

# Digital Collaboration

Enabling better outcomes through technology



# Agenda

- Introduction
- Industry Challenges
- The Impact of Tech
- Today's Tech and the Future
- Q&A





## Amit Puri

### Technical Solutions Executive

Technical solutions specialist for almost a year with PlanGrid, an Autodesk Company, helping customers digitise various processes, achieve their business outcomes and get value out of Autodesk Construction Solutions.

Several years' experience working with construction software and for multiple software vendors.

Worked in Property and Construction for nine years, including five years in Quality and Compliance for a Main Contractor.





# Construction is one of the most difficult industries

## Problems on Megaprojects

Projects with overruns:

**98%**

Average schedule delay:

**20**  
months

Average cost increase:

**80%**



# Construction is one of the least digitised industries



# Construction is one of the least productive industries



# Solving the Productivity Puzzle



## Digital Foundations: Solving construction's productivity puzzle

### CHAPTER 2

## Collaboration

Collaboration is more important than ever for the UK construction firms.

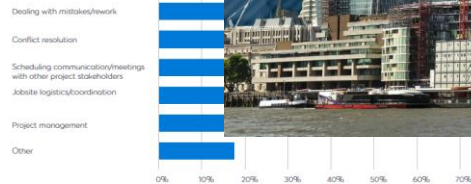
Increasing specialisation and the rise of new approaches like integrated project delivery (IPD) mean that businesses must work closer together and more frequently. Relationships between general contractors and subcontractors can be fundamental to projects' success, if properly facilitated and managed.

Coordination can be time-consuming, however, and industry professionals point to this as a particular drain on productivity.

For instance, scheduling communications and meetings with other project stakeholders (42%) and jobsite logistics and coordination (30%) are both highlighted as taking up unnecessary time on building projects.

Worse still, problems with communication can cause tension and even conflict with partners. One third (33%) say that competing objectives among project stakeholders is the biggest factor impacting their business' productivity.

### Which of the following take up most unnecessary time with building projects?\*



\* Respondents who fell up to three answers.

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issue with engineer, I n't using technology

save time and the industry, it was.

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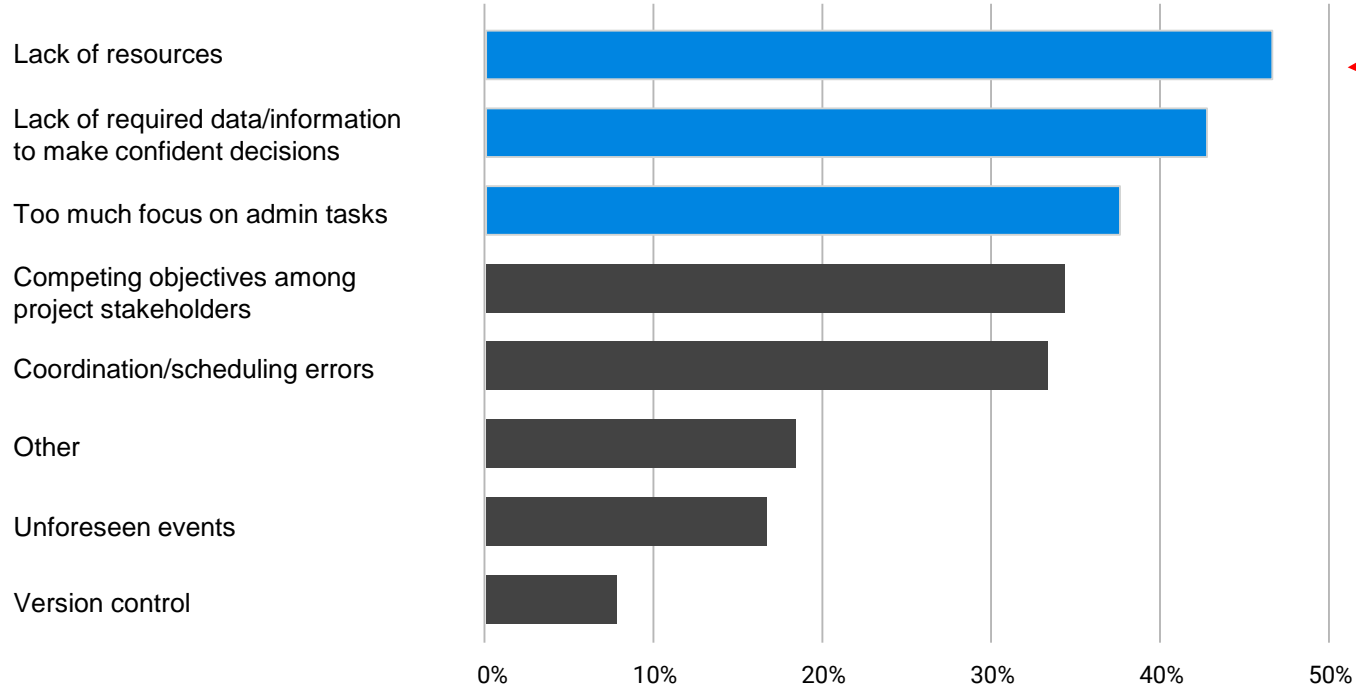
Construction Manager and, to understand s.

