



Module 2

EU & National Drive

Digitalisation in Construction



24
partners

12
countries

Date of Event

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To equip the learner with the relevant knowledge and skills required to list and describe the key policy and legislative drivers for digitalisation relevant to construction and workers.





1. Identify and outline the **key terms and definitions** associated with digitalisation.
2. Outline the key **principles and drivers** for digitalisation (including smart cities, smart economy) related to construction
3. List and outline how digitalisation can support the agenda for climate change and support energy efficient **sustainable construction at EU level**.
4. List and outline how digitalisation can support the agenda for climate change and support energy efficient **sustainable construction at National level**.
5. Understand how to keep up-to-date with changes and amendments to **digital policies** and initiatives at European and National levels relevant to construction.





Topic 1 – EU Digitalisation Policies

Topic 2 – National Digitalisation



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1. EU Digitalisation Policies



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Understanding the digital trend



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- The construction and real-estate property sector is "digitising" (it may not feel like it sometimes, but that is the trend, like so many other sectors).
- There is a big drive for "digitisation" from the European Commission.



Image source: moderndiplomacy.eu



Image source: coe.int



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Why?

- Because in the global economic market, EU is not competitive on "labour", and so the **"labour" in EU must learn to become more productive, in order to remain competitive.**
- "Productivity" means "doing more for less", working smarter, not harder. And **digitisation, helps people to work smarter.**
- And like every economic sector, the digital transition of construction will happen, because we have to produce more buildings and infrastructure, for growing, ageing, and urbanising populations, for less (less money, less time, less environmental impact, less safety risk etc).
- **Build Better. Quicker. Cheaper, Safer, Greener.**



- "Digital" means we can work remotely, across geographies etc. **Super Agile, Resilient & Efficient.**
- Also, digitisation supports the **Green agenda for climate change (construction contributes 40% CO2 emissions)** by providing affordable, clean technology solutions and by developing new business models.
- The World Economic Forum are also pushing the "digitisation" agenda (see video in next slide).





<https://www.youtube.com/watch?v=sgPD6lZn904>



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What is Digital Construction?



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Digital Construction uses **digital technologies** to enact a change, usually **to improve, a process, method and/or business model to provide benefits**, enhanced efficiencies, potentiate new revenue or other gains, and value-producing opportunities. It's the process of moving towards a digital methodology/business.



Image source: Hilti Group



Image source: VisiLean

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What is Digital Construction?



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- The Digital Construction goal is to **improve the delivery, operation and renewal of the built environment by improving methods and process with the use of digital tools and processes.**
- By supporting the construction industry to work in a **safer, more efficient and more collaborative way**, it ensures a better outcome at every stage of a built assets lifecycle, as well as better performance and more business opportunities for organisations.



