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WHITEPAPER

Transforming Construction: Bricks and Mortar... and Data

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In construction, some things never change.

Not least, we will always feel the need to reshape our cityscapes to match shifting ways of living and working.

And of course, there's the perennial question of the UK's residential property shortage. It has been there for as long as anyone can remember - and despite the government's lofty aspirations to get 300k new-builds off the ground each year, we all know that the shortfall isn't going anywhere soon.

But other things do change. Seemingly rock-solid operators can collapse overnight. Firms can find themselves facing recruitment crises. And, as we lurch from one Brexit impasse to the next, we don't need reminding that political curveballs can leave supply lines, projects and entire business models suddenly in a state of huge uncertainty.

It is impossible to make those curveballs disappear. But it is possible to find better ways to manage uncertainty - and to identify and mitigate risk. In this regard, business leaders are frequently advised to become more 'data-driven' in their approach to decision making.

The construction industry isn't exactly renowned for being a prime candidate for technical transformation. Indeed, seasoned industry leaders would be forgiven for thinking that the likes of Business Intelligence and data analysis "isn't for the likes of us".

The reality looks very different. Over the last five years, I've worked with organisations from all quarters of this sector - from housebuilders through to infrastructure specialists. Two things stand out: first off, there's a real appetite for better ways of managing operational risk. And secondly, the sector as a whole is ripe for technical transformation and investment.

The minutiae can vary - but companies from right across the construction sector tend to experience similar problems. Based on my own experience and that of my colleagues - as well as discussions with industry insiders, we've identified the four most significant and commonly faced problems.

Here's a closer look at those issues - together with our own view on how transformative technology and data-driven decision making can better equip businesses for managing the challenges ahead.

Problem 1: The Workforce

The simple fact is that we need people on the ground.

In the UK, the construction industry employs an estimated 2.9 million people. To put it in perspective, that's 1 in 10 of the UK workforce.

Let's say that just 5 percent of your employees retire or otherwise leave your company each year. Multiply this right across the industry - and it means that nationwide, more than 145,000 new starters are needed annually, just to cover natural workforce depletion.

This in itself isn't a problem so long as the depletion rate remains steady - and if companies can count on a steady flow of new talent to fill their staffing gaps as and when they arise.

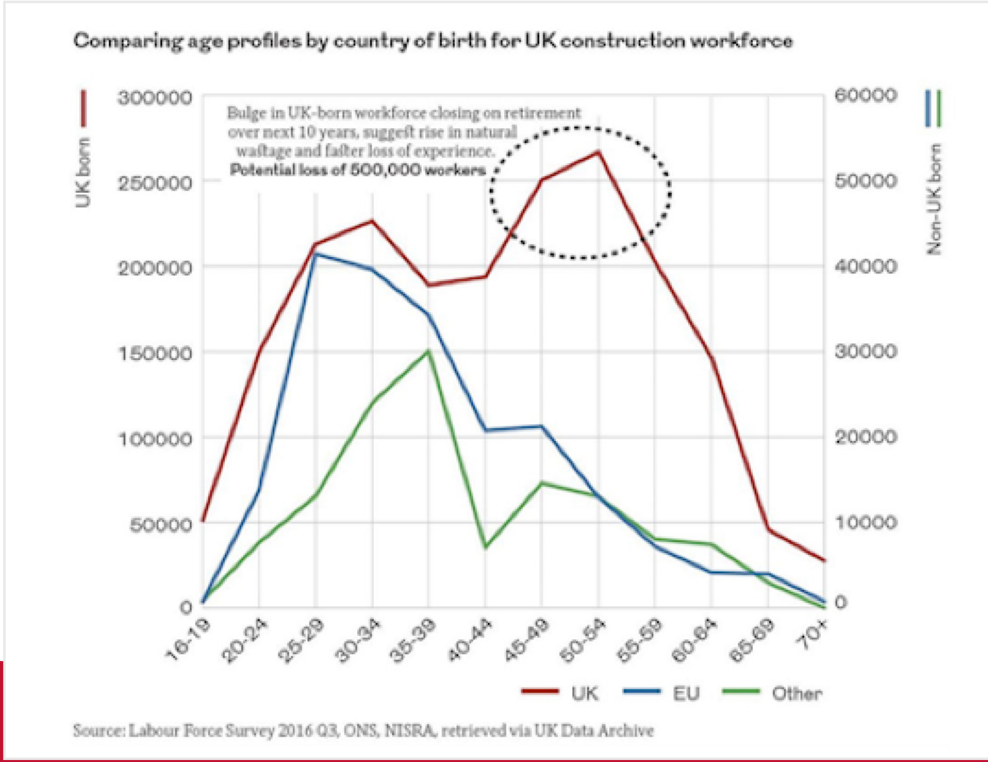
But of course, both through anecdotal evidence and a slew of research from across the sector, it's clear that something is already going wrong on the staffing front. Some of the most recent surveys suggest that more than half of companies say they are impacted by growing skills shortages and 1 in 20 firms say their workforce "doesn't have the necessary skills for now or the future".

