

DIGITALISATION – PART 3

Digital transformations

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This is the third article in the series of six, detailing the advantages of digitalisation for the built environment and why companies must engage in the process to secure sustainable growth and success.

This final piece in Part 1 of the series, “The Tools”, builds on the previous digitalisation and BIM articles*. Digital Transformations will detail the pathway that companies must define, detail and develop for their own particular needs.

If industry is to develop and leverage its digital skills for energy efficient construction, and increase its competitiveness, it will be driven via the skills of the workforce. Upskilling must be demand-driven, demand both from the industry perspective and from the workers in the industry. It is this “meeting of demands” that will lead to success in meeting the needs of industry, society and the environment.

Introduction

Digital transformation is a topical subject for all of industry and is seen as a key organisational strategy to support sustainable growth, especially in industries such as construction which is seen as a technology laggard. BIM is recognised as one of the main digital tools that are critical enablers that can embed digital processes within organisations. Specifically, the

information management processes within BIM help companies in transforming traditional information processes and turning the information into data that is easier handled, used and analysed.

Digitalisation or digital transformation is the process of integrating digital technology into all facets of business operations. For the construction sector that means implementing digital tools and technology to capture data at every step in the construction process, and “translating” this data to make informed decisions delivering a more efficient, productive and safer built environment.

Disruption

Our world has fundamentally changed, especially from a business perspective. In reality, all businesses must fundamentally change if they are to survive and prosper. The construction sector has simply survived over the years by evolving. However, in today’s world this is no longer sufficient.

Challenges

Europe faces many challenges in the decade of the 2020s, especially reducing CO2 emissions. In order to tackle the climate crisis we must address the issues at root level by developing a skilled workforce, equipped with the tools to meet the challenge head on.

This challenge provides the built environment with an opportunity to both transform and increase its competitiveness. If the built environment is to deliver sustainable construction with a zero-carbon footprint it must transform its business practices, supply chains and operations. This can be achieved via a digitally-equipped workforce.

The green economy is an instrumental part of sustainable development and Covid economic recovery plans across the globe. The mainstay of the green economy is to deliver a better-skilled workforce and to reduce labour market shortages by increasing participation in training. This, in turn, will result in increased incomes for individuals, increased competitiveness for the construction sector due to a better skilled workforce, and the capability to deliver a greener built environment.

Transformation

Digital transformation in the construction industry has been slow to date. This failure to adopt digital technology is perhaps based in the sector’s systemic resistance to change and hesitancy to innovate. The construction sector is still a “traditional” industry with many construction projects still paper-based, creating a disconnect between the site and office.

In order to overcome the barriers to achieving digital transformation, construction professionals across the entire spectrum need to align on process and technology tools, and to learn new technical skills. By embracing the digital transformation construction companies can become more agile, streamlined, communicate easier internally and with their subcontractors, collaborate more widely, reduce construction time, improve efficiencies and become more competitive.

By engaging in digitalisation and

transforming from paper to online, real-time sharing of information, the industry will ensure transparency and collaboration, timely progress and risk assessment, quality control and, eventually, better and more reliable outcomes.

Construction companies must empower their staff so they can design a Digital Transformation Roadmap for their operation, stimulating demand for sustainable energy skills. This roadmap or framework will enable BIM to be utilised as a tool to aid in the development of company-specific digital transformation processes. It will result in a digital workforce staffed with people who are digitally aware and enabled to use the digital tools such as BIM as an everyday part of their work, building a culture within the construction sector that is digital-ready.

Digitalisation

Transforming the EU construction sector to be greener, consume less energy and reduce the carbon footprint of the sector will be driven

as much by the growing market for digitalisation and data, as by legislated carbon reduction targets.

