

**KnowledgePoint**  
Where learning lives

**REINVENT TO REBOUND**

---

# Rebuilding the post-COVID construction sector



# Summary

In January 2020, with coronavirus declared a public health emergency of international concern, measures were taken around the world to protect lives. Stay-at-home mandates were issued and social distancing soon became the norm as people and businesses scrambled to protect lives and livelihoods.

For the construction industry, sites closed and the sector had to completely overhaul operations to allow critical projects to continue. From material shortages and implementing new safety measures on-site, to remote working and labour challenges, construction had to adapt to the new COVID-19 environment – and fast.

Engineering and architectural firms and their employees had to shift to an entirely work-from-home environment. For some, the required infrastructure for this transition was already in place and readily available, giving employees the ability to remain productive as they settled into their new routines at home. However, many were not so lucky. Some firms had to start building what they needed to get their employees working again.

Fast forward to 2022, and the hard-hit construction sector is showing signs of recovery. Research suggests that, by the end of 2022, 75 per cent of construction markets will have reached or exceeded their pre-COVID-19 pandemic construction industry value, with this proportion set to rise to 84 per cent in 2023<sup>1</sup>.

**The sector is showing signs of something else too – reinvention.**

Some of the key trends to emerge include improving supply chain resilience and diversification, an increased push for net zero carbon, a shift towards hybrid work patterns, and a growing use of digital and innovation in construction projects. The sector has also acknowledged that action is needed to address the skills it needs now and for the future.

# Three trends

## 1. Digital embraced

Construction practitioners suggested that the adoption of technology by the industry could serve as a silver lining for the pandemic<sup>2</sup>. McKinsey predicted further investments in technology or digitisation and innovation of building systems. There was more of a case for digital tools proven to increase productivity, such as 4D simulation, digital workflow management, real-time progress tracking, and advanced schedule optimisation<sup>3</sup>.

“The mandate for change and technological adoption in construction has never been stronger, and financial and strategic investors continue to fuel a rapid expansion of the construction technology industry. The COVID-19 pandemic has only served to provide additional urgency to the pre-existing productivity and data-visibility issues facing construction companies.”<sup>4</sup>

Organisations emerging successfully from the pandemic have embraced digital. Their emerging and embedded digital capabilities have allowed teams to be productive and deliver business-critical actions, wherever they are. They’ve challenged the conventional wisdom that teams need to be in specific locations, and that interacting face-to-face is the only way to deliver value and efficiency. Technology has enabled processes and speeds interactions between contractor, client and other parties in the AEC (Architecture, Engineering & Construction) ecosystem.

The impact of the pandemic on the Kingdom’s AEC sector was particularly severe for about 18 months as several projects were suspended, and developments curtailed. A number of notable developments including NEOM City and the Red Sea Development are now progressing at pace.

The AEC sector is accelerating considerably. It is important that this potential isn’t curtailed by a lack of the necessary digital skills in organisations in the AEC sector.

**Basheer Mustafa, Engineering Science Institute (Esi), Saudi Arabia**

## 2. BIM adoption

Over the past decade, Business Information Modelling (BIM) has slowly been gaining traction in the construction industry. Some governments are now making BIM mandatory for projects, defining targets for adoption. The United States adopted BIM as a requirement since 2008. It is mandatory in Dubai for projects over 20 storeys or larger than 200,000 feet and specialised buildings such as hospitals, education buildings, and government projects<sup>5</sup>.

A report by the European Commission (EC) on the importance of adopting BIM suggests that full-scale digitalisation would lead to an annual global cost savings of €0.6 trillion to €1.0 trillion in the engineering and construction phases, and €0.3 trillion to €0.4 trillion in the operations phase of non-residential construction alone<sup>6</sup>.

BIM serves as a focus for integrated design, modelling, planning, and collaboration, providing all stakeholders with a digital representation of a building's characteristics in its whole lifecycle. By enabling transparent and seamless flow of information between all stakeholders, BIM facilitates their collaboration throughout the different project phases. This translates into efficiency gains, lower costs, faster delivery with fewer inaccuracies and delays.

There are signs that the pandemic has prompted AEC professionals to increasingly adopt BIM. When representatives from sector were asked about usage of BIM, 60 per cent said that prior to the pandemic they didn't use it all or rarely used it. When asked about use in the future, the majority of the same group (80 per cent) said they're likely to use it often or all the time<sup>7</sup>.



