



Revolutionising Scottish Water's approach to 'non-complex' projects, in a first for the UK water sector.

Reducing risk and delivering huge cost and efficiency savings for Scottish Water with an innovative, technology-enabled automation solution.

Introduction and project statement

Every day, Scottish Water delivers over 1.5 billion litres of drinking water to over 2.6 million households and more than 159,000 business premises in Scotland, and removes around 1.1 billion litres of wastewater for treatment, before returning it safely to the environment. Maintaining the complex network of assets that deliver these services – i.e. pipes, pumping stations, and treatment works – is a huge undertaking, involving more than 60,000 miles of pipes and over 2,000 treatment works. 12,500 individual systems and 120,000 pieces of equipment.

Scottish Water engineers make hundreds of visits each day to inspect above and below-ground assets, with many identifying a need for repairs or replacement of equipment. While often individually relatively small

Client: Scottish Water

Region: United Kingdom

Sector: Utilities

Client Challenge:

Scottish Water needed to overhaul its approach to 'non-complex' projects (e.g. proactive, anticipated replacement of a service item). Impeded by inefficient and labour-intensive processes, typically these took a year to complete – introducing excess time, cost, and increased operational risk.

Solution:

Capgemini deployed a combination of technologies across Scottish Water's entire lifecycle to maintain and manage essential assets faster and more efficiently. Its huge network and infrastructure are now more secure and robust, with routine issues identified and resolved within a streamlined process. Back-end functions enjoy a simpler, more efficient process in which information flows seamlessly from one team to another, and engineers are empowered to take control, innovate, and make their own decisions – boosting productivity, job satisfaction, and retention.

Benefits:

- £5 million cumulative cost savings and efficiencies per year.
- Significant reduction in delivery time from months to weeks.
- Reduced risk of major incidents and substantial costs associated with a major service interruption, through improved asset management and maintenance.
- Equivalent of 40,000 hours of productive time being saved per year.
- Considerably simpler, more intuitive, and more efficient process for engineers in the field.



in scale and value, this equipment performs important functions and, if not maintained, can impact other assets, potentially resulting in significant incidents, recovery costs and reputational damage.

Historically, a typical 'non-complex' project could take a year to complete, with slow, inefficient, and labour-intensive processes introducing excess time and cost, and increasing operational risk. Every project required documentation and approval meetings, involving representatives from numerous departments, which incurred significant overhead costs.

As annual investment in these assets rises by almost 250% to £175 million by 2027, the cost of these overheads for each project would surge too, to more than £11 million each year. Based on these projections, Scottish Water took the bold and ambitious decision to completely redesign the way it handles this work. Recognising the transformational impact that innovative process automation can deliver, their vision was to create a technology-enabled, Amazon-style business model to handle these needs – a first for the UK water sector.

Solution roadmap and implementation

As Scottish Water's long-standing technology transformation partner, Capgemini rose to the challenge of turning this vision into a reality. We deployed a combination of mobile app development, internet portal creation, process optimisation, backend integration, and digital technologies across Scottish Water's entire lifecycle – including procurement, supply chain, and engineering. The resulting end-to-end solution, Non-Complex Service Delivery (NCSD), embraces multiple business functions, delivers substantial cost savings, automation, efficiency gains, and sustainability benefits. For Scottish Water, its customers, and the Scottish Government.

We kicked off the collaboration with one of our Accelerated Solutions Environment sessions (ASEs) – uniting key departments in a spirit of innovation to explore

opportunities, capture pain points and provide business intelligence to imagine a radically different approach. We brought our deep industry expertise and experience in business and technology transformation to the ASE, sharing relevant examples of work across multiple sectors that could translate successfully into answering a water sector challenge.

In designing the new solution, we applied many hallmark principles of the successful Amazon approach – e.g. the need for speed, unwavering faith in data and insights, and confidence in automation and digital technologies to enable financial control and empower employees.

Hundreds of sessions with engineers captured ambitions and challenges and enabled technical prototype testing, all to achieve an optimum solution for end-users in the field and enabling a seamless shift onto the new system. Now, when an engineer identifies a need and enters the details into an app on their device, automated order management workflows – based on pre-agreed rules, policies, budget thresholds and approval criteria – kick into action, initiating multiple tasks in sequence.

