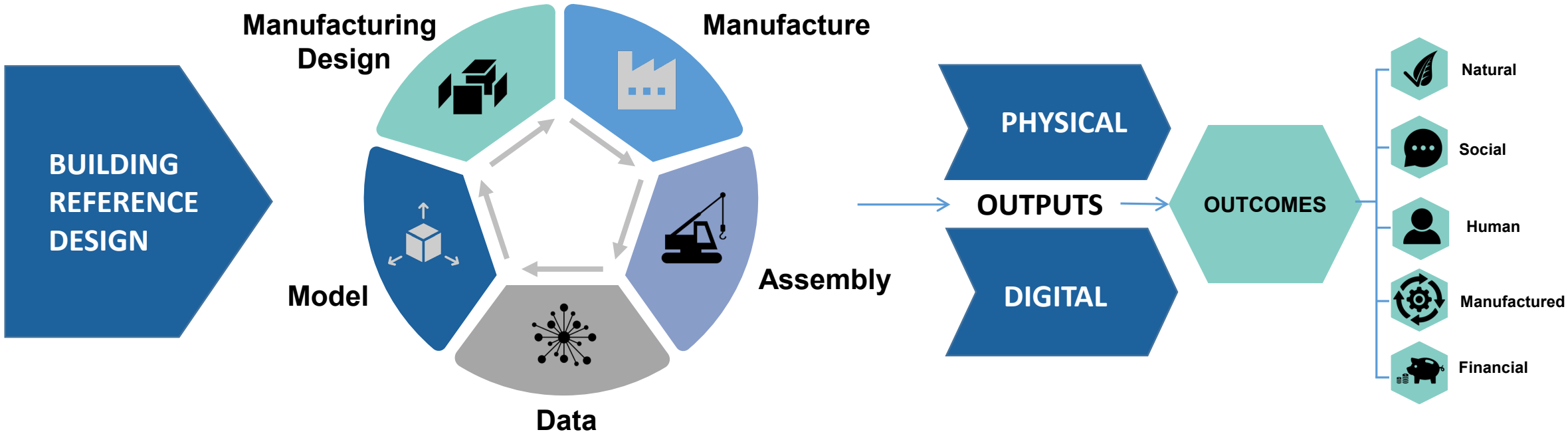


In developing the Building Reference Design as an optimised platform solution, the MOJ wish to maintain these principles for the 4 New Prisons, to maximise their value and outcomes.

Where it Represents Best Value

Consistent with the Government's presumption "in favour of", the Building Reference Design should therefore reflect a Construction Strategy that maximises the utilisation of offsite techniques, where it represents best value.

Current schemes at both Glen Parva and Wellingborough are expected to realise a Pre-Manufactured Value of circa 70% (on standard buildings). The Building Reference Design should maintain the status quo and apply lessons learnt (to be secured by the Designer from Constructor(s) and supply chain at both Wellingborough and Glen Parva) to optimise solutions / components further where they enable the programme desired outcomes to be delivered in a manner that is faster, more economical, safer, sustainable and socially responsible.

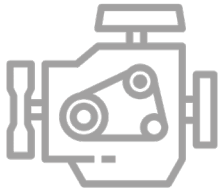


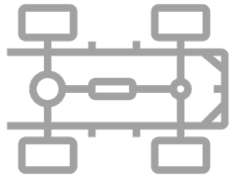
Platform Design Principles

As defined within the Client Designer Scope of Services, the underlying principle for the 4 New Prisons programme is to create a platform design solution, the ‘Building Reference Design’, developed through optimisation of the Baseline Design and standardised components that can be configured and customised, taking due cognisance of site specific constraints, to create Site Specific Design(s).

Standard, Repeatable Space Solutions, constructed through DfMA kit of parts →

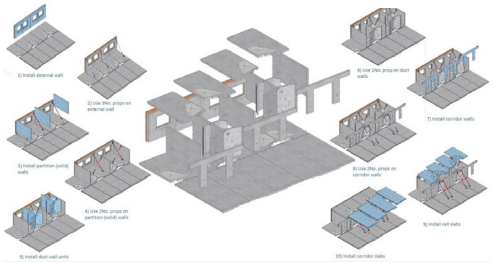
BASELINE DESIGN | **BUILDING REFERENCE DESIGN** | **SITE SPECIFIC DESIGN**





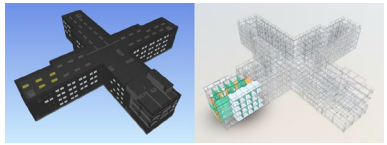
Component	Platform	Product
Components	**Building Reference Design**	**Site Specific Design**
Standardised, repeatable and interoperable, able to be mass manufactured by a range of suppliers	Standard spaces / buildings, that can be configured in a number of pre-defined ways, via component kit of parts	Building Reference Design, configured to reflect site specific constraints

