

7<sup>th</sup> July 2020

Duncan Reed, Digital Construction Process Manager, Trimble

# The CLC Roadmap to Recovery – how greater digitisation can aid the Industrial Recovery Plan





# Synopsis



The COVID-19 pandemic has seen the Construction Leadership Council (CLC), which was set up in 2013 to oversee implementation of Construction 2025, to effectively become the principle voice of the industry during this crisis.

On the 1st June the CLC published the 'Roadmap to Recovery' which laid out proposals to secure the future of construction businesses nationwide, while setting the industry on a sustainable path towards recovery. Unsurprisingly digital design, technologies, skills and processes feature heavily in the report. But how do construction businesses coming out of lockdown and perhaps still taking their first steps towards digitisation of their business not only make sense of this document but adopt the Plan itself?

In this presentation Duncan Reed, Trimble, will review the Roadmap and how its industry wide aims can be translated to the practical adoption of technologies in the office, out on site and anywhere in between.

20 minutes!

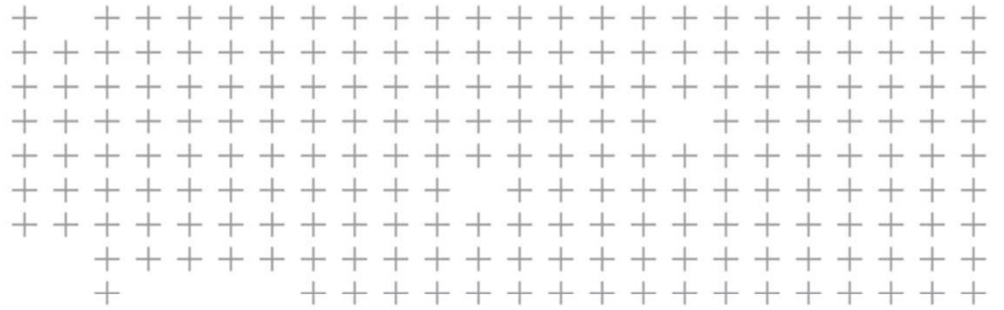
<https://www.bimplus.co.uk/analysis/covid-recovery-could-shape-constructions-digital-f/>



# Agenda



- Context
  - Background to the CLC
  - Outline of the Roadmap to Recovery plan
  - How digitisation fits in the Roadmap to Recovery
- Roadmap to Recovery – the digital highlights
  - Digital Manufacturing and Technologies
  - Digital Design
  - Digital Technologies
  - Digital Upskilling
  - National Digital Twin
- Wider Industry Targets and Conclusion



# Context

# The Construction Leadership Council

- The Construction Leadership Council (CLC) was established in 2013 to oversee implementation of **Construction 2025: industrial strategy for construction**
- It is an industry / government council jointly chaired by the Secretary of State for Business, Innovation and Skills (BIS) and an industry representative




# The Construction Leadership Council

Their focus is:

- DIGITAL
  - delivering better, more certain outcomes by using BIM enabled ways of working
- MANUFACTURING
  - increasing the proportion of off-site manufacture to improve productivity, quality and safety
- WHOLE-LIFE PERFORMANCE
  - getting more out of new and existing assets through the use of smart technologies

Version 4 – 18 May 2020

 Construction Leadership Council

**Construction Sector - Site Operating Procedures**  
**Protecting Your Workforce During Coronavirus (Covid-19)**

Contents

Introduction.....	1
When to Travel to Work.....	2
Travel to Work.....	2
Driving at Work.....	3
Site Access and Egress Points.....	3
Hand Washing.....	3
Toilet Facilities.....	4
Canteens and Rest Areas.....	4
Changing Facilities, Showers and Drying Rooms.....	4
Work Planning to Avoid Close Working.....	5
First Aid and Emergency Service Response.....	6
Cleaning.....	6

**Introduction**

These are exceptional circumstances and the industry must comply with the latest Government advice on Coronavirus (Covid-19) at all times.

These Site Operating Procedures (SOP) are based on Government guidance on [Working safely during coronavirus \(Covid-19\) - Construction and other outdoor work](#); other restrictions and advice may apply in [Scotland, Wales and Northern Ireland](#).

Where workers enter people's homes, they should follow the Government guidance on [Working in Other People's Homes](#).

The [HSE](#) is the relevant enforcing authority for occupational health and safety legislation and guidance to control public health risks in the construction sector. If a site is not consistently implementing the measures set out by the Government, it may be subject to enforcement action.

