

STATE OF PLAY

DIGITALISATION IN CONSTRUCTION



INTRODUCTION

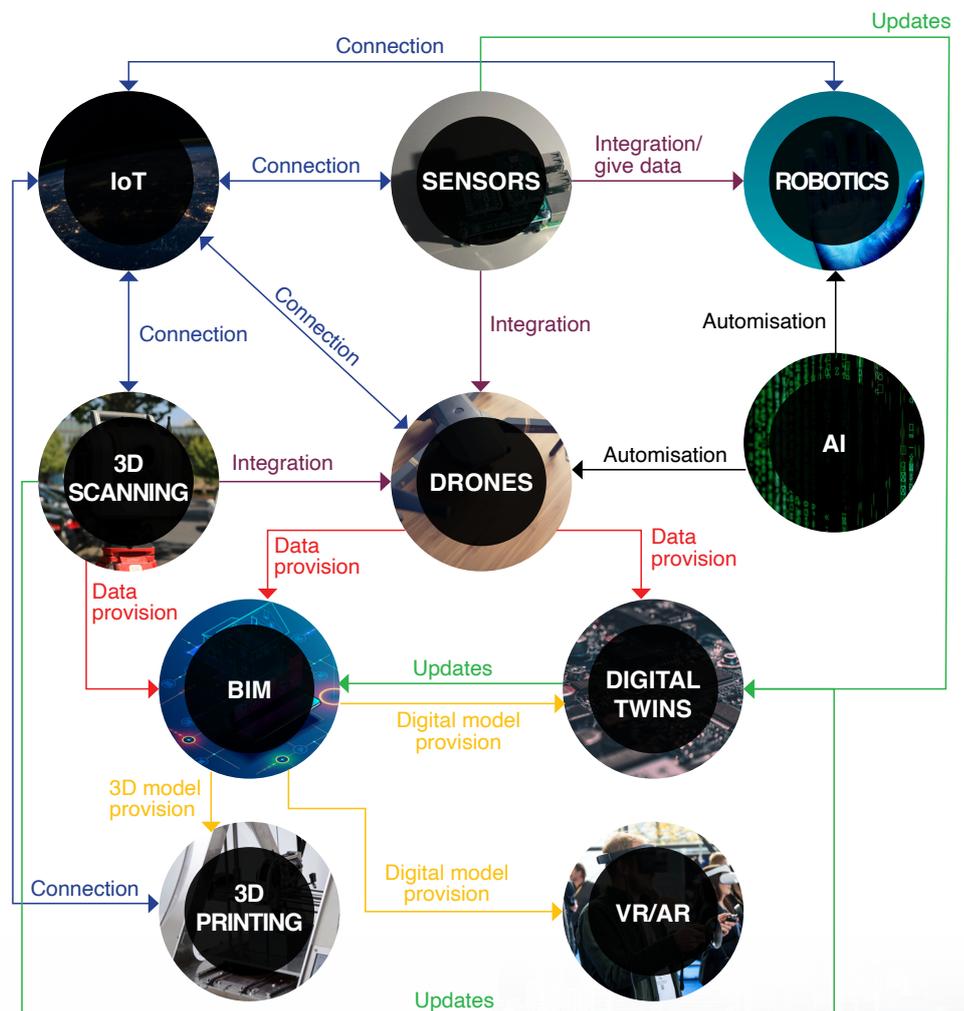
The EU construction sector is making progress in the uptake of digital technologies. The integration of digital technologies is often viewed as a key element to tackle some of the main challenges it is faced with, such as labour shortage, competitiveness, resource and energy efficiency, and productivity.

In fact, the digitalisation of the construction sector is particularly important in times when the construction sector faces labour shortages and a profitability margin squeeze. The sector also generates **374 million tonnes of construction and demolition waste (CDW)** in the EU, making it the largest producer of CDW in the EU in terms of mass.

