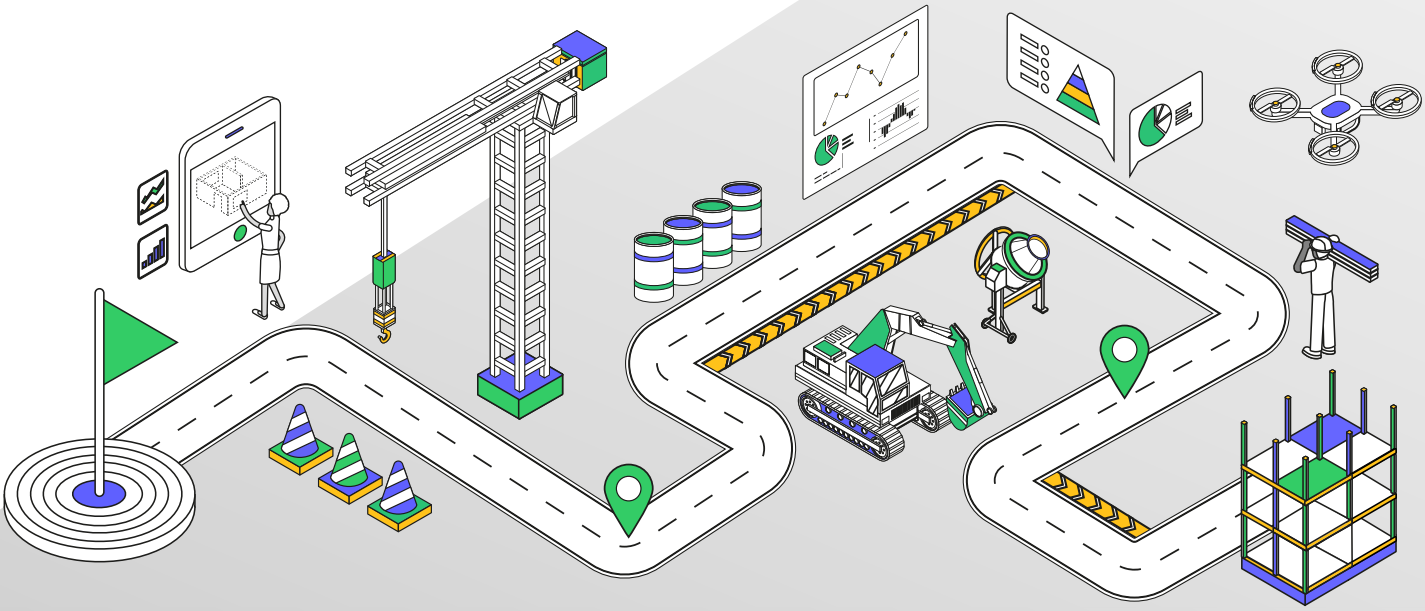
CIOB

Plotting your digital construction journey



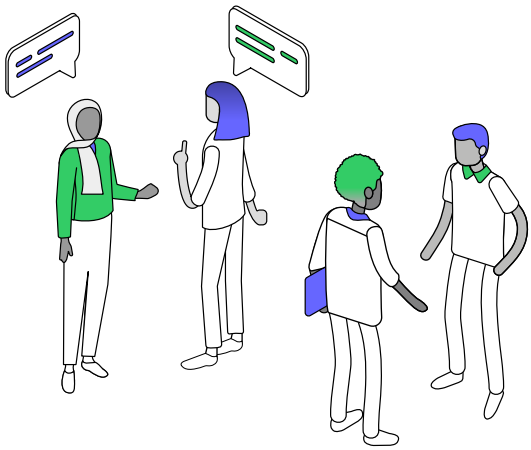
What are the benefits of digital construction?

- Increased project quality and productivity
- Reduced waste and admin overheads
- Effectively managed risk
- Better change management
- Winning new business
- Improved understanding throughout the project and supply chain via digitally enabled project management and insight

Going digital can be a game changer and transform your business. But the journey to digitally transformed construction can be challenging to navigate, especially for those just getting started. This roadmap from Autodesk and the Chartered Institute of Building (CIOB) will help you define your next steps, wherever you are on your digital journey.

AUTODESK

1. Planning



1.1 Define your goals, both qualitative and quantitative

Goals should be defined by your business and project objectives, and might include winning work, improving build quality, productivity, improving safety, delivering on time, attracting/retaining talent, reducing cost, or something else.

1.2 Map your digital strategy and implementation plan to your business, project goals and objectives

Benchmark your current performance and plan small, achievable steps to get to your goal.

1.3 Appoint a digital construction champion

Someone who understands the potential digital can unlock and whose job it is to lead change, and to inspire, empower and support others to do so as well.

1.4 Pair the digital champion with a business champion

Someone who understands the potential digital can unlock and whose job it is to lead change, and to inspire, empower and support others to do so as well.

