



COST OUTLOOK 2020

Addressing the
challenge of escalating
construction costs

INTRO



2020 will see breakthroughs in several areas; building technologies, techniques and materials that will have a long lasting impact on the industry.



THE PERFECT STORM

The construction industry is not typically recognised as being at the forefront of change. Properties are being built roughly the same way they were half a century ago.

Now, due to various cyclical and structural factors, the industry is under pressure to reinvent itself. 2020 will see breakthroughs in several areas including building technologies, techniques and materials that will have a long-lasting impact on the industry.

Developers and contractors are facing increasingly intense cost pressures. The reasons are manifold and well known: the rising cost of qualified labour and construction materials, as well as the increased demand for, and cost of land near urban concentrations. As an example, in German cities with more than 500,000

inhabitants the cost of land has increased by a staggering 321%, from an average of €341/sqm in 2009 to €1095/sqm in 2018.

The growing desire to regulate parts of the sector (for instance the residential 5-year rent freeze recently agreed in Berlin), the uncertainty associated with Brexit and the US-China trade war, add to this trend of rising costs. Under this environment, stiff competition, thin margins and the scale of the challenges presently faced by the industry (especially by small to medium-sized businesses) become clearer.

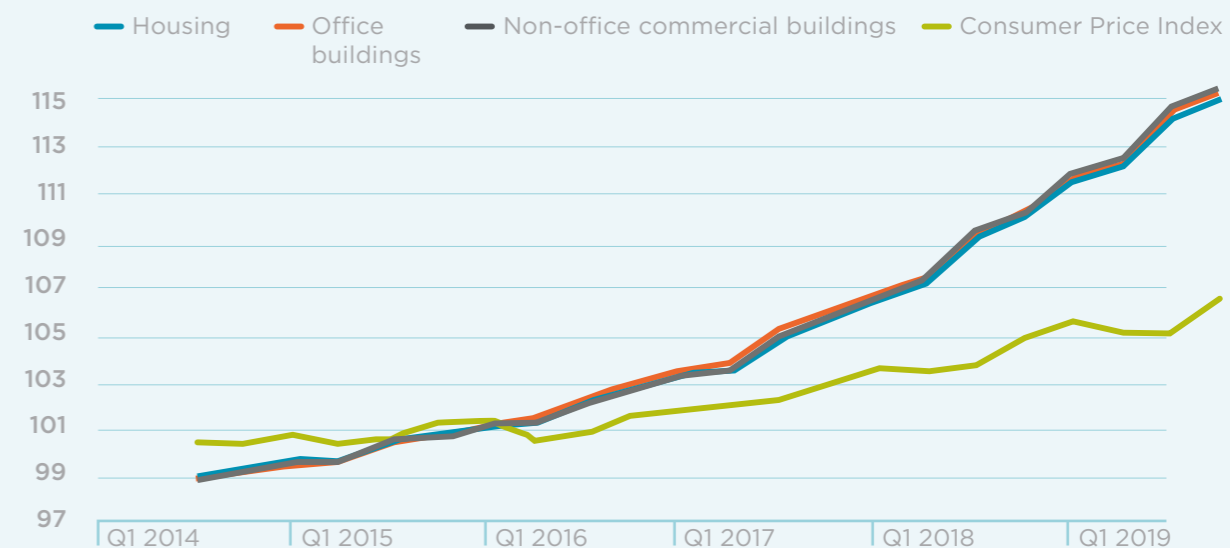
COST VS VALUE

But just how much have construction costs increased?

Official figures for two of Europe's largest economies, Germany and the UK, show an overall 13% rise in 4 years, between June 2015 and June 2019, compared to CPI growth of 6.6% over the same period for both countries.

