Construction Industry – Future of Construction

CLOCS | Construction Logistics and Community Safety

Room 1	Data Analytics	Internet of things	Intelligent Transport Systems	Net Zero Design	Aging Infrastructure	Drones	Automation
Room 2	Data Driven Design	Project Digitalisation	Digital Modelling	Blockchain	Modular Construction	Air Quality	Supply Chain Shape
Room 3	Offsite Manufacturing	Corporate Compliance	Design for Disassembly	Value-Based Services	Robotics	Digital Fabrication	Intelligent Buildings

Room 1

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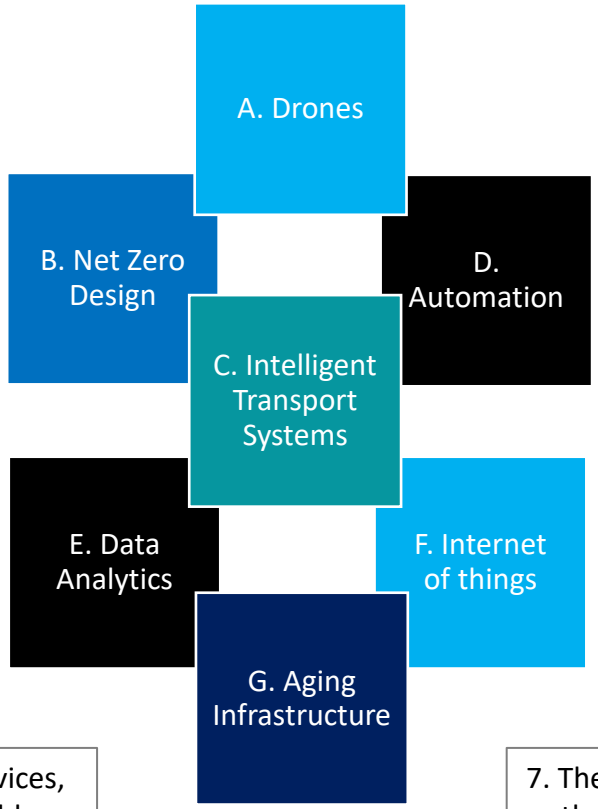
1. Enable a smarter, more integrated system for moving passengers & freight. Allow modes to communicate with each other & the environment, leading to integrated & inter-modal transport solutions, maximise efficiency.

2. Automatic control of processes or operating equipment with minimal or reduced human intervention. Faster turn-around time & reduced cost, will lead to an increase in productivity.



5. Competition for land, ambitious carbon emissions reduction targets make retrofitting and reuse of existing assets a key priority where most current building stock will still be around in 2050.

3. Used to conduct site surveys, construct 3D models, monitor, inspect & maintain infrastructure & buildings. Perform tasks in difficult of dangerous terrain reducing cost and risk.

6. Gives decisionmakers insights & information to help improve asset management, risk management & interactions between customers & suppliers. IDs opportunities for innovation with data for improved design.

4. The connection of a huge range of devices, sensors & machines to the internet, enables city infrastructure to be designed and operated in a more integrated way.

7. These type of buildings produce as much energy as they use, advances in construction technologies & renewable energy have driven an increase of highly efficient buildings. Buildings use 40% of world's energy.

Room 2

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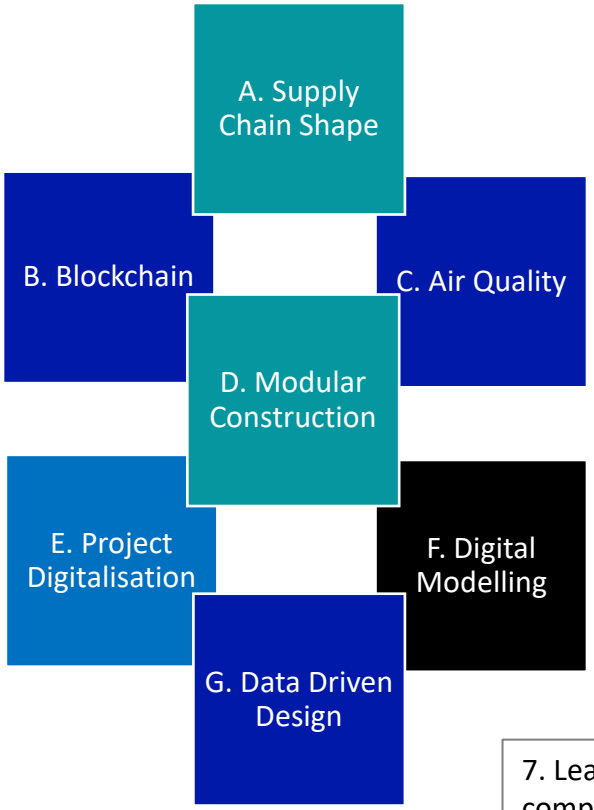
1. Smart asset management, where a single distributed ledger provides improved security & efficiency for large number of assets & stakeholders. Speeds up adoption of smart grids validating authenticity & source of transactions, helping choice of supplier.

