

Session 2-A: Big Data in the Built Environment

Room 202

Track: Resilience

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Questions:

- What does 'Big Data' mean to you?
- What are the state-of-the-art applications of "Big Data" in the building construction environment?
- What data can be captured in construction?
- How are we currently collecting these data?
- How can we improve the collection and use of such data?
- What are the opportunities for using "Big Data"?
- What are the areas with the greatest potential for "Big Data" in building construction in the future (10 to 20 years)?
- What are the enablers or opportunities to spur adoption of "Big Data" and related analytics in building construction?
- What are the potential challenges and barriers for "Big Data" in our industry?

Notes:

- Big Data may not be clearly defined in the area of Building Construction. While the practitioners have already realized the benefits of leveraging the numerous information generated in building construction and operation stage to support decision making.
- The promising application of such techniques in building construction includes: 1) forecasting the price of construction materials and pre-order the materials with anticipated price rising; 2) monitoring the usage ratio of elevators in the buildings for "smart" control of building equipment and energy saving; 3) tracking the site injury records to identify the time and trades with the highest risk of injuries.
- Facilitating information share is a potential approach for propelling Big Data application in construction. Currently, information is isolated within each company, through sharing useful information between companies, it is possible to contribute to the common knowledge of the construction industry.
- Concerns about Big Data in Building Construction. Ownership of the data and information is a key concern, as the information can be used for profit and the ownership of such information would decide who would enjoy such benefit. Another concern is about ethical of Artificial Intelligence (AI). Once we have a decision making based on the AI system

driven by the Big Data, who should be responsible for adverse consequences from the decision making. This is a particularly important issue exposed in self-driving cars and might be a future concern in a construction area with more AI-based decisions.

- Further opportunity: AE department has started to work with IST. The Building Construction area is a good testing bed to deploy the advanced data analytics techniques for improving the building operation performance. This area not only stands as a frontier of building construction research, but also a pressing need from industrial practitioners.