

Area 4 Interim Construction Works Framework (CWF)

Asset Delivery

Scope

Annex 18

Continual Improvement and Innovation

CONTENTS AMENDMENT SHEET

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1. CONTINUAL IMPROVEMENT AND INNOVATION

1.1 Purpose and Scope

1.1.1 This Annex sets out the *Client's* minimum requirements for the Contractor in terms of continual improvement using Lean principles and Structured Innovation for the delivery of the *service*.

1.1.2 Continual improvement and innovation comprises five parts:

- (1) Outcome requirements
- (2) Strategic objectives
- (3) The method (s)
 - Lean Continual Improvement
 - Structured Innovation
- (4) Performance measurement
- (5) *Client's* training

1.2 Outcome Requirements

1.2.1 The primary outcome from using continual improvement, based upon Lean principles, is the generation and realisation of reductions in the cost of Providing the Service for the benefit of both the *Client* and the Contractor, while still achieving the requirements of the customer. These cost reductions will contribute to the overall efficiency savings that are specified in the Highways England Strategic Business Plan 2015-2020 and Highways England Delivery Plan 2015-2020 and beyond. Lean efficiency savings will be registered on the *Client's* regional efficiency register.

1.2.2 An additional outcome will be the improvement of quality in providing the *service*, at a reduced or no additional cost to the *Client*.

1.2.3 A further outcome will be that collaborative working techniques, such as Lean Collaborative Planning will become fully integrated into all business activities. This will ensure a one team approach is seen as the culture for this contract and drive engagement right the way down from the client through the entire supply chain. Lean Collaborative Planning will be used to manage the delivery of both programmes and projects.

- 1.2.4 Lean continual improvement will ensure a focus is maintained at all times on the requirements of the customer, both internal and external.
- 1.2.5 A full appreciation and considerations of the importance to whole life costing must be adhered to at all times. Highways England and its supply chain contractor's will need to demonstrate with supportive evidence that full consideration to whole life costs during the optioneering value engineering phases of a design.
- 1.2.6 Structured Innovation techniques will be deployed routinely in conjunction with Lean to generate new ideas and step changes for more efficient ways of working, thus contributing to cost savings, while still meeting the requirements of the customer. The use of structured innovation is a technique that dovetails perfectly into Highways England's deployment of Lean both within its supply chain and internally. Structured innovation will provide the tools to assist with the generation of ideas for the solution of problems during the Improvement phase of any Lean intervention.

1.3 Strategic Objectives

- 1.3.1 Highways England's key themes which the Contractor is required to deliver are:
- planning for the future,
 - growing our capability,
 - building stronger relationships,
 - efficient and effective delivery,
 - improved customer services,
- 1.3.2 The Contractor's executive leadership team need to fully understand their role as Continual Improvement Lean Innovation Leaders, they should:
- commit themselves to self-development in terms of Lean continual improvement and structured innovation, not only by attending training workshops, but through background reading.
 - coach others in terms of Lean continual improvement and Structured Innovation,
 - drive and support a culture of daily Lean continual improvement, kaizen and innovation,
 - create the Continual improvement and innovation vision which aligns goals both vertically and horizontally, to meet the needs of the *Client*.

- 1.3.3 The Contractor's executive leadership team shall ensure that the continual improvement requirements, based upon Lean principles, are fulfilled at all times and shall actively drive Lean deployment in every aspect of their organisation.
- 1.3.4 The Contractor will pro-actively manage their supply chain to ensure collaborative working takes place at all times to drive efficiency and achieve reductions in cost.
- 1.3.5 The Contractor will identify their key value streams to deliver the services and have a systematic and prioritized approach for the continuous/ongoing review and improvement of these value streams. The review of the value streams will also include the analysis and improvement of the Processes and Procedures contained within the Scope, Annex 16 - Quality Management. The review of the value streams will identify waste and remove it.
- 1.3.6 The Contractor will actively seek out improvement opportunities that primarily generate reductions in the cost of providing the Service whilst also still meeting the needs of the customer. The Contractor will not only generate new and original improvement opportunities, but shall make full use of the Highways England Lean Knowledge Transfer Packs (KTP), which detail improvement ideas from the highways sector, that they can deploy on their phase of the construction process.
- 1.3.7 The Contractor will ensure that their staff and their supply chain's staff have Lean Continual Improvement and Structured Innovation skills and understanding. The level of skill and understanding required will vary depending on the role being executed, but the contractor shall train sufficient numbers of staff to meet the needs of the business and those of the *Client*.
- 1.3.8 The Contractor will ensure that every member of staff, from the most senior leader down, has Lean Continual Improvement goals incorporated into their annual Personal Development Plans. These goals will contribute to the efficiency targets that Highways England is required to achieve, as defined in the *Client's* Strategic Business Plan of 2015 to 2020 and beyond.
- 1.3.9 The Contractor will ensure the realisation of the cost savings for all payment types in the contract (Lump Sum, Schedule of Rates, Time Charge, Cost Reimbursable etc) by using Lean Continual Improvement and Structured Innovation techniques. These efficiencies shall be registered on the *Client's* regional efficiency