BIM as an enabler

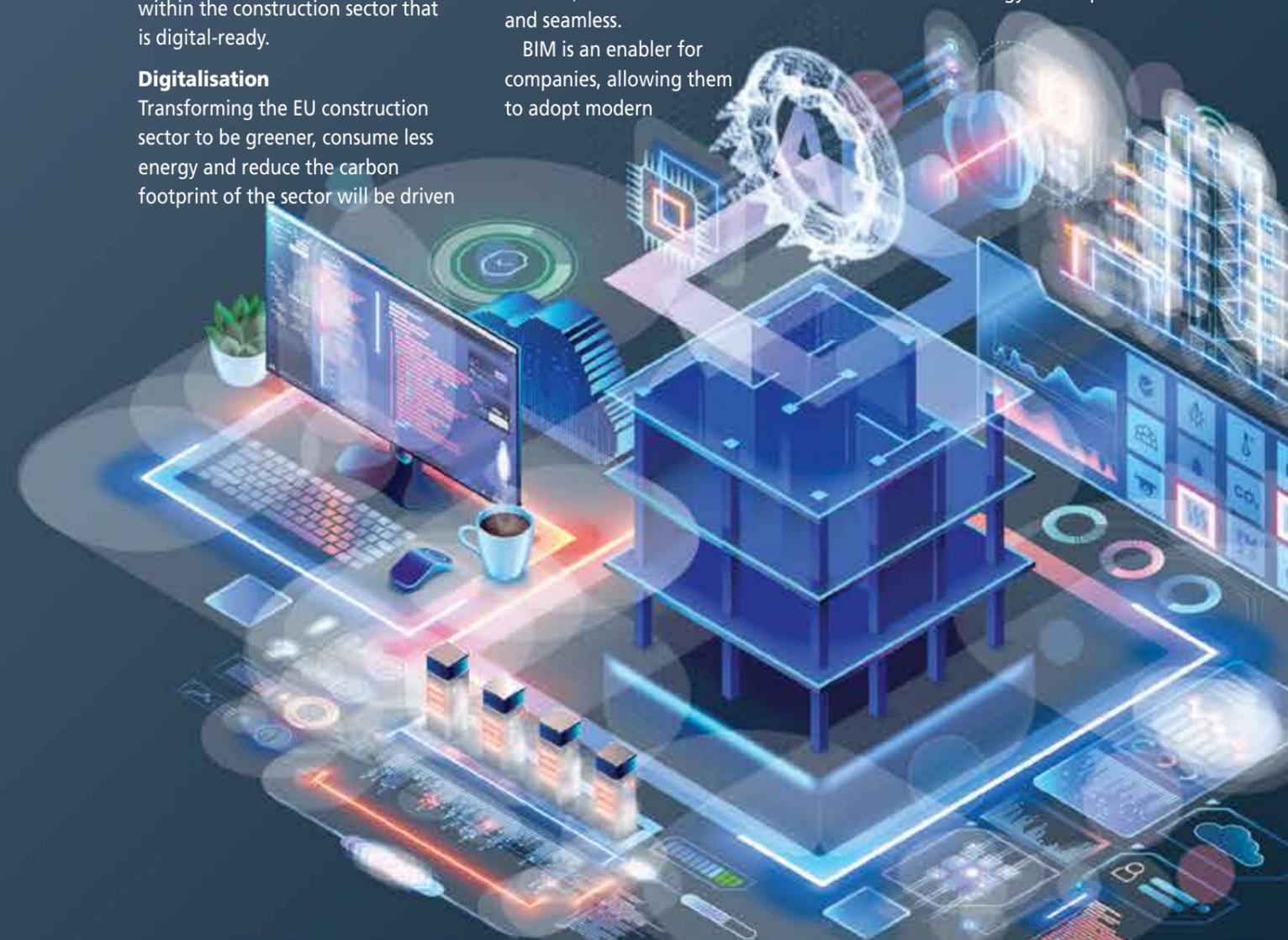
The construction industry’s digital journey covers many digital components including apps, AI, IoT and other bespoke software. These digital tools are all part of the digital toolbox and are becoming increasingly important as the industry transforms. With international collaboration, industry partnerships, larger international projects, and complex processes, the complexity of projects and tasks are made easier with the aid of technology – a common language all can share. With digital solutions, risks are being avoided and mitigated and, what were once arduous programmes of work, are now far more efficient and seamless.