Construction sites operating during the Coronavirus (Covid-19) pandemic need to ensure they are protecting their workforce and minimising the risk of spread of infection. This includes considering how personnel travel to and from site.

This guidance is intended to introduce consistent measures on construction sites of all types and sizes in line with the Government's recommendations on social distancing and ensure employers and individuals make every effort to comply.

Government guidance for employers in England states "where the social distancing guidelines cannot be followed in full in relation to a particular activity, businesses should consider whether that activity needs to continue for the business to continue to operate, and, if so, take all the mitigating actions possible to reduce the risk of transmission between staff".

The health and safety requirements of any construction activity must not be compromised at this time. If an activity cannot be undertaken safely, it should not take place.

Emergency services are also under great pressure and may not be able to respond as quickly as usual. This should be taken into consideration in the planning of work activities, first aid, fire and emergency responses.

Organizations must have in place effective arrangements for monitoring and reviewing their compliance with Government and industry guidance. Sites should also remind the workforce at every opportunity of the Site Operating Procedures which are aimed at protecting them, their colleagues, families and the UK population.

Page 1 of 6

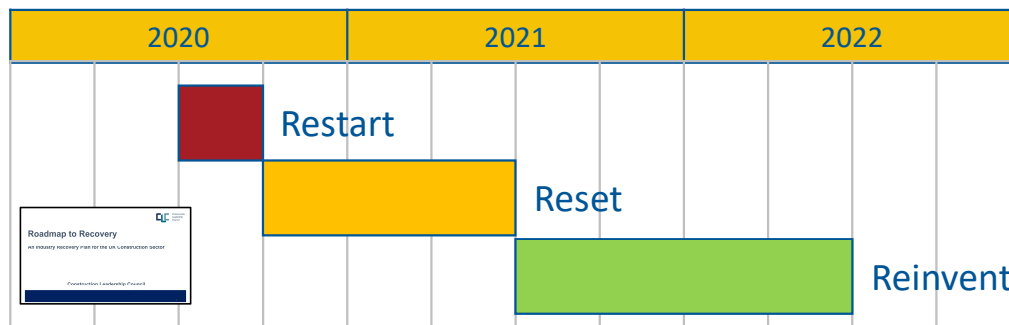
# The CLC Roadmap to Recovery

- Published 1<sup>st</sup> June 2020
- *“Roadmap to Recovery is a strategy to drive the recovery of the construction and built environment sectors, and through them the wider UK economy, following the Covid19 pandemic and economic downturn”*



# Roadmap to Recovery – a 3 stage plan

- **Restart**: increase output, maximise employment and minimise disruption (0-3 months)
- **Reset**: drive demand, increase productivity, strengthen capability in the supply chain (3-12 months); and
- **Reinvent**: transform the industry, deliver better value, collaboration and partnership (12-24 months)



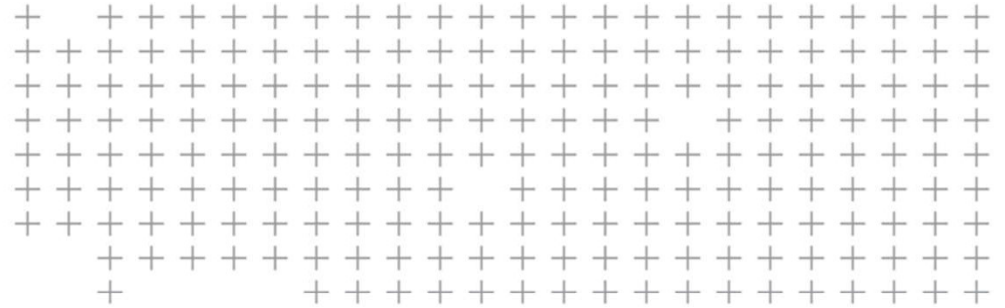




## Outcomes and benefits



- The outcomes will be a more capable, professional, productive and profitable sector, which delivers better value to clients, better performing infrastructure and buildings, and competes successfully in global markets
  - Valuable investment outcomes
  - Reducing carbon emissions and improving the sustainability and resource efficiency
  - Meeting societal needs, safer buildings
  - Regional economic recovery and prosperity
  - more collaborative, fairer and resilient industry
  - Create an innovation culture
  - investment in skills and training
  - increase UK exports



