CONSTRUCTION INDUSTRY COUNCIL
建造業議會

CIC R&D Fund – Research Agenda 2025

Research Areas	Agenda
Construction Safety	- Development of **Smart Site Safety System for SMEs to enhance project performance on safety** and productivity. Such system shall include, but not limited to, the following features: i) **Centralized Management Platform**; ii) **Digitized Tracking System** for Site Plants, Powered Tools and Ladders; iii) Digitized Permit-to-work System for **High Risk Activities**; iv) Hazardous Areas Access Control by **Electronic Lock and Key System**; v) Unsafe Acts/ Dangerous Situation Alert System for **Mobile Plant Operation Danger Zone**; vi) Unsafe Acts/ Dangerous Situation Alert System for **Tower Crane Lifting Zone**; vii) Smart Monitoring Devices for **Workers and Frontline Site Personnel**; viii) Safety Monitoring System Using **Artificial Intelligence**; ix) **Confined Space Monitoring System**; and x) Safety Training with **Virtual Reality Technology**; - Development of solutions for enhancing construction safety in **project management**; - Development of solutions to strengthen communication between **Management and Frontline Workers**; - Development of solutions to enhance **safety culture and awareness** of construction industry
Building Information Modelling	- **BIM for Automation:** Explore automated workflows to improve data management and collaboration within BIM. Investigate tools and technologies that can streamline BIM processes, reducing manual input and errors. - **BIM for AI:** Leverage AI to enhance BIM functionalities and insights. This research area focuses on using AI algorithms to analyse BIM data for predictive, optimising design processes, and improving decision-making throughout the construction lifecycle. - **BIM submission:** Develop plug-ins and tools to facilitate the BIM submission process - **BIM and Construction Robotics:** The integration of BIM with construction robotics is a promising area of research. This could involve the use of BIM data to guide autonomous construction robots

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	- **BIM for safety:** Safety is a top priority in the construction industry, and BIM can be used to support safety planning and management. Research in this area could include topics such as hazard identification, risk assessment, and safety training
Construction Productivity	- Development of **A.I.** for construction productivity enhancement; - Development of **robotic system** for enhancing site operation productivity; - Innovative technologies / Advance IoT construction tools for efficient and effective **construction management**; - Development of **advance construction materials** which could enhance productivity; - Development of **unmanned construction machinery** application;
Green Construction	- Study on **cost implications and environmental benefits** of green solutions/features/materials/Modern Construction Methods (e.g. MiC) - **Advanced Electrification** and **Renewable Energy solutions** on construction sites - Solutions for **advancing circular built environment** - Smart solutions for upfront **carbon reduction/accounting/material database** - Design for Sustainability, Resilience and Adaptation of **Climate Change**
Construction Business Development	- **Digital solution** to enhance management of construction project supply chain encompassing worker level - **Cost prediction model** for construction cost