Digitalisation in the built environment

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As we all recognise, the COVID pandemic has accelerated digitalisation in the workplace and the operational/implementation "gap" within the construction sector is widening. The objective now is to address this gap to inform and enable a new "division" of labour to stimulate demand for energy efficiency skills.

The construction sector has always operated in a remote-work environment. Our digital transformation skills, and especially BIM, are specific remote-working tools that allow the workforce to thrive. Designed to provide the right digital infrastructure and deliver the energy efficiency skills needed for green construction, BIM uses technology to decentralise and redistribute worker tasks, enabling and equipping workers with the skills to achieve energy efficient construction.

Irrespective of the restrictions imposed by the current Covid pandemic, workers in the construction sector have always had to possess an on-site capacity and remain operational and productive. This challenge is now reflected across many other sectors and there is an opportunity to share experiences and collaborate, especially in skills and training access. The pandemic has shone a light on the challenges that the construction sector has faced for many years, namely, how to meet the demands of an increasingly-digitalised world and how to embrace the challenges and opportunities of a remote workforce.

Digital leverage

- Nearly 90% of global business leaders recognise the critical importance of adopting intelligent automation;
- 70% of construction companies believe that those who do not adopt digital tools will go out of business.

The challenge is to mobilise the skills exchange within the workforce in the built environment to address digital transition and empower the sector. Key objectives are:

(1) To transition to this "digital workforce";
(2) To optimise the opportunities presenting themselves;
(3) To deploy the digital workforce at scale;
(4) To overcome "digital dissonance".

It's time to challenge conventional thinking on the future of education in terms of digital transformation and organisational change and to transform content, delivery and recognition to meet industry needs. Some institutions "get" social media, there's a holistic approach to digital engagement that spans the entire organisation.

For institutions and industry without intentional and authentic digital leadership, the learning experience is scattered and lacks direction.

Key hurdles for the construction sector to overcome include:

- How can industry truly get digital and provide an organisational push for ongoing digital transformation;
- How can you use social media to enhance the student experience and encourage industry digital champions?

Digitalisation can be disorientating. Standard contexts and work processes that we are all used to are changing – technologists call this "context collapse". However, on the other hand, digitalisation is recognised by those who are implementing it as a powerful enabler to enhance the effect of their work and as an enrichment of their professional skills. Social interactions and our workplaces are changing and will change further. This is also the fact for upskilling interventions. Due to digitalisation, learning will become easier to access, digest and utilise.

Environmental leverage

Buildings account for 17.7%[1] of global greenhouse gas emissions:

- Residential 10.9%;
- Commercial 6.6%.

This equates to 8.74billion tonnes of CO_2 equivalents (CO_2e).

In order to tackle these challenges we must equip the workforce with the necessary skills to enhance low-carbon construction. Governments, particularly in the EU, are increasing their CO_2 reduction and energy efficiency regulations and raising the bar. EU strategies and policies for decarbonisation of the construction sector and approaching NZEB are being established.

Digitalisation empowerment of the workforce goes hand in hand with energy skills and provides a great opportunity to reduce the environmental impact of construction projects. This approach makes the energy skills of the construction workforce more effective, easier to improve, and provides confirmable effects in rational and smart use of materials and energy. "Together with renewables, energy efficiency is one of the mainstays of global efforts to reach energy and climate goals. While our recent analysis shows encouraging momentum for renewables, I'm very concerned that improvements in global energy efficiency are now at their slowest rate in a decade," says Dr Fatih Birol, the IEA Executive Director.

Skills leverage

Most of the issues related to a low demand for a skilled workforce are due to the unavailability of widely-recognised and accepted international schemes of certified qualifications for sustainable construction and sustainable energy skills. Other barriers include a lack of awareness and uptake by the industry of new methods and digitalisation, and the lack of mandate or incentive by public authorities for the use of such skills.

Educating the workforce in digital skills will stimulate demand by developing and implementing a digital transformation skills roadmap for the construction sector. Both public and private owners need to be involved in the definition of the roadmap as they are the drivers of the innovation.

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This education process will stimulate demand by enabling participants to share and amplify content online. It will also allow them collaborate digitally and become impulsive about their sustainable energy skills.

The formerly called "bricks and mortar" industry has entered the digital age. The digital push is accelerating and, even if construction industry players are still confused and hesitant about the change and new technologies, the time has come for them to develop their digital skills in order to achieve and make their sustainable energy skills more effective.

Society is in transition, leaving behind the old energy ineffective, material-wasting and not always healthy built environment. We're moving towards an energy efficient, healthy and sustainable built environment. At the same time, digital technology is transforming our lives at an accelerating pace.

Conclusion

Digital transformation isn't new, but the construction sector as a whole has been hesitant to accept the digitalisation process. In order to stimulate demand for sustainable energy skills in the sector we must work across the entire construction supply chain. We must embrace the digital transformation process, together with sustainable energy skills.

Companies must empower their staff, enable them to design a digital transformation roadmap for their sector, and stimulate demand for sustainable energy skills. This roadmap will result in a digital workforce and create a culture within the construction sector that is digital ready. ■

References

1. Source: Climate Watch and the World Resources Institute 2016 when total emissions reached 49.4 billion tonnes of CO_2 equivalents (CO_2e)