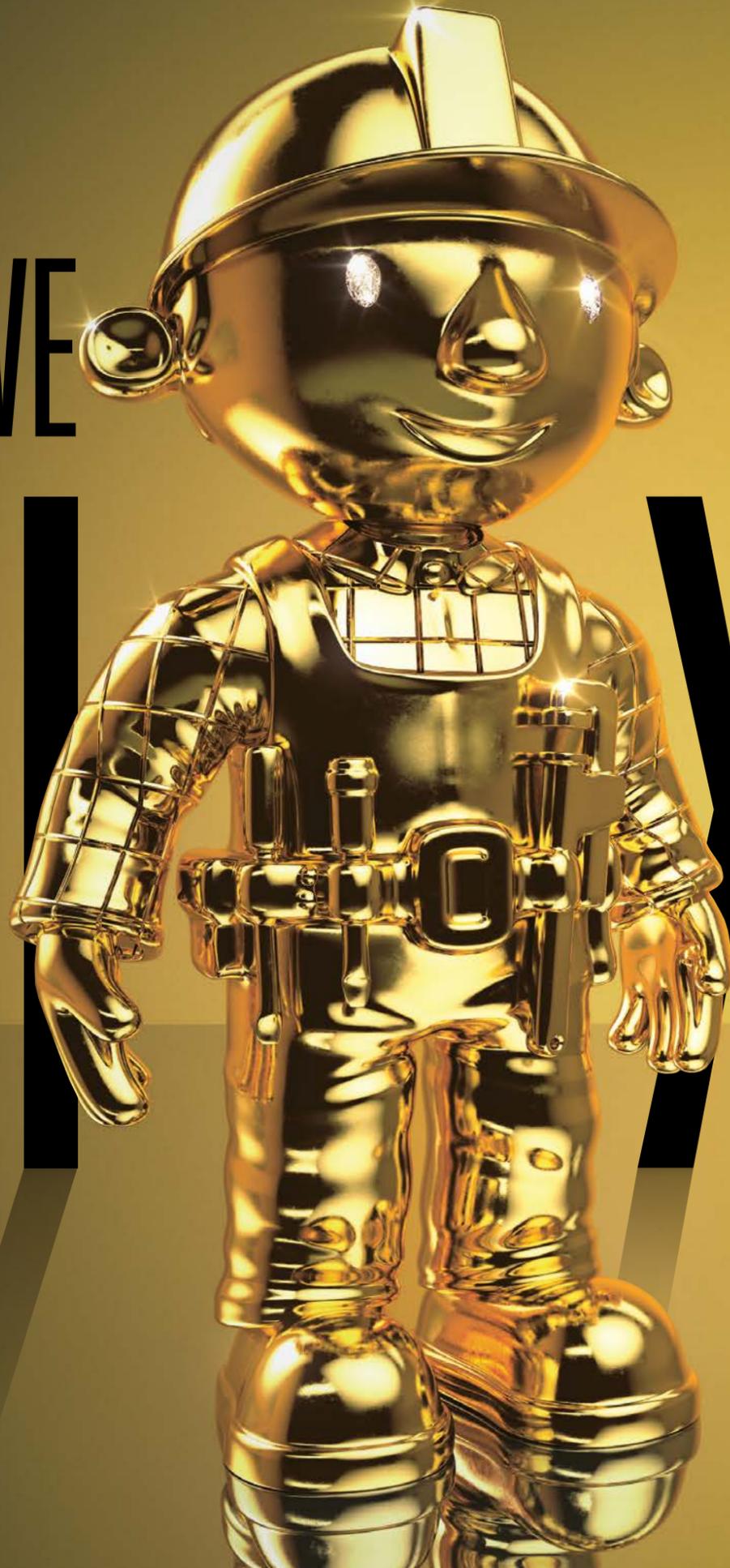


CAN WE



FEW KNOW IT?