Companies tell us our training speciality in BIM converts their business from the regular way to BIM which makes them save money, time and resources. Implementing BIM allows them to take on more projects and expand their market share.

In addition, training has allowed many trainees to rise their positions in their companies or to join new companies with better positions.

**Taher Mohammad, General Manager from CAD Masters, Autodesk Authorized Training Center, Middle East**

# 3. Rethinking skills

The AEC sector faced a lack of skilled labour before the crisis. The gap between what companies needed to grow and the skills available was widening, and most countries were not set up with the skills infrastructure to react.

The labour-intensive nature of the AEC industry made it vulnerable to the COVID-19 pandemic, and the knowledge, attitudes, and practices (KPA) of the stakeholders play a vital role in controlling the impacts of this pandemic<sup>9</sup>.

But the pandemic has proven there is no better time to upskill the entire workforce and invest in training on new tools and technologies (such as BIM) and operating procedures. Reinforcing the need to adapt, when asked

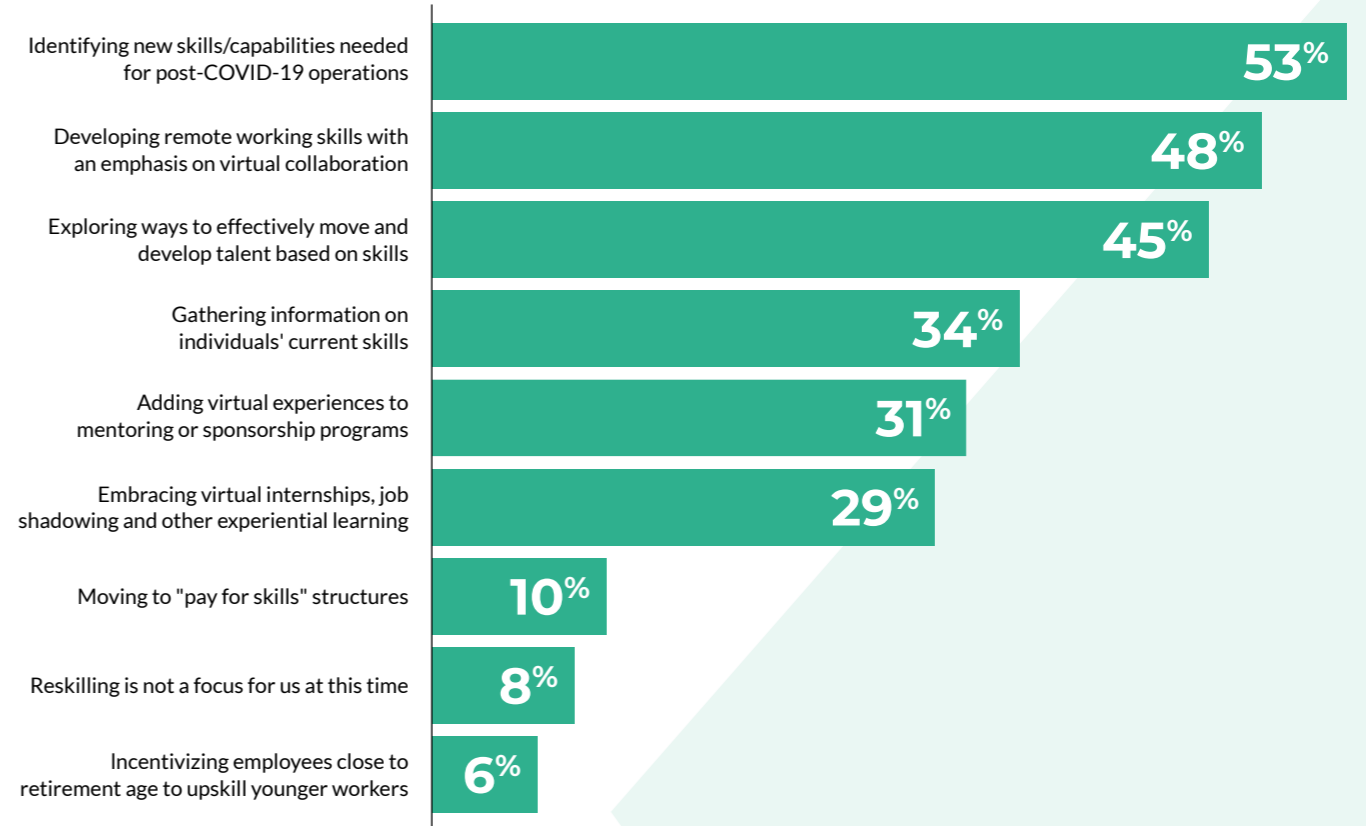
HR leaders said they were focused on identifying the new skills and capabilities needed for post-COVID operations, and developing remote working skills with an emphasis on virtual collaboration<sup>9</sup>.

