



Image source: Getty Images

Building the Future – Construction Insurance and the 4th Industrial Revolution...

17th July 2019

John Nicholls – Construction Product Lead

Risk Solutions



HSB Engineering Insurance

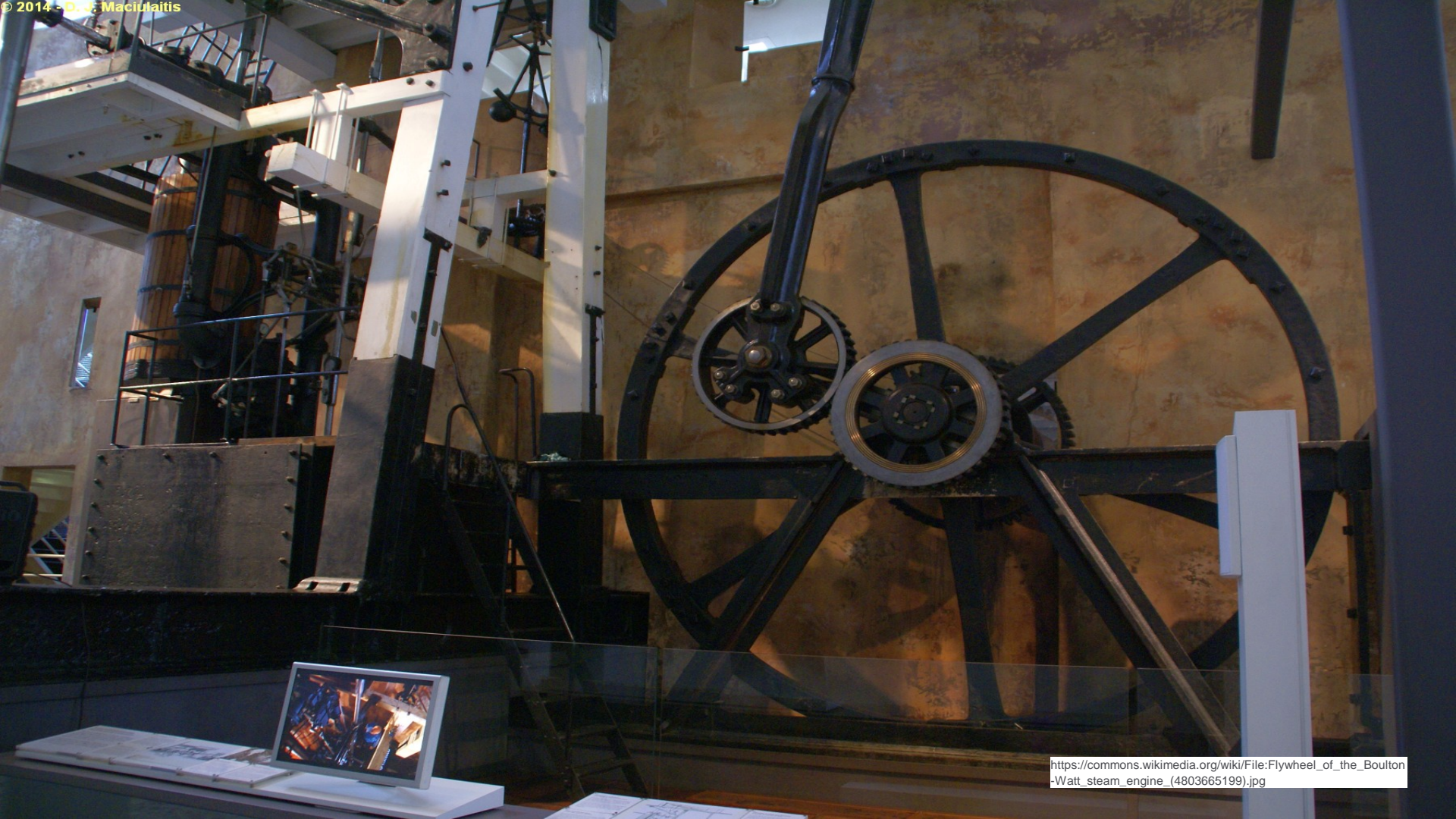
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The 4th Industrial Revolution

