



Addressing Digital Technology in the Global Built Environment

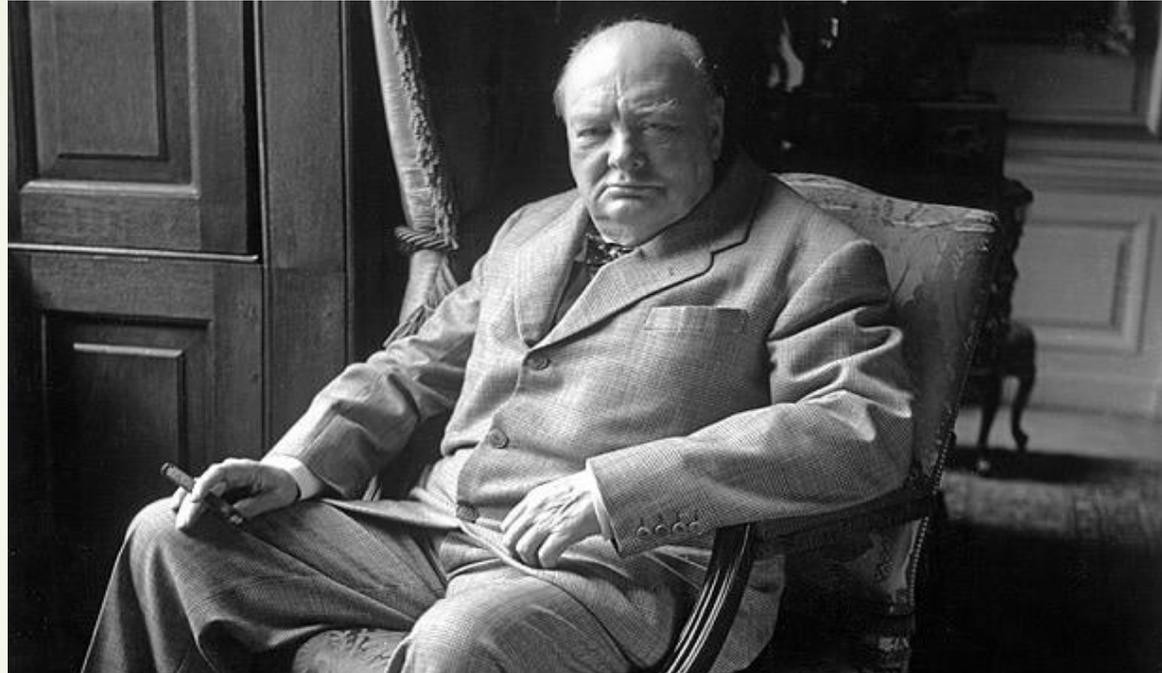
David Taylor BA(Hon) PCABE FCABE MCIAT FIPWS MSPE

A Little Bit About Me !

- **President of the Chartered Association of Building Engineers (2017 – 19)**
- **Chartered Building Engineer (FCABE C.Build E)**
- **Chartered Architectural Technologist (MCIAT)**
- **Managing Director of David Taylor Associates (UK) Ltd (DTAUK – Established 26 years)**
- **Party Wall Surveyor & Expert Witness (FIPWS)**
- **Interview Assessor for both CABE & CIAT**
- **Panel Expert at the Grand Designs show and exhibition UK (2012 – Present)**



Shaping the Future of Construction in Mindset & Technology



The Construction Industry is crucial to society, the economy and the environment.

“ WE SHAPE OUR BUILDINGS AND AFTERWARDS OUR BUILDINGS SHAPE US”

Shaping the Future of Construction in Mindset & Technology



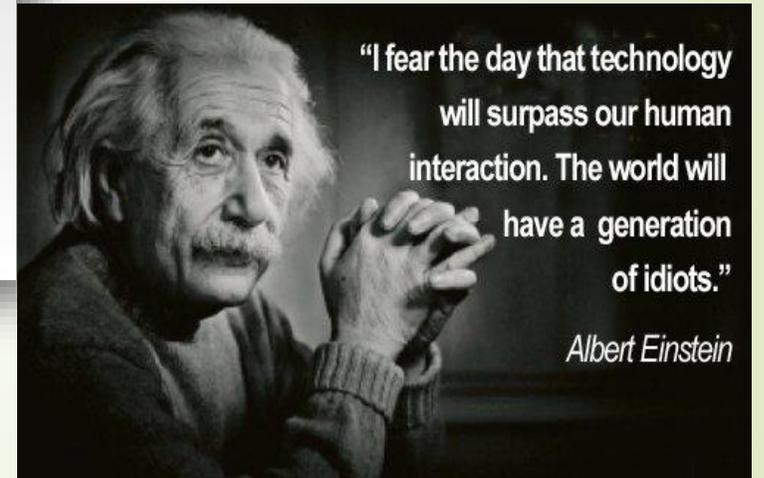
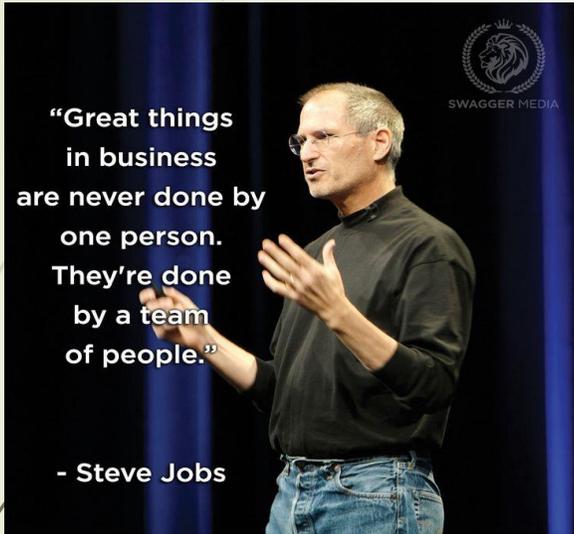
Shaping the Future of Construction in Mindset & Technology