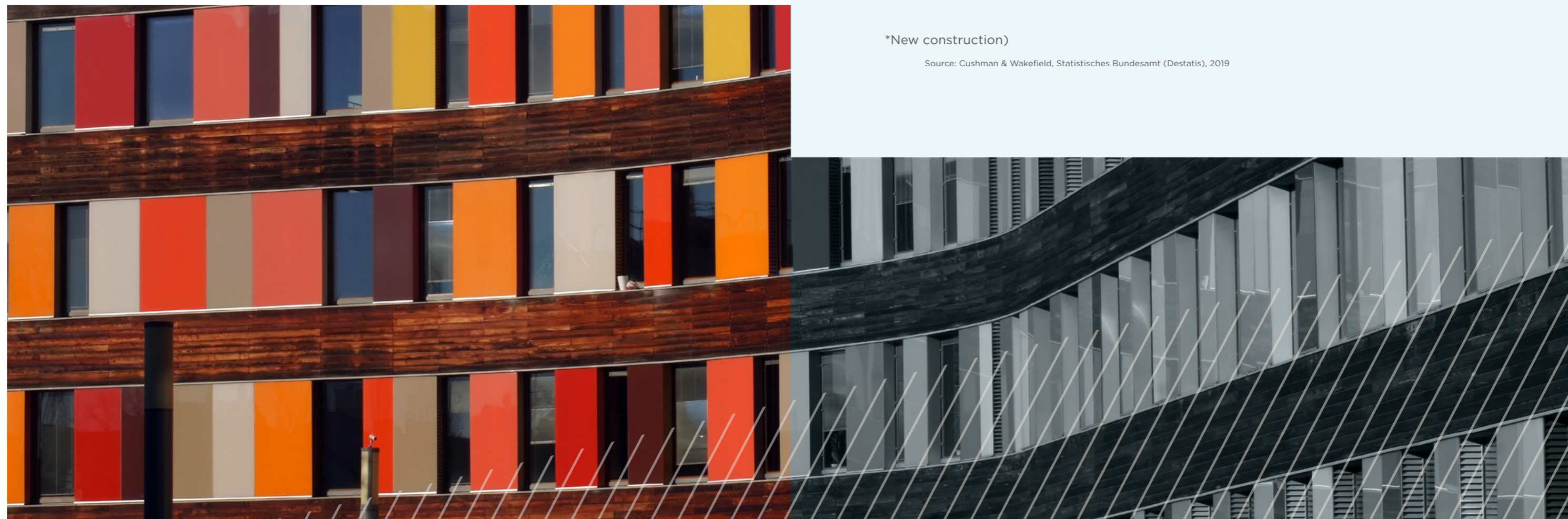
In the UK, the construction cost has evolved faster than the "All property" growth in capital values, although at a slower rate in the case of residential (+18%) and industrial assets (+37%). Rental growth has in some cases outpaced construction costs growth, with developers passing on the rising building costs to final users, in some cases testing affordability boundaries.

GERMAN CONSTRUCTION COSTS* VS CPI



*New construction)