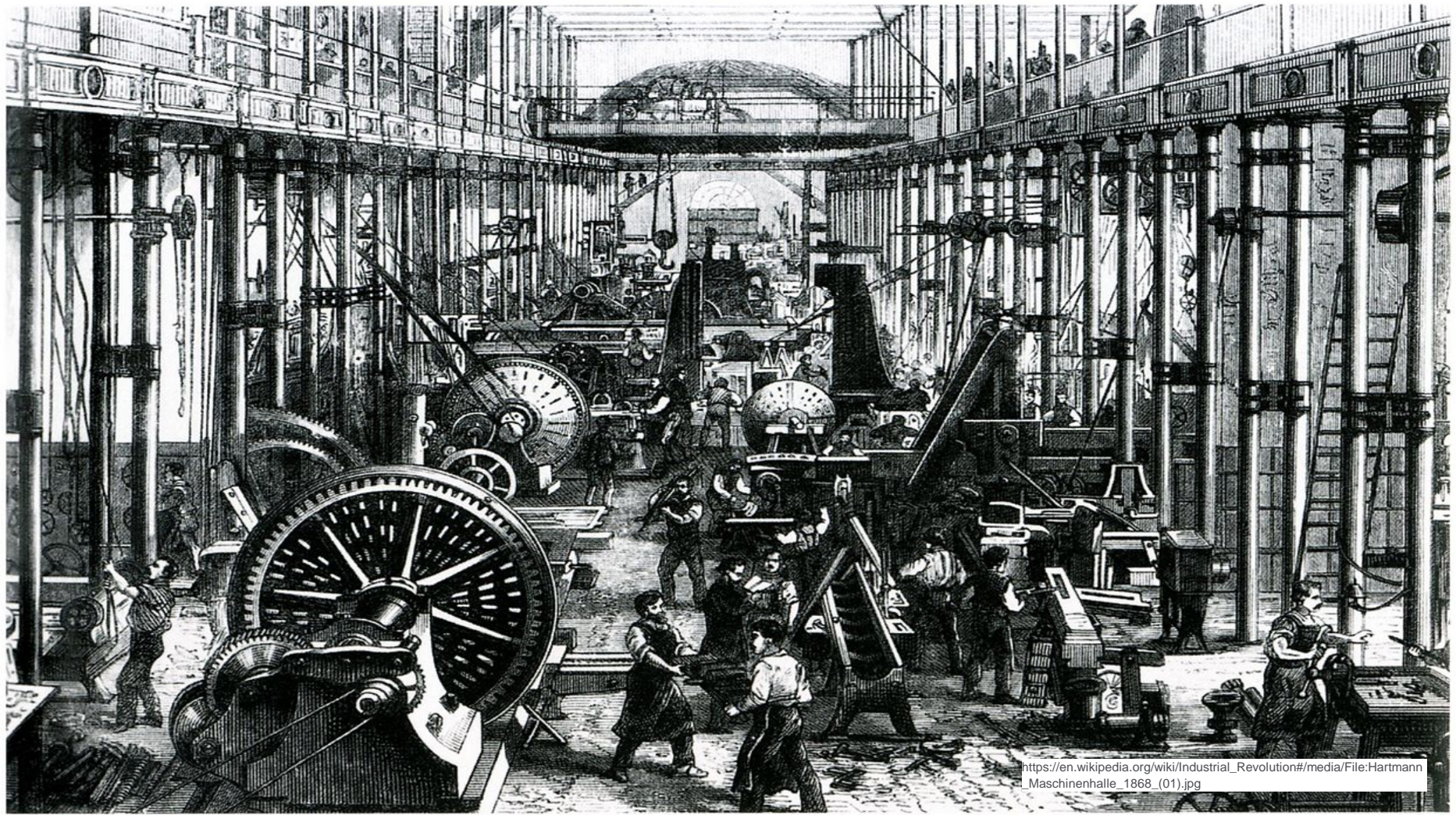


First (1760 to 1840)

- Mechanization of the workplace
- Steam and water powered machinery
- Cement
- Origins in Europe and the USA



[https://commons.wikimedia.org/wiki/File:Flywheel_of_the_Boulton-Watt_steam_engine_\(4803665199\).jpg](https://commons.wikimedia.org/wiki/File:Flywheel_of_the_Boulton-Watt_steam_engine_(4803665199).jpg)



[https://en.wikipedia.org/wiki/Industrial_Revolution#/media/File:Hartmann_Maschinenhalle_1868_\(01\).jpg](https://en.wikipedia.org/wiki/Industrial_Revolution#/media/File:Hartmann_Maschinenhalle_1868_(01).jpg)

Industrial Revolutions



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- Mass production
- Machine tools
- Assembly line
- Electricity and telecommunications
- Britain, Germany and the USA

