

Case Study Title: Getting Scottish Water to site in half the time

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At VISION Consulting, we achieve the seemingly impossible by thinking differently and moving fast.

We are renowned for our expertise in rapid mobilisation, successfully delivering highly challenging, transformative projects at pace. We have an outstanding track record for delivering complex capital projects within budget, ahead of schedule, and with all the promised benefits.

Author



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And time and time again, we deliver startling customer propositions, service improvements, and efficiency gains.

Based in Dublin, we also have offices in Edinburgh, London, and New York, and operate globally. Originally launched in 1984, we now have 200 people within our business.

Overview & Background to the Lean Initiative

Scottish Water serves some 2.6m households and 150,000 businesses with a daily volume of 1.52bn litres of clean drinking water, while removing and treating around 1.1bn litres of wastewater. In 2021/22, the organisation's regulated funding and expenditures were £1.52bn. Of that amount, £621m was allocated to capital investment, and £152m to capital maintenance.

The organisation continues to be challenged with the fact that it must accelerate modernisation of infrastructure that often dates back to the Victorian era. For the Strategic Review period 2021-2027 (SR21), the mandate is to invest £4.6bn in capital projects.

This means that annual capital investment needs to ramp up from roughly £600m in 2020 to over £1bn by 2024/2025. Doubling staff was not an option. At the same time, recognising that its costs were on average higher than that of their industry peers, the organisation set a goal to reduce non-direct construction costs from £0.78 per £1 construction to £0.65 per £1 direct construction costs. At the same time it recognised that all of this must be achieved in a highly uncertain world, buffeted by extreme weather events, inflation, supply chain challenges, population changes and net-zero and other environmental mandates.

Lean Initiative Undertaken – Lean Thinking, Tools, Techniques

VISION are well-known for our Commitment-based Management™ (CbM) programme, which amplifies and intensifies the power of lean construction principles to transform leadership, governance, and cultural behaviour. We firmly believe that, in most organisations, more than 50% of the opportunity to improve

productivity lies not in process and tools, but in behavioural change.

Also, where others apply a recipe-book approach of process rationalisation and change, VISION often start a project by identifying and tackling collaboration waste – what the Lean tradition calls 'Unused Talent' – to drive out other wastes and implement teaching/coaching/mentoring practices that improve the effectiveness of conversations for action. This sounds simple in principle and delivers significant results. But implementing it is not easy.

This work led to our solution, which was to create an over-arching goal that we could build a powerful story around and, in doing so, drive lasting cultural change. This included an original rallying call to "cut the time to get the first spade in the ground by half," and a strong commitment by senior management to achieve this goal.

Formally called 50:30:5, but colloquially known as "50:30", senior leaders created an initiative



that called for a 50% reduction in time to site, a 30% reduction in cost, and a 5% gainshare improvement for partners.

To make all of this happen, VISION designed five critical levers for Scottish Water to tackle lean waste, in particular: defects, waiting, unnecessary motion, over-processing, and unused talent. With our tailored implementation of CbM to super-charge lean principles and agile techniques, we knew we could move people into a mood of ambition.

Lever 1: Collaboration and behaviour.

Establishing dedicated teams across companies and functions, co-location was enabled where possible. A strong customer focus was developed, and the language of action and commitment introduced, with clear practices and procedures for decision-making and coming to resolution. Underpinning all of this was a strong focus on CbM, which attunes everyone to the way work actually gets done and is a powerful response to Lean Waste of Unused Talent – by systematically addressing the underlying causes of poor listening and speaking, mistrust, and anything that reduces the capacity to maintain relationships.

Lever 2: Quick wins through simplification.

We identified significant opportunities for improvement in this area, helping Scottish Water to categorise projects by size and complexity,



and establishing appropriate sets of deliverables for each. This resulted in a significant reduction of over-processing and the waste of time driven by over-estimation of compliance requirements. Once Scottish Water started working with this leaner process, they quickly realized that there was much more opportunity to lighten the load of producing deliverables, an initiative that continues to this day.

