PROJECT #6: FIELD DATA COLLATION TO SUPPORT REAL-TIME OPERATIONAL MANAGEMENT

Date commenced: January 2021 **Date completed**: July 2021

Partners: Lendlease Digital, Ynomia, Standards Australia, University of Melbourne, Queensland University of Technology

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PROJECT DESCRIPTION

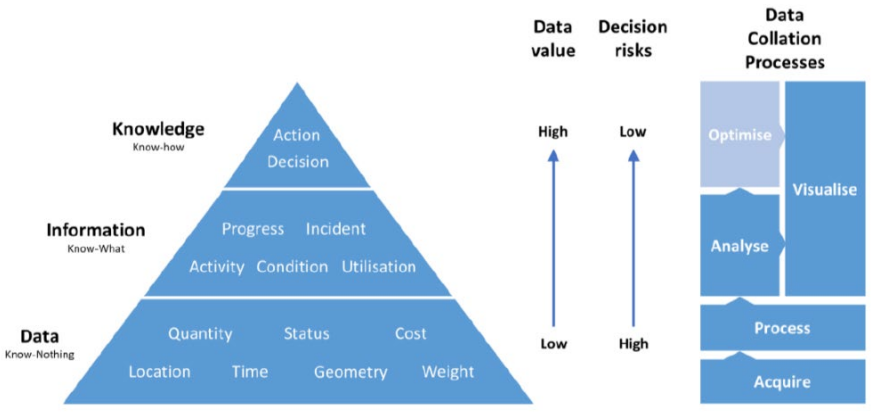
The lack of accurate and timely information from building sites makes project management difficult. Often, data and information is collected manually, which can be sporadic, costly and sometimes biased. This makes it difficult to track project progress and deliver projects on time and within budget.

Advances in sensing technologies make it practical and economically viable to monitor construction objects and activities automatically and in real time. The evolution of data to information and knowledge increases data's value and reduces the risks of making decisions based on incomplete data.

PROJECT OBJECTIVES

Project #6 aims to understand the opportunities and obstacles associated with using new sensing technologies to support project management and decision making on building sites. The project had 3 objectives:

- Understand how passive data collection can improve the management of on-site activities.
- Analyse state-of-the-art sensing and analytics technologies.
- Assess and validate key assumptions underlying an implementation roadmap in the field.



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KEY FINDINGS

Researchers from Monash University, the University of Melbourne and the Queensland University of Technology worked with industry partners from Lendlease and Ynomia. Together, they identified and mapped the technologies available to support the 4 main field data collation processes:

- Acquire – these technologies are classified as either mapping or positioning, and common platforms are listed
- Process – these technologies are summarised by data type
- Analyse – field data types are matched with the analysis they support
- Visualise – technologies are matched with 2 common means to visualise and communicate field operational information.

KEY ADOPTION DRIVERS AND BARRIERS

Drivers – automation, precision and accuracy, safety and predictability for future projects.

Barriers – budgets, late involvement in design/schedule, data management, site environment, integration with current practices.

TECHNOLOGY ATTRIBUTES TO CONSIDER

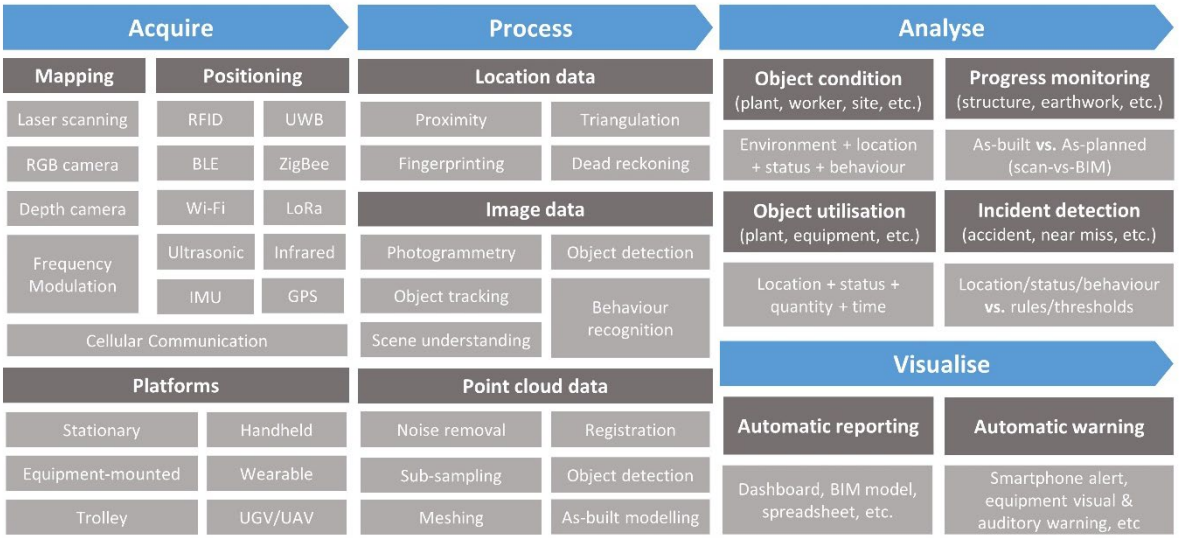
- *Accuracy and resolution*
- *Sampling rate*
- *Battery life*
- *Scalability*
- *Data latency*
- *Monetary and time costs*
- *Resilience to harsh and dynamic conditions*
- *Infrastructure requirements*

RECOMMENDATIONS

The project team identified the following recommendations, based on a literature review, market analysis and an onsite pilot using tracking technology to characterise and optimise waste disposal processes:

- Many technologies can track progress on building sites, but often they do not capture design changes. Tracking design changes and progress could provide more accurate data to guide future projects.
- Technology must support work practices and be appropriate for businesses of all sizes (including sole traders). User interface design is very important.
- It may be worth offering subcontractors incentives to use technologies.
- Technologies proposed for projects and systems trialled should have clear and communicated pathways for future use.

Data types and technologies in passive data collation



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