Second Industrial Revolution



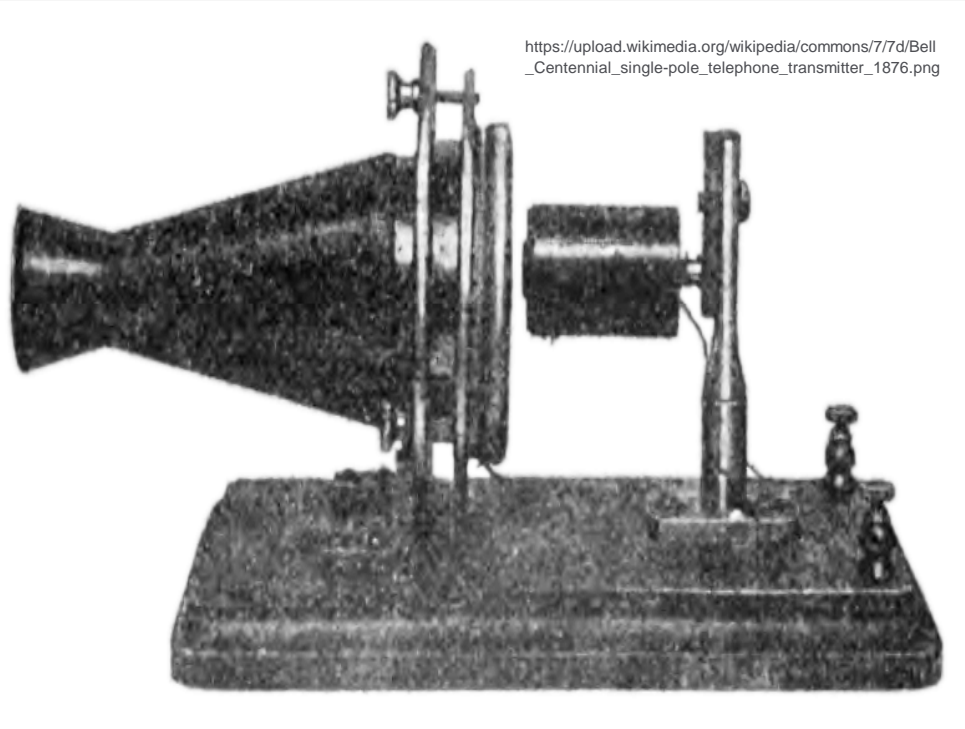
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https://upload.wikimedia.org/wikipedia/commons/8/80/Edison_in_candescent_lights.jpg



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Industrial Revolutions



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First (1760 to 1840)

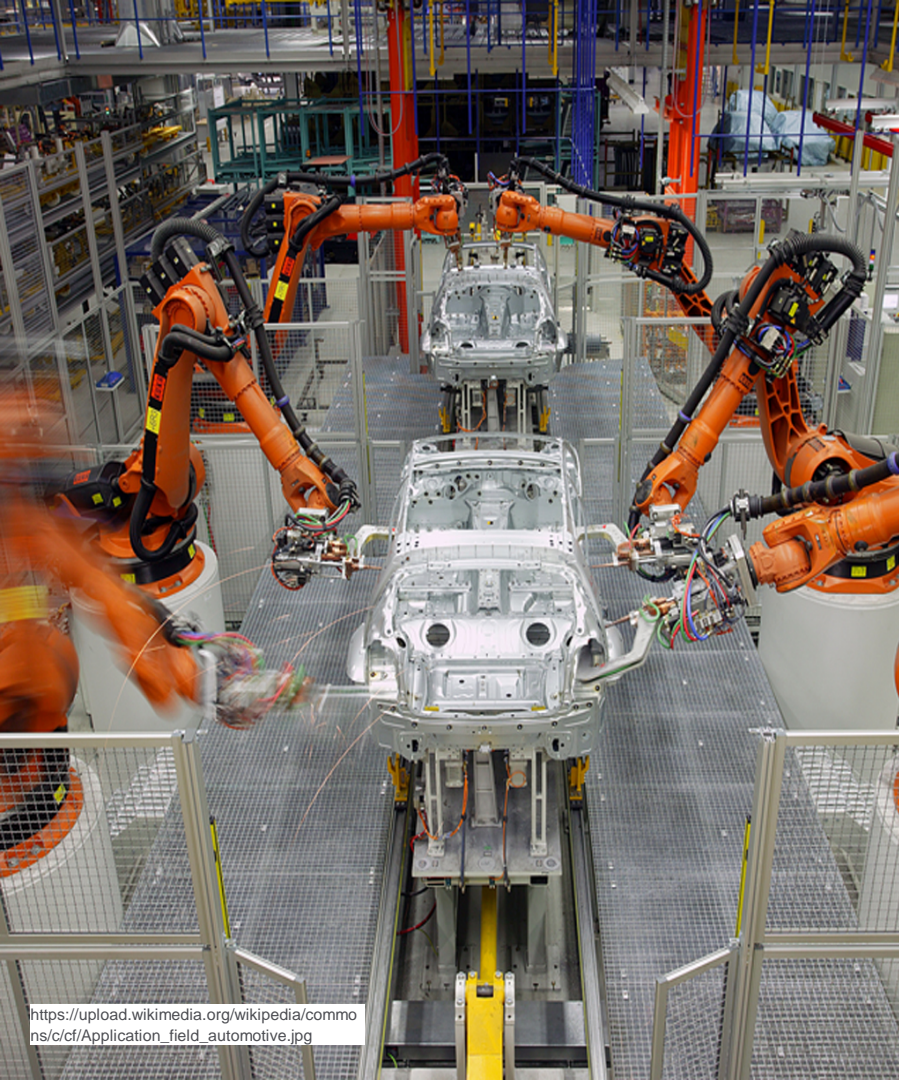
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Third (1970 to ?)