Multiple factors are driving the shortfall. And the bad news is that this situation looks set to escalate.

Here are three reasons why:

1. Increased demand
While certain sub-sectors may be sluggish at present (e.g. commercial and London residential), it seems that this is more than offset by key hotspots of activity such as regional newbuilds and infrastructure projects. Demand for certain on-site occupations far outstrip availability. For instance, recent GLA figures showed that demand for plant mechanics, scaffolders and bricklayers was 300 percent higher than 2015 employment levels.

2. The Demographic Timebomb
Those seasoned employees and contractors who form the bedrock of your business: they're not going to be around forever. The Labour Force Survey (2016 Q3) from the Office of National Statistics tells us that the UK-born construction workforce is heavily skewed towards the 45-and-over age group. We're about to hit a bulge - with half a million workers due to retire from the industry in the next decade. And the same research shows that the sector as a whole has failed to ensure the development of younger workers to plug the gap.



3. The Brexit Effect

A recent poll of EU nationals working in construction reveals that one in three workers have considered leaving the UK because of Brexit. Seven percent of construction workers in the country as a whole - and over a quarter of the capital's workforce - come from EU member states. Even with a relatively 'smooth' political negotiation, the industry could still be facing a mini-exodus, and with it, inevitable added pressure on the staffing front.

Meeting the Challenge: HR Transformation in Action

If critical staffing issues are going to be averted, then certain things have to change.

Workplace culture and diversity is one area where steady change is already happening. For instance, just three years ago, women represented 1 in 9 members of the workforce. As misconceptions about gender specific roles are slowly diminished, this ratio is set to shift, with one estimate suggesting that women will make up a quarter of the workforce by 2020.

If you want to avoid shortfalls, you need a new approach to recruitment. Part of this may involve an emphasis on employer branding – to ensure that your public face appeals to as wide a proportion of the potential talent pool as possible.

Alongside this, it's also true that if you see a recruitment crisis looming, you have the opportunity to take targeted steps to prevent it. Progressive companies are looking at smarter ways to predict and anticipate staffing problems. This is the essence of HR Analytics.

The HR departments I have spoken to know all too well that the workforce is changing. They are putting strategies in place to encourage retention, improve recruitment and up-skill current staff. However, the same HR departments are often unsure whether those strategies are enough – and how, when and where they should be focusing their efforts. This is where HR Analytics is making a huge difference.

Enabling you to drill down on data relating to areas such as productivity, retention and likely retirement dates on a role-by-role basis, HR Analytics gives you a handle on the status of your biggest asset: your people. So let's say you embark on a strategy to equip newly-qualified carpenters with next-level City & Guilds qualifications. You can compare your metrics before and after implementation of that strategy to gauge its effectiveness.

Through deployment of HR Analytics, one of our customers was able to identify a very specific retention problem: the majority of their leavers were those employees who had been with the company for less than two years.

In this example, the company realised that there was something missing from their onboarding strategy. This led them on a journey to focus on refining recruitment for a better cultural fit, while increasing the average number of training days from 1.4 (the national average) to 3.2. Thanks to these targeted remedial measures, the early-stage churn rate was cut dramatically.

In another example, a customer identified a marked spike in staff departure in the month prior to Year End. The conclusion? The stress surrounding end-of-year targets was simply too much to take for too many staff members. The company moved to change its culture and practices to fix this.

Problem 2: The Squeezed Bottom Line

The 'lowest bid wins' approach has always been problematic. It encourages participants to gamble with uncertainty, to take a fast and loose approach to the estimation process – and to slash their profits.

Especially in the commercial building sector, I find that companies are continually being squeezed by fluctuating costs and pressure to submit ever-more competitive tenders. Evidence bears this out, with Mace Cost Consultancy predicting recently that tender prices (i.e. the amount paid by the end client) are unlikely to increase in the near future.

Meanwhile, considering the UK's proposed departure from the EU, businesses are likely to face an increase in operating costs – not least, linked to uncertainty surrounding access to both labour and materials. Turner & Townsend's recent International Construction Market Survey suggests an increase in construction costs of 2 to 3.8 percent for the UK as a whole and 4.1 percent for London. Increase your bid and risk losing the contract – or else cut your profits: it's an unenviable choice.