register, with supporting evidence lodged as a BRCF and KTP on the HE Lean tracker.

- 1.3.10 The Contractor will deliver other benefits that result in an improvement to the quality of the *service* at a reduced or no additional cost to the *Client*, whilst also meeting the requirements of the customer.

1.4 The Methods:

LEAN CONTINUAL IMPROVEMENT

- 1.4.1 The Contractor is required to execute, as a minimum, the following continual improvement methodology, although it is accepted that it may adopt, at its own discretion, additional methods to deliver the above outcome requirements and strategic objectives, but at all times these additional methods must ensure customer needs are met.
- 1.4.2 Lean is a method of delivering the above outcome requirements and strategic objectives, and is a way of delivering value in a system. It produces what a customer wants, when it is required, with a minimum of waste, and to a high-level quality. Lean works through a relentless elimination of waste and reduction of variation. The reduction of variation will bring stability to programme and project delivery through the use of Lean collaborative planning techniques.
- 1.4.3 The Contractor will use Lean tools to systematically make improvements, in a planned sequence, to its key value streams and the Processes and Procedures in its Quality Plan (as defined by Scope, Annex 16) in order to identify customer requirements, establish and optimise the execution of value adding activity, identify and minimise non-value adding activity and eliminate waste.
- 1.4.4 The execution of continual improvement forms part of the role and accountability of the Executive Process Owner, as defined in Scope, Annex 16 – Quality Management. Continual improvement is the role and duty of every member of staff, just as with Health and Safety.
- 1.4.5 The following points below in cl 1.4.6 are a synopsis of the Lean continual improvement methodology that are contained in the Highways England Lean Maturity Assessment (HELMA). The full HELMA document and scoring matrix is available for free download from the Highways England Lean Publications web-site, these documents represents a skeleton for how a successful business would operate to continuous improvement principles. It must be emphasised that Lean is not a stand-alone continual improvement methodology,

undertaken by a select few, but is a successful business operating methodology and culture to be undertaken by everyone working on this contract.

1.4.6 The Contractor will:

Integration of Lean into Business Strategy

- integrate Lean principles within the organisation's Area Strategic Business plan and key strategy documents.
- ensure that the Area Strategic Business Plan sets out how Lean plays a part in delivering improved business performance.
- ensure that there is a well-defined and documented approach quantifying the benefits Lean will deliver to the business and its customers within the Area Strategic Business Plan. It is expected that a figure will be specified by the contractor for the Lean efficiencies that will be generated on an annual basis.

Lean Leadership and Engagement

- ensure that the leadership team area fully engaged as Lean leaders and drive the Lean methodology as the chosen form of continual improvement throughout the organisation, its supply chain and collaborating with the client.
- ensure that the organisation's leadership team are trained as Lean leaders and have a Lean skill base so they can mentor others.
- ensure that Lean is an agenda item at leadership team and below meetings.

Deployment Management/ Lean Infrastructure

- ensure that the organisation has a Lean deployment strategy in place that will manage all Lean activity.
- the Lean deployment strategy will analyse business and client needs, the training of staff, the analysis of Value Streams, whilst also prioritising Lean activity for the capture of efficiency benefits and the transfer of knowledge. The Lean strategy will cover each of the 10 HELMA aspect areas.
- lean priorities shall be set by consensus in line with the company vision and have the full commitment of the leadership team.
- a Lean deployment programme for the year shall be in place that follows the format of the Improvement Action Plan (IAP).