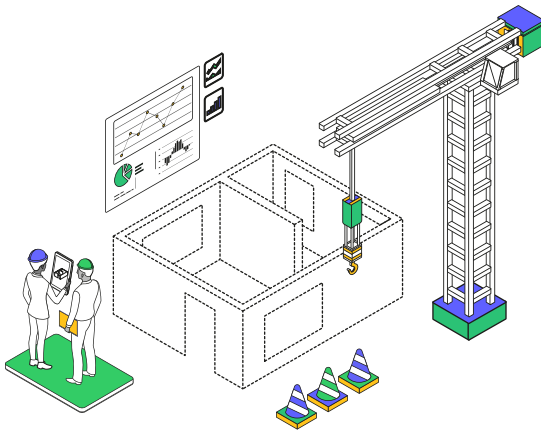
1.5 Communicate your intent to your team

As well as the culture shift that will be required to achieve your goals internally. What are you expecting people to do differently? What support are you going to provide to get your teams there? And why is this change taking place?

1.6 Plan for training

Your digital construction champion(s) and site teams may need upskilling to ensure they're able to push changes through. Consider how you will unlock both technical and soft skills.

2. The pilot stage



2.1 Introduce mobile devices to the field

To enable instant access to digital documents, drawings, checklists, reports and tools.

2.2 Create structured digital information e.g. documents and models

Such as a digital health and safety file, installation instructions, drawings, and RFIs. Embed digital checklists in project gateways.

2.3 Give the team instant access to the digital information

This will support their work activities and decision making - with digital drawings that are automatically hyperlinked, versioned in order, and easily searchable on a mobile device.

2.4 Introduce digital design coordination and clash avoidance

To start monitoring the cost of design changes to help you measure the impact of this activity.

2.5 Improve your information management processes

Use the UK BIM Framework as a reference. Improve constructability reviews using digital, QA workflows, and photogrammetry.

2.6 Use your data to give the project team insight

Deploy information on mobile devices to minimise delays and errors, including real-time access to plans, snag lists, documents, and daily reports.

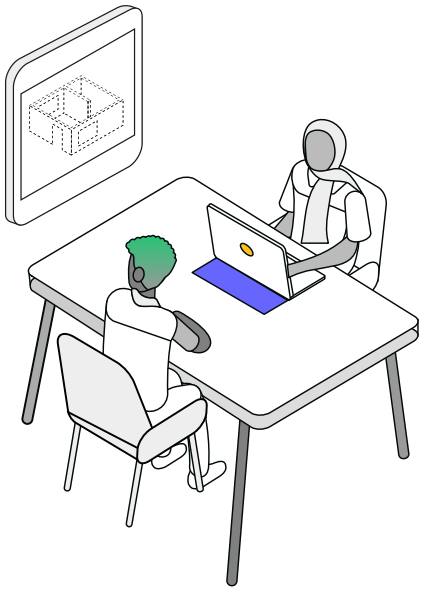
2.7 Track your progress and measure results

To understand the impact of the pilot and prove the value of digital construction to your team. Part of the value of a pilot is to trial new digital processes, to learn and identify any improvements or changes needed to ensure an effective and efficient wider roll-out across the business or project.

2.8 Plan for adoption

By supporting the onboarding of end users and identify any barriers that could stop your pilot from being successful.

3.Scaling your pilots



3.1 Review pilot projects and apply learnings

Ask your digital/business champion(s) to review the success of the pilot projects. Share and apply the learnings to plan the roll out across your business or project.

3.2 Embed new secure information management processes

Start with the end in mind: consider the structured information you and your clients require, the questions it will answer, how they want it to be structured and at what stages in the project they want to receive it. Develop towards an information management strategy and methodologies (based on ISO19650).

3.3 Create templates to support information planning and delivery

As well as best practice guidance to educate your teams.

3.4 Look into field management tools

Like Autodesk® BIM 360® or PlanGrid to manage quality andor safety and undertake a business case study to determine the ROI it might provide you.

3.5 Establish a common data environment (CDE)

A single source of information for projects where approved project documents and data can be accessed and managed. Start simple and develop more advanced information standards as your organisation matures.

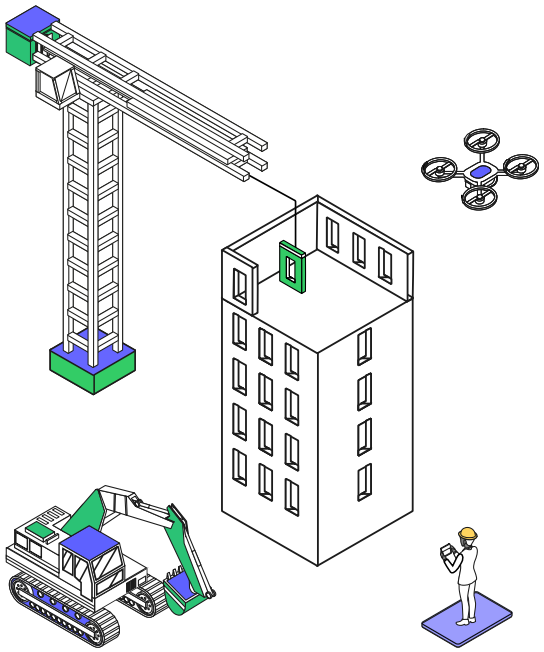
3.6 Introduce or scale up your BIM capabilities

Ensure your goals and steps accommodate the demands ofyour clients, while recognising your own business objectives should underpin your digital transformation.