omons point depending on B's (8%) as the

companies in the UK



# Biggest factors affecting productivity



*Access & Accuracy Issues  
Lack of Trust  
Poor Collaboration  
Manual Processes  
Sound familiar?*

\*Respondents selected up to three answers





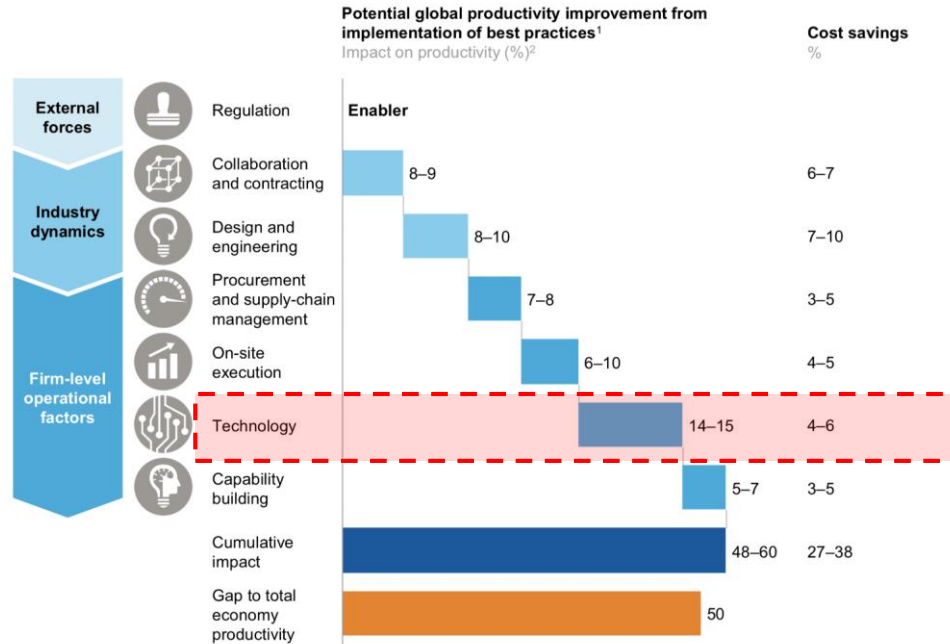
# Technology = Collaboration = Productivity

14-15%

improvement on productivity

4-6%

cost savings



A photograph of construction workers on a site, wearing hard hats and safety vests, working with rebar. The image is overlaid with a purple gradient.

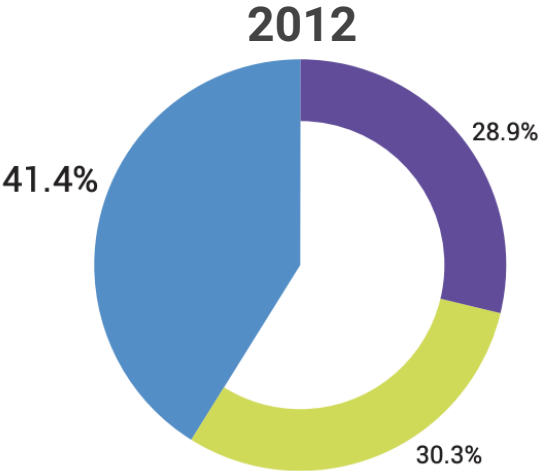
**Investment is needed on-site**

**75%**  
*construction costs  
are on-site*

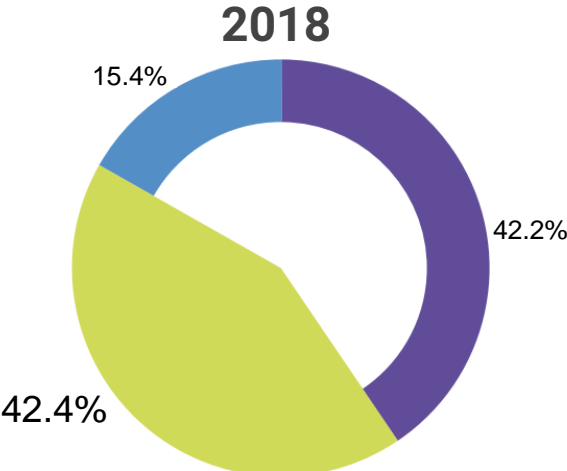
A close-up photograph of hands holding a tablet displaying a construction plan. The image is overlaid with a blue gradient.

**10%**  
*technology spend  
is on-site*

# Mobile technology is important on projects



- Very Important
- Important
- Not Very Important



- Very Important
- Important
- Not Very Important



# Picking the right technology matters

Build from the right information



Collaborate from anywhere



Track every decision at every stage



# Today's Tech

...becoming more and more prevalent on projects



# Today's Technology

The background of the slide features a silhouette of construction workers on a building site at sunset. The workers are positioned on a steel framework, with one worker in the foreground and another further back. The sky is a mix of orange and blue, suggesting the time is either dawn or dusk. The overall scene is industrial and focused on construction.