OVERVIEW OF THE INTERACTIONS AMONG DIGITAL TECHNOLOGIES IN THE CONSTRUCTION SECTOR

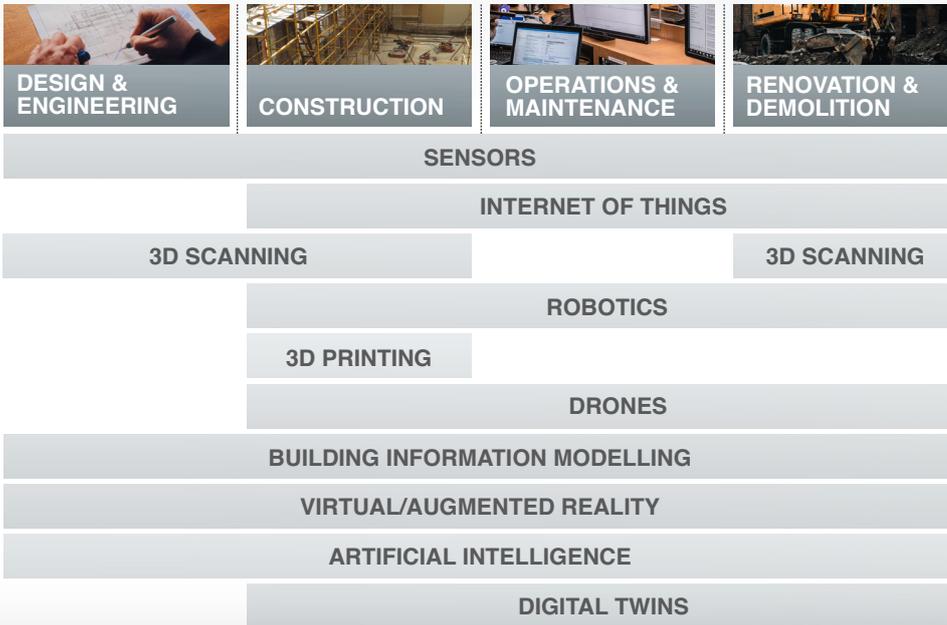
The technologies presented are, in some cases, heavily interconnected. To give an example, the report analyses sensors, drones, and robotics as three separate technologies; however, drones can be equipped with various sensors and robotic parts. At the same time, 3D scanning, BIM, Augmented reality and Digital Twins are also deeply interconnected, as they refer to similar technologies being used in different ways or to different stages of the same technology (e.g. augmented reality in the construction sector can be seen as the combination of BIM projects with visual sensors; a Digital Twin is a BIM project regularly updated by using data from several sensors, scanners, etc.).

The figure provides an overview of some of the possible interactions between different digital technologies mentioned in this Report, highlighting their interconnectedness.





THE USE OF DIGITAL TECHNOLOGIES IN THE CONSTRUCTION SECTOR



Digital technologies can be applied not only throughout all phases of the construction process, but also at any point of the building's lifecycle.

However, these technologies tend to be used mostly in newly constructed buildings as it is easier and more cost-effective to integrate them from the beginning and structure the project based on their use, rather than undertake additional investments to implement them in already-existing buildings.

THE EU CONSTRUCTION SECTOR IS MAKING PROGRESS IN THE UPTAKE OF DIGITAL TECHNOLOGIES



DATA ACQUISITION

The market analysis showed that among data acquisition technologies

Sensors are the technology with the highest level of market maturity & technological readiness

3D scanning is being increasingly used

IoT is not yet widely adopted, although it is developing rapidly



AUTOMATING PROCESSES

Automating processes in the construction sector refer to the use of robots, 3D printing and drones

Drones are increasingly used, notably through the improvement of the sensors they are equipped with

Robots and 3D printing are still at the development phase and utilised only for limited tasks

Construction & maintenance phases have more limited traction when it comes to digitalisation



DIGITAL INFORMATION & ANALYSIS

The effective use of digital data represents the future of the digitalisation of the construction sector

Building Information Modelling is more utilised; however, it is often limited to the design phase

Virtual/Augmented reality & AI are still at development stages and are not yet market ready

Digital Twins are limited to a few pilot projects, but they have high potential for the future