DEMING FAMOUSLY NOTED THE COST OF GOOD AND BAD QUALITY. HERE, DANIEL KEELING EXPLAINS HOW HE IS LEADING A RESEARCH PROJECT BETWEEN THE CQI AND UCL TO MEASURE THE COST OF BAD QUALITY IN THE CONSTRUCTION INDUSTRY

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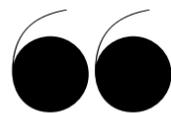
The fourth part of Deming's 14 Points for Management is the total cost of good and bad quality. This is central to the work of the CQI Construction Special Interest Group's Cost of Quality Working Group, led by Daniel Keeling, which is creating an in-depth and groundbreaking report on the cost of quality in the UK's £100bn construction industry.

"There is no data worldwide to cover the [construction] end product," in terms of the cost quality, says Keeling. The Cost of Quality Working Group therefore undertook the challenge to fill this gaping void. "We have looked at the whole aspect of the cost of quality. One could say it is the cost of non-quality," says Keeling. "It is about the failure to deliver what the client actually wanted."

But this is not as easy as it initially sounds. "This failure comes in various forms: a failure to fully specify a project, a failure to understand what is wanted, a failure to give the correct direction to the contractor, all leading to a failure to meet the requirements of the customer."

This was only the beginning for the Cost of Quality Working Group, which has been working for 18 months and has representatives from all sides of the industry, from clients and consultants to contractors. The next step was to get to the real heart of it all: the cost, a barren area of research.

Keeling says: "There is very little analysis done on costs and failure, yet you are talking projects that are big money. The UK construction industry is worth £100bn each year,



FAILURE COMES IN VARIOUS FORMS: A FAILURE TO FULLY SPECIFY A PROJECT, A FAILURE TO UNDERSTAND WHAT IS WANTED, A FAILURE TO GIVE THE CORRECT DIRECTION TO THE CONTRACTOR, ALL LEADING TO A FAILURE TO MEET THE REQUIREMENTS OF THE CUSTOMER"



and if you take just a conservative estimate of 1-2% as a failure cost, you are talking about around £1bn to £2bn in the UK." An American study by XL Catlin has found that up to 12% can be lost on defects.

STRUCTURE, DEFINITIONS AND MEASUREMENT

To begin the research, an accepted model of measurement would have to be agreed and implemented. Keeling explains: "We had to break it down and make it measurable. We decided to focus our efforts on the costs of not delivering client requirements post-handover. The cost of quality after handover is broken down in all types

of paths. We will measure all these individual paths. We have therefore come up with a structure, suitable definitions and measurement."

To get to this point and take the project forward, a relationship has been struck-up with University College London (UCL) Bartlett School of Construction and Project Management. The university will develop the measurement processes, analysis and begin the report.

The study will be three years in the making. Keeling enthuses about the final report and its appeal. "We think this will be of phenomenal interest to clients worldwide: a comprehensive report which can benefit all construction clients across the world."

But there are other hurdles in the meantime. Confidentiality is an issue, as no organisation wishes to be 'named and shamed' and used as a guinea pig to show what went wrong in a project. Harvesting data and making it non-attributable is crucial.

Keeling observes: "There is a lot of work done on defects, and the cost of defects, but when you talk to the contractors, many of whom are members of the working group, we found they were not going to be too open about it being publicised."

"This is the biggest issue," confesses Keeling. "Organisations are not always giving us the information we need, as they are protecting their commercial interests. But we are hoping to get many clients, consultants and contractors to provide data during the next few years."

Insurance has also been more difficult than anticipated in the measurement of cost relating to quality issues. "Their models are difficult to get hold of and it is difficult to measure how they come up with a number relating to the costs we are looking at."



DANIEL KEELING
began his career supervising contractors working on all aspects of Yanbu Industrial City in Saudi Arabia. He then became Senior Quality Manager at the Channel Tunnel throughout its construction and opening.