“Looking at Construction Projects today, I do not see much difference in the design and execution of the work, in comparison to that of 70 years ago”

John Beck Executive Chairman Aecon Group 2016

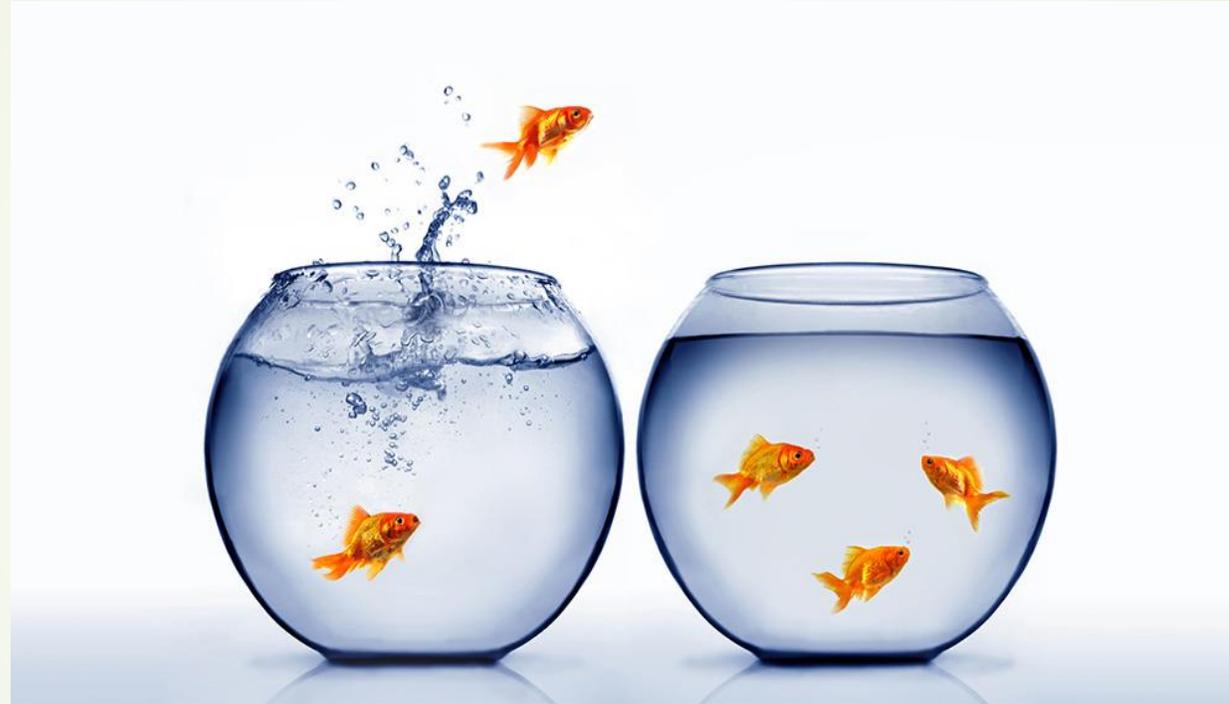
Shaping the Future of Construction in Mindset & Technology



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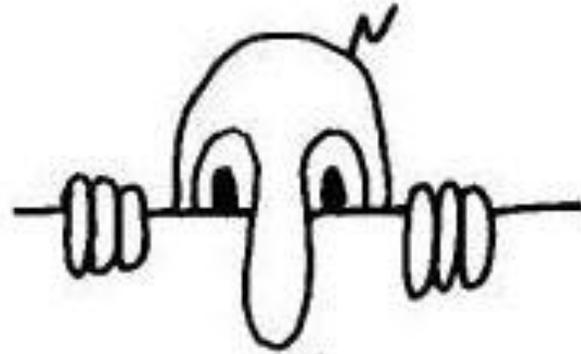


Shaping the Future of Construction in Mindset & Technology



- Industry-Wide Collaboration
- Coordinated Communication
- Industry Engagement
- Team Work

Shaping the Future of Construction in Mindset & Technology



- The construction Industry has been looking over the parapet for far to long, New opportunities are emerging and new developments are re-shaping our Industry, from new technologies to revolutionary construction techniques.