As the industry creates more digitally oriented roles, companies are seeking data engineers, data scientists, coders, and developers. Companies are investing in employees to develop the skills needed to perform the job and gain knowledge of digital technologies such as BIM, digital twins, smart project management, and connected construction.

The sector has woken up to the fact that workers need access to training that provides in-demand skills.

The most effective strategies incorporate work-based learning models; programs developed through partnerships between employers and educational institutions that pair classroom learning with on-the-job learning.

## How do HR leaders plan to accelerate skill development in 2021?<sup>9</sup>



One example is the D-CLIC program in Tunisia involving Autodesk Learning Partner, NET-INFO. The D-CLIC "train yourself in the digital" program, organised in collaboration with the International Organization of Francophonie (OIF), aims to strengthen the technical and professional digital skills of Tunisian young people. As part of the program, NET-INFO designed and delivered training sessions to help AEC graduates gain BIM skills.

Samia Chelbi from NET-INFO says: **"Tunisia has experienced high unemployment over the past years, particularly among graduates. There are a number of reasons for this including a mismatch between what employers need and the skills of Tunisian job seekers, particularly technical and digital skills."**

**"This program is a response to gaps in the AEC labour market, and supports the development of digital skills to improve employability. We're seeing more and more companies looking to adopt BIM in construction projects. Our work with OIF supports these efforts."**

NET-INFO engaged about 140 students across 14 educational institutions in Tunis and Nabeul. Six-hundred training hours were delivered in total, helping participants to apply the use of Autodesk solutions in real-life scenarios. The BIM training was designed for young people between the ages of 20 and 40 with degrees in architecture, civil engineering, electrical engineering and mechanical and energy engineering.

Participants were overwhelmingly positive about the benefits: **"This training is the link between the theoretical that we learnt from our studies and the professional world."**

The program has proven to reap rewards with two-thirds of participants securing hiring opportunities within the AEC sector.

# What next?

This report outlines some of the trends associated with the reinvention and resurgence of the construction sector as it rebounds after the global pandemic.

Digitally-enabled processes and remote working have been proven to work across the AEC ecosystem. The adoption of BIM is only going to grow, as more and more nations mandate its use, and more organisations realise its benefits. AEC players across the world need to get ahead of the game, supporting the adoption of new working practices and investing time in developing BIM skills today.

Academia, industry and training providers play a part in making these ambitions a reality. Together they will build resilience, capacity and capability.

For further information about KnowledgePoint and our role as the Autodesk Learning Partner Distributor for the EMEAR territory, or to find out about training local to you, visit:

**[knowledgepoint.com/autodesk](https://knowledgepoint.com/autodesk)**



## References

1. Three Key Charts: Growth Normalising for Global Construction Post-COVID-19 Pandemic, Fitch Solutions, March 2022
2. Rubin, D et al. A Resilient Workforce Triumphs through a Tough 2020, ENR, February 2021
3. How construction can emerge stronger after coronavirus, McKinsey, May 2020
4. Rise of the platform era: The next chapter in construction technology, McKinsey, October 2020
5. CMS, Retrieved May 2022
6. Building Information Modelling in the EU construction sector, European Construction Sector Observatory, March 2019
7. KnowledgePoint AEC sector research, July 2022
8. Zheng, L et al. Knowledge, Attitudes, and Practices towards COVID-19 Among Construction Industry Practitioners in China. *Frontiers in Public Health*, 2020
9. Win with empathy: Global Talent Trends 2020-2021, Mercer, 2021