# Digitisation in the Roadmap to Recovery

# Digitisation in the Roadmap to Recovery

modernisation through digital and manufacturing technologies

through embedding digital and offsite manufacturing technologies

Building on UK strengths in digital design and systems

Digital, Manufacturing, Life Cycle Performance

sustain economic growth through the adoption of digital and manufacturing technologies

Digital – embed the wider adoption of digital technologies across clients and throughout the supply chain

digital upskilling and competence

Transformation – sustain economic growth through adoption of digital and manufacturing technologies

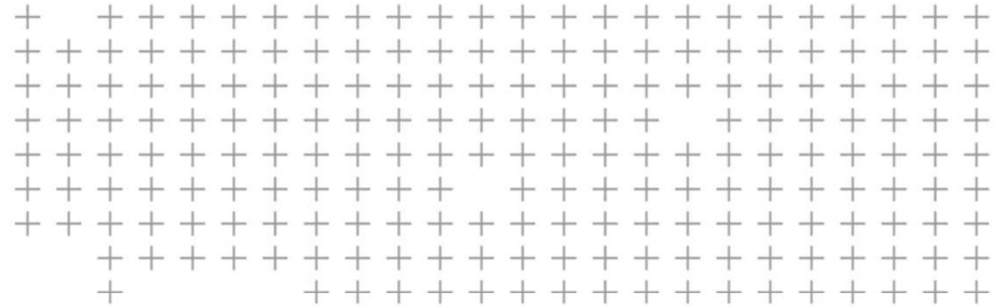
Adopting digital and manufacturing technologies to transform the industry

develop and utilise digital design, cost and carbon tools

Increase exports, with an initial focus on professional services (architecture, engineering, digital technology)

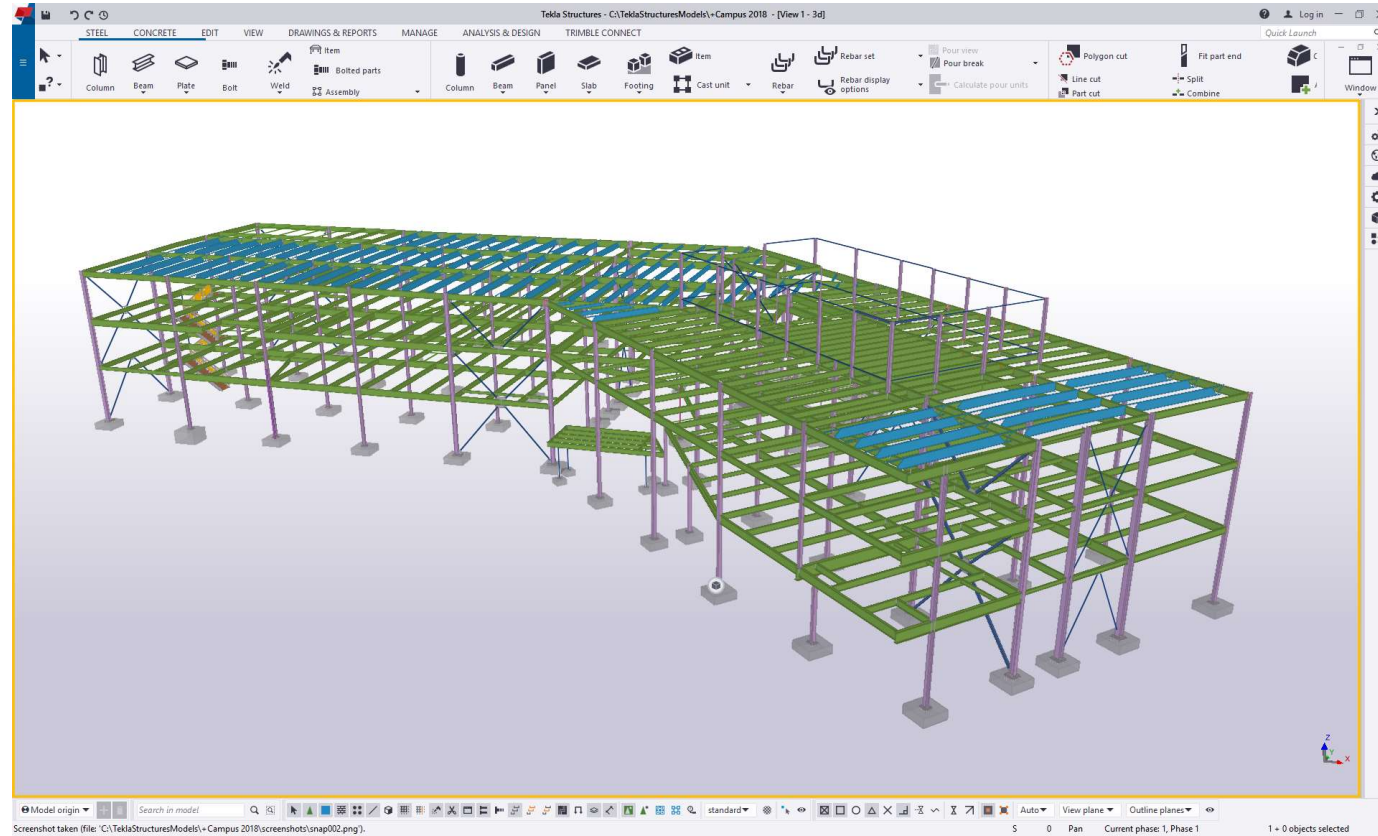
development of the National Digital Twin