NEW OPPORTUNITIES

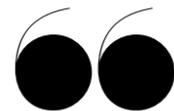
Nevertheless, this report and activity has also led to other interests for future projects, with thought being given to a second report being undertaken due to the scale of the whole enterprise. We have had discussions with Heathrow Airport and they are keen on a similar exercise. We could do one study on one area alone, then have an umbrella study on top of that. That is in part because of the sheer complexity of the whole business of cost.” Keeling’s experience in the field

of construction and quality is mightily impressive, spanning 35 years. A chartered engineer, he began working in quality as a Senior Engineer then Section Manager in the Yanbu Industrial City in Saudi Arabia in the early 1980s, when its population was 500. It is now over 200,000.

Reflecting on this time, Keeling considers how quality has changed, or at least its perception. “In Yanbu, quality and assurance sat together, reporting directly to the Director General. I had the power to disqualify any supplier. I had to approve every supplier and monitor them thoroughly. Since then, my power has come through being persuasive. It appears the power of the quality manager is not as great as it was then.” Other factors have come into play to shift the position of quality. “In terms of influence, I would say safety is climbing up the commercial tree in importance and quality is slightly drifting down the tree.” But, Keeling notes: “If you don’t have quality you don’t have safety: quality is all-encompassing. That is the message we need to get across.”

LEARNING LESSONS

Since his time in Saudi Arabia Keeling has worked on, and been responsible for, the quality systems involved in the building of the Channel Tunnel and he was made Head of Quality for HSI during design, construction, testing and the first phase of operations when the trains began running. He moved over to Crossrail before settling into



WE THINK THIS WILL BE OF PHENOMENAL INTEREST TO CLIENTS WORLDWIDE: A COMPREHENSIVE REPORT WHICH CAN BENEFIT ALL CONSTRUCTION CLIENTS ACROSS THE WORLD”



his current role as Director of his own quality consultancy firm, Dankeel Associates.

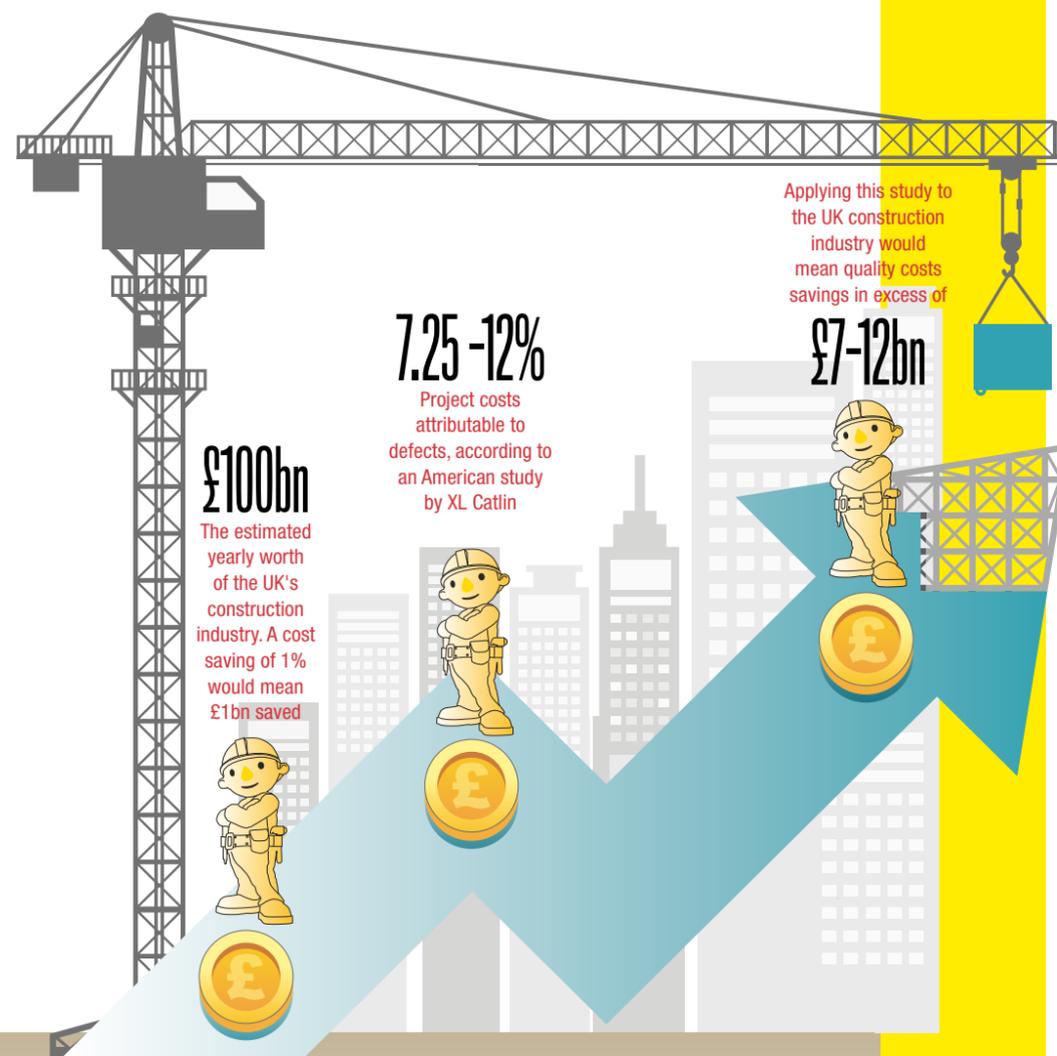
“The construction industry doesn’t learn lessons as quickly as it should,” Keeling says, suggesting challenging times ahead.