3.7 Build your digital capabilities into your marketing

Incorporate them into your collateral and tender responses, as well as the way you communicate with existing clients. Use VR/ BIM walkthroughs for example, to facilitate early client and end user engagement.

4.Increasing digital maturity



4.1 Appoint a Head of Digital Construction

Use this opportunity to benchmark yourself against your competitors – have this individual draft a 3-year digital construction strategy for executive approval.

4.2 Invest in digitising your existing processes at scale

In your digital construction strategy. Benchmark current process performance and look for opportunities to integrate data siloes that currently exist within your organisation.

4.3 Continue to optimise your workflows

This will enable you to understand where waste is occurring and eliminate it.

4.4 Introduce rapid data capture solutions

To carry out digital field surveys. Use laser scanning to survey existing buildings and monitor as-built conditions. Consider obtaining a drone licence to enable full site surveys with reduced resource, better project reporting with high-quality video and imagery, and facilitate site inspections on harder to reach areas.

4.5 Create interactive 3D environments and pilot VR

In order to visualise efficient site set ups and for health and safety awareness/training.

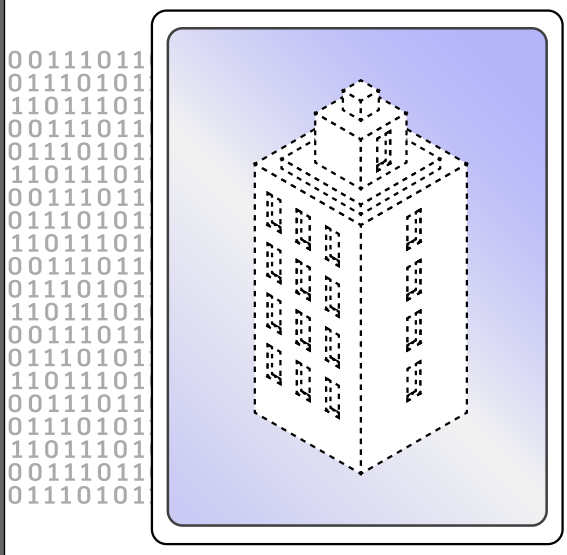
4.6 Introduce 360 virtual walkthroughs

At regular intervals in the construction window, to allow an accurate record and help validate construction quality.

4.7 Look to adopt the UK BIM Framework across your business

And bid for projects within it.

5. Milestones for the more advanced



5.1 Link BIM to program data

Such as time [4D model] and cost [5D model] and quality to simulate a construction sequence, resource modelling, earned value and more. Integrate with interactive data visualization and reporting tools to gain valuable insight and make well informed decisions.

5.2 Develop capability for Design for Manufacture and Assembly (DfMA)

By adopting these techniques, you'll be able to significantly boost productivity.

5.3 Pilot artificial intelligence and machine learning

To predict potential safety issues before they happen, improve site management, identify the root-cause of projects going over time and budget, and more.

5.4 Develop the capability to create digital twins

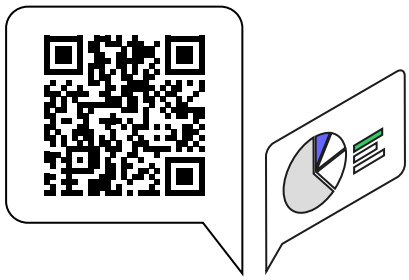
To optimise project delivery and allow clients to optimise operational and maintenance (O&M) performance through real time data feedback and analysis. A digital twin will need frictionless data flow between key building controls and systems and its digital representations.

5.5 Leverage real-time data from Internet of Things (IoT) sensors

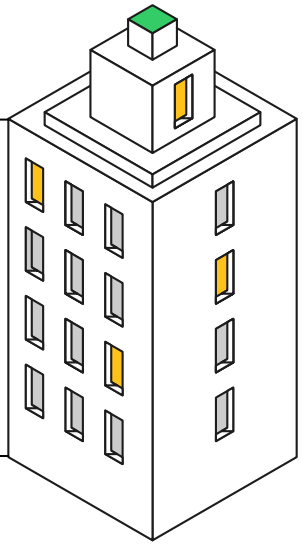
To allow better use of data and make buildings more responsive to the needs of their owners and occupants, inform future work pipelines, monitor the movement of plant to track vehicle positioning, and more.

Mapping your digital transformation

We surveyed 65 representatives from across the built environment to capture how companies are embracing digital transformation. Download the insight report, written in collaboration with the Chartered Institute of Building (CIOB), to benchmark yourself against your industry peers and plot your digital construction journey.



www.autode.sk/ciob-insight-report



80%
of companies have started their digital transformation.

Just 6%
are in the advanced stages.

Source: Insight Report: Mapping your Digital Transformation, Autodesk and the CIOB, April 2022.

AUTODESK