Understanding Customer Value

- ensure that an integrated customer satisfaction process exists whereby all employees are aware of customer satisfaction levels.
- the organization will actively seek customer and *Client* input to its operations.
- the organisation will consult with customers and *Client* on issues before they occur
- the organisation shall employ its own independent customer satisfaction systems / surveys to drive continued improvement.
- the organization will deploy Kano analysis to fully meet and understand the needs of its client.

Understanding of processes and value streams

- for all critical value streams and most minor processes, effectiveness is frequently measured, displayed and counter measures introduced when required to drive continual improvement.
- for all value streams and processes, formal improvement plans are seamlessly woven into the day to day activities of the teams within the organisation.
- when value streams and processes are analysed, bottlenecks will be identified, root causes for defects will be understood and waste removed via the application of the eight wastes.

Use of Methodology and Tools

- ensure that the organisation has adopted a kitbag of Lean tools that meet the needs of its business and those of its client. The kitbag of tools deployed will ensure the specified Lean efficiency targets are delivered.
- ensure that the kitbag of Lean tools is made readily available to all employees and the organisation's supply chain.
- ensure success stories via KTPs from Lean deployment link back to the kitbag of tools.
- ensure all employees and the organisation's supply chain have received formal training in the deployment of the kitbag of Lean tools. This will contribute to improving the capability of their supply chain.

Organisational Coverage, Activity and Capability

- ensure that everyone within the organisation has had the opportunity to develop their personal Lean capability. Ensure that a targeted approach is taken to driving Lean within the

organisation's supply chain. The success of this training can be measured by undertaking a HELMA on the organisation's suppliers. A target score for HELMA of 1.5 and above is deemed as an acceptable minimum level for an organisation developing a continuous improvement culture.

- ensure the training programme for the organisation has the optimum blend of Lean awareness, Practitioners, Green Belts, Black Belts and Master Black Belts to support the improvement programmes and there is a genuine growth in Lean capability.

Performance Improvement/ Benefit Realisation and Delivery

- ensure that they directly contribute to the Highways England Area Efficiency Register by lodging efficiencies and registering them as Lean techniques.
- the contributions to the Efficiency Register shall be evidenced through Knowledge Transfer Packs lodged on the Highways England Lean Tracker and supported by Benefit Realisation Capture Forms (BRCF). Guidance on BRCFs and KTPs is available for free download from the HE portal.
- the organisation's leadership team shall review and ensure improvement activities are tracked and managed through to their ultimate realisation.

Lean Collaboration, Climate and Culture

- leaders shall create a climate in which people want to do their best, to motivate direct reports and all team members of the organisation.
- leaders shall ensure meetings are conducted around visual display boards, where team performance is actively displayed, discussed and countermeasures put in place to mitigate concerns and causes to drive root cause solutions to problems
- ensure integrated teams are established that deploy collaborative planning on the delivery phase of all construction projects and collaborative programme planning for the delivery of programmes of work.

Supplier Maturity

- ensure that supply chain partners are an active and integral part of the project teams.
- Lean improvement activity is founded on a collaborative working approach with true integrated project teams working with customers / clients / stakeholder and supply chain partners.

- ensure that all supply chain partners adopt Lean principles and processes to routinely improve their business area and improve the capability of the entire supply chain
- 1.4.7 In carrying out the above methodology the Contractor shall enable and support its supply chain in the adoption of Lean Continual Improvement and shall engage the supply chain in Lean improvement projects, and
- 1.4.8 The Contractor refers to the *Client's* Managing Down Cost Toolkit to identify and consider continual improvement opportunities.

STRUCTURED INNOVATION

- 1.4.9 Structured Innovation is a unique, rigorous and powerful toolbox of techniques that can be applied to ensure that all potential areas of innovation are explored when seeking solutions to a problem. The tool-box of techniques has been developed from the Russian Theory of Inventive Problem Solving, (TRIZ).
- 1.4.10 The use of the structured innovation tools are a direct compliment to Lean continual improvement and it dovetails exactly into the Improvement phase of any Lean continual improvement intervention. Structured Innovation is a complimentary initiative to Lean continual improvement and provides a tool-box of innovation techniques that sits within the Lean continual improvement philosophy and provides a mechanism for the generation of ideas at the Improvement phase of any lean intervention.
- 1.4.11 The Contractor will execute the following minimum structured innovation methodology, although it is accepted that it may adopt, at its own discretion, additional methods to deliver structured innovation
- 1.4.12 The Contractor will use structured innovation tools to drive a culture of innovation within their business. By adopting a structured approach it will ensure innovation becomes a skill that can be applied by all staff and not just a select few,
- 1.4.13 The execution of structured innovation will enable Contractor's staff to come up with large step change ideas to meet the challenges of the future as identified in Highways England Strategic Business Plan of 2015-2020, in terms of increased spend balanced against a finite resource and expected efficiency savings.
- 1.4.14 Contractor will:

- Strategic Use of Structured Innovation. Adopt structured innovation principles as part of formal strategic plans for the Contractor's business including the Area Strategic Business Plan.
- Effective Supporting Infrastructure. Define, develop and establish a supplier network hub to raise awareness and use of structured innovation techniques.
- Innovation Leadership. Ensure senior leaders and management within the Contractor's organization enthusiastically embrace the concept of structured innovation and drive its use.
- People Development. Ensure an education and training programme has been designed and deployed for all levels to cover structured innovation.
- Structure and Behaviour. Ensure policies and procedures promote, encourage and support the use of structured innovation, and that a mechanism is in place to capture innovations that link to the solution of problems.
- Collaborative Working. Ensure that structured innovation is used to drive innovation at collaborative working meetings.

1.4.13 In carrying out the above approach the Contractor assists and enables its supply chain in the adoption of structured innovation techniques.

1.4.14 The following list of Structured Innovation tools represent the minimum that the Contractor will use in deploying structured innovation

- consider "ideality" at the start when solving any problem, what is your ideal solution without the constraints of cost and technology and from this you can assess what are the main functions of ideality that you must deliver, and those functions that can be dropped.
- thinking in both time and scale, using the 9 Box technique,
- the structured innovation prism, which leads you to consider world problems which mirror your problem which will lead to world solutions,
- the 39 technical contradictions matrix, which leads to 40 inventive principles,
- the use of functional analysis for the trimming of harmful actions from an operating system,
- the 8 trends of evolution,
- the analysis of the resources you have in your system which best match your customer's requirements,

- the effects data base of 2500 solutions,
- the 12 standard creativity triggers to promote big picture thinking,
- identify on KTP how structured innovation helped deliver a solution.

1.5 Performance Measurement

- 1.5.1 The Contractor will record and measure the benefits realised from the execution of the Lean Continual Improvement process in accordance with the *Client's* Lean Benefits Realisation Guide. This system uses a benefits realisation capture form (BRCF) which at start up reports the forecast of expected savings and upon completion records the actual savings achieved. The Contractor submits a Knowledge Transfer Pack (KTP) for every improvement that is made so that this knowledge can be shared across the industry and further savings can be made when this new way of working is implemented. The Contractor will also proactively reviews and implements previous Knowledge Transfer Packs and adopts these new ways of working within its own organisation. Additionally, the KTPs form the documentary evidence that is required by the Office of Rail and Road regulation for the efficiencies Highways England is claiming.
- 1.5.2 The Contractor will submit a annual Lean continual improvement action plan to the *Client* and Lean technical manager. Copies of the IAP can be downloaded free.
- 1.5.3 The Contractor will report to the *Client* and *Lean Technical Manager* on a monthly basis the following matters using an "A3" format performance report. Details of the A3 format are available for download on the HE website:
- Lean benefits achieved within month and forecast lean activities for the next month in line with the milestones in the annual Lean continual improvement action plan.
 - ensure results are recorded showing general details about the improvement, planned/targeted benefits, and actual / realised benefits with supporting calculations,
- 1.5.4 For all Lean efficiency savings and all Lean projects the Contractor:
- Reports savings using the Client's Benefits Realisation Capture Form, and area efficiency register,
 - Completes Knowledge Transfer Pack, in either a report or A3 style that follows DMAICT principles,

- Logs the KTP on the Client's Lean Tracker System as detailed in Annex 6 – Information Systems.

1.5.5 The Contractor will adjust its delivery of continual improvement process based on lessons learned from the ongoing measurement of its performance.

1.6 Training

1.6.1 The *Client* will support the Contractor with training sessions in the following areas:

- 1 day of Lean awareness for key staff,
- Collaborative Planning and Programme Planning workshop, for key staff,
- Effective use of Continual Improvement Cells workshop, for key staff,
- Structured Innovation awareness workshop for key staff
- Lean problem solving workshop for key staff.