

# What next for technology?

**Simon Lewis**, a partner in the Construction and Engineering Team at Bond Dickinson, turns his attention to technology and some recent predictions.



Like it or not, the future seems to be rushing upon us with an ever-increasing speed. It is difficult enough to keep up with everything that has to be done on a daily basis, but every now and then it is useful to look around and see what is coming up. In that regard, the recently published report by Balfour Beatty, Innovation 2050: A Digital Future for the Infrastructure Industry, offers some interesting insights into the way the

industry is heading. While some of the report is, as you might expect, an advertisement for what Balfour Beatty is doing, it also usefully draws together various strands of technological development which are undoubtedly going to have an effect on everyone.

## What, then, can we expect next?

The Balfour Beatty report contains a number of predictions for 2050. As is so often the case with things that look to the future, I suspect that some of these will not actually have taken place by then but that there will be other developments which will be far more advanced than we would dare to predict now. Here are some of the highlights:

- The shape of the industry will change significantly, with new business models, products and services.
- New jobs and industries will be created – and some will disappear, especially low- or zero-skill roles and those relying on repetition of tasks.
- Thinking only about design and construction will become an outdated concept as infrastructure becomes multi-functional.
- Construction will get faster, using 3D and 4D printing, and self-transforming objects which self-assemble.

## Skills and agility

Inevitably, as technology continues to accelerate and affect the industry directly, the sector will need a more agile workforce with new skills. Among all this talk of 'digital natives' (defined as someone born or brought up during the age of digital technology) and the IT-savvy, technologically aware workforce, there lurks a spectre of what is often euphemistically referred to as 'jobless growth': companies increasing their profits without increasing the workforce. Further, while new jobs and new industries will be created, some will disappear. Humans are likely to be replaced in repetitive, unskilled jobs by robots and artificial intelligence (AI), and certain aspects of traditional industries such as manufacturing are likely to decline as new industries emerge. It is predicted that 65 per cent of children at school today will work in jobs that do not yet exist. There may be a greater need for more specialisation, particularly in skills that require technological input and understanding. Flexibility and desire to upskill regularly will become vital attributes in the jobs market.

This report also considers that the use of 3D and 4D printing will result in a significant increase in the speed and ease with which the construction process can take place. If (like me) you had no idea what 4D printing is, apparently it refers to self-transforming objects which alter their shape in response to a stimulus, such as a change in heat, sound or moisture. This could lead to the creation of smart objects that could react to changing environmental conditions. I am having trouble imagining what they might look like but no doubt somebody will show me sooner or later.

It is suggested that all surfaces will become potential interface points with computers, devices and networked technology. This will be part of new materials technologies bringing about changes in the way the built environment looks. Certain technologies already enable flooring to harness the energy of vehicles or people moving on surfaces and this is likely to become mainstream. In other words, infrastructure will end up fulfilling more than one purpose. The materials used in the construction process are likely to become far more flexible in their use and increasingly, via the Internet of Things (IoT), able to communicate with each other and with their owners via the use of self-healing and self-maintaining technologies.

## Considering the challenges

Are there any challenges posed by these new developments? Obviously, there are. There will be a massive increase in energy consumption given the colossal amounts of data which will need to be processed. This means that infrastructure design will need to take account of climate projections and impacts, the use of renewable energy will need



to increase significantly and new ways of storing data will have to be developed. At the same time, processing and using the data in real time will get more difficult simply because there will be so much of it.

The inevitable debates around privacy versus the benefits of data are bound to become far more acute and, of course, cyber security will become even more important. We are already aware of the effects of hacking and cyber-attack. Earlier this year, the 'WannaCry' ransomware attack hit 150 countries – the worst attack ever on critical infrastructure. Regular assaults of this sort are likely to become the norm as new ways are found to exploit cyber weapons which target old, weak and under-protected software systems. Sadly, the NHS will continue to be a major target for this reason.

For the construction industry, this will pose a particular challenge. Large projects increasingly rely upon supply chains and contractors from a number of different countries collaborating on the collating and

sharing of large amounts of data. Internet-connected solutions and remotely accessible systems such as BIM open up the risk of cyber-attack. At particular risk are Building Management Systems on which many hospitals, government buildings, banks, research facilities and prisons are increasingly reliant. Cyber security as an aspect of everyday construction work will become increasingly prevalent.

What does this mean for the finishes and interiors sector? It is, of course, difficult to say with any precision, but ultimately, this is not a question of choice about whether we accept what is happening or not: it is going to happen anyway and the issue becomes how it is approached and what strategies are used to deal with it and profit from it. The key seems to be flexibility and a willingness to embrace technology rather than seeing it as something that is going to be a bad thing. Given its inevitability, the issue is how you cope, not whether or not you embrace technology at all.

# Dispute resolution procedures

During a construction project, there are often complications. Generally, claims arising from a construction contract relate to an extension of time, additional work or variations, a claim for payment, poor workmanship or liquidated damages.

Most queries we receive through the FIS Legal Helpline relate to disputes of this nature and this article provides a brief introduction to the dispute resolution procedures that are available.

The main dispute resolution procedures are adjudication, arbitration, litigation and a type of alternative dispute resolution (ADR) known as mediation.

**Adjudication** is a statutory right that cannot be contracted out of. It is often seen as a quick and cost-effective means of resolving disputes and is generally considered to be successful in achieving its aim of maintaining cash flow

during the course of construction projects. It is appropriate for disputes relating to delay and disruption, extension of time claims and final account disputes. It is often included or referred to in construction contracts.

**Litigation** is the term used to describe proceedings in Court to enforce or defend a legal right. It can be settled by agreement between the parties before the trial but it usually involves applications being made at Court and Court hearings. Litigation can be lengthy, which can make it an expensive option.

**Arbitration** is an alternative to litigation. All parties must agree to submit the dispute to arbitration and the rights and obligations of the parties arise from the arbitration agreement itself. Arbitration proceedings are confidential and the parties have the choice of where the arbitration takes place. The decision of an

arbitral tribunal is final and binding.

**Mediation** is a form of ADR where the parties agree to appoint an impartial mediator to help resolve the dispute by facilitating discussions. This process is voluntary and is held on a 'without prejudice' basis so it cannot be referred to openly. If the parties reach a settlement, that is written down and the settlement agreement can be enforced in Court.

This note is just a very brief overview. If a dispute arises, you should obtain legal advice to understand your options and responsibilities. FIS members can call Bond Dickinson on the Legal Helpline, who will be happy to help.

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