Standard Components

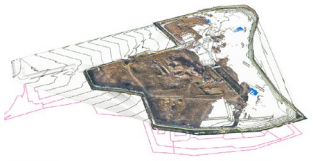


Standard Spaces

Standard Typologies & Buildings



Site Configuration



DfMA Principles

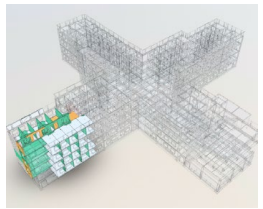
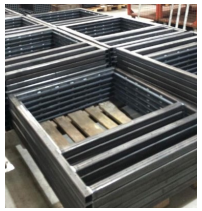
The Baseline Design was founded upon the principles of:

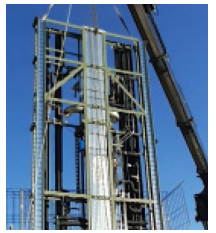
- Maximum functionality for the minimum whole life cost
- High Degree of Standardisation - with standardised building typologies, spaces and adjacencies configured from mass customisable components – to realise benefits in quality, time and certainty of delivery

In optimising the Building Reference Design, the Designer is expected to maintain these principles, to create a platform-based solution and kit of parts that ensures best value across the programme. The design of components forming the kit of parts should reflect DfMA principles (and tested via DfMEA), namely:

- Highly repeatable (across a variety of building types)
- Optimised in quantum to reduce assembly, work-in progress and simplify automation
- Can be manufactured at scale by a wide supply chain
- Through systems that minimise handling and processing of materials to maximise residual value
- Able to be assembled with minimal need for specialist skills or equipment, to standard operating procedures & methodologies
- Pre-Tested using rigorous quality assurance to provide consistency across the programme (in construction and operation

Components should be interoperable, to ensure that solutions provided by different supply chain members can be used in the same building typology.

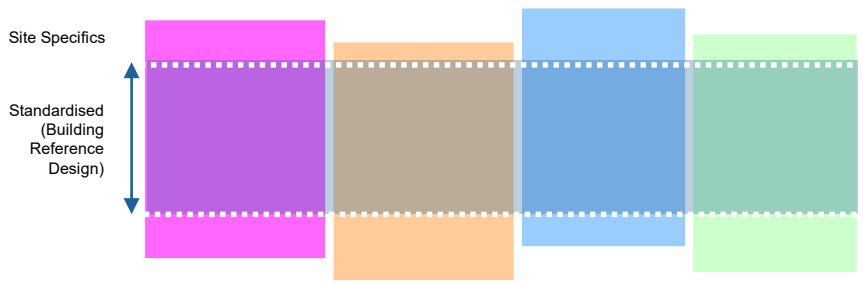



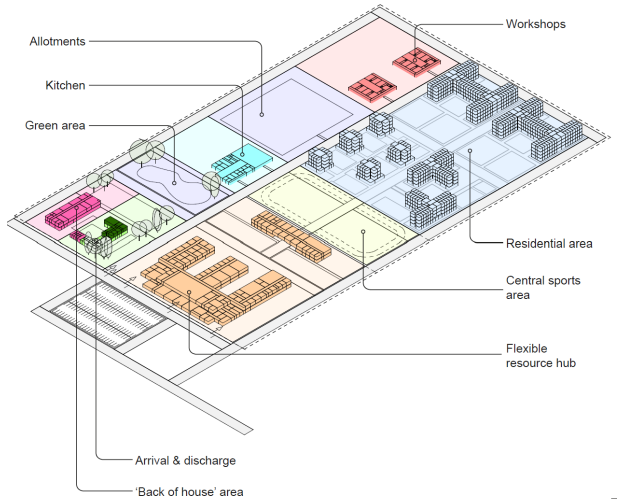
Platform Principles

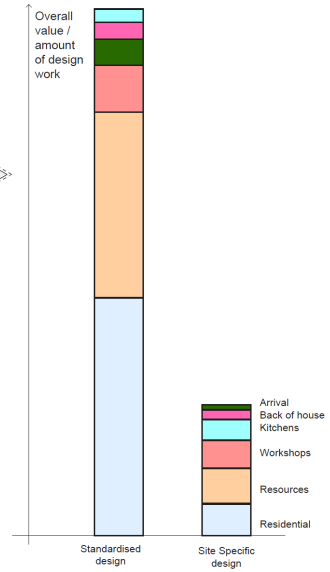
As a platform solution, the Building Reference Design should remain a consistent thread across all 4 Prisons. The principles of commonality and repeatability have been adopted to realise benefits both in preconstruction, construction and operation – with standardisation in use.

