

CIC R&D Fund – Research Agenda 2024

Research Areas	Agenda
Construction Safety	<ul style="list-style-type: none"> - Development of Smart Site Management System for SMEs to enhance project performance on safety and productivity. Such system shall include, but not limited to, the following features: <ul style="list-style-type: none"> i) Centralized Management Platform; ii) Digitized Tracing 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 of construction industry
Building Information Modelling	<ul style="list-style-type: none"> - 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; - BIM for sustainability: With the increasing focus on sustainability in the construction industry, there is a need for research on how BIM can be used to support sustainable design and construction practices. This could include topics such as energy modelling, life cycle assessment, and green building certification;

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	<ul style="list-style-type: none"> - 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	<ul style="list-style-type: none"> - Advance IoT construction tools to enhance construction productivity; - Innovative technologies / tools for efficient and effective construction management; - Development of A.I. for construction productivity enhancement - Development of advance construction materials which could enhance productivity - Development of unmanned construction machinery application
Green Construction	<ul style="list-style-type: none"> - Development of Construction & Demolition (C&D) Materials Sorting Solution to sort C&D waste by using robotic and / or AI camera solution in a congested construction site - Solutions to facilitate the reduction and sorting of C&D waste - Alternative energy solutions to decarbonize site operations - Solutions to enable a circular economy in the construction industry
Construction Business Development	<ul style="list-style-type: none"> - Platform and technologies facilitating Contractual BIM - Blockchain or CDE platform for payment certification/ settlement