

Building a robust quality culture

Quality World chats to Martin Davies, project quality director at smart infrastructure solutions company Costain UK, to find out how its Quality Culture Programme is making a difference to large complex infrastructure projects

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We live in a world where pressure to deliver value for money on high-performing, complex infrastructure projects is relentless. According to *The construction productivity imperative*, a report published by McKinsey in 2015, an estimated 98 per cent of megaprojects experience cost overruns of more than 30 per cent, and 77 per cent of projects are at least 40 per cent late. Additionally, a 2017 research paper by Professor Bent Flyvbjerg, a Danish economic geographer, revealed that nine out of ten megaprojects experience cost overruns. He added that overruns of up to 50 per cent in real terms are common and over 50 per cent are not uncommon, and overruns have remained high and constant for the past 70 years.

The UK Government formed the Infrastructure and Projects Authority in 2016 as a response to the growing need to bring together the financing, delivery and assurance of projects ranging from large-scale infrastructure projects to major transformation programmes. Of the major projects identified between 2013 and 2019, the number of projects classified as “probable of a successful delivery” had fallen sharply from 48 per cent in 2013 to just 17 per cent in 2019.

Delivering to plan is of increasing importance on a political and financial level. Projects running over estimated budgets and timescales have knock-on effects on the client, customer and the supply chain. These issues have led to a plethora of potential remedies being developed, where quality has emerged as a key enabler for success – improving performance and enhancing personal and organisational reputation. By investing in planning, integrating risk management and quality management early on, clients and their supply chains have the best opportunity to deliver faster, better and greener

projects at a lower cost. In 2016, the Get It Right Initiative (GIRI) was established with the aim of eliminating potential risk to both the public and investors, by improving quality and productivity, and reducing costs and waste.

GIRI – comprised of the UK’s major construction companies – adopted a multidisciplinary approach to raising awareness, with a focus on changing culture and attitudes by improving knowledge, decision-making powers and planning skills. To support this approach, Costain – a GIRI member with a representative on the board – developed a Quality Culture Programme to assist both project teams and stakeholders.

Quality World talks to Martin Davies, Project Quality Director at Costain, to find out how the programme is being used to spearhead quality and productivity and, most importantly, change quality culture across multiple infrastructure projects.

Quality World: What are your principal duties at Costain?

Martin Davies: I am primarily responsible for quality management across multiple projects within our defence and energy sectors. I have been working at Costain for the best part of seven years, and in that time, I have been fortunate to have been given the responsibility for managing quality on two of the largest and most complex civil and defence nuclear infrastructure projects in the UK.

QW: Could you tell us more about your work in the civil and defence sector and why you believe a robust quality culture is paramount to its success?

MD: We are working on several major infrastructure projects, across both nuclear sectors (civil and defence) where the ►



**“Top-level
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scope of our work ranges from decommissioning of existing plants to supporting major complex construction projects.

As with any project, the goal is to complete the project on time, to the correct specification and leave a successful legacy (which incorporates high standards of safety and quality). Due to the complexity and scale of a large project, with its wide-ranging scope of supply, manufacture and construction, there are risks. We have a tried and tested management system to identify and address various risks through defined processes. However, as with any good management system, people's compliance with the requirements, ownership and engagement is vital to getting the desired outcome. At Costain, we identified the importance of culture, and specifically a quality culture, to the success of the project.

QW: What have been some of the main challenges you've identified on those large-scale projects and how did you overcome them?

MD: One of the recent projects we were working on was data rich, which meant we had to spend time analysing the quality assurance and quality control data, before we could decide on how we were going to approach it from a quality management perspective.

From our own inspection reports, observations and audits, we discovered there were several nonconformance issues across the supply chain that were not being detected until further down the line. After a detailed investigation and speaking with our client's project quality director (my counterpart), we found that the main cause of this issue was the perception from people that correcting the nonconformity at source was enough, hence not communicating it to be actioned through root cause investigation and preventing recurrence elsewhere. Our further investigation into this revealed that a possible root cause was the lack of engagement between leadership and their employees in the supply chain.

The results of our investigation pointed to a review of the culture, ie, what was the prevailing culture and how would we find out?

We had a light-bulb moment when we realised that one of the core elements of the client's management system is "nuclear professionalism". This includes six important attributes – leadership, communication, compliance, competence, personal values and ethics.