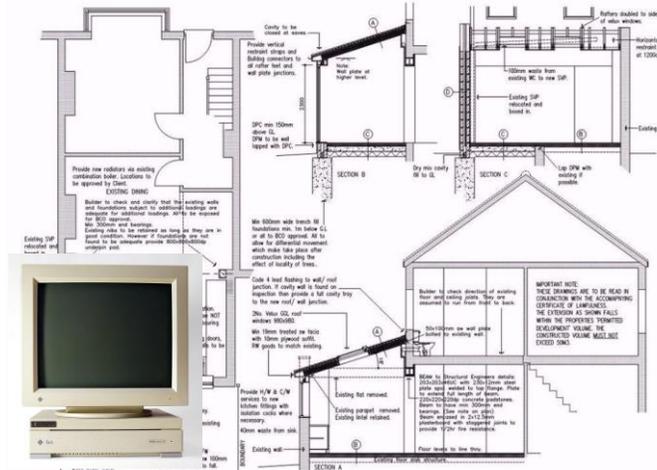
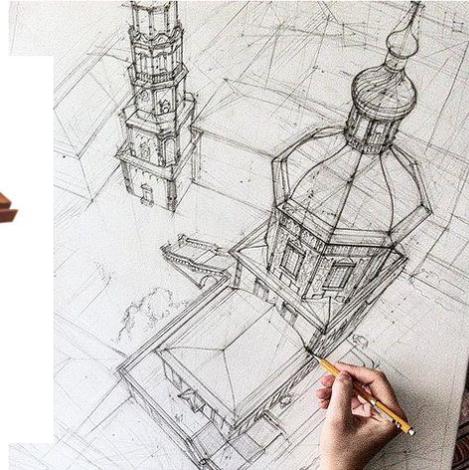


But Today:

There is a construction puzzle and a barrier to making everyone work collaboratively and make every piece fit, and make every project work as intended.



Innovations! The Barriers !



Innovations.! Spearheading Transformation



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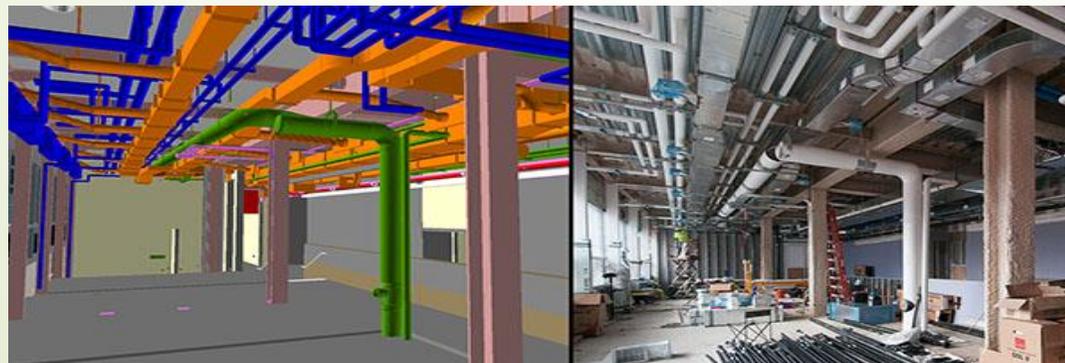
Building information Modelling

Its an industry game changer

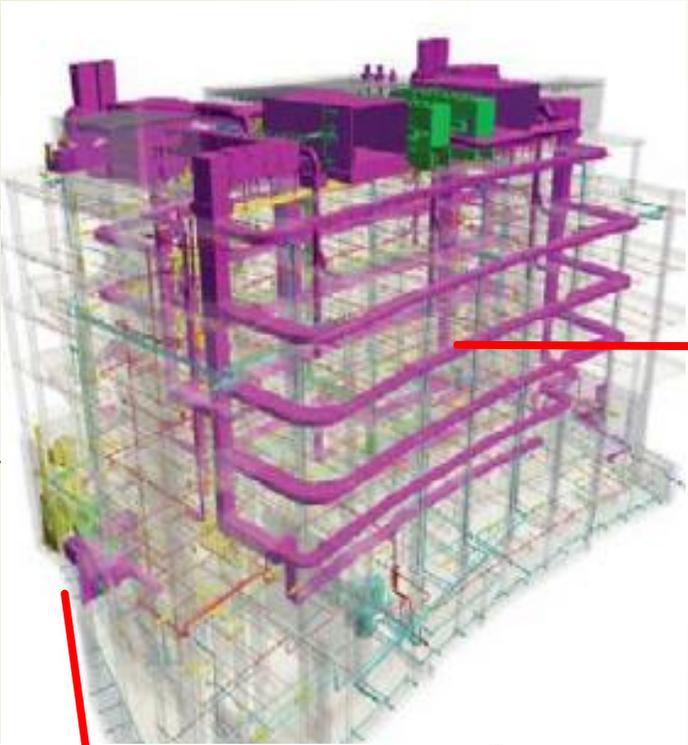
Its more than 3D graphics, its also about DATA