- Nuclear energy
- Microprocessor
- Biotechnology
- Automation
- The Internet



https://upload.wikimedia.org/wikipedia/commons/c/cf/Application_field_automotive.jpg



https://upload.wikimedia.org/wikipedia/commons/7/77/Bellefonte_Nuclear_Power_Plant.jpg



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Industrial Revolutions



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Fourth
(? to ?)

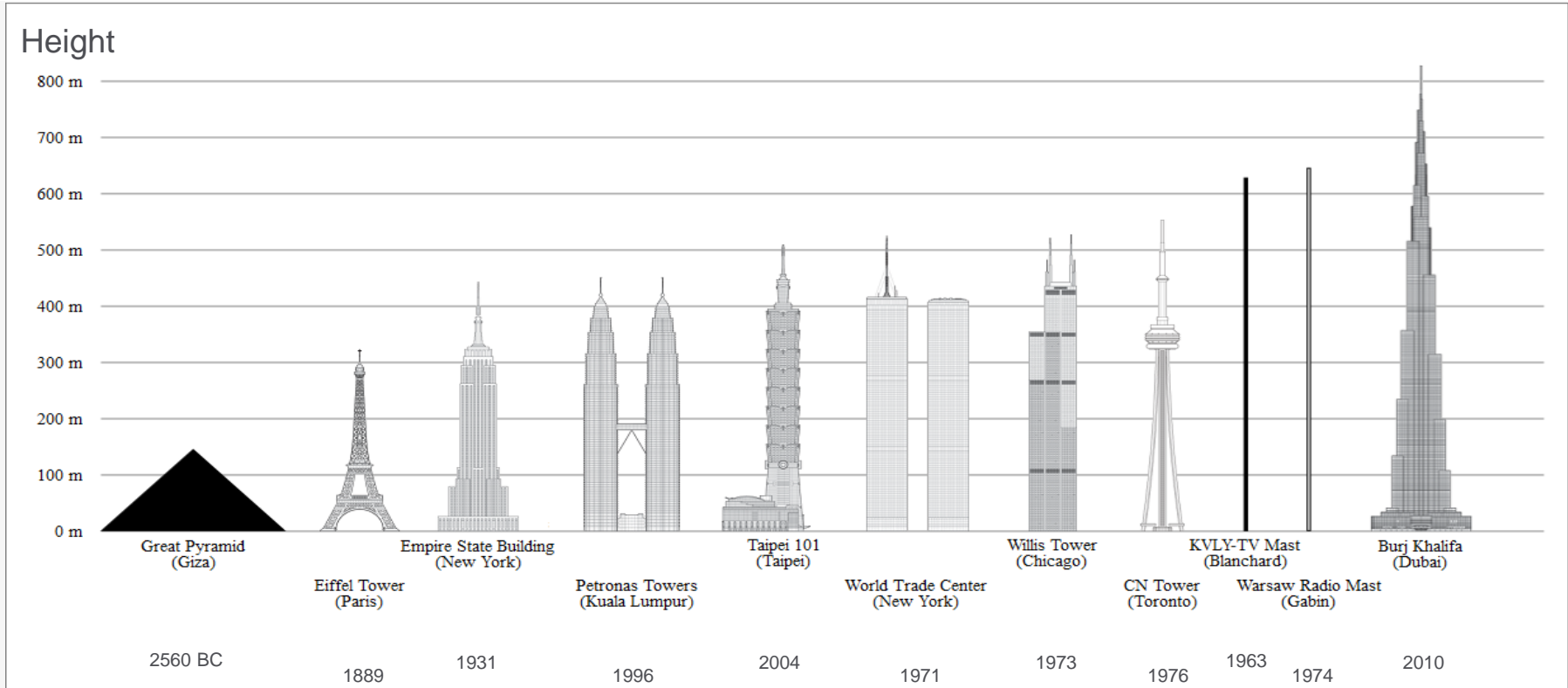
- Advanced automation – 4 D's
- Ultra connectivity through IoT technology
- Data analytics
- Artificial intelligence
- Machine learning
- Smart factories