His days at the Channel Tunnel were, he cites, his career highlight. “From a technical challenge point of view, when I was on the Channel Tunnel project I ran the Alignment Task Force, a joint working group between the French and British, where we addressed all the alignment challenges and learned lessons along the way. Talking and discussing quality

and related issues was very important and very enjoyable.”

So what is his biggest lesson learned? “You need to be technically able and focused enough to be able to influence the industry. You have to see the big picture, focusing solely on inspection is not right and focusing solely on processes is not right. You have to see the big picture and ask: what is the end product and what does it look like?”

And, as work begins in earnest on the cost of quality report, Keeling’s final advice for everyone in quality: “Be proud of what you do and stand up for what you believe in.”



COST OF BAD QUALITY: THE METHODOLOGY

The new study is proposed to measure failure cost during the post-handover stage of construction. The aim is to quantify the cost of poor quality and develop measures to reduce failures.

A sample of major infrastructure projects will allow a sector-wide benchmark to be established and enable the research team to generalise on the extent of the problem faced by major infrastructure clients and their suppliers.

UCL Bartlett School of Construction and Project Management will be undertaking a mixed method research study. The study will include four parts. First, focus groups and workshops with industrialists will define and categorise cost of quality elements. Second, an exploratory industry-wide questionnaire will determine which categories of external failure (post-handover) contribute most

significantly to operational cost. The third activity will data-mine PFI operational and project costs, to establish a sector-specific benchmark for cost of quality failure.

Finally, project-based interviews with a representative sample of owner, consultant, main-contractor and specialist suppliers to explore how prevention and appraisal strategies can be established to reduce external failure during a projects life.

It is hoped this work will contribute to the development of a new integration model that could support a reduction in operational failures. This will include ascertaining what could be done to share knowledge of failure throughout the supply chain, and to create a shared culture of quality between all partners. This research will provide greater transparency of where costs lie within the client and its supply chain.



“THE UK CONSTRUCTION INDUSTRY IS WORTH £100BN EACH YEAR, AND IF YOU TAKE JUST A CONSERVATIVE ESTIMATE OF 1-2% AS A FAILURE COST, YOU ARE TALKING AROUND £1BN TO £2BN”



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