Its about de-risking construction and is therefore about efficiency making it Faster, cheaper, and better in every way

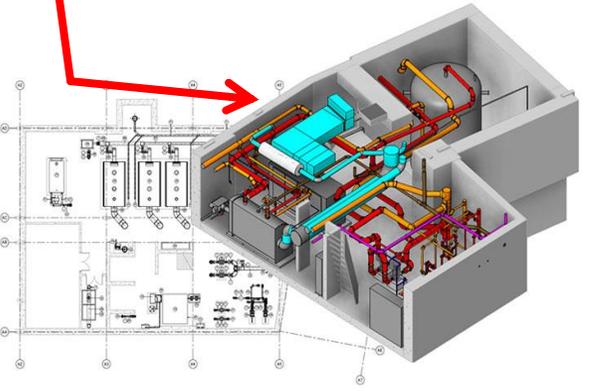
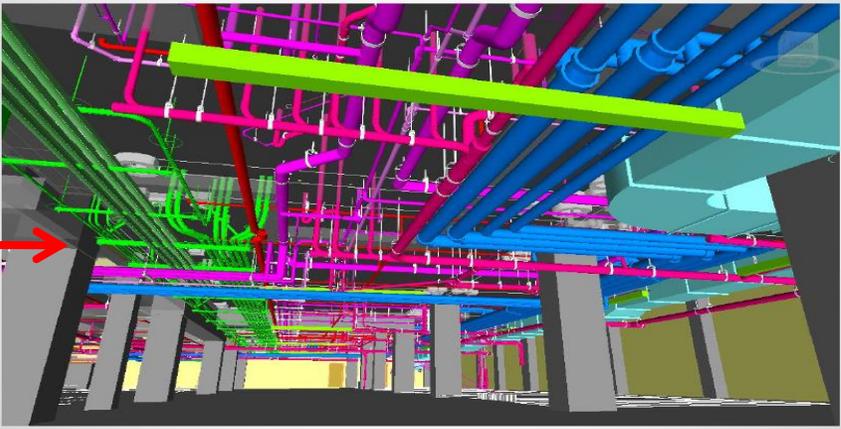
- Clients want it;
- Engagement is not a choice;
- Its Improving the Quality of Data;
- **Collaborating to Innovate;**



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Above Ceiling Coordination of Complex Systems



| Process, Expectations, Output | |
|-------------------------------|--|
| Without BIM | Virtual Experience With BIM in Healthcare |
| | |
| | |

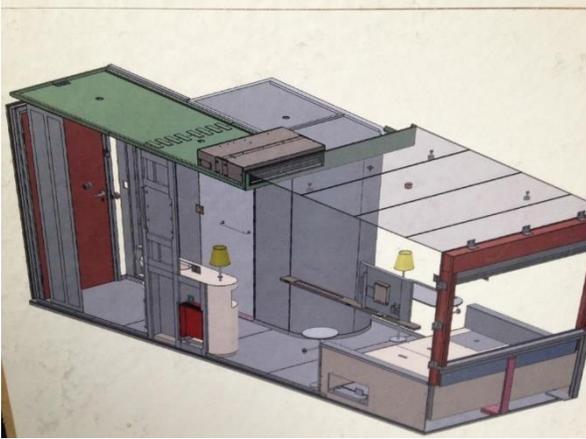
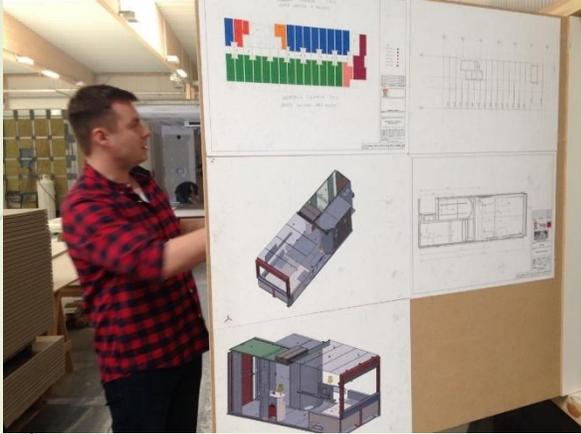
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Collaborating to Innovate;

5D BIM

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OFFSITE & MODULAR CONSTRUCTION

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- Between 20 & 30% of the Global construction market now takes place offsite
- It is currently estimated that the value of this work is around £100 million & Globally £2.75 Billion
- There are four main categories of production

Offsite is most commonly associated with pre-fabricated post war buildings but is increasingly technology driven



Offsite includes modules, pods, 'kit' homes, panelised systems and small scale items assembled offsite, such as windows and doors

OFFSITE & MODULAR CONSTRUCTION

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- BIM Technology is Revolutionary for Construction, bringing together design, planning and infrastructure and enhancing communication between contractors, sub-contractors and the supply chain.