After conducting a review of our management system on the project last year, we investigated those elements of nuclear professionalism and what they would look like in the context of quality. This involved trying to identify the expectations and behaviours that would support those elements as well as how the latter could be transposed into other sectors.

This led to the development of our Costain Quality Culture Programme in June 2020.

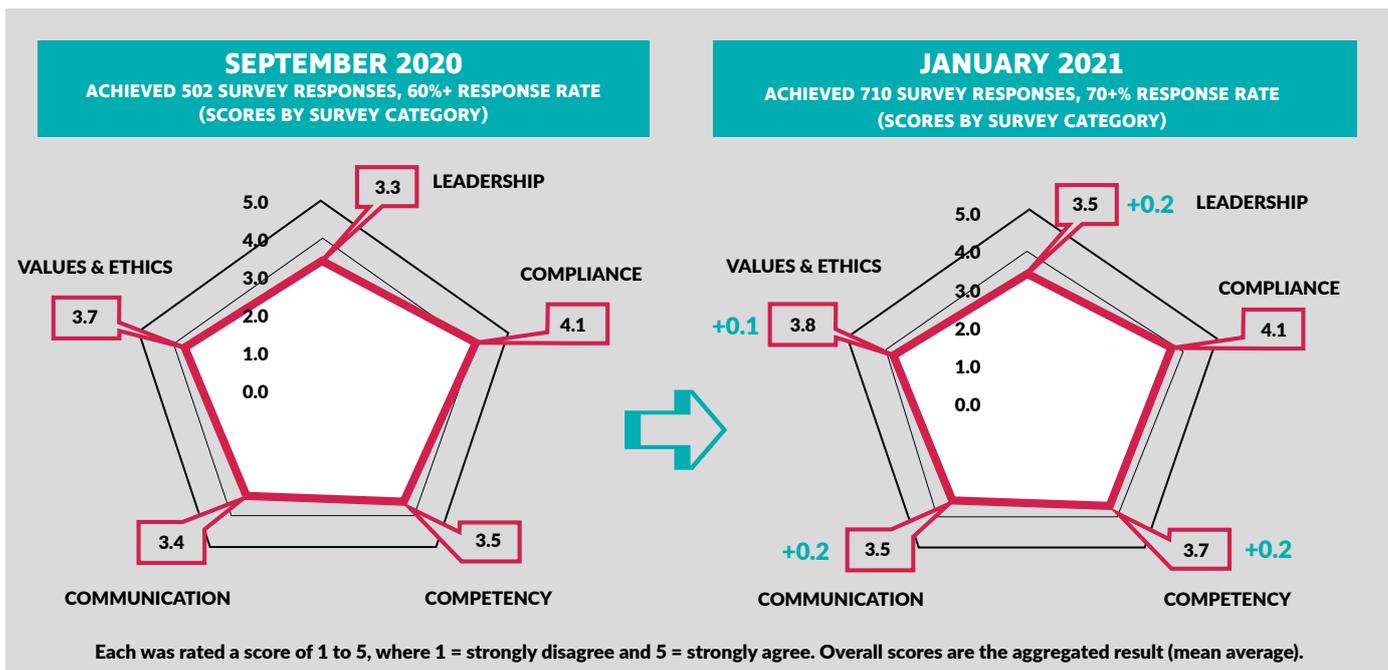
We introduced a suite of behaviours and expectations for measuring the quality culture on this project and others in Costain's portfolio.

QW: What steps have been introduced to measure the quality culture for this project correctly?

MD: The Costain quality team decided that a survey was the best approach. Although we had some data, it was beneficial for to us to find out more about the perspective of the individuals and determine the cultural maturity at all levels of the project team.

The quality team identified and agreed the key leadership attributes and expectations to explore through the survey. We provided statements – things that people could easily see, believe or act upon and asked the participant to rate them in order of importance.

We issued our Quality Culture Survey to circa 800 project personnel in September 2020. A total of 14 companies participated in the survey with responses from senior leaders and management through to technical leads, supervisors



The charts show a marked increase in engagement and scores from the first survey in September 2020 compared to the second in January 2021. The Quality Culture Survey results are based on individual responses to a series of 40 statements.

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Costain and Balfour Beatty were the main contractors for the London Bridge Station redevelopment. The station received the RIBA London Award 2019 and was also named RIBA London Building of the Year 2019.



