Phase 2 Statement Theme   Digitalisation
Statement number   1
Launch Date   04 August 2020
Closing Date for submission   14 September 2020

Title	Element/Objects Identification and Classification from Point Cloud (Scan to Building information Modelling)
Background	Conversion from point cloud to objects and then accurately tagging information is done manually now i.e. Scan and Tag. This is a time consuming and tedious process. Automating this process enables mass digitalisation of existing buildings and infrastructure.
Challenges	Some existing buildings drawings are missing or damaged. Most as-built drawings are also not updated. Using current reinstated method, staff must take measurement and determine the type of each item in the building or infrastructure, and manually update information in the drawing or 3D model. Although the use of Light Detection and Ranging (LiDAR) may help to automate this process, manual tagging and identification of the object is still a required step. Both the manual measurement, and the scanning and tagging process are very laborious and time consuming.
Desired Outcomes	We envision a solution to identify, classify, and automatically convert elements from point cloud to 3D objects with tagged information. Flag up if the point cloud information is insufficient for the conversion process. The platform is to reduce the duration and resources required to digitise the existing buildings and infrastructure.
Requirements	1. Proposal need to include acquisition of point cloud data from LiDAR scanner. 2. Acquired point cloud data must be georeferenced. 3. Proposal need to state the method of converting from point cloud to BIM model. 4. After conversion from point cloud, BIM model must still be georeferenced. 5. Proposal need to address how the object in the BIM model are identified and classified according to object category such as door, window, wall, column, floor, pipe, duct, and etc.
Possible Solutions	Plug-ins to point cloud file reader programmes, standalone conversion software etc.
Development Timeframe	Applicants are encouraged to propose phases of development and delivery. Total project period shall not exceed 12 months. A proposed timeline is as follows: 1. 2 months: To scan and acquire/process point cloud data.

	2. 4 months: To work on developing on point cloud identification and classification algorithm.
	3. 4 months: To work on backend platform for point cloud to object conversion.
	4. 2 months: To wrap up any outstanding matters.
Additional Info	NIL