Digitising Construction



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Virtual Reality

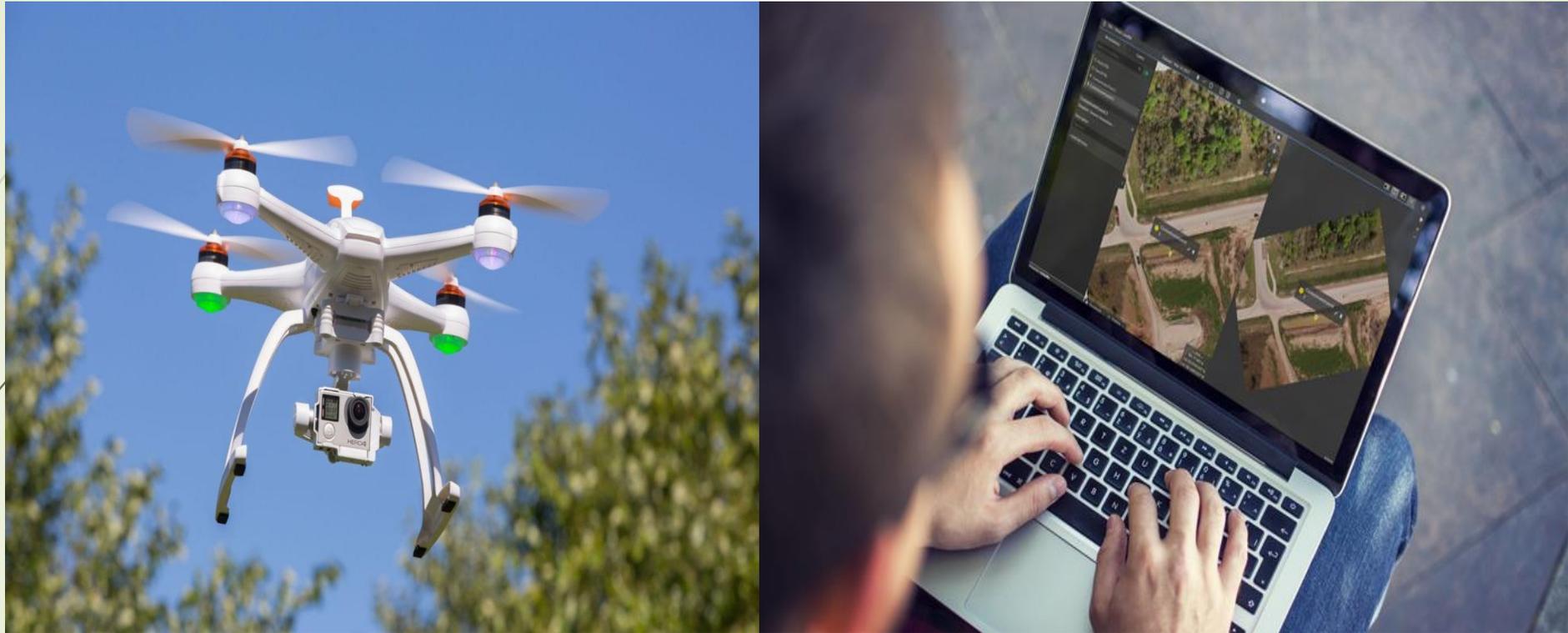


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Augmented Reality

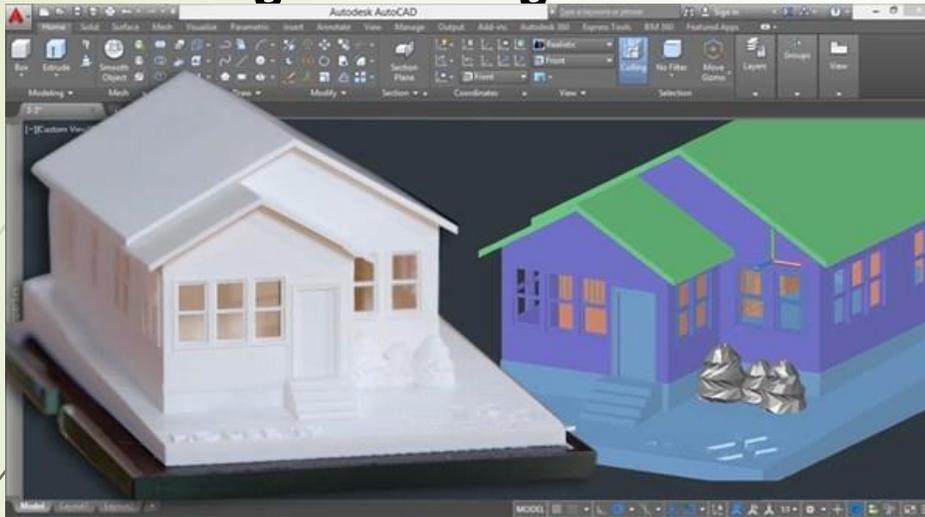
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Drones