the use of digital technologies for spatial planning, modelling and for improving the planning system



# Digital Manufacturing and Technologies

# Digital and Manufacturing Technologies



# Digital and Manufacturing Technologies

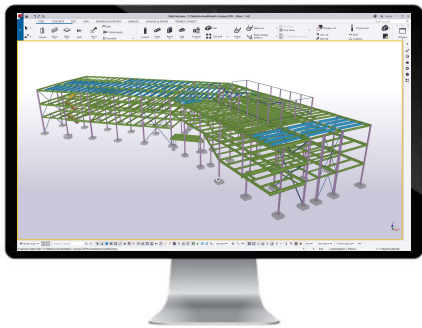
- Customisable templates and reports
- If it's in the model, it's reportable
- Export directly to Excel
- Send manufacturing data directly to fabrication machinery

The screenshot displays the Tekla Structures software interface. The main window shows a table with columns for Count, QTY, Assembly Mark, Part Mark, Profile, Name, Material, and Length. The table contains data for various parts, including UC203\*203\*46 and UB406\*140\*46. Overlaid on this are two dialog boxes: 'Howick export' and 'NC Files'. The 'Howick export' dialog has 'Save' and 'Load' buttons and a 'Save As' field set to 'standard'. The 'NC Files' dialog has 'Save' and 'Load' buttons and a 'Save as' field set to 'standard'. Below these are 'NC file settings' with a table for configuration:

Create	NC File Settings	Pop-marks	Contour marking	
<input checked="" type="checkbox"/>	DSTV for plates	<input type="checkbox"/>	<input type="checkbox"/>	
<input checked="" type="checkbox"/>	DSTV for profiles	<input type="checkbox"/>	<input type="checkbox"/>	

At the bottom of the 'NC Files' dialog, there are options for 'Create files for: All parts' (selected) and 'Selected parts', along with 'Create', 'Show NC log', 'Help...', and 'Close' buttons.

# Digital and Manufacturing Technologies



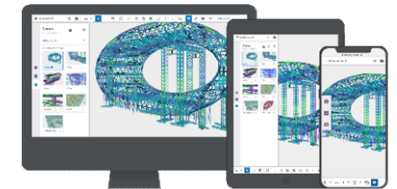
Tekla Structures

for estimation modelling, erection sequencing, drawing viewing, report, etc.