Costain, together with Skanska and Balfour Beatty, delivered a new and improved section of the A14, eight months ahead of schedule.

and specialist experts. We had a 60 per cent response and completion rate, which was in part due to the survey being accessed in hard copy at site as well as online for office-based personnel.

Independent data analysis was conducted by our partner INCIGHT Ltd to ensure impartial results.

QW: How does the culture survey tie in with Costain’s Quality Culture Programme and your core expectations of leadership, compliance, communication, competency, personal values and ethics?

MD: I hear leaders talking about quality daily. This top-level commitment and buy-in to quality management is what drives a leading quality culture. Leaders need to be overtly championing quality every day to keep it at the forefront of their projects and teams’ minds. The outcome of the survey directs the strategy for the year on our complex projects and is an inherent and vital part of Costain’s Quality Culture Programme.

When we set out our quality strategy with the client, we worked with them to incorporate the key quality culture

elements as well as the more routine compliance elements that are critical to the project’s success.

Quality culture elements are the things that we collectively decide we will measure to gauge the current culture, such as leadership, competency and communication. In our case, we used our client’s nuclear professionalism characteristics and developed them in a quality context. For example, the competency element became “Secure in your competency in nuclear safety and have completed all SQEP (Suitably Qualified Experienced Personnel) assessments”.

The routine elements are those you would expect to find on infrastructure projects, such as compliance with specifications and procedures.

QW: How have you been maintaining cultural inputs and outputs for this project and others through Costain’s Quality Culture Programme?

MD: We introduced culture and desired behaviours from the beginning, which included inductions with Costain employees and supply chain representatives for the projects that we work on. This included training on leading quality and behavioural management.

As part of our Quality Culture Programme, we have KPIs that are regularly reviewed. The results are addressed at the organisation’s monthly Quality Leadership Forum to support and underpin the cultural aspects that we measure through the survey. The survey is updated and sent out every quarter.

QW: Could you tell us more about Costain’s Quality Leadership Forum and the changes you’ve implemented to improve business relationships across small- and large-scale projects?

MD: In general, we found that we were working a little too independently within the confines of our projects, and that it would be beneficial to develop a common language, platform and areas of focus to improve the quality culture. This led to the launch of our Quality Leadership Forum ▶

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where we were able to start discussing quality at leadership level. We already had Costain's senior sponsors on board, who understood and supported a more coherent approach to quality management, and our client's quality leader was fully behind our approach as well.

We now have other working groups in place, such as the Project Quality Forum, which is a monthly meeting to review and discuss data derived from inspections and internal audits, as well as provide a platform for leaders to share their experiences of quality management.

We also have a Director Quality Forum which takes place within each project. Costain has handed over the traditional project quality meetings to the project directors of the companies who are delivering the projects to further embed and change the perception of quality being one team's job – it is everyone's responsibility. Costain's quality team continue to offer support to the quality directors as and when required.

Some of the initiatives that have come out of Quality Director Forums include behavioural training, rewards, an improved SHEQ (safety, health, environmental and quality) card process to encourage better behaviours in identifying potential hazards, large group engagements (socially distanced) and feedback.

QW: What standards does Costain work to and how do they tie in with Costain's Quality Culture Programme?

MD: We work in accordance with the ISO 9001 and 14001 series of standards. Costain's Quality Culture Programme is very relevant because it has been developed and aligned to the standards' leadership, communication and competency frameworks as well as the CQI's core competencies (Governance, Leadership, Assurance, and Improvement).

QW: What are the main challenges facing the defence and energy sectors and how will Costain's Quality Culture Programme help to address them?

MD: As well as the ongoing challenges and impacts of Covid-19, many organisations are adapting to the biggest challenges in our changing world such as ageing infrastructure assets, increased connectivity and use of digital technology and the increasing impact of climate change.

Quality runs through everything we do, and it is the quality that largely determines the overall cost, where better quality leads to better outcomes. A standard set of key criteria will

allow us to benchmark performance, understand how we can improve (encompassing other tools that Costain use), and ensure we become the best we can be across all markets. For example, during the coronavirus pandemic, we were able to utilise our technology capabilities to conduct remote inspections. This meant we were able to maintain and deliver all inspections with 100 per cent completeness, ensuring little or no impact to our schedule.

QW: Why are other businesses interested in adopting Costain's Quality Culture Programme?