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3D Printing & Plotting



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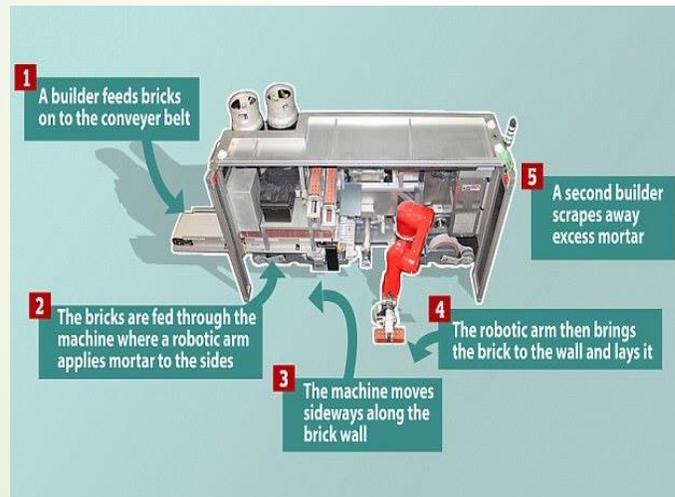
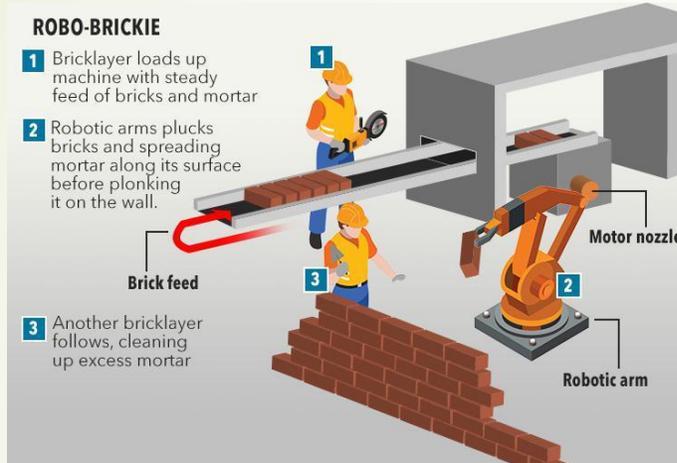
Nanotechnology



GRAPHENE



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Rise of the machines:

Robot Brickies could be on site soon !

A digital revolution is redefining how we as an industry operate. By adopting and embracing the rise of digital solutions we are more able to deliver efficient, effective and safer solutions

Traditional Brickies could find themselves out of jobs by 2050 thanks to the rise of robo-builders, with construction sites becoming virtually human-free zones.

BRICKLAYING SAM

The future of construction: Hand-built by robots?

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Rise of the machines:

Hadrian X from Australian company Fastbrick Robotics

The robot brickie is named after the Roman emperor Hadrian, who in 122 AD began to build a defensive wall that stretched nearly 75 miles long – better known as Hadrian's Wall.

ROBOTIC HADRIAN X

The future of construction: Hand-built by robots?

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EXOSKELETONS the tool of the future for construction workers?

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the future DAGRI SMART HELMET for construction workers?