History of Tallest Structures



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An aerial night photograph of a complex highway interchange with multiple overpasses and ramps. The scene is illuminated by streetlights, creating a mix of warm yellow and cool blue tones. A semi-transparent green horizontal band is overlaid across the middle of the image, containing the title text.

Driving factors

Why is the use of tech innovation in the construction industry increasing?



Current innovation

Current innovation

Modern Methods of Construction (MMC)



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50% of worldwide construction projects will involve an element of modular content by 2022

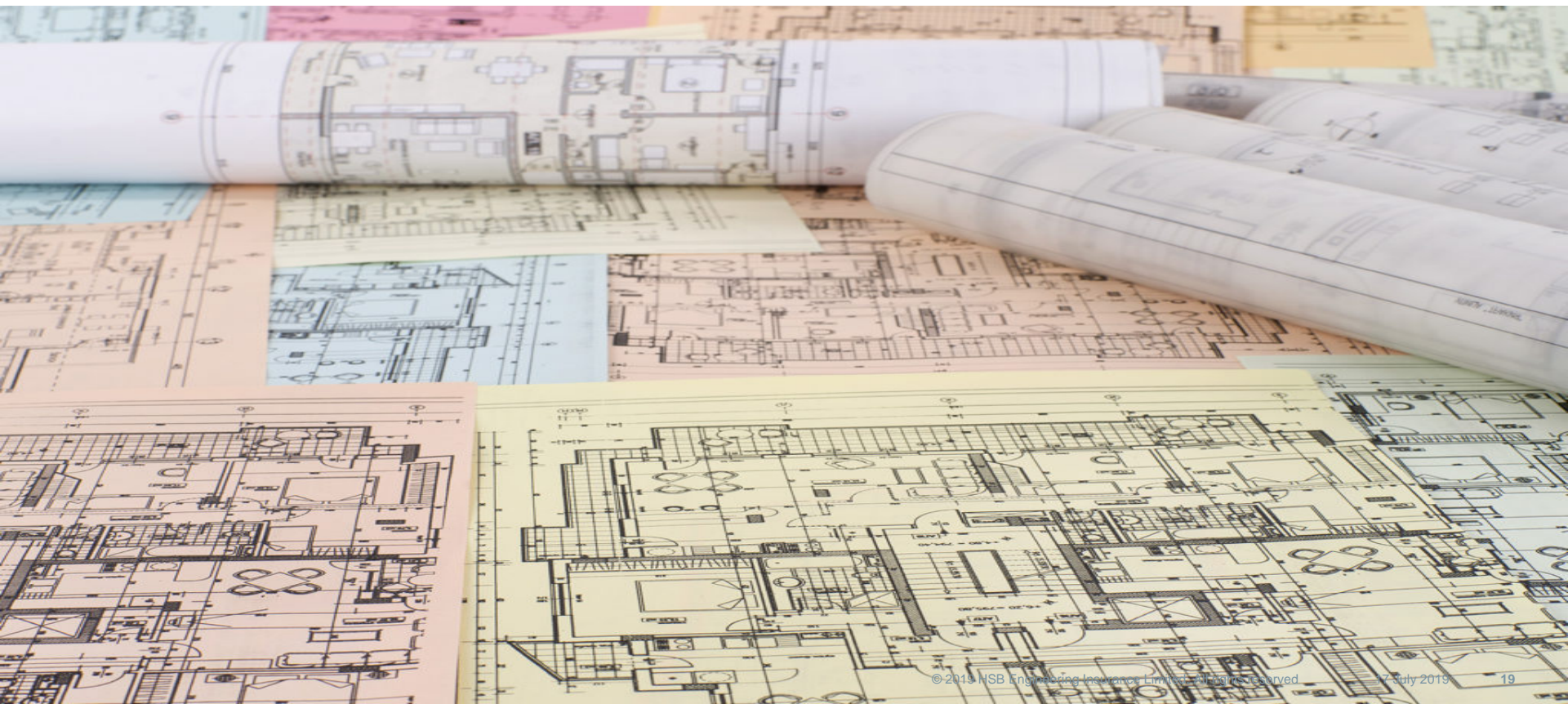
Current innovation

Building Information Modelling (BIM)