Source: Cushman & Wakefield, Statistisches Bundesamt (Destatis), 2019



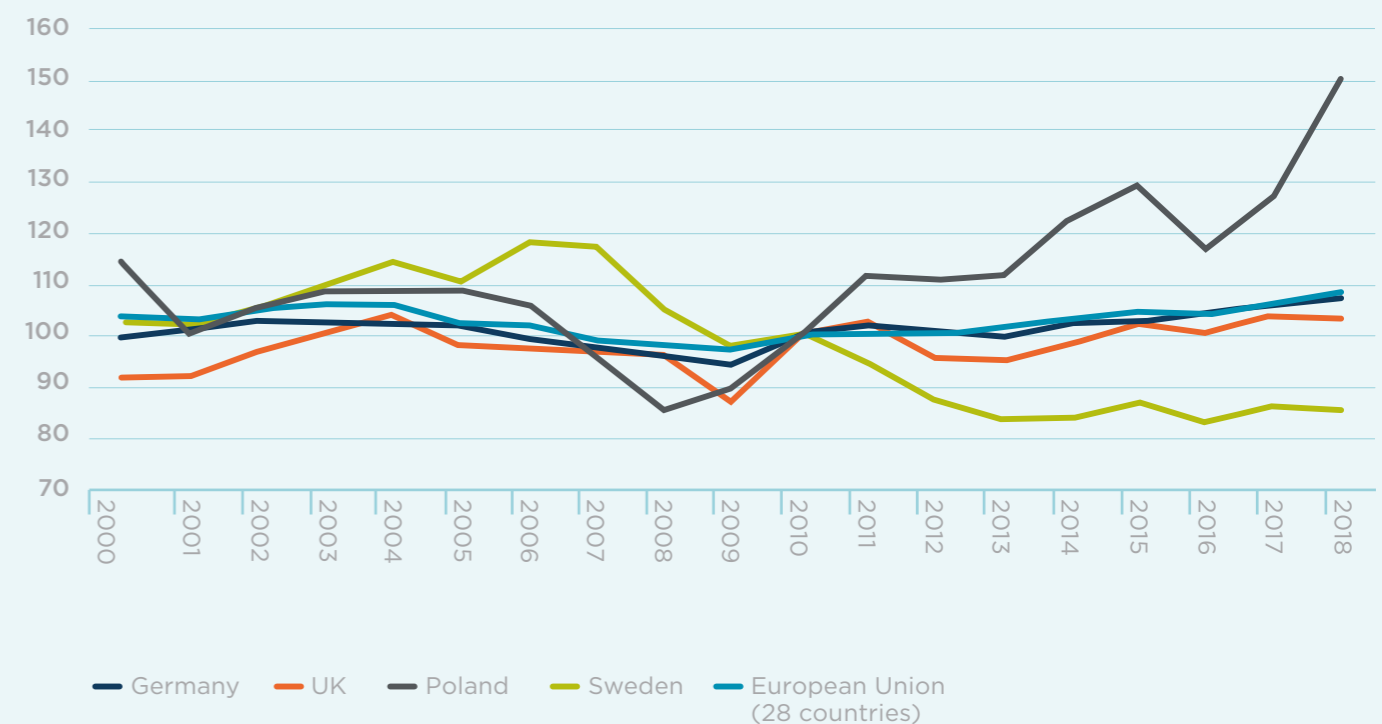
OLD AND NEW PROBLEMS: PRODUCTIVITY AND THE WORKFORCE

Exacerbating existing pressures, the construction industry, along with many others has a long-standing productivity problem. Across most of the western world, labour productivity has been roughly flat for the last two decades.

According to the McKinsey Global Institute Construction Productivity Survey, the fragmented nature of the industry, a lack of scaling, standardising and modularising, together with low adoption of new technologies, are to blame for low productivity in the industry.

Prefabrication, preassembly methods and automation exist, but are not widely utilised. The highly regulated nature of the construction industry is seen by many to be a drain on productivity.

GROSS VALUE ADDED (GVA) PER HOUR WORKED IN CONSTRUCTION (2010=100)



Source: Cushman & Wakefield, Statistisches Bundesamt (Destatis), 2019

Like other labour-intensive industries, the construction industry is losing its appeal versus what are perceived as better paid, safer and more rewarding jobs in services. Consequently, in Germany for example, the number of apprenticeships in crafts has gone down dramatically in the last decade: from 456,000 apprentices in 2009 to 367,000 apprentices in 2018. Worryingly,

the construction sector's traditional reliance on foreign workers is no help, especially in times of Brexit and rising borders. It is estimated that approximately 10% of the workforce in the UK construction industry is comprised of migrants, 7% are EU nationals, equating to 165,000 workers. In London, a whopping 28% of construction workers are EU27 nationals¹.

Technology could help partly offset the negative impact of labour shortage by boosting productivity. According to the McKinsey Global Institute Construction Productivity Survey, technology alone has the potential to increase global productivity in the sector by 15%.

¹According to CoStar data. Limited to assets of £5m and above

NEW REGULATION WILL INCENTIVISE CHANGE



“Lack of staff to support the technology” (38%) and “Budget” (38%), with uncertainty over ROI often putting off “would-be” innovators.

New European regulation will also accelerate change within the sector.

EU member states have until July 30, 2020 to adapt their legislation to the **“Under the Revised Posted Workers Directive”**, designed to close the pay gap between local workers and those coming from lower-cost countries.

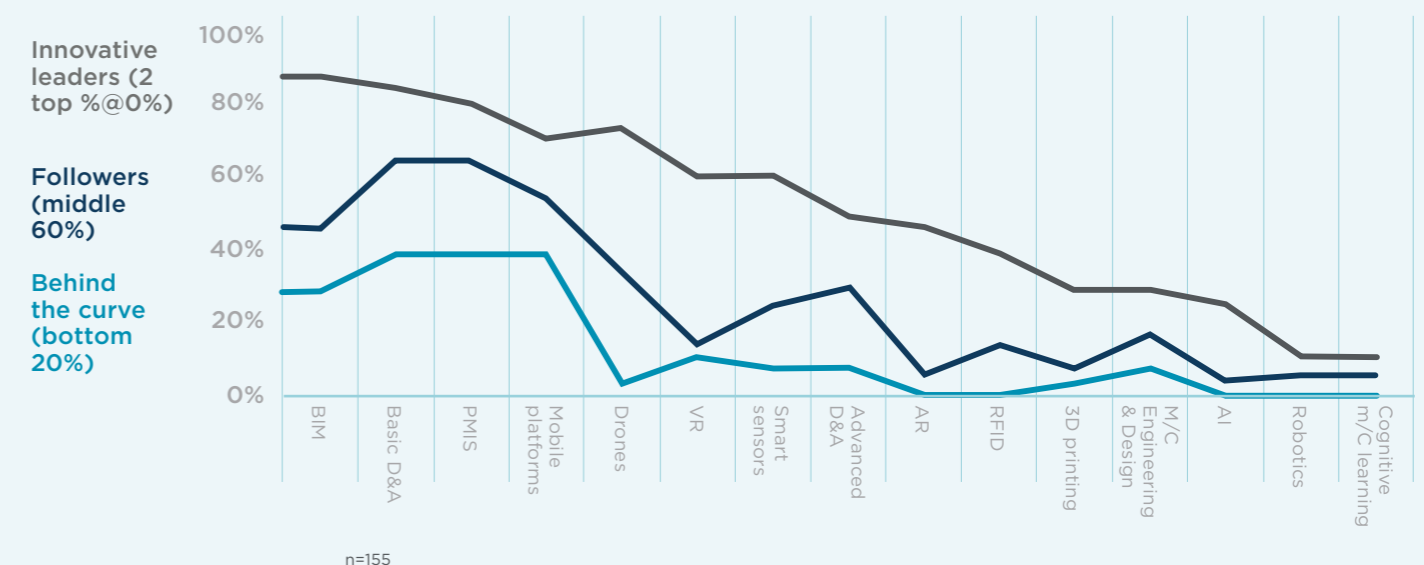
Under the new regulation, posted workers are entitled to the same remuneration as local for the same roles at the same place. According to a study by the European Policy Centre, 42% of posted workers in the EU are in the construction sector. Unfortunately, until a cost effective solution can be found, this directive is likely to further increase building costs.