Tekla EPM Go

for paperless status tracking and production information in shop floor

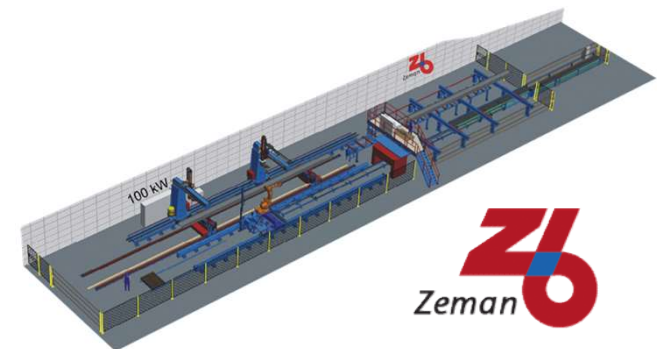


Trimble Connect

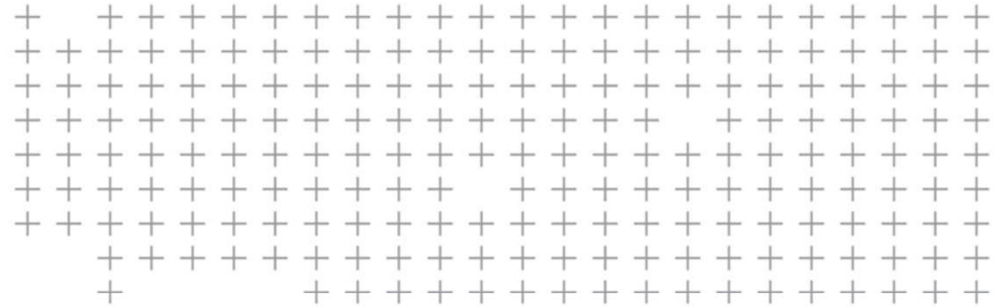
for real time visualization and collaboration to all project parties

# Digital and Manufacturing Technologies

- Zeman Robotic Assembly and Welding driven from Tekla model
- Up to 8 times faster production, superior quality, improved health and safety







# Digital Design

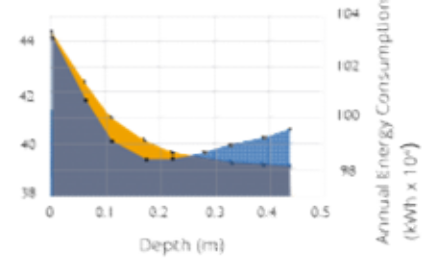
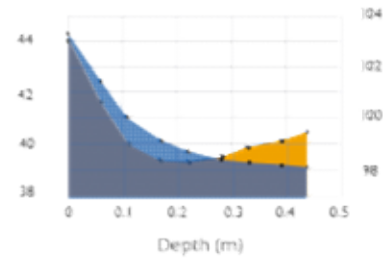
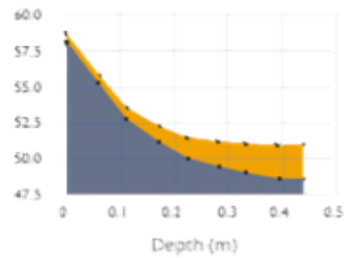
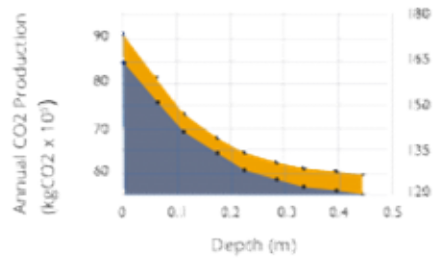
## Digital Design – value to UK PLC

- The digital sector contributed £149 billion to the economy in 2018 and grew by 8% compared to the previous year\*



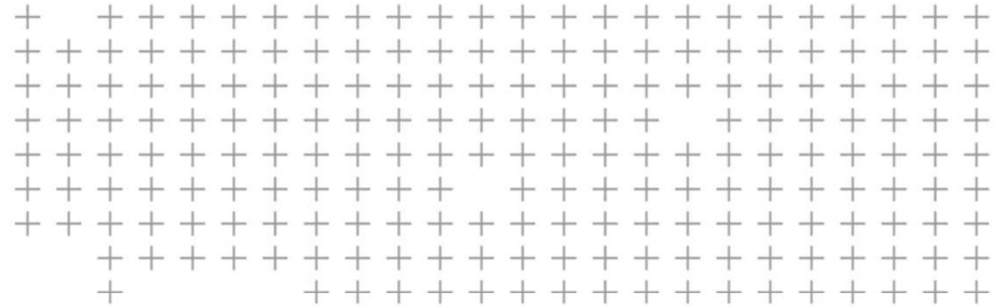
\*DCMS Sectors Economic Estimates  
2018 report

# Digital Design - Embed net zero carbon targets



- Annual CO2 Production (kgCO2 x 10<sup>3</sup>)
- Annual Energy Consumption (kWh x 10<sup>4</sup>)

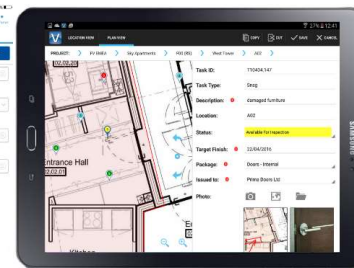
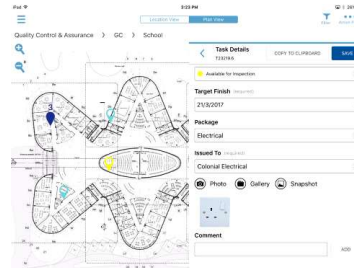