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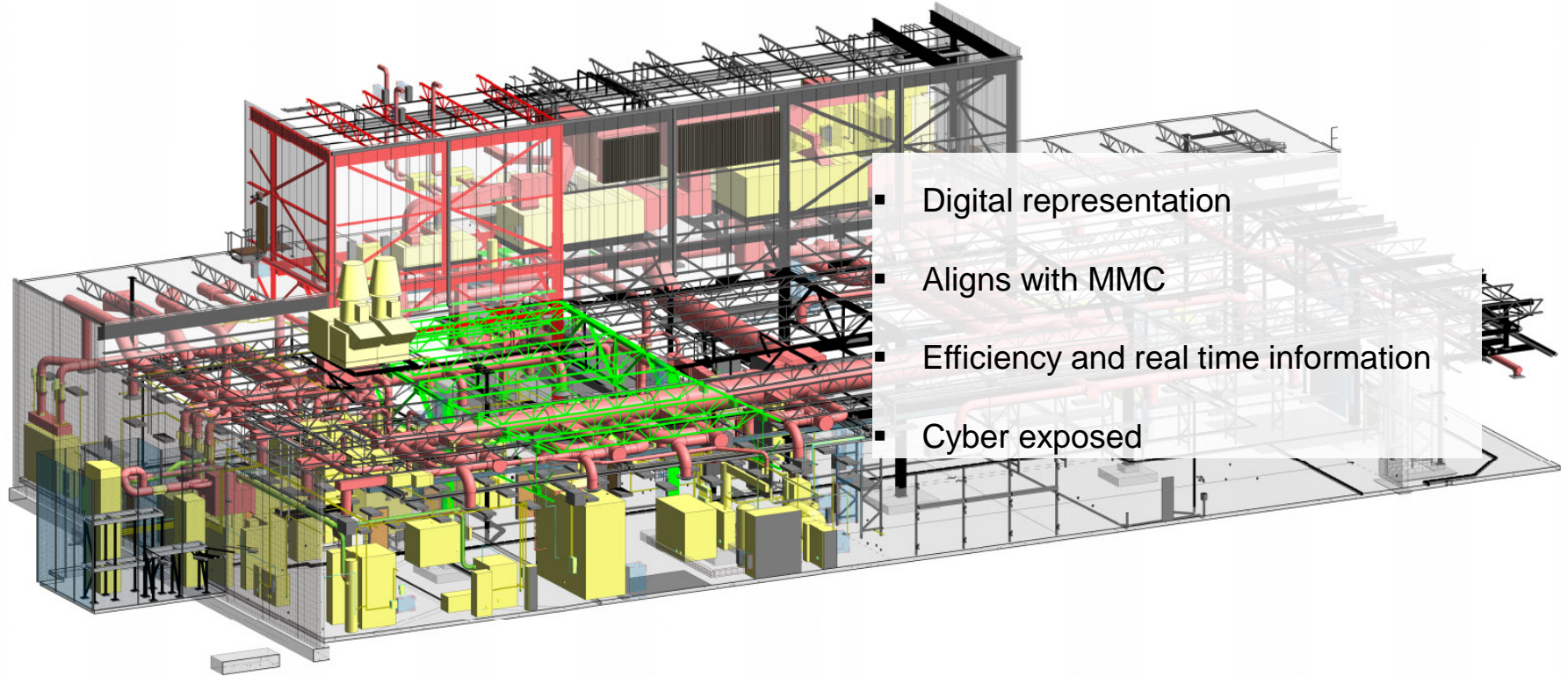


Current innovation

Building Information Modelling (BIM)