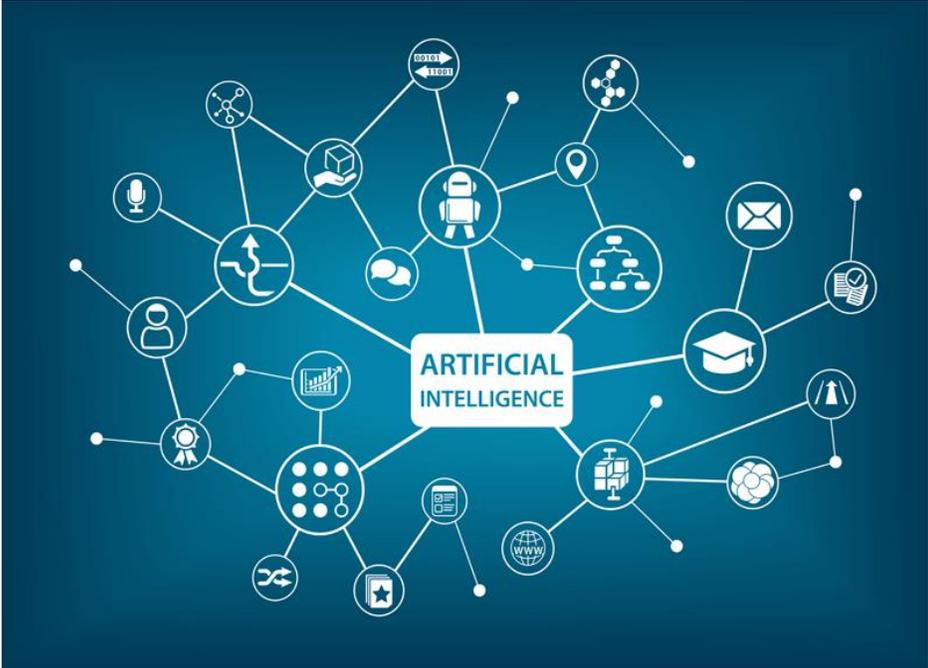
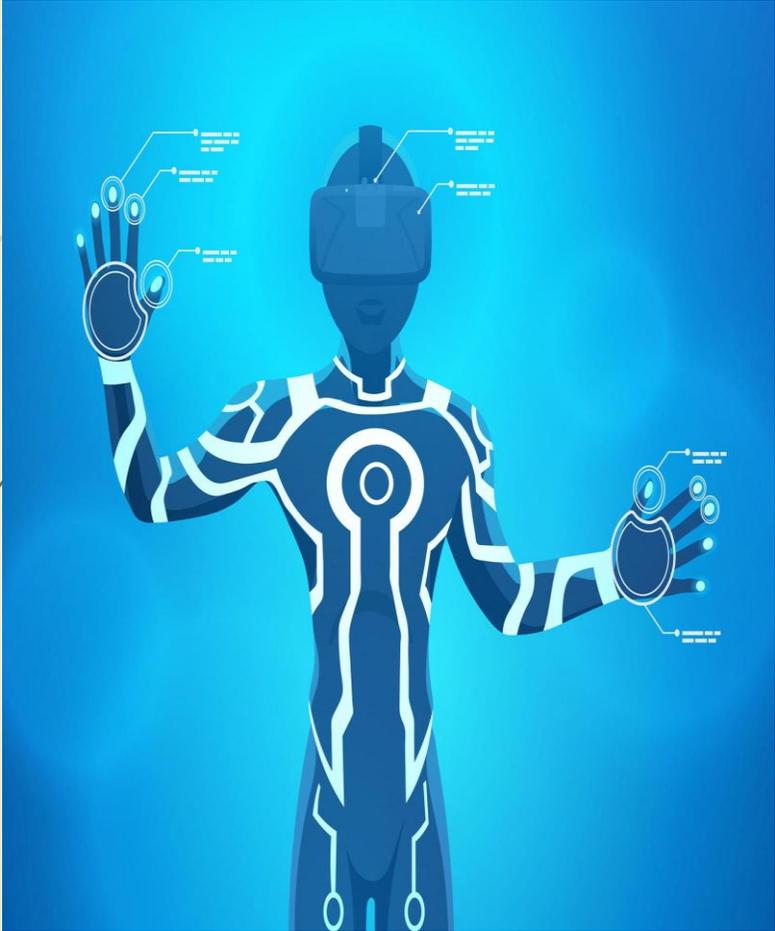
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- Technologies that previously existed only in the realms of science fiction – drones, augmented reality, Robotic equipment, 3D printing, to name but a few – are now mainstream and are beginning to be adopted by construction companies to enhance output and productivity.

The future of construction - Hand-built by robots?

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**The future of construction:
Artificial Intelligence**