## Common Data Environment (CDE) & Site/Project Management Software

- Cloud-based digital platform for collecting, managing and sharing data
- Single version of the truth
- Drawing and document management
- Structured datasets
- Mobile site app for working from the right information, tracking progress, capturing quality & safety issues, as-built information etc.

A CDE is essential for collaborative working and a requirement on BIM Level 2 government projects

# Today's Technology



## Drones / Unmanned Aerial Vehicles (UAVs)

- Delivering aerial photos & videos
- Site surveying, planning and mapping
- Capturing progress over time
- Helps with onsite decision making
- Material coordination & movement
- Monitoring sites remotely
- Thermal imaging

Data captured and distributed through platforms like PlanGrid and BIM 360

# Today's Technology

A man with a beard, wearing a blue denim shirt, is using a VR headset. He is holding the sides of the headset with both hands. The background is a blurred industrial or construction site with metal structures and pipes. The image is split vertically down the middle, with the left side being slightly brighter than the right side.

## Virtual & Augmented Reality (VR & AR)

- Allows real-time comparison of 3D & 4D models to physical spaces for visualisation, planning and validation
- Virtual walkthroughs
- Overlay of location and position data during installation
- Can significantly improve safety through enhanced off-site training scenarios
- Streamlines the production & display of projects

Expected to be a  
**\$100-billion-dollar**  
industry by 2021



# Tomorrow's Tech

Coming soon to a site near you!



# Tomorrow's Technology



## Off-site Prefabrication / Design for Manufacturing & Assembly (DfMA)

- Minimises onsite workforce size and time onsite, reducing safety issues
- Frees-up workers to do more important tasks
- Standardises quality of construction and reduces re-work

A more controllable environment that demands close collaborative and coordinated working

# Tomorrow's Technology

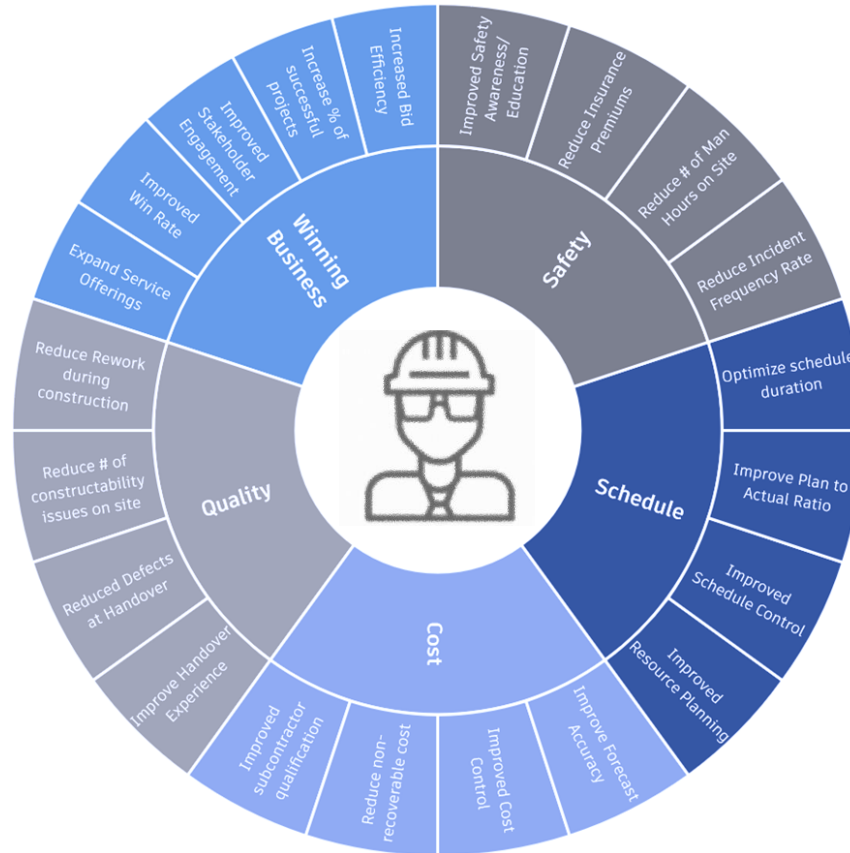
## Robotics, Artificial Intelligence (AI) and Machine Learning

- Robots used for repetitive tasks (i.e. bricklaying) or dangerous tasks and free-up time for workers to work on more skilled work
- Exoskeleton robotic suits to assist with manual handling, support labour intensive tasks and reduce injuries
- 3D printing

Automation represents one of the biggest improvements to productivity

Robotics can reduce risk and help plug the labour/skills gap

# Achieve better and more reliable outcomes



# Q & A

# Thank you