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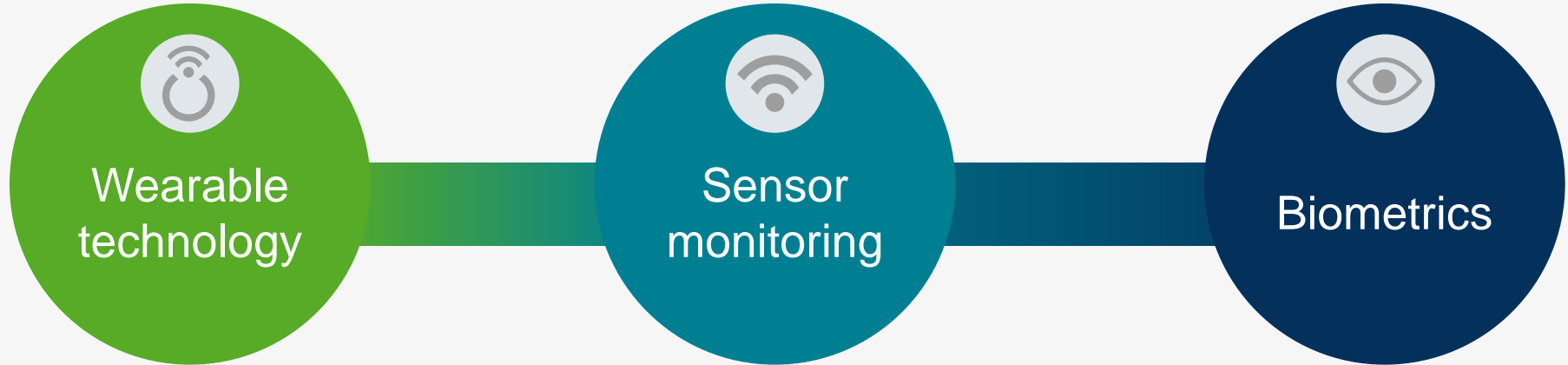
- Digital representation
- Aligns with MMC
- Efficiency and real time information
- Cyber exposed

Current innovation

Construction plant and equipment technology



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Construction-related technology firms have reportedly acquired \$10.0bn to support research and development

Current future innovation

Autonomous plant and equipment



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To Infinity and Beyond...

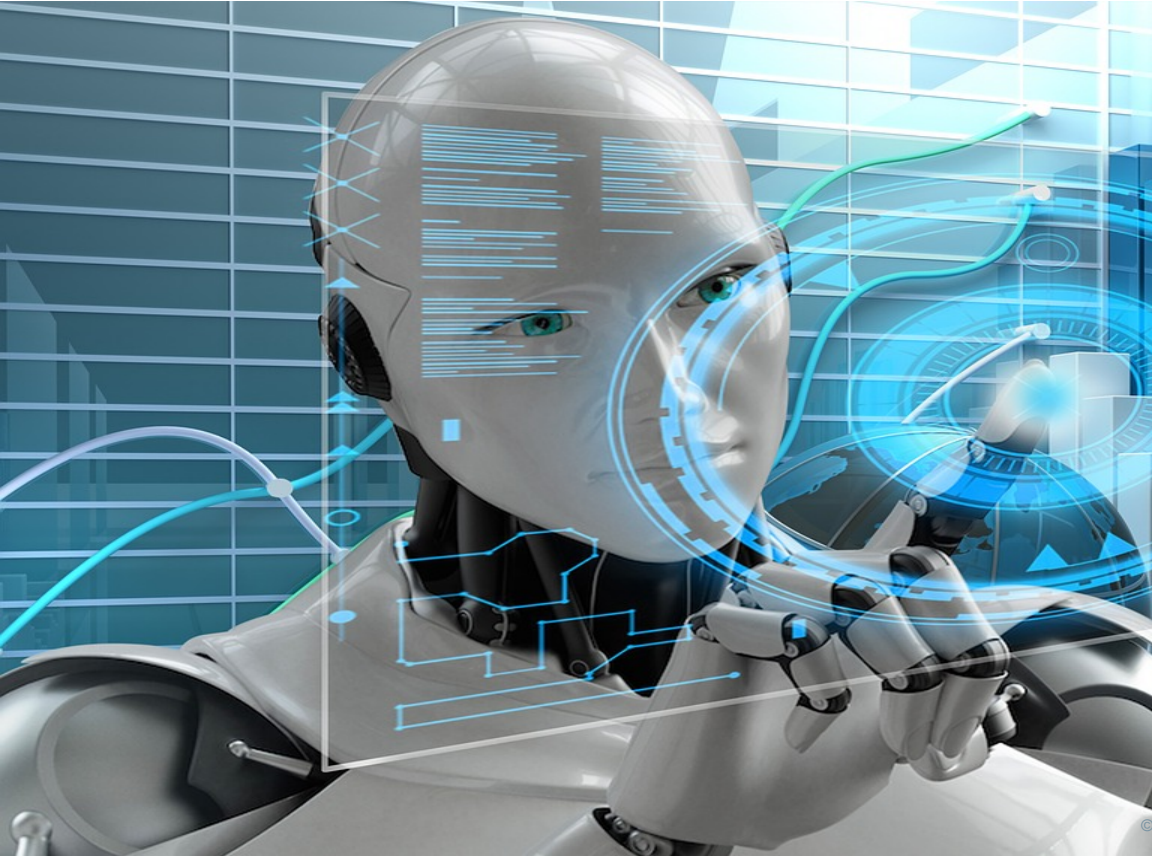
Future innovation

Artificial intelligence



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- Hardware-embedded AI
- Ultra machine learning capability
- Emotional intelligence
- Virtual eradication of human error
- Quality and speed of site construction