Now we understand the questions we can look to how technology might provide some of the answers.

As anticipated, the solution to many of the outlined challenges is technology. According to the JBKnowledge Survey 2018, the main reasons for failing to adopt technological solutions are the “Lack of staff to support the technology” (38%) and “Budget” (38%), with uncertainty over ROI often putting off “would-be” innovators. So basically, people and money!

FIGURE 4: INNOVATIVE LEADERS ARE AHEAD IN IMPLEMENTING TECHNOLOGY

Percentage of companies that implemented each technology



Source: Future-Ready Index: Leaders and followers in the engineering & construction industry
Source: Cushman & Wakefield, KPMG

OFF-SITE CONSTRUCTION WILL BECOME MAINSTREAM

CONSTRUCTION WILL FURTHER EMBRACE DIGITAL TECHNOLOGY

In 2020, digitalisation of processes will deliver the greatest productivity gains.

More firms will embrace software solutions, seamlessly integrating the different stages of the production process, from design to scheduling and introducing innovation in materials used, source of documentation, construction performance and contract management.

“Building Information Modelling” (BIM) as discussed at length in [Technology Outlook 2020](#), will become increasingly commonplace and facilitate collaboration across the value chain, as will the appropriate application of the “Internet of Things” (such as wearable devices, radio frequency ID tags, and sensor technology).



Modern Methods of Construction (MMCs) also promise to revolutionise the sector. Modular construction has gone from hype to reality and will gain further momentum in 2020.

Testament to this is the growing number of modular buildings being built, including commercial premises, and the money being pumped by investors into the sector. In the UK, L&G and ilke Homes have two factories in Yorkshire, Berkeley Homes is building a factory in Kent while Goldman Sachs recently invested £75m in a Midlands-based modular construction company.

In Germany, European Modular Construction is planning to build a factory for modular in Erfurt, with completion expected in 2021.

Across EMEA the modular building approach is increasingly used in hotels. The ‘volume’ assembly taking place in lower cost markets; containers with pre-fitted rooms built off-site, imported and assembled in the desired location.

Until now, several factors have prevented this construction method from becoming mainstream: negative perceptions around product quality and lifespan, limited depth of the supply chain, unpredictable nature of planning regimes, logistical issues in carrying large pre-assembled blocks and challenges of building upwards and erecting the assets. However, advances in terms of quality control, reduced environmental impact, the relative lower reliance on labour, and crucially, speed of delivery, will help propel this construction technique forward. In Southern London, for example, Tide Construction and Vision Modular are scheduled to complete what will be the tallest modular residential tower in the world (135 metres) in just 26 months, compared to four years using conventional construction techniques.

