CONSTRUCTION INDUSTRY COUNCIL
建造業議會

CIC R&D Fund Research Agenda 2022

Research Areas	Agenda
Building Information Modelling	- Development of **automated building code compliance checking tools** for regulator's acceptance e.g. by using project BIM models and/or surrounding GIS data. - Development of **integrated digital solutions for enhancing site operations and supervision** for new works or maintenance works, including safety, health, hygiene, logistics, quality etc., by using BIM, IoT, AI and/or robotics etc. - Development of **integrated digital solutions for enhancing design for manufacture**, assembly, MiC, safety, maintainability and sustainability etc., by using BIM, IoT, AI and/or robotics etc. - Development of **digital solutions to facilitate checking of as-built against design** e.g. by auto-building of BIM models from laser scanning data (point cloud) etc. - Development of **integrated digital solutions for project control**, such as using BIM for automated design checking and quantity take-off etc.
Construction Procurement and Project Management	- **Analysis of construction cost components** and identify ways to reduce construction cost. - **Cost benefit analysis** of target cost contracts.
Construction Productivity	- **Development of A.I.** for construction productivity enhancement; - Advanced design tools / construction techniques to facilitate the **wide adoption of DfMA** to achieve construction productivity; - **Re-engineering construction process** of specific trade(s) using innovative design, construction method, and advanced materials for construction productivity enhancement; and - Innovative technologies / tools for efficient and **effective construction management using 5G networks** to achieve construction productivity.

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Construction Safety	- Technologies to **prevent trapping** persons between lift car and objects in lift works - **Arc fault detection device** (AFDD) application on construction site - Technologies to **stop construction plants from slewing** or construction vehicles from moving when detecting a worker in close vicinity - Exploration of artificial intelligence (AI) to **prevent worker fall from height** by preventive approach instead of compliance check of personal protective equipment. - Technology / innovative solution on **providing assess and platform for external wall maintenance works** such as replacement of window frame or air conditioner, etc. - Technology / innovative solution on the **identification and its safe working load of heavy duties lifting gears** such as chain sling, shackles, etc
Green Construction	- Advanced software and tools to achieve **green construction** e.g. data automation / Internet of Things (IoT) for construction sites - Enhance holistic onsite **C&D waste management** - Use of **energy-efficient equipment**, clean fuel and faster electrification of construction sites - **Carbon benchmarking** by using CIC Carbon Assessment Tool methodology