INTEGRATING INDOOR POSITIONING SYSTEMS AND BIM TO IMPROVE SITUATIONAL AWARENESS

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Situational Awareness

Situational Awareness in Construction Projects

“It is very difficult to visualize the flow of the work in progress on a construction site. This is more obvious for the interior finishing works” Sacks et al 2009

Source: https://ncep.noaa.gov

Source: https://bodaiju-residences.com
BIM and Situational Awareness

Increased Situational Awareness through:

- Information Cluster (consistency)
- Construction Digitalization
- Flows visualization
- Waste identification
Integrating Indoor Positioning Systems and BIM

Source: Adapted from Endsley, 1995.
BIM and IPS Concept Map

Resources Planning
- Carpenter 01 (beacon 40)
- Pilars (gateway 37)
- Beams (gateway 37)
- Pilars (gateway 42)
- Beams (gateway 42)

Indoor Positioning System (IPS)

2D
- Planned Task
- Actual Resource Location

BIM

3D
- Actual Resource Location
- Planned Task
Next Steps

- **Integration of BIM and IPS**
  - Definition of interface, mockups and usability questionnaires

- **Interface development and Pilot Project**
  - Analysis of Pilot Project outcomes, improvements, further implementation
  - Investigation of impact in situational awareness and decision making
Thank you!

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