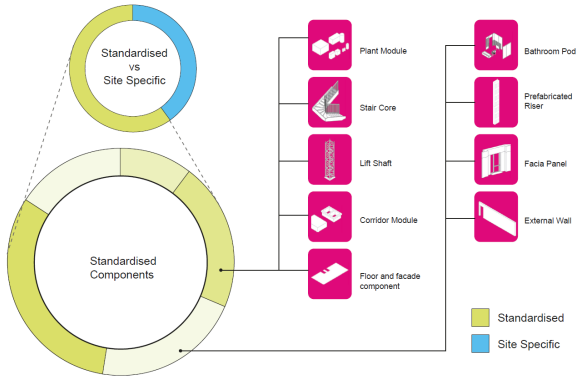
Site Specific designs are required to reflect the variables, namely planning authority matters, site-specific constraints, geology, contamination, topography, proximity to other third party owned built assets and infrastructure, etc. Whilst configuration may vary, spaces and component sets however are not expected to fundamentally change between schemes.

To demonstrate that the platform principles have been maintained and validate the extent of variability across all 4 New Prisons, the Lead Designer is expected to provide data analytics (extracted from the model) at both an individual scheme and overall programme level. This may include (i) Spatial Analysis (ii) Bill of Materials and (iii) quantification of use of BIM Object / Component Library.







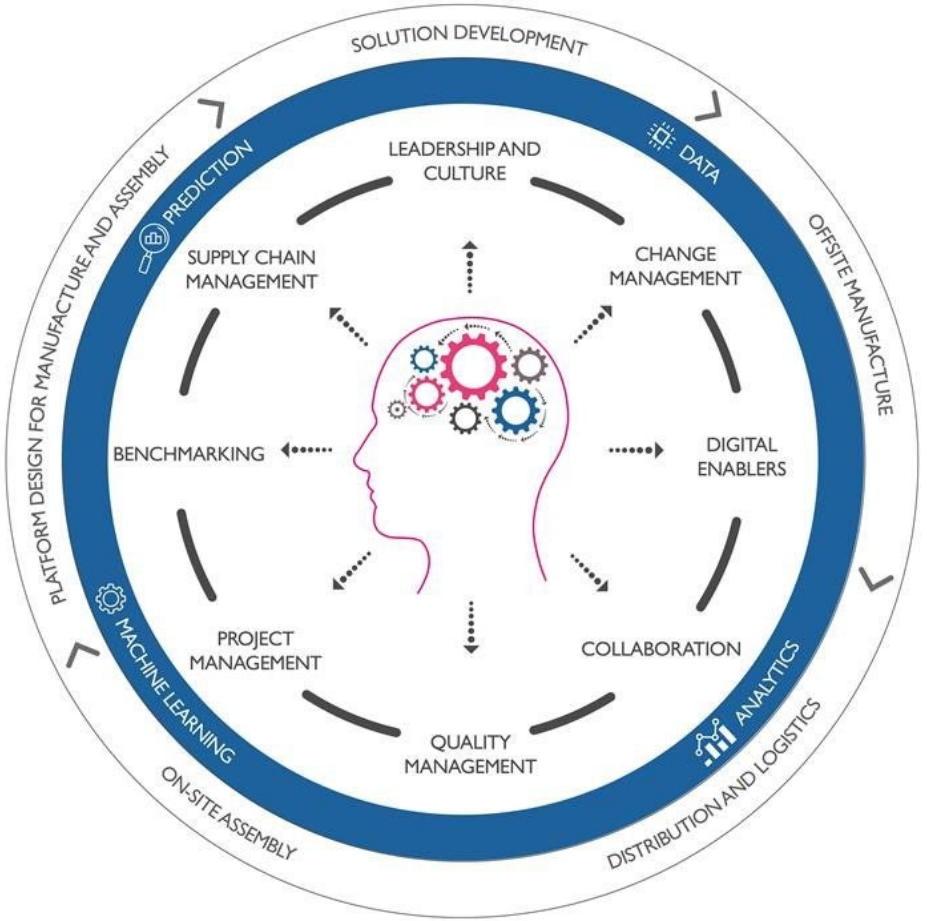


Analysis of standardisation v site specifics is to be tracked at a 'Complexes, Entities, Elements, Systems and Products' level – ala Uniclass classification

Interlink with Priority Themes

The principles of Modern Methods of Construction are treated by the MOJ as an enabler to outcomes, not an end in itself.

The MMC strategy is therefore inherently interlinked with other deliverables, activities and the priorities themes such as BIM & Digital Construction, Collaboration, Supply Chain Development, Health & Safety and Wellbeing, etc.



MOJ MMC Trajectory

Key:
Red Bold Text = Designer Deliverable