Technology doesn't remove the perceived 'race to the bottom' – but as I've seen from some of the projects I have been involved with, it can be invaluable for giving you a better understanding of complex build projects. This is data-driven decision making at its most valuable: it can prevent you making the mistake of submitting tenders or agreeing to undertakings that are simply not viable.

Value-added collaboration and data integration

The build department will have a plan for what's needed for completion of a project. Commercial, sales, quality – and potentially a host of other departments: typically they can all have their own plans and priorities.

Problems can arise due to the siloed nature of these teams. The absence of a central repository for all data from all departments, individuals working from out-of-date versions of documents, discrepancies between data from different sources: they all move you away from having a single version of the truth.

Automated data integration is key to resolving this. For instance, one of our clients found themselves facing an issue with brickwork that looked set to delay a plot completion by five weeks. These things happen – but thanks to the automated integration system in place, the client was able to substantially minimise the impact. This included notifying sales & marketing with a view to managing the customer's expectations, notifying procurement in order to push back delivery of roof trusses – and notifying finance so that cashflow forecasts were automatically updated.

Scenario planning

The availability of more honest forecasts from across the business gives senior management a better understanding of the health of the company.

This same data can be put to work in Scenario Planning: in other words, producing a range of plausible futures, taking into account a potentially huge range of variables. Once these paths have been reviewed, senior leadership can then decide on what it's actually possible to change to ensure that the business stays on the best possible path to meet its goals.

Crucially, Scenario Analysis does not rely solely on internal business data. For a full picture, market, industry and other external data can also be analysed through the same process for the fullest possible view.

Problem 3: Project Delays

Delays are a fact of life. Sub-contractors will fail to turn up – and the elements will let you down. Tech cannot change this – but it can help you deal with its ramifications in such a way as to minimise the impact on your business.

According to McKinsey & Co, for major projects, an overrun of 20 months is the industry norm. Collectively, project-specific delays and spiralling costs tend to represent the biggest squeeze on profitability.

As a rule, the earlier issues can be identified, the quicker your people can react – maximising the chances of cost minimisation.

For this, many of the customers I work with successfully deploy Viewpoint Field View. For instance, with one particular customer, we created a Production Progress form, which captured actual current build stages and integrated the results into their Production Planning Software. This meant that the staff running the project could keep management fully updated on project progress in real time. Delays, divergences, the need to reformulate costings: the customer gets full visibility on all of this as soon as it becomes an issue.

The same tech can also be used to actively reduce the chances of delays happening in the first place. For instance, another client is using the collaborative capabilities of Field View to reduce the time between materials requests and approvals. Armed with a tablet, a manager on the ground can instantly submit their request. This is then automatically integrated to the Enterprise Resource Planning tool, whereby an authorised buyer is notified immediately.

The buyer then reviews, approves (or rejects) the request. It ensures a clear audit trail between request and approval, while reducing the length of the authorisation process from hours or days – to minutes.

Beyond the need to keep individual projects on track, the ability to capture on-site data concerning the most commonly-encountered snags helps you spot patterns across the business – thereby arming you with the intel you need to tweak existing processes for maximum efficiency.

Problem 4: Ensuring Quality

Sub-par outcomes can do critical damage to your reputation. What's more, with the proposed establishment of a New Home Ombudsman (along with the ability to order payouts of up to £50,000 to new buyers), builders could soon find themselves facing much harsher sanctions if minimal standards are not met.

Faced with the issues we have discussed already – increased costs, talent shortages, delays and continued pressure to drive efficiency - it can be an uphill struggle to ensure that quality benchmarks are met.

Data analysis can provide you with an early warning system, flagging up potential deviations in the build process. For instance, has productivity stalled on a particular plot? Will an absence of sufficient materials or manpower over a particular period leave you precariously under-resourced? Based on this information, measures can then be taken to bring operations back to a normal condition.

Data can be used to capture the mistakes, to help teach us the lessons we need to learn to deliver a consistent and high-quality product; wherther that be a young families first home or a Premiership footballers penthouse.

The future?

"The same safe haven as always, only cheaper"
In the aftermath of the Brexit vote, this was how one Chinese investment specialist summed up their attitude to the UK property market.

Whatever happens with the negotiations, few would conclude that the sector is about to fall off a cliff. That said, it's fair to say that the issues we have highlighted are likely to become more acute for a lot of companies.

In response to this, we believe that the appetite for greater levels of data-driven decision making will only get stronger. The ability to crunch the numbers has always been necessary for success in this industry. Now is exactly the right time to embrace new ways of doing it better.

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