Lean Initiative Improvements & Impact

The implementation of CbM and lean-based practices across a set of demonstration capital projects led to significant time and cost savings. Scottish Water teams really did get to site in half the time – and at half the cost. By the end of 2021, a set of pilot projects across four new categories of capital project production lines produced the following results in Table 1.

While there was no expectation of maintaining these exceptional (72% and 66%) levels of savings, the underlying message was well understood by Scottish Water at both leadership and front-line levels: “We are confident in our capability to drive big productivity improvements.”

In a September 2022 “Foot on the Ball” update to the SR21 Board, Scottish Water and Alliance leaders reported an average of 23%

Lever 3: Production lines.

In another drive to simplify procedures, the team took low-risk, low-complexity projects and put them through a standard, productionised process that saved significantly on unnecessary time and costs. These were called ‘conveyor belt’ projects. Higher complexity projects were handled differently through what was called a ‘factory’ process. These changes reduced five Lean wastes: defects, waiting, unused talent, motion, and over-processing.

Lever 4: Rolling planning.

Rolling planning is a process where people at various levels who will execute the plan also review and revise it with the planner before taking any action. This approach identifies all the necessary preliminary steps for future work and finds filler work for when people would otherwise be idle. It increases productivity by reducing lean waste such as defects, waiting, and unused talent. Additionally, it helps to reduce inventory by getting input from middle management and field workers, resulting in the purchase of only necessary materials. Rolling planning was not initially a focus for the team but has proven to be a valuable tool for increasing efficiency and reducing waste.

Lever 5: Declaring objectives, making big promises, and measuring results.

VISION helped Scottish Water to focus on timelines and costs to define productivity more effectively, anticipate breakdowns, and bring projects alive with daily and weekly assessments of progress. This regular review of projects against expected numbers reduced numerous lean wastes: defects, waiting, motion, over-processing, and unused talent. Scottish Water’s declaration and commitment to cut timelines by 50% and reduce costs by 30% were critical to the success of the program. Making a big promise is something people shy away from because traditional ways of thinking lead them to worry about control. If they can’t control every step of the way to achieving the promise, they don’t want to make a promise. As a result, the promises are small. CbM highlights what is missing in the traditional way of thinking, which is the amazing human capacity to set big goals and achieve them through listening and speaking with care, while coordinating our actions.

| Project Type | Time Saving | Cost Saving |
|-----------------------------------|-------------|----------------|
| Conveyor belt water projects | 67% | 48% (£2.8m) |
| Conveyor belt waste projects | 72% | 60% (£350,000) |
| Non-infrastructure water projects | 51% | 21% (£2m) |
| Flood management projects | 53% | 66% (£1.5m) |

Table 1: Savings from CbM Implementation
time saving across 29 active ‘Factor’ projects (ranging in value from

£0.5m to £75m), many of which had not completely implemented new ways of working. Cost savings were on target at 30%, as was the expected 5% gainshare improvement.

Scottish Water also noted the positive impact of new ways of working and a motivated team generating previously thought impossible results. Separately, members of the Alliance Partner team have started to

report the development of stronger relationships between delivery teams and their customers on the strategy side, marked by a growing sense of mutual respect and trust.

Scottish Water continues to advocate the 50:30 mission and has taken on the challenge of making the new ways of working demonstrated by VISION into the company's new business as usual.

Summary and Lessons Learned

The core strength of lean construction, since its inception, has been derived from a unique understanding of language as action. This is exemplified by the emphasis on the practice of individuals making commitments to one another. Commitments make things happen. By implementing our combination of Commitment-based Management™ and lean construction practices to transform leadership and collaboration in a series of early demonstration projects, VISION and Scottish Water produced project time savings of up to 72%, and cost savings of up to 66%. Across the demonstration project programme of work, cost savings averaged 36%.

Reducing the amount of time and money spent on projects frees up people and budgets for other work, meaning that ultimately, customers of Scottish Water can enjoy the benefits of new and better infrastructure faster, and appreciate greater value from the company's capital investment.

Furthermore, our application of lean principles supercharged by CbM principles built up a powerful momentum of positive cultural change that continues to show up across many aspects of Scottish Water's performance today. Getting Scottish Water's people to site in half the time was a great achievement, but further significant benefits from that success continue to emerge.