Cutting Wasted Time, Effort And Cost Becomes Everyone's Job With Lean

Our Lean journey at Octavius started in 2021. While there's still much to do, it's clear that Lean methods are already making a huge difference to our business and to the project outcomes we deliver for our customers.

Implementing Lean is a complex undertaking that calls for dedication and commitment. Among all of this there are two critical success factors. It must be:

- Organisation-wide, top-to-bottom and reinforced by robust governance,
- Relevant to each individual as they go about their everyday work.

Lean is a framework and an ethos. One that turns aspirational goals like 'continuous improvement' into a working system. It's the antithesis of stagnating processes, flat productivity growth and unquestioningly doing things as they've always been done - realities that the construction sector knows only too well.

Lean drives wasted time, effort and cost out of every project. It does this best when it's central to everyone's job.

Why Lean Is Indispensable

There's little doubt that the coming years will see infrastructure budgets and the expectations of the outcomes from every project commissioned move in opposite directions. Expectations will rise while budgets will become more constrained.

In our view, Lean is indispensable for any organisation to thrive in this environment. Its structure and proven problem-solving methods allow Octavius to deliver better outcomes with less human effort, equipment, materials, time and space.

Here we explore some of the practical, everyday aspects of Lean implementation and how we're making it relevant for each individual within our own teams and throughout our supply chain.

The most obvious impact of Lean is tackling waste by reducing the number of errors, which starts with enhanced early contractor involvement to improve project design, planning and implementation.

As you'll see, our Lean journey and the progress we've made is fully in step with the objectives of the Get It Right Initiative (GIRI) that aims to eliminate waste through tackling design errors.

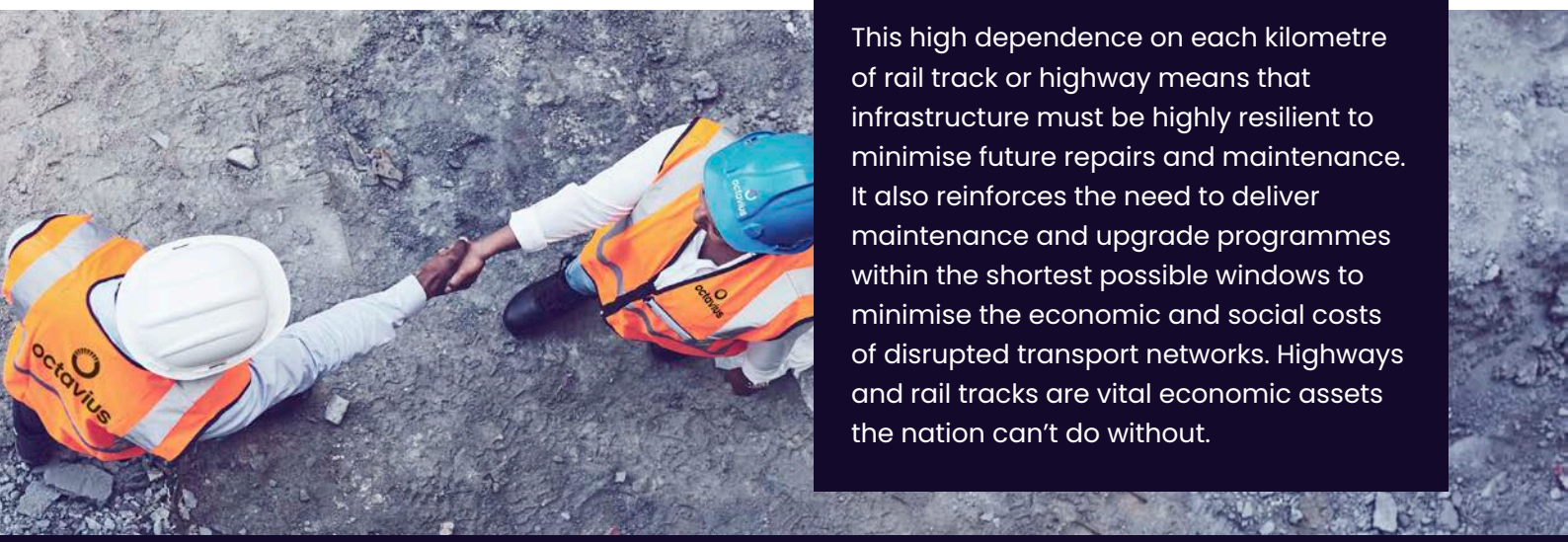
UK Transport Infrastructure - The Case For Lean

Why is Lean indispensable? It's because our transport infrastructure is also indispensable for the economic wellbeing of the country and the population. Efficient transport networks allow access to employment opportunities and make it easier for businesses to create value for their customers.