MD: In the words of one of our key supply chain leaders: "Poor quality impacts the bottom line". The excellent work by GIRI suggests that 21 per cent of construction costs come from unnecessary costs (for example, reworks, poor quality, etc). Continuous support and focus on quality not only minimise risk, but can also reduce cost and time when proactively managed and prioritised by all on a project.

Comments gathered in our survey demonstrate the impact a good quality culture can have on a programme, such as "it is an exceptional environment in a very challenging project" and "this project has the strongest leadership I have experienced in 40 years in the construction industry".

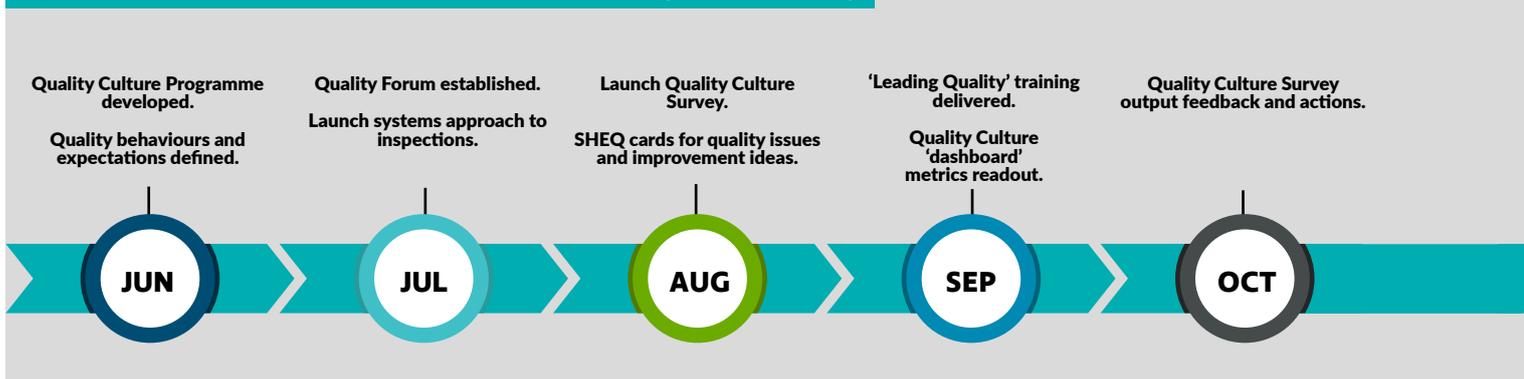
Our data tells us that by focusing on the culture and not just the procedures and processes, we can improve our "right first time" delivery. Businesses can learn about their quality culture and understand not only the impact it has on the now, but also the potential positive impact an improved quality culture could have.