BIM is an enabler for companies, allowing them to adopt modern

technologies. It is a critical tool that will keep them innovative, competitive and agile. BIM is the technology that is making the most transformative difference in the industry and is the first common language that the industry can collaborate and co-ordinate with, creating a shared data platform, essential to informing the decision-making process across the entire construction value chain

Decarbonising construction

Governments, particularly in the EU, are increasing their CO2 and energy efficiency regulations and raising their targets, following the EU strategies and policies for decarbonisation of the construction sector and approaching NZEBs. Digitalisation – going hand-in-hand with energy skills – provides



a great opportunity to reduce the environmental impact of construction projects.

The construction sector is increasingly struggling with how to gather data in a co-ordinated fashion across the entire supply chain. It has the information but it is “hidden” in paper copy. The sector must digitalise this data in order to use it in a proactive analysis to reduce costs, increase competitiveness, shorten build times and plan, develop and deliver sustainable energy construction. By utilising BIM to gather data, the sector can then organise, store and extract value from the data. This will lead to greener construction and enable net zero carbon footprints in construction. BIM is a repository of energy information of buildings, accessible and usable by all stakeholders in a systemic and coordinated environment.

Training

Educating and training the construction workforce in digital skills will stimulate demand from within and help develop and implement a digital transformation skills roadmap for companies. Both public and private owners would be involved in the definition of the roadmaps as they are the pullers of the innovation. This education process will stimulate demand by enabling participants to share and amplify content online, allowing them to collaborate digitally and to become impulsive about their sustainable energy skills.

How to truly get digital

The first European call for BUILD UP Skills (BUS) proposals took place in 2011 when the digitalisation of the building process, and the implication for the supply chain of the building sector, was not yet “known” in most European countries. The first European directive to name the digitalisation of the building sector, in fact, was the Directive 2014/24/EU on Public Procurement. BIM is the first truly



BIM is a critical tool and the enabler to allow companies adopt to modern technologies and remain innovative, competitive and agile.

global digital construction technology and it is being deployed in every country in the world. It is vital that all the construction sector, especially SMEs, participate fully in this digital transition. Digital tools such as BIM play a central role within the digital transformation of the building sector and must be integrated into company primary processes for it to be sustainable and deliver benefit.

Digitalisation projects such as BIMcert and ARISE are steps in place to support and empower the construction sector to begin and sustain its digital transformation journey. They are specifically designed to stimulate and inspire the demand for sustainable energy skills from industry and individuals by redesigning the skills exchange, providing clear upskilling transactions and recognition of upskilling performed.

ARISE will deliver a “portable” skills mechanism that provides the learner with flexibility of access and vocational mobility, while also enabling industry to “capture” the expertise within the workforce to deliver efficiency, effectiveness and environmental advancement in the sector. The ARISE digital Individual Learning Account (ILA) will pave the way for the transition from paper-based to digital credentials in the European skills area, developing and delivering digital credentialing solutions, using Blockchain technology for verifiable transactions.

Conclusion

It is recognised that the construction sector has traditionally been slow to adopt change, but this has improved in recent years. Construction companies are now responding to the external

environment and recognising that digital transformation is key for the sector to grow, develop and innovate. Key decision-makers are realising that technological change and adaptation is inevitable. We are witnessing more and more companies embracing digital transformation, streamlining business operations, coordinating their staff resources and significantly reducing energy consumption across the entire build cycle.

However, digital transformation is not a quick-fix but a continual, incremental, ever-evolving process delivering sustained change and benefit. Construction organisations have to recognise the many benefits, understand what digital transformation actually is, develop their own digital transformation roadmaps, and secure commercial benefit and growth from it.

That said, there is no “one-size-fits-all” approach and there are different solutions for different business needs across the construction supply chain. Also, given the variety of technologies and the number of vendors to choose from, knowing where to start can be a real challenge. So, start by looking internally, develop the skills within your team and map out your own transformation route.

Digital transformation is now recognised as a smart investment that is delivering commercial, environmental and social returns for the industry. It is the dawn of a new era for the construction sector. ■

***Part 2: Pathway – navigation**, will comprise a further three articles on:

- The need for upskilling within the industry;
- The benefits of a digitally-informed and empowered workforce;
- Stimulating the demand for skills.