# Digital Technologies

# What are digital technologies?

- Digital technologies involve the creation, capture, handling or analysis of electronic data of any kind
  - Cloud based site diaries
  - Snagging apps and near miss reporting apps
  - Drone technology
  - Laser scanning technology
  - Wearable technology such as sensors, location trackers and digital glasses
  - Ground penetrating radar
  - Machine control technology
  - Asset management software
  - Collaborative planning tools
  - Modelling packages
  - programme
  - budget



# Digital technologies – consume data how you want



## Web Browser Application

- Project creation and administration
- 2D & 3D viewing



## Windows Application

- Highest 3D graphics performance for the largest models
- Workflow integration with sequencing for HoloLens



## Mobile Application

- Optimized UI for small-screen, touch-screen operation
- Empowering field users for productivity



## HoloLens Application

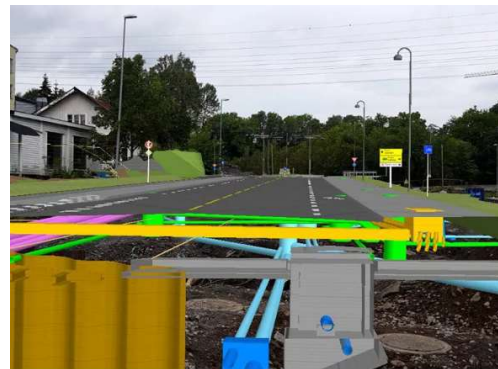
- Market-leading Augmented Reality solution

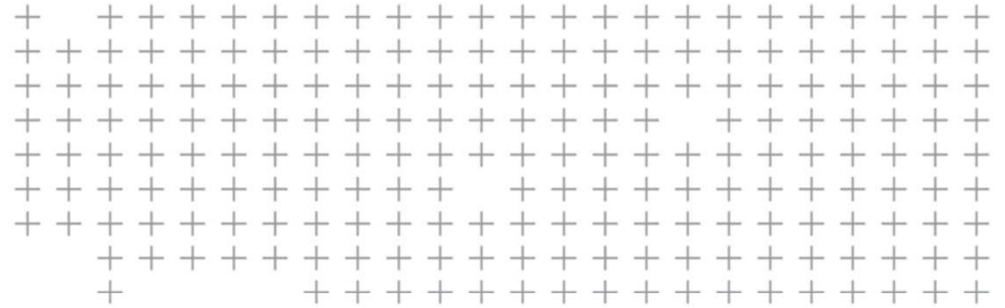


Powered by  
Trimble  
Cloud

## Digital technologies – Trimble SiteVision

- Place and view georeferenced 3D models to scale
- Measure positions using GNSS and Electronic Distance Measurement
- Take photos, record measurements and make notes