2. Parametricism is a style within contemporary architecture hailed as successor to post-modern & modern architecture. DDD is where new projects emerge based on data inputs, such as floor space, sunlight, local weather, opening new levels of building performance & operation.



5. Entire buildings 'manufactured' off-site in transportable modules, complete with services, fixtures, finishes then assembled on site. Expands easily & quickly affording flexibility & adaptability. Reduced cost, time on site, waste.

6. It is a critical challenge for national governments & city authorities. Pollutant digesters in building facades or hard surfaces can remove, filter or transforming harmful airborne contaminants.

3. Earlier contractor involvement gives opportunities like digitalisation of supply chain (eg BIM), and are a source of employment, skill development & economic value.

4. Models of infrastructure, incorporating time-based simulations (eg of population growth, weather events) give understanding of project impact & improve environmental & social performance through scenario testing.

7. Leads to more granular understanding of components & performance, so new opportunities for planning, project management & real-time analytics. More transparent & flexible processes & concept of 'lifecycle BIM'.

Room 3

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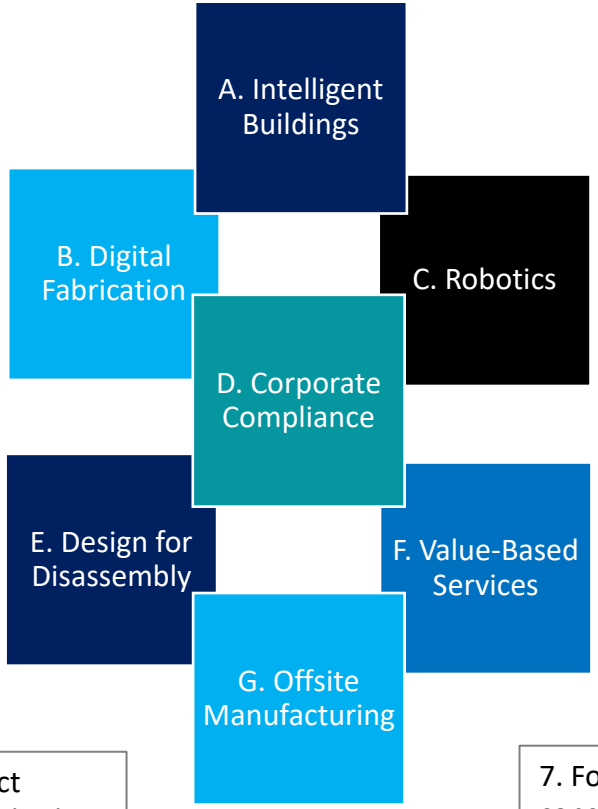
1. Production of purpose-built shapes that cannot be produced by any other method; productivity can be up by 80% & enormous reduction in waste. Construction time can shrink from weeks to hours with much lower costs.

2. Work in all weather, no need for rest or sick days, making 24hr construction more common & reducing project timelines and disruption. Used in dangerous conditions meaning improvements for workers.



5. Through a combination of new technologies & interconnected systems, buildings can become more energy & resource efficient, more secure, & more pleasant in which to work.

3. Delivering a certain outcome to client (eg lower carbon emissions) rather than selling a product. About how something operates, rather than how designed, so a shift in focus from capital to operational expenditure.

6. Manufacture of whole buildings & component parts off-site for permanent installation on-site. eg constructing bathroom pods in a factory moves 30 trades off-site, reduce carbon, improved site safety.

4. Policies & procedures to prevent & detect violations of law, regulations & ethical standards by an organisation's stakeholder. Creating a culture of compliance & accountability is becoming a business priority.

7. Focus on deconstruction process as well as construction. Core principles include initial selection of recyclable materials, use of fewer