A study by McKinsey carried out in 2011 underlined how overworked the nation's transport infrastructure is compared to other developed economies, partly due to our high population density.

> ***'On average, for each kilometre of motorway 113 million passenger vehicle kilometres are driven nationally each year, against 47 million in Germany, 39 million in France and 36 million in the United States. In addition, the UK's roads carry more freight per kilometre of motorway than any other major economy apart from Japan. The railways are carrying more passengers than at any time in the past 60 years, on a network roughly three-fifths of its size in 1950.'*** (Keeping Britain Moving, McKinsey &Co, 2011)

This high dependence on each kilometre of rail track or highway means that infrastructure must be highly resilient to minimise future repairs and maintenance. It also reinforces the need to deliver maintenance and upgrade programmes within the shortest possible windows to minimise the economic and social costs of disrupted transport networks. Highways and rail tracks are vital economic assets the nation can't do without.



Tackling The Productivity Challenge

Meanwhile, the ICE studied the underlying issues contributing to stagnating productivity in UK construction. They identified multiple systemic issues:

- Design development overlooking the importance of early contractor involvement.
- Design responsibility is unclear, particularly at handover stages.
- Too rigid specifications.
- Inefficient procurement.
- Poor project leadership culture.
- Ineffective integrated and collaborative working.
- Inadequate resource planning.
- Poorly coordinated logistics.
- Health, safety and welfare culture not consistently developed.
- Incomplete or inappropriate productivity data.
- Lack of commercial incentivisation for innovation (who benefits from added value?)
- Inconsistent project and contract management, including skills and training.

This paper shows how Lean principles relate directly to these perceived weaknesses. In other words, Lean is the key to transforming performance and outcomes.

The productivity problem is systemic. No single initiative or focused improvement plan is likely to have much of an impact in the face of these weaknesses. Lean, on the other hand, is a whole system approach. It addresses all of these performance factors in a coherent way with complete accountability. Lean implementation incorporates both leadership and operational delivery in a way that makes it everyone's responsibility.

In our opinion, applying Lean principles across the whole sector isn't just desirable, it's absolutely essential if we're to have any hope of transforming performance levels related to quality, cost, timing, resilience, customer convenience and safety.

Lean In Practice - Time To Banish TIMWOODS

Lean implementation means building a different kind of working culture where everyone thinks and acts in a more quality and productivity-focused way.

Acronyms make things easier to remember. We don't expect everyone to memorise the intricacies of Lean implementation but we do want them to focus constantly on improving outcomes and efficiency and eliminating waste. So we decided there's no room for TIMWOODS in our organisation.

No disrespect to anyone called Tim Woods working in the infrastructure sector, we're sure you're doing a fine job. The TIMWOODS we're progressively eliminating throughout our Lean implementation refers to:

Transportation:

Minimising and streamlining the movement of people, products and information.

Inventory:

Ensuring no items such as parts, materials or information are stored before they're needed.

Motion:

Minimising excessive and unnecessary movement within the workplace, such as bending, turning and reaching to access the things you need. This could equally apply to the movement of vehicles, plant and materials on site.

Waiting:

Productivity will inevitably improve if you eliminate time wasted waiting for parts, information, equipment or instructions to arrive.

Overprocessing:

An often-neglected aspect of process waste is doing more than is needed or using tighter tolerances and higher grade materials than the job requires.

Overproduction:

Efficiency suffers through doing work before it's needed. We aim to pull the product rather than push it to optimise the use of resources.

Defects:

Whether they result from poor design or inaccurate information, or mistakes in physical work or documentation that need to be reworked produce wasted effort and scrap.

Skills:

Another easily ignored aspect of process waste is not using the full range of skills and abilities of each individual, or delegating tasks without adequate guidance so that existing skills cannot be fully applied.

The value of this approach is that it translates the overarching goals of Lean into practical concepts that everyone can relate to the work they do, every day and on every project.

Capturing Improvement Opportunities With Octavious IO

Opportunities to work more efficiently, improve safety, eliminate waste and enhance quality can become apparent at any time, to anyone involved in or affected by an infrastructure project. In many organisations those opportunities are wasted, either because there's no easy and immediate way to capture them, or because there's no formal, accountable process for evaluation and feedback.

