



From 3D intelligence to AI, to supply chain management, and jobsite logistics, tomorrow's construction leader needs to be equipped with these skills – and more – to thrive in the industry (c) Nemetschek Group

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## What Are the Next-Generation Construction Skills?

*Matt Wheelis, SVP of Strategy of the Build & Construct Division of the Nemetschek Group takes a look to which skill the next generation of construction industry leaders need to have.*

From 3D intelligence to AI, to supply chain management, and jobsite logistics, tomorrow's construction leader needs to be equipped with these skills – and more – to thrive in the industry.

The building sector offers a large amount of untapped potential in many aspects. Digitalization, sustainability, and efficiency have been the biggest topics for the industry over the last few years and will continue to be going forward. To prepare for these shifts in our industry, it is crucial to equip both leaders and individuals with the right toolset. Digitalization is a key tool, but it requires a mindset shift in the industry – and the younger generation is one of the main drivers for this shift.

## **The Philosophy of Digitalization**

The good news is that – as everyone has experienced in the last few years through remote teamwork and video conferences – the pandemic has accelerated the adoption of digitalization. Our industry was no exception, with research estimating that the pandemic brought digitalization forward by about 3 years. Companies across the AEC/O industry quickly discovered the benefits of digital solutions.

But what if we were to dig deeper – looking not only into how companies can digitalize - but also into the skillset that is required to be successful in an industry that is confronted with budget and time overruns, high carbon emissions, and volatile prices for building materials. This raises the question of what construction skills are relevant for the future. What classes are today's students overlooking or what skills are not being taught that will be needed in the industry in the decades ahead? What does the jobsite of the future look like? And what are the essential skills that will hoist the next generation to the top of the pile in the future?

## **3D Intelligence**

The first next-generation skill that comes to mind is virtual 3D intelligence – the ability to imagine and understand concepts through digital models. A generation ago, to prepare for a life in construction, employees learned how to read blueprints: how to interpret the points, lines, and arcs on a set of plans and use that understanding to execute the construction project. Tomorrow, fluency in operating within a 3D virtual world will be critical, not only to those creating and coordinating the models, but also for those in the site office and field executing the work.

## **Computer Programming and Integrated Solutions**

Just as the previous generation benefitted from fluency with spreadsheets and database-oriented software, tomorrow's construction professionals will need to be fluent in the concepts of artificial intelligence (AI) and machine

learning. It's much likely that artificial intelligence will be used to complement human ingenuity, not replace it. Think of AI as the type of technology that automates and streamlines repetitive, mundane tasks so construction workers can spend more time on complex, high-impact work. Those who understand how to harness AI concepts for business process automation and decision support will be able to spend more time building and less time gathering and interpreting data.

## **Supply Chain Management**

Another skill essential for the future construction professional will be understanding and effective management of supply chains. The movement of construction materials is incredibly complex. Every project arguably has a unique supply chain to source labor, equipment, and building materials.

But, as the COVID-19 pandemic showed, supply chains can become vulnerable when they break down, adding to the risks of a construction project. As a result, construction leaders have aimed to make industry supply chains more akin to manufacturing, where materials and even parts of structures are assembled in a factory before being transported to a jobsite for final placement.

Understanding how supply chains are evolving, and their manufacturing-like components, will be crucial for the next generation of construction workers.

## **Jobsite Logistics**

The last skill that will be essential for the construction professional of tomorrow is logistics. Just as industry supply chains have recently become more complex, so too have the logistics that make a jobsite productive and a project ultimately successful for its owners and investors.

Managing on-site logistics is a skill that is already – and will continue to be – paramount to the future success of the industry. Not properly managing site logistics can lead to a tremendous number of problems, including construction waste and other risks that can affect the timeline and, ultimately, bottom line of a project.

Moreover, nascent technologies, like virtual and augmented reality and other metaverse-like environments, have already begun to show promise in pre-construction jobsite logistics, adding yet another skill for future construction

leaders to learn to be successful.

## **Future Forward**

Of course, none of these skills are a substitute for a thorough and fundamental understanding of how things get built and the physical properties of materials. In addition to learning these likely cutting-edge skills, it is important to encourage all future builders to get hands-on building experience – for example, by volunteering in an organization of choice within the construction industry.

One thing is for sure: the construction industry is going to be far more digital and integrated with technology than it is today – and the speed of innovation is only going to increase over time.

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## **About the Nemetschek Group**

The Nemetschek Group is a globally leading software provider for digital transformation in the AEC/O and media industries. Its intelligent software solutions cover the entire lifecycle of building and infrastructure projects and enable creatives to optimize their workflows. Customers can design, build, and manage buildings and infrastructures more efficiently and sustainably and develop digital content such as visualizations, films and computer games more creatively. The software provider is driving innovations such as digital twins as well as open standards (OPEN BIM), and sustainability in the AEC/O industry, constantly expanding its portfolio by also investing in deep-tech startups. Currently more than seven million users worldwide are shaping the world with the customer-focused solutions of our four divisions. Founded by Prof. Georg Nemetschek in 1963, the Nemetschek Group today employs around 3,600 experts globally.

Publicly listed since 1999 and quoted on the MDAX and TecDAX, the company generated revenues amounting to EUR 801.8 million and an EBITDA of EUR 257.0 million in 2022.

## Contacts



**Maria Richtsfeld**

Press Contact

Communication Specialist

[mrichtsfeld@nemetschek.com](mailto:mrichtsfeld@nemetschek.com)

+49/173 1603709