



**STRATEGIC CONSTRUCTION  
MODELING AND DELIVERY**  
INDUSTRIAL RESEARCH CHAIR

# AN EVALUATION FRAMEWORK FOR ASSESSING THE IMPACT OF CONSTRUCTION RESEARCH AND DEVELOPMENT (R&D) ON UNIVERSITY, CONSTRUCTION INDUSTRY, AND GOVERNMENT

## ABOUT THE CHAIR

Established in January 2012 under the leadership of Dr. Aminah Robinson Fayek, the Industrial Research Chair in Strategic Construction Modeling and Delivery operates within the Department of Civil and Environmental Engineering at the University of Alberta.

The Chair brings together construction industry owners, contractors, and labour groups working in Alberta and across Canada to develop comprehensive research-based solutions to key industry problems. Giving particular attention to Canada's oil and gas, utilities, industrial, and commercial construction sectors, the Chair focuses on strategic concerns related to construction management—such as construction industry productivity, project delivery, and performance. Research undertaken includes improvements to labour productivity, structuring projects and teams, assessing owner and contractor competencies, and reducing project execution risk.

The Chair's research program takes advantage of fuzzy logic's ability to capture and quantify the many subjective uncertainties that challenge construction projects. Researchers combine fuzzy logic with other forms of uncertainty modeling, artificial intelligence, and simulation techniques to develop advanced decision-support tools and approaches.



## PROJECT PARTNERS



## BACKGROUND

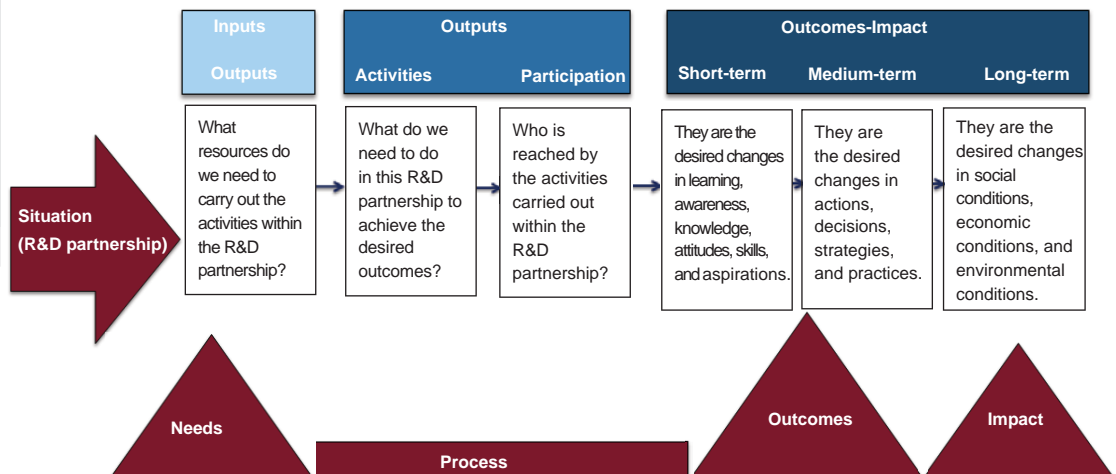
The construction industry lacks a framework for evaluating the outcomes and impacts of R&D partnerships between university, industry, and government groups. Logic models have been widely used to develop and evaluate programs in different contexts, such as health research programs, but they have not been applied in the construction research domain.

## OBJECTIVES

- 1 • Define and represent the different components (i.e., inputs, outputs, and outcomes) of construction R&D partnerships.
- 2 • Define and state the major evaluation criteria and corresponding metrics (i.e., indicators) for the inputs, outputs, and outcomes of the partnerships.
- 3 • Provide the construction domain with an approach to visualize the interrelation between the components of construction R&D partnerships.
- 4 • Establish the correlation among the different components of R&D partnerships with each other to determine which inputs highly relate to the outputs, and which outputs highly relate to the outcomes.

## RESEARCH OUTCOMES

- A generic logic model useful for reviewing any construction R&D partnership.
- A generic submodel for reviewing and evaluating different chairs within the NSERC IRC program.
- Final evaluation of the NSERC IRC in SCMD and feedback for improved performance.
- Identification of optimal investment focus areas for different R&D partners to achieve their desired outcomes and end results.
- Demonstration of the value of the NSERC IRC program for industrial partners.



The Concept of Logic Models Used in Evaluating Construction R&D partnerships