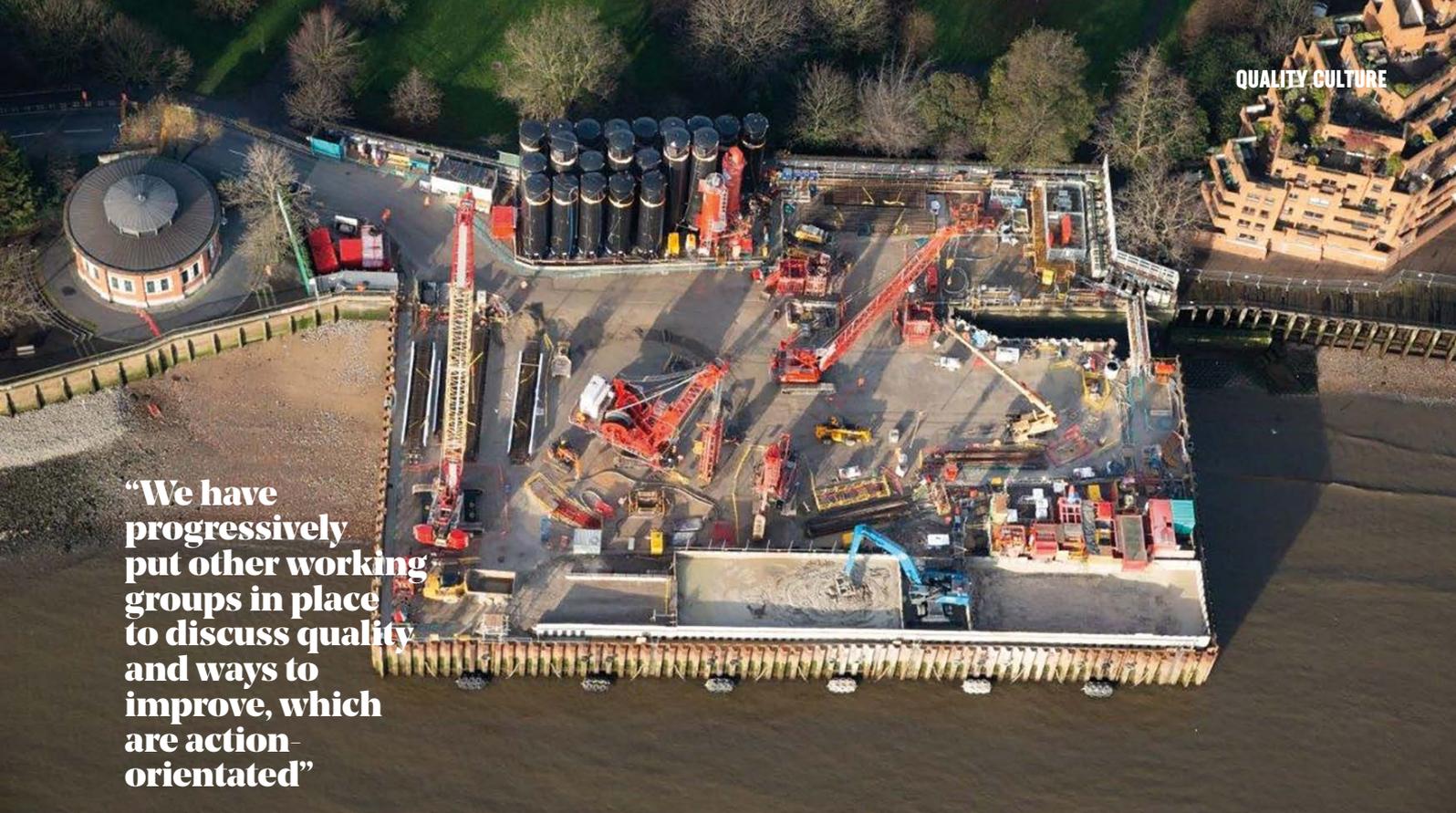
QW: How are you taking the Quality Culture Programme forward this year?

MD: Our aim is to ensure everyone understands what quality culture is. The Costain Quality Culture Programme will act as a useful roadmap to help other businesses move towards that goal of understanding and enforcing a robust quality culture.

To do this, businesses need to agree what it is in their organisations that best describes their culture and what they need to measure. I personally want to make as many organisations aware of the initiative as possible, to help quality become a top priority. I believe the programme is the first of its kind in the nuclear, defence and construction sector, so the opportunity to share this leading-edge approach and encourage others to adopt a similar process is again part of the culture of quality management.

QUALITY CULTURE ACTIVITY TIMELINE (2020/2021)





“We have progressively put other working groups in place to discuss quality and ways to improve, which are action-orientated”

Above: The Thames Tideway Tunnel is a £3.8bn, 25 km super sewer. Costain has been working alongside client, Tideway, and in joint venture with VINCI Construction Grands Projets and Bachy Soletanche on the east section of tunnel.

Right: In a joint venture with Skanska (CSJV) on behalf of National Grid, Costain has constructed approximately 32 km of a high voltage electricity cable tunnel to create a new electricity superhighway deep below London.



QW: What advice would you give to other businesses who are trying to create and maintain a robust quality culture?

MD: Approach it like any project by identifying and involving your stakeholders. Engage leaders to gain commitment for change and action, be clear on the initial scope and agree what you want to see that defines the quality culture (there are many commonalities but some differences that you may want to pull out).

Leaders and leadership teams should set out a timeline of activities that build structure and capability. Measure what they deem as important to creating a strong quality culture and then communicate, communicate, communicate!

Additionally, by involving everyone in the process via training, surveys, submitting feedback cards, rewards, toolbox talks, workshops, among other initiatives, will develop the expectations, routine, and over time, the behaviours and habits that support a strong quality culture.

We hope that our Quality Culture Programme will help to drive positive change by reiterating the importance of quality and ensuring that it is the central driving force for any project that is undertaken. ■