<https://www.needpix.com/photo/1287856/artificial-intelligence-technology-futuristic-science-intelligence>

Future innovation

Programmable materials



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- 3D Printing
- Intelligent Materials
- Reacts to environmental influences
- Effects on traditional perils
- Enhanced efficacy considerations

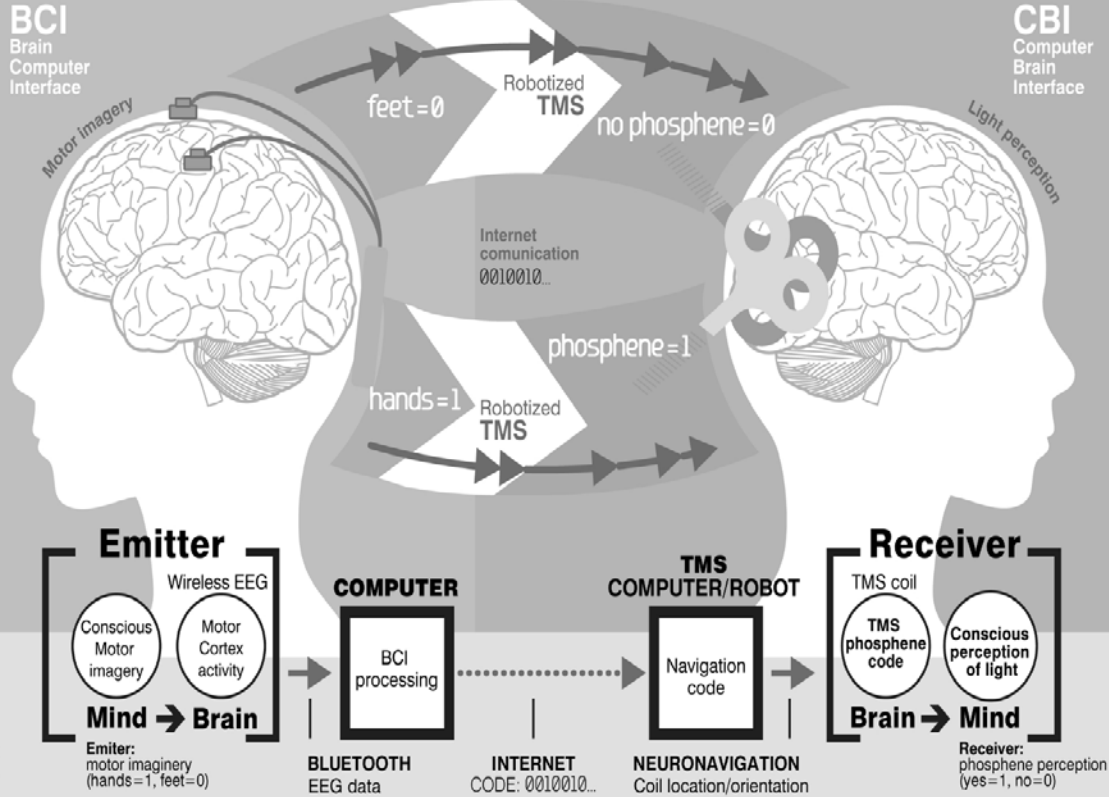
Future innovation

Brain to Computer Interface



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https://upload.wikimedia.org/wikipedia/commons/c/cf/Brain-to-brain_%28B2B%29_communication_system_overview.jpg



- Integrated link between brain and computer
- Capture neural signals
- Real time control of devices
- Global reach of skills

Building the future



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Tech in construction has the potential to solve many of the most prevalent challenges facing the sector by unlocking new safer and efficient ways of delivering projects

▶ The insurance industry will play a vital role in supporting innovation and progress

▶ Insurance industry needs to keep pace, recognise the changing landscape of risk and deliver relevant insurance solutions



START

STOP
ENGINE



Image source: Getty Images

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