Image source: Planning, BIM & Construction Today



Image source: PERI Ireland



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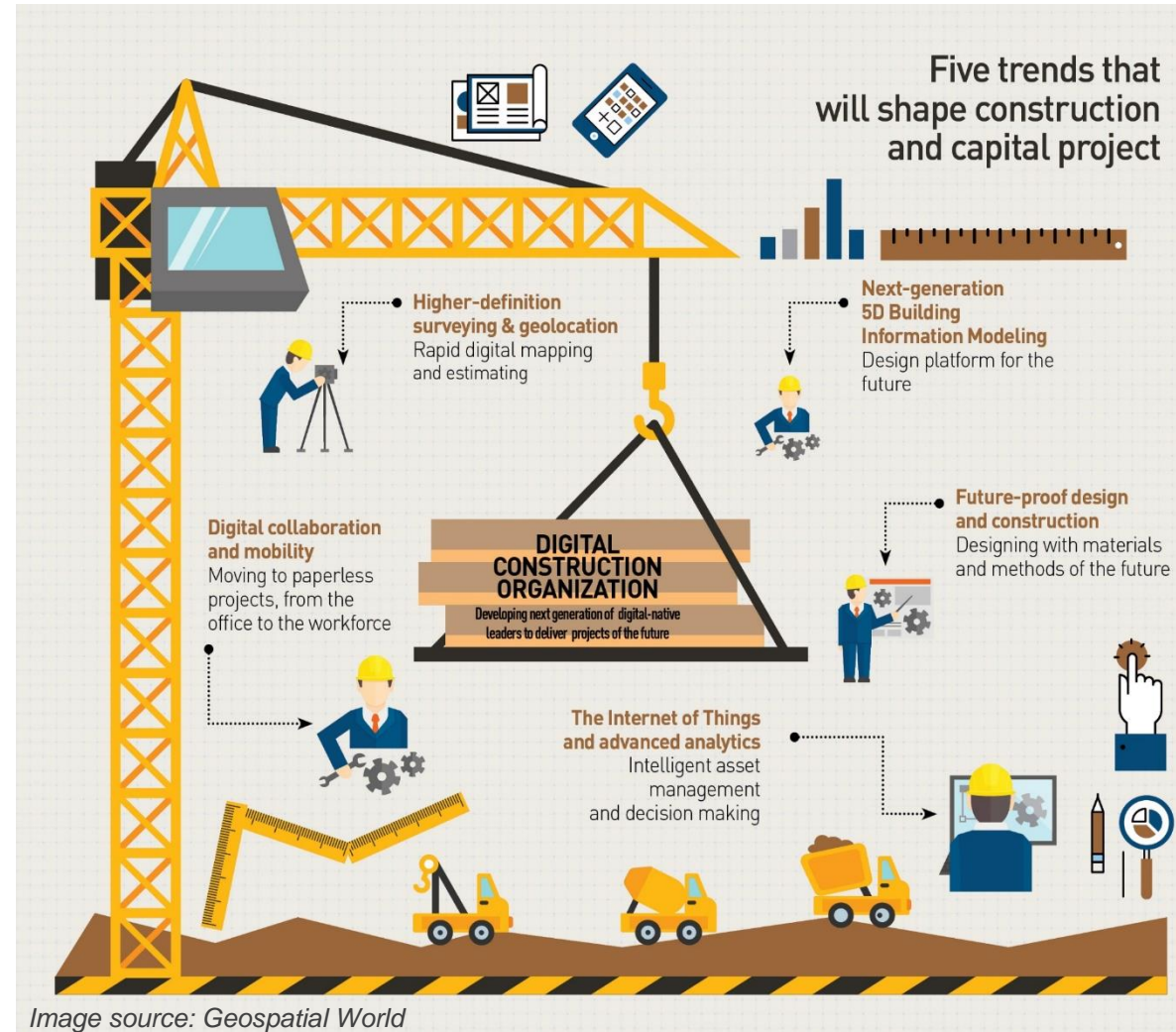
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Types of Digital Construction

Digital construction can have many forms and levels of adoption:

1. It can simply be the use of **basic digital tools**, to for example make communication easier and reduce travelling (use of WhatsApp or video conferencing systems like Skype and Google Hangouts)
2. It can enable an actual **improvement and/or automation of a manufacturing process**. For example, using cloud-based computing and filing systems, or software that transform delivery and operation/facilities management.
3. Or it can be a more **advanced usage of digital technology**, as for example: use of 'drones' for digital scanning or inspections; 3D and 4D printing for prototyping and manufacturing; robots and/or artificial intelligence (AI) for manufacturing, installation and usage management.



Examples of digital tools used in construction



- Building Information Modelling (BIM)
- Project Management Software
- Smart Buildings
- HD Surveying and Geolocation
- 3D Printing
- Wearables
- Tool Tracking Devices
- New Materials
- Internet of Things
- Digital Collaboration and Mobility
- Virtual reality, VR, AR, mixed reality