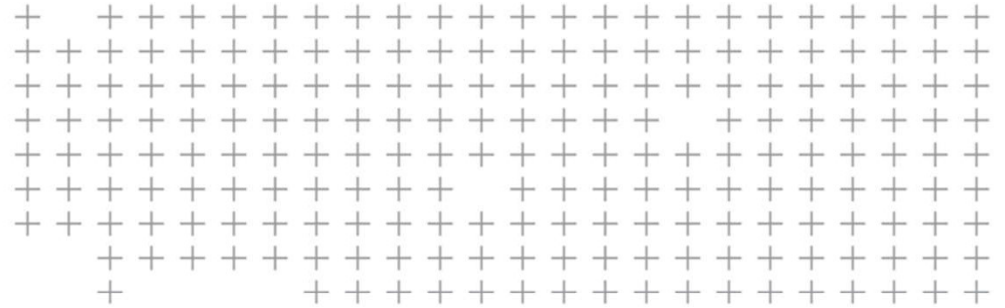


# Digital Upskilling



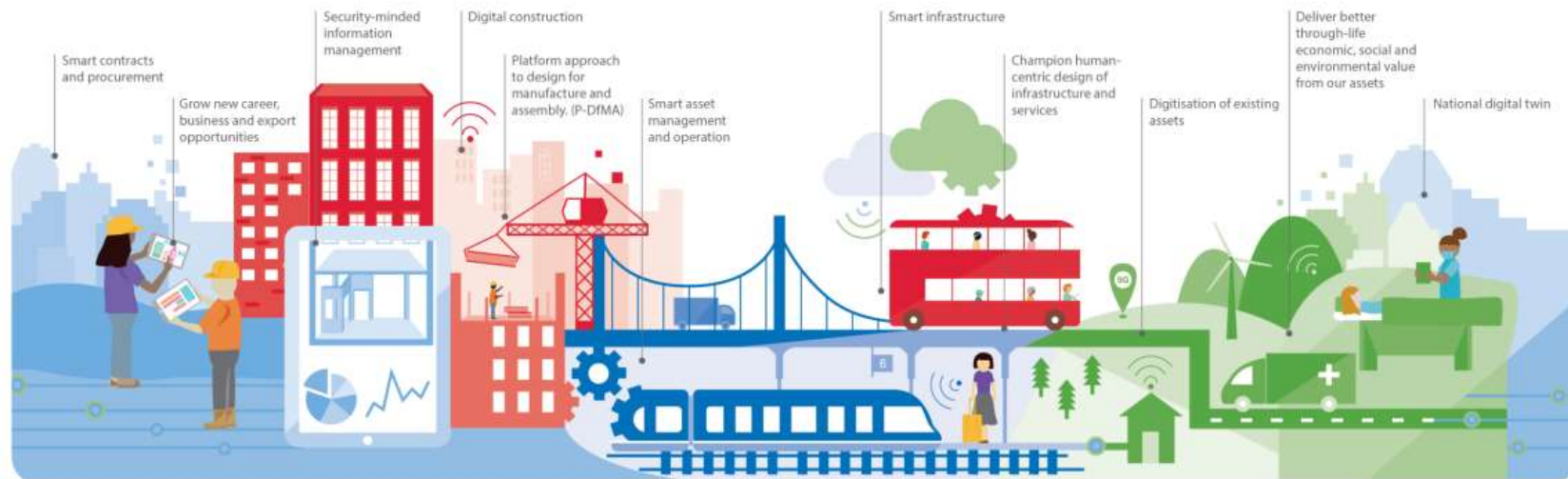
# Digital Upskilling





# National Digital Twin

# This is Digital Built Britain



## Design

Use best practice, secure by default, information management and digital techniques to get data right from the start and design better-performing homes, buildings and infrastructure.

## Build

Exploit new and emerging digital construction, information management, and manufacturing technologies and techniques to improve safety, quality and productivity during construction.

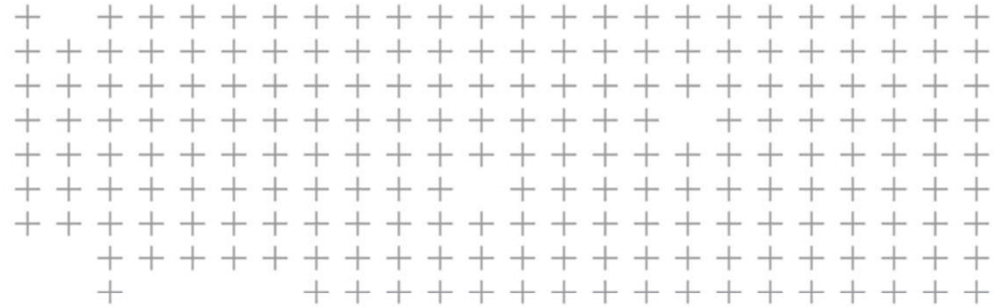
## Operate

Use effective information management to transform the performance of the built environment and the services it delivers.

## Integrate

Understand how the built environment can improve citizens' quality of life and use that information to drive the design and build of our economic and social infrastructure and the operation and integration of the services they deliver.





## Wider Industry Targets and Conclusion

# UK Construction Strategic Plans





## Conclusion



- The Roadmap to Recovery advocates adoption of digital design and technologies
- The 3, 9 and 12 month Phases – Restart, Reset, Reinvent offer a targeted plan
- **Restart** – with digitalisation at it's heart, is probably a one off opportunity for the construction industry
- **Reset** – improved productivity & professionalism, underpinned by collaborative digital processes, will increase demand and supply-side measures
- **Reinvent** – digital technologies support the wider aims of Construction 2025



E: [duncan.reed@trimble.com](mailto:duncan.reed@trimble.com)

M: +44 (0) 7734 740240

T: @djhreed67



 **Thank You**