UNB | Off-site Construction Research Centre
UNIVERSITY OF NEW BRUNSWICK | EST. 1785

PROJECT PROFILE

ENVIRONMENTAL SCAN OF CONSTRUCTION RESEARCH AT CANADIAN INSTITUTIONS

In a bid to decarbonize the construction sector at scale, the University of New Brunswick's Off-site Construction Research Centre, in collaboration with the National Research Council (NRC) Construction Research Centre, recently completed an extensive environmental scan to identify and analyze current research activities within Canadian academic institutions. This initiative is a crucial component of the National Research Council's (NRC) platform, serving a dual purpose: enhancing construction digitization and productivity, and fostering a collaborative environment among academic researchers and industry leaders. The scan, carried out through national workshops and surveys, reveals significant insights into the state of construction research and proposes pathways for future innovation.

KEY FINDINGS

1.Technological Innovations: Significant expertise is concentrated in the development of technologies such as robotics, automation, IoT, sensors, and reality capture. These technologies are primarily in the discovery and ideation phases.

2. Data Management and BIM: Advanced practices in data management and Building Information Modeling (BIM) are well-established, including the integration of AI approaches, especially in the implementation and adoption phases.

3. Sustainability and Circular Economy: Research on circular economy theories and sustainability approaches is prevalent across all phases of innovation, highlighting the sector's commitment to environmental stewardship.

4. Lean Production and Management Practices: There is substantial research on lean production and progressive management practices aimed at enhancing efficiency in the adoption phase.

METHODOLOGY

The environmental scan was executed through a series of workshops held in Vancouver, Edmonton, Toronto, Montreal, and Moncton. These workshops facilitated discussions among researchers and industry practitioners, followed by comprehensive surveys to capture detailed data on research activities. The collected data, comprising responses from 38 researchers across 17 academic institutions and 59 industry practitioners, provided a robust foundation for analysis.

GAPS & OPPORTUNITIES

1. Innovation Lifecycle: Research activities predominantly focus on the development and implementation phases, with less emphasis on the early innovation phases such as discovery and ideation, especially in areas related to people, sustainability, societal, and resiliency objectives.

2. Collaboration and Integration: There is a notable gap in joint research projects involving both designers and manufacturers, indicating a need for more integrated approaches in early innovation phases.

3. Industry Partnerships: The adoption phase of innovation lacks sufficient industry partners, suggesting the need for enhanced industryacademic collaboration to facilitate the transition from research to practical application.

CONCLUSION

The construction industry is on the brink of a transformative era. With the increasing need for sustainability, efficiency, and innovation, the environmental scan underscores the vibrant and dynamic nature of construction research in Canada. By addressing gaps and leveraging strengths, Canadian institutions can play a pivotal role in driving the construction sector towards a sustainable, digitized, and productive future.

If you are interested in getting involved in this initiative or other research and development projects, please contact the Off-site Construction Research Centre at: **offsiteconstruction@unb.ca**

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