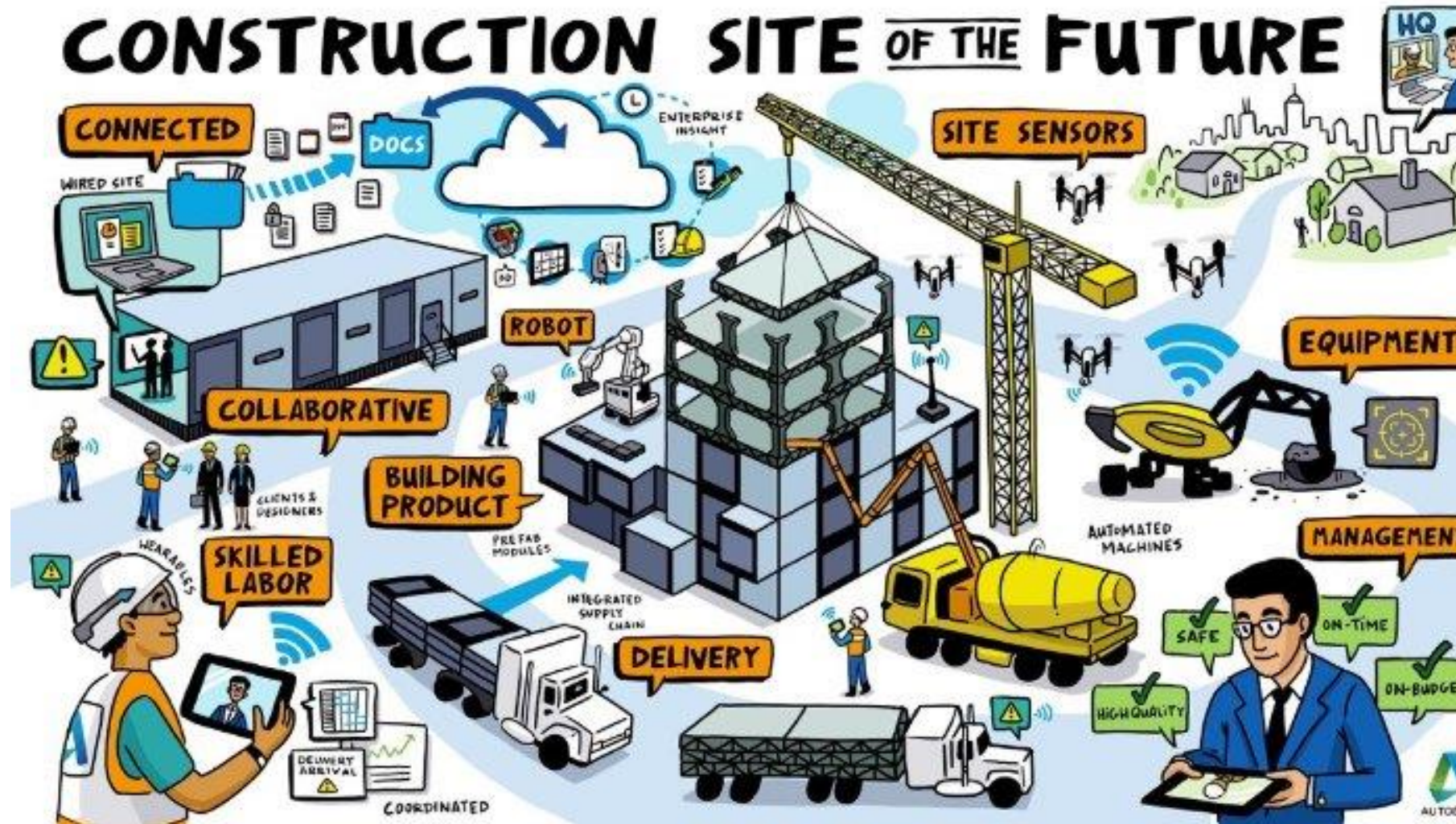


Image source: PBC Today



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- While the construction sector is a key driver of the EU economy, it faces several challenges relating to **labour shortages, competitiveness, resource and energy efficiency and productivity**
- **Digital technologies and their integration in the construction sector are often viewed as a key element that can help tackle some of these challenges.** However, the construction sector is one of the **least digitalised** sectors in the economy.
- **To support the digitalisation of the EU economy including the construction sector, policy makers at the EU and Member States levels have developed several policy initiatives.**



These five types of initiatives constitute the types of policies developed by policymakers to incentivise the use of digital technologies in the construction sector.

1. **Digitalisation policies related to the construction sector**, which often put in place a broad framework aiming to support the adoption of digital technologies – sometimes through different policy areas.
2. **Construction-related digital platforms**, which are often used to support the coordination between public and private sector initiatives and to facilitate policy implementation.
3. **Public procurement policies** with a specific focus on those policies or requirements that contribute to fostering digitalisation in the construction sector – such as BIM requirements in public tenders.
4. Government e-services also play a key role in facilitating the digitalisation of construction related processes. This is for instance the case of the **digitalisation of building permit systems**.
5. **Digital building logbooks**, which are common repositories for all relevant building data, are also another way through which government can support the digitalisation of the construction sector.



