

## CIC R&D Fund Research Agenda 2021

Research Areas	Agenda
Building Information Modelling	<ul style="list-style-type: none"> <li>- <b>Automated building code</b> compliance checking tools using project BIM models and/or surrounding GIS data for BD acceptance.</li> <li>- <b>BIM and digital solutions to enhance</b> site safety and reduce accident at site using BIM model and IoT data.</li> <li>- <b>Tools for auto-building of BIM models</b> from laser scanning data (point cloud) to facilitate checking of as-built with design BIM model.</li> <li>- <b>Tools / platform to facilitate</b> DfM (Design for Manufacture) and DfA (Design for Assembly) using BIM library objects and/or BIM model data.</li> </ul>
Construction Procurement and Project Management	<ul style="list-style-type: none"> <li>- <b>Analysis of construction cost components</b> and identify ways to reduce construction cost.</li> <li>- <b>Cost benefit analysis</b> of target cost contracts.</li> </ul>
Construction Productivity	<ul style="list-style-type: none"> <li>- <b>Development of Robots / A.I.</b> for construction productivity enhancement</li> <li>- Advanced design tools / construction techniques to facilitate the <b>wide adoption of DfMA in construction</b></li> <li>- <b>Re-engineering construction process</b> of specific trade(s) using innovative design, construction method, and advanced materials.</li> <li>- Innovative technologies / tools for efficient and <b>effective construction management using 5G networks</b></li> </ul>
Construction Safety	<ul style="list-style-type: none"> <li>- Technologies to <b>prevent trapping</b> persons between lift car and objects in lift works</li> <li>- <b>Arc fault detection device</b> (AFDD) application on construction site</li> <li>- Technologies to <b>stop construction plants from slewing</b> or construction vehicles from moving when detecting a worker in close vicinity</li> <li>- <b>Shelter attachment</b> to suspended working platform as sun screen</li> <li>- Provision of <b>shelter with sensor</b> to automatically move the shelter to screen sunshine on working floor</li> <li>- Exploration of artificial intelligence (AI) to locate workers prone to <b>fall from height</b> at locations with proper protection</li> </ul>
Green Construction	<ul style="list-style-type: none"> <li>- Advanced software and tools to achieve <b>green construction</b> e.g. data automation / Internet of Things (IoT) for construction sites</li> <li>- Enhance holistic onsite <b>C&amp;D waste management</b></li> <li>- Use of <b>energy-efficient equipment</b>, clean fuel and faster electrification of construction sites</li> </ul>