Once the notification has been raised, the system decides if it qualifies as a 'non-complex', relatively simple request under an agreed budget ceiling. The system will then automatically check if the request meets approved criteria, based on Scottish Water's innovative development of Sub Programme Management Approaches (SPMAs) and predetermined policies. If auto-approved, the system (through new digital integrations) will automatically raise the project on Scottish Water's financial systems.

The team lead selects the required item in NCSD (e.g. a replacement pump or flow meter) at an estimated value and obtains contractor quotes. Data is captured, analysed and integrated into diverse Scottish Water systems, shared throughout the business, driving transparency and real-time situational awareness, efficiencies and cost savings, and highlighting opportunities for process, performance, and service improvements.

Results and the future

By applying transformative innovation from the retail world, we've helped Scottish Water swap a cumbersome, inefficient, slow and costly process with a prime example of digital transformation at scale – turning a process bottleneck into an efficiency engine.

With essential equipment managed and maintained faster and more efficiently than before, Scottish Water's huge network of assets and infrastructure is more secure and robust, with routine issues identified and resolved within a streamlined process. Engineers are empowered to take control, innovate, and make their own decisions within established criteria, and drive projects to completion, boosting productivity, job satisfaction and retention.

Insights from a single, centralised base of asset data enable efficient management, planning, and identification of trends and common causes of problems. These inform proactive actions to pre-empt problems, reduce failure rates, extend asset life, and reduce unit prices through smart procurement of standardised products and services.

Plus, by automating workflows, we've streamlined or eliminated internal tasks, such as forums, paperwork, and overheads, to review and approve low value projects.

The resulting cost, time, and productivity savings for Scottish Water have been phenomenal:

- Almost 10,000 projects worth a total of £175 million each year will be completed using the new system.
- £5 million cumulative cost savings and efficiencies per year.
- Reduction in delivery time from months to weeks.
- Overnight automated approvals for up to 60% of needs.
- 50% reduction in service risk.
- Equivalent of 40,000 hours of productive time saved per year.
- Reduced risk of major incidents and substantial costs associated with a major service interruption through improved asset management and maintenance.
- Improved asset data, with direct integration into asset inventory.
- 100% of needs raised as projects in Scottish Water Financial System – enabling improved visibility of cost and deliverables.
- Carbon impact calculated for all needs.
- Considerably simpler, more intuitive, and more efficient process for engineers in the field.

NCSO serves many purposes. Designed to help site staff identify equipment type needs, it now reaches beyond that and is used by multiple areas of the business, such as Electrical & Mechanical (E&M), infrastructure repairs, and buildings maintenance – bringing a further 10,000 needs through NCSO annually, with differing levels of benefits.

A blueprint for value-driving transformation across sectors

This technology-enabled, Amazon-style business model created a template that can be replicated to tackle similar challenges, not just in Scottish Water's business but also throughout the water sector and other industries. Whether it's in utilities, oil and gas, mining, energy, or transportation, any business with assets in the field that need to be monitored or replaced, can utilise this approach. And by implementing it, they can see the huge value it creates – in driving efficiency and revenue, and reducing risk, costs, and time.



A great example of streamlining and automating decision making; NCSO has removed an overly onerous process by linking up many of our existing systems and where possible utilises predetermined rules and policies to automatically approve work, the result being that an operator whilst carrying out their daily tasks can select the exact equipment to raise a need against and expect to receive approval to proceed the next morning, saving weeks of down time. The time savings alone are substantial, the operational team are empowered to make the right decisions, and non-value add has been eliminated. A truly great example of transforming our working practice for the better.”

Alistair McKenzie, Chief Product Owner (NCSO), Scottish Water



About Capgemini

Capgemini is a global business and technology transformation partner, helping organizations to accelerate their dual transition to a digital and sustainable world, while creating tangible impact for enterprises and society. It is a responsible and diverse group of 340,000 team members in more than 50 countries. With its strong over 55-year heritage, Capgemini is trusted by its clients to unlock the value of technology to address the entire breadth of their business needs. It delivers end-to-end services and solutions leveraging strengths from strategy and design to engineering, all fueled by its market leading capabilities in AI, cloud and data, combined with its deep industry expertise and partner ecosystem. The Group reported 2023 global revenues of €22.5 billion.

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