INNOVATORS WILL CONTINUE TO EXPERIMENT WITH 3D PRINTING



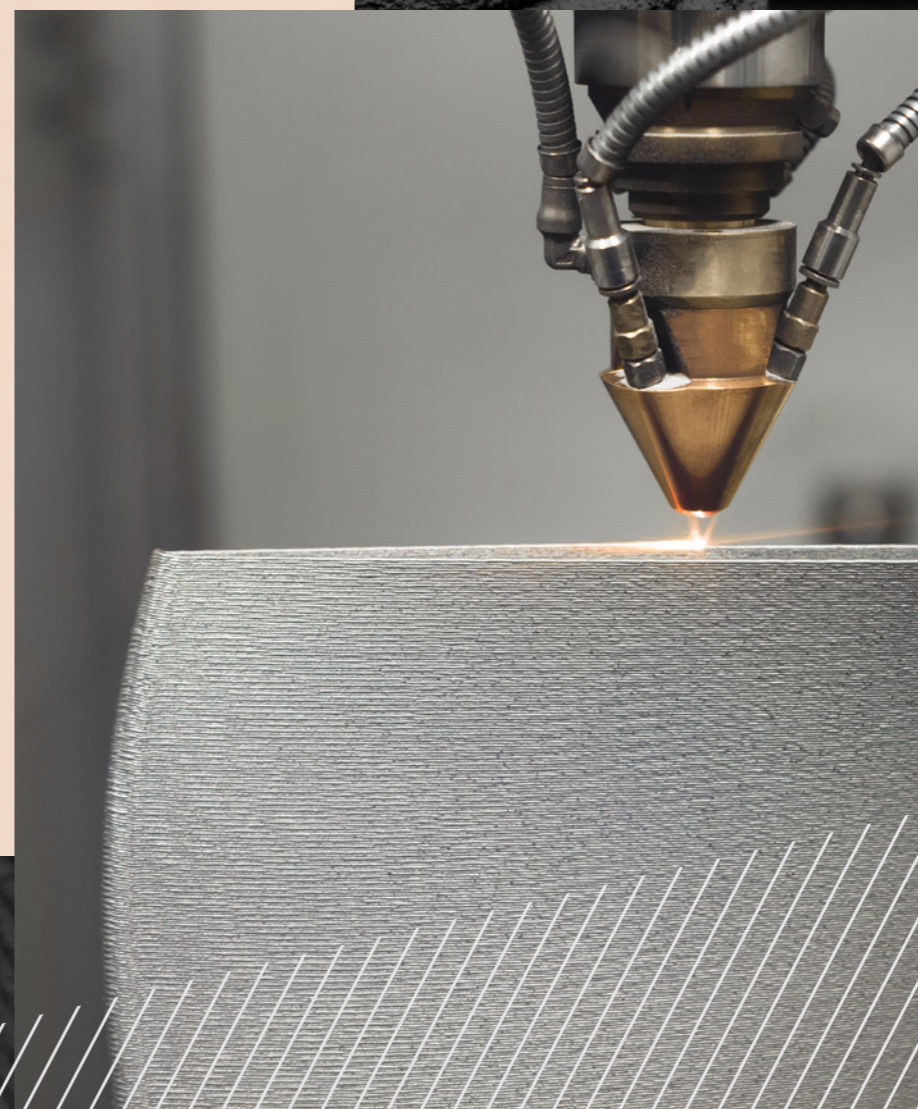
Dubai is becoming a global innovation hub for 3D-printing in construction, with a stated Government aim to have 25% of new buildings printed by 2030.

The construction industry is also looking with interest at ways to leverage 3D printing. A construction 3D-printer essentially consists of a nozzle, attached to either a static or mobile robotic arm, squirting out layers of special cement or similar materials. Dubai is becoming a global innovation hub for 3D-printing in construction, with a stated Government aim to have 25% of new buildings printed by 2030.

Back in 2016, the Emirate, in partnership with WinSun, a 3D-printing Chinese company, claimed to have developed the first functional office building (250 sqm), which reportedly took 17 days to build and costed about \$140,000.

Applications in Europe are still limited but 2020 will see breakthroughs paving the way to more widespread adoption. For example, in the Dutch city of Eindhoven the Van Wijnen group in cooperation with the Eindhoven University of Technology has plans to build the first habitable 3D-printed homes.

WinSun claims that, relative to traditional construction methods, **3D-printing can cut building period by 50 to 70%, labour costs by 50 to 80% and waste by 30 to 60%, while enabling greater design flexibility.** A barrier to greater adoption of this technology is the fact that 3D printing is not a recognised construction method in all countries and remains to be seen if it meets required safety standards. Scaling-up may also prove an issue.



WHAT YOU NEED TO KNOW IN 2020

In 2020 the construction industry will continue to adapt its processes to mitigate the challenges being faced.

We will see a growing number of successful applications of new technology, innovative products and pioneering processes. As new ways of working become more accepted confidence among stakeholders will grow.

Local and national governments have a critical role to play in supporting adoption by reviewing and updating relevant policies. They can also work to increase opportunities for collaboration between different business and sectors of the industry.

Change will be driven by greater acceptance of technological solutions, as well as the redefinition of processes and the adoption, in time, of new ways of working.



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