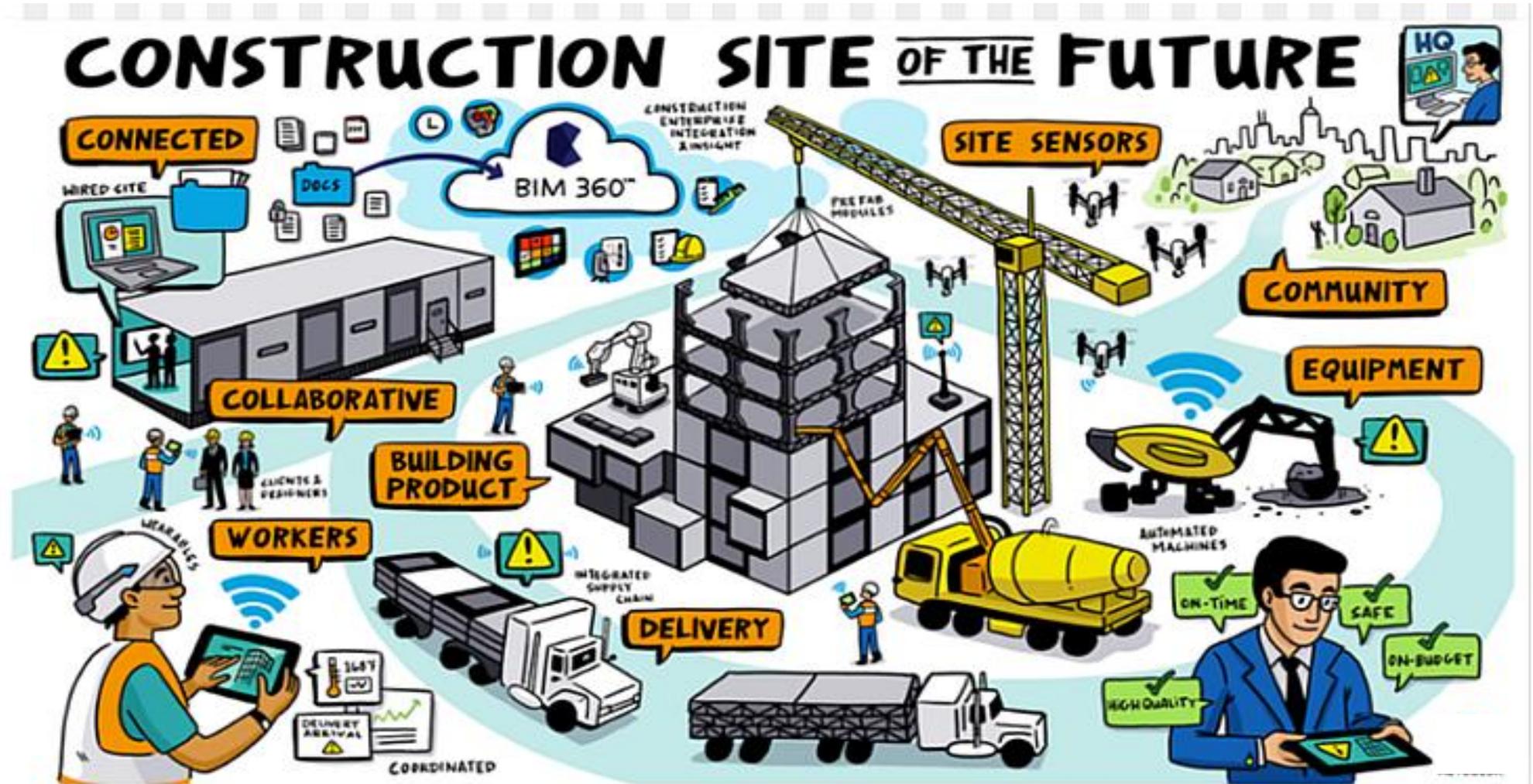
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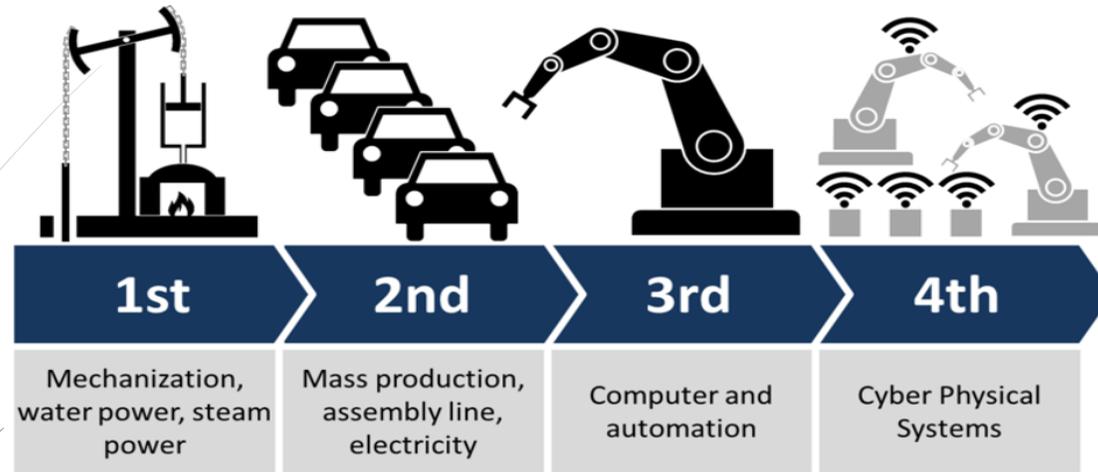
The rise of Artificial Intelligence in the construction sector



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"The Fourth Industrial Revolution".

The transformation which is expected in Industry within the next couple of years will be revolutionary.

Are we ready ?



Happy to take any Questions