The Improvement Opportunities portal makes it easy for everyone to record ideas 'in the moment,' before they get overlooked among everyday work pressures and activities. Our employees, suppliers, clients and members of the public can all submit ideas through the IO portal using a PC or mobile device. These ideas are then grouped, ranked and prioritised for action.

In keeping with our theme of eliminating waste, we aim to ensure that no good idea is ever wasted.

5S - Linking Lean To Business Processes

Another useful way to make Lean principles relatable to everyday work practices is to adopt the 5S methodology.

The five S's refer to the *Japanese words* (**with their English interpretations**): *Seiri* (**sort**), *Seiton* (**set in order**), *Seiso* (**shine**), *Seiketsu* (**standardise**) and *Shitsuke* (**sustain**).

Sort means ensuring that only the tools, parts or instructions needed for the task are at hand so that everything can be located quickly and efficiently.

Set in order takes this a step further to ensure that everything needed is arranged neatly and logically. It's easy to see how this relates to the inventory and motion elements of TIMWOODS. It also contributes to a safer workplace.

Shine means keeping the work area clean and tidy, which improves efficiency and safety.

Standardise entails turning 'shine' into a routine. It also ensures the work area is routinely inspected for potential faults or failures so they're pre-empted and don't interrupt production later on.

Sustain simply means making the 5S methodology part of your daily routine. This is perfectly in tune with Lean implementation, which is only meaningful when it becomes a way of working and thinking - all of the time.

These principles have a clear application to infrastructure projects where an orderly way of working improves efficiency. You can also translate each of the S's to elements of TIMWOODS so that everything is clearly interlinked.

Small Improvements Add Up

One feature of implementing Lean across an organisation is that you shouldn't expect to see a sudden and dramatic change. Lean is about raising awareness, continuously seeking improvement opportunities, methodical analysis and careful implementation.

Here are a few real life examples of small scale improvements that add up to significant savings:

Timesheet Review

One issue highlighted how a legacy weekly timesheet review process took too long, that not everyone was compliant and that there was significant double handling. This was potentially wasting time and effort and adding little value to the customer.

The working group assessed the value to the end customer in both weekly and monthly reviews. They agreed that the weekly timesheets were no longer adding any value. Removing weekly timesheet generation saved 15 minutes per timesheet. This saving relates to the waiting and transportation elements of TIMWOODS.

Movement Logs

Handwritten movement logs were completed once a call was received. These were then typed up at the end of the day.

The team agreed that the movements would be directly inputted into the system or via a tablet during the call. Direct input saved one minute per call. With 15,000 calls per year the annual saving adds up to 250 hours. This improvement relates to the overprocessing and transportation elements of TIMWOODS.

Maintenance Calls Sign In And Out

Manually signing in and out of COINS management software for each call took an average of one minute. Not that significant you might think. But when there are two calls per visit and an average of 1.5 visits per fault the total saving through implementing automated sign in/out was 750 hours per year.

Process Waste And The Cost Of Inaction

W. Edwards Deming defined waste as any effort, expense or process step that adds no value to the customer.

The Get It Right Initiative (GIRI) calculated the direct cost associated with errors is typically 5% of the project value. Implementing Lean is an effective long-term solution to reduce and eventually eliminate this cost.

GIRI's research revealed that when unrecorded process waste, latent defects and indirect costs are included, the situation gets much worse. Estimates of the total cost of errors range from 10% to 25% of the project cost or between £10–25 billion per annum across the construction sector.

The aim of GIRI is to: 'create a working culture that gets it right from the start, and engages all stakeholders in eliminating error from inception to completion.' We see this as being entirely aligned with the objectives behind our Lean implementation strategy.

The costs highlighted by GIRI include 6% of unrecorded process waste that could be eliminated. The waste we're talking about includes faults and rework resulting from poor design, planning or communication. It's also the time lost waiting for information and materials to appear or over-engineered solutions and materials. TIMWOODS in other words.

So while individual savings on a project or process might be small, failing to address them adds up to a big number. The most recent DfT Railway Plan for England and Wales commits £44bn of investment over Control Period 7. The current Road Investment Strategy period ending in 2025 commits £15.2 of public money.

Using those two figures gives a potential saving of over £3.5bn. If Lean eliminates 6% of undocumented waste in a company like Octavius that currently turns over £215m it will generate nearly £13m of additional value.

You achieve a lot with £13m, without having to increase a single budget line. Doing nothing is expensive!

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To learn more about our approach to project delivery across the whole of the UK, visit our Transport Infrastructure Resource Centre or contact us by email at hello@octaviusinfrastructure.co.uk