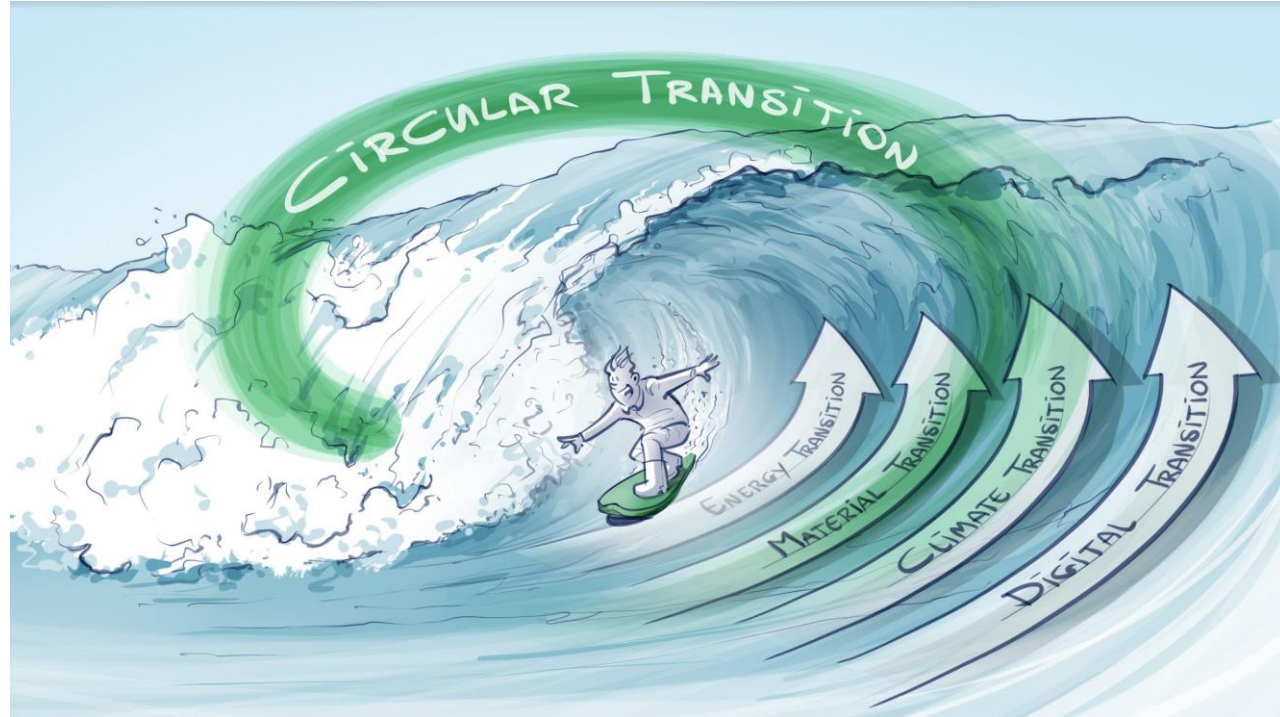
- **Construction 2020** is a Strategy for the sustainable competitiveness of the construction sector its enterprises (2012). Its first thematic objective concerns Innovation, aiming at boosting the digital uptake in the construction sector.
- The **Renovation Wave** is a strategy aiming to foster building renovation to address climate change and support the recovery and the green and digital transition. the EC aims to at least double renovation rates in the next ten years, which will among other objectives, foster digitalisation.



- **The Renovation Wave builds on and complements other policy areas**, such as the EU Clean Energy for all Europeans package, and most importantly the **Directive on the Energy Performance of Buildings**.
- The latter Directive promotes the use of digital technologies but also energy performance certificates (EPC), which must be issued when buildings are sold or rented thereby contributing to data sharing.
- The Renovation Wave goes one step further when it comes to digitalisation, with the EC:
 - i. introducing digital building logbooks
 - ii. building synergies with Digital Innovation Hubs
 - iii. Supporting BIM in public procurement for construction



- Digitalisation policies provide both **financial and non-financial support for the uptake of digital technologies in the economy**, including in the construction sector.
- In doing so, they can also contribute to other policy areas, including energy efficiency and the circular economy – as recognised in the Renovation Wave.



- **Digital Innovation Hubs play a key role in supporting companies, whether small or large, high-tech or not, to take advantage of digital opportunities.**
- Companies that want to go digital have the choice between a wide range of digital technologies and software, and may need support in identifying the best solution to their needs.
- In addition, the challenges start once the technologies are acquired – meaning that **businesses need to invest human and financial resources to familiarise themselves with the technology**, adapt their routines accordingly, train staff etc.
- Moving forward, the DIHs are expected to play a key role in supporting the uptake of e.g. digital technologies, including in the construction sector



Image source: ITSM.tools



The European Commission has recognised the importance of education and continuous learning, and has launched a number of initiatives aimed at **addressing the skills gaps in the construction sector**:

Construction Blueprint

Skills Blueprint for the Construction Industry is an EU funded project addressing the skills mismatch between companies' needs and training centre curricula. This project is notably expected to develop appropriate **curricula and a mapping tool** (Observatory) to provide valuable information about particular skill needs at least at regional/national level.



European Skills Agenda

A 5-year Plan to help individuals and businesses to develop more and better skills and put them to use in a context growingly characterised by the climate and digital transformations.

European Pact for Skills

To support upskilling and reskilling of workforce to help deliver on the ambitions of the green and digital transitions and of the EU Industrial and SME Strategies.





BUILD UP Skills initiative

A strategic initiative to boost continuing or further education and training of craftsmen and other on-site construction workers and systems installers in the building sector. Its final aim is to increase the number of qualified workers across Europe to deliver building renovations, which offer high-energy performance as well as new, nearly zero-energy buildings. **The initiative addresses skills in relation to energy efficiency, digitalisation and renewable energy systems and measures in buildings.**

BUILD UP
SKILLS



- Complementing skills development initiatives, the EC has also been **promoting research and innovation in the construction sector** – which will support its digital transformation.
- This aims to enable *“a “new way to build”, for construction with lower environmental footprint, through modularisation, digital technologies, circularity and advanced materials, as well as standards and safety”*



- Financing schemes often accompany the adoption of policies, with a view to foster their implementation on the ground.



Image source: Nanotempertech.com



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- While the policy and financing framework are providing support to the digitalisation of the construction sector, regulations and standards can represent effective means to **push construction companies to digitalise** – thus adopting a “push and pull” type of approach.



Image source: KonnectHQ





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2. National Digitalisation



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- The first phase of the **National Digital Strategy** was launched in July 2013. This strategy focuses on digital engagement and how Ireland can benefit from a digitally engaged society.
- The government is looking to develop a new National Digital Strategy. This is in response to technological change over the years and the range of opportunities and challenges this presents to Irish society.



Image source: constructionnews.ie



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- The **National BIM Council** (NBC) is a national body to support the advancement of digital in the construction sector. NBC is a key measure in fulfilling the Government's national 'Construction 2020' strategy.



*The NBC "recognise the role of technology and 'better information management' in achieving measured **improvements in productivity, international competitiveness and collaboration.** Further, the move towards a more highly engineered 'data rich' product with less 'on-site' physical labour, opens **new opportunities for innovation and a far more interesting, exciting and diverse range of career choices within the industry.**"*

Roadmap to Digital Transition

For Ireland's
Construction Industry
2018-2021

*Digital Roadmap produced
by National BIM council*



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Future of waste tracking



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- An increased use of digital technologies is crucial to shifting European waste management towards more sustainable materials management.
- Such technologies improve recycling, facilitating the use of recyclates by producers, enabling better purchasing and sorting decisions by consumers, and improving waste sourcing options for recyclers.
- Examples of specific digital technologies that are currently used and expected to have a major impact in future on the efficiency of the waste industry include robotics, the internet of things, cloud computing, artificial intelligence and data analytics

Learn more!

<https://www.eea.europa.eu/themes/waste/waste-management/digital-technologies-will-deliver-more/>



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Thank You

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European Federation
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