ASSESSING THE READINESS FOR DIGITAL TECHNOLOGIES ADOPTION FOR ENHANCING PRODUCTIVITY IN THE SRI LANKAN CONSTRUCTION INDUSTRY

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The Construction Industry (CI) is a vital sector that continually seeks to enhance productivity and profitability, facing distinct challenges compared to other industries. Amidst global trends emphasising the integration of digital technologies for improved productivity, the CI's adoption of such innovation technologies lags in a global perspective. The study recognises that digital transformation is vital to significant productivity gains in the construction industry. However, in the Sri Lankan context, a comprehensive study has not yet been done to develop a tool to assess the Sri Lankan construction industry's readiness towards digitalisation. This research paper addresses this gap by developing a readiness model and a self-assessment tool to measure the organisational readiness of Sri Lankan construction industry to adopt digital technologies in a holistic approach. This study employs a multi-dimensional approach by amalgamating the Technology-Organisation-Environment framework and the Readiness for Workforce Strategic Change Management framework, effectively addressing the complexities of digital technology adoption within organisations. A rigorous literature survey identified 15 readiness indicators spanning Environment, Technology, Organisation, Leadership, and Workforce dimensions to evaluate the construction industry's readiness. The research employs a mixed-methods approach involving a literature survey, pilot questionnaire, comprehensive questionnaire, and robust data analysis techniques, including descriptive, factor, and Fuzzy Synthetic Evaluation analyses. The outcomes reveal a nuanced understanding of critical indicators, categorised into two groups named ELPA (Environment, Leadership, Workforce Attitude, and Organisational Performance) and TOK (Technology, Organisation, and Technical Knowledge). The study's primary contributions include the development of an organisational readiness model and a self-assessment tool, facilitating self-evaluation by construction organisations. The developed readiness model integrates these dimensions through weighted indicators, providing a holistic assessment of readiness.

The self-assessment tool operationalises the model, enabling practitioners to gauge readiness by assessing each indicator's relevance towards digitalisation. The model is underpinned by Fuzzy Synthetic Evaluation, ensuring objectivity and addressing subjective judgments. The assessment tool is precious for its practical applicability, offering a user-friendly approach for organisations to identify their strengths and weaknesses towards digital technology adoption at the organisational level. Ultimately, this research sheds light on the readiness landscape of the Sri Lankan construction industry, paving the way for strategic interventions and informed decision-making towards digitalisation. By aligning strategic plans based on the results obtained from the developed readiness model, organisations can drive their digital transformation journey, harnessing the potential of digital technologies to boost construction industry performance, bridge productivity gaps, and contribute to the economic growth of Sri Lanka.

Keywords: Digital Technologies, Construction Industry Readiness, Readiness Assessment, Digital Construction, Construction Productivity

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SELF-READINESS TOOL FOR ASSESSING SRI LANKAN CONSTRUCTION INDUSTRY READINESS TOWARDS DIGITALIZATION

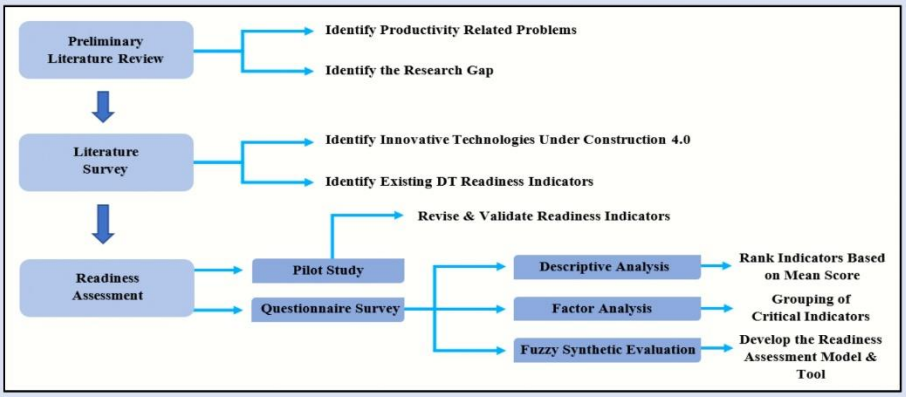
Aim

Assessing the Sri Lankan construction industry readiness towards digitalization

Objectives

- Identify existing readiness indicators that can be used to assess construction industry readiness
- Develop an organizational readiness model
- Develop a simplified tool to assess the organizational readiness

Methodology



$$\text{ORGANIZATIONAL READINESS} = 0.496 \times \text{TOK} + 0.504 \times \text{ELPA}$$

Self Assessment Tool

Ind.	Statement	Score (1-7)	Weight	Weighted Score	Final Score
	TOK Group				
1	We are familiarized with novel DT and application areas	y	0.132	0.132 × y	
2	We provide employee education and training to ensure technology proficiency	y	0.131	0.131 × y	
3	We have the infrastructure of equipment and software systems for implementing DT.	y	0.128	0.128 × y	
4	We have a Strategy or implementation plan for DT implementation	y	0.127	0.127 × y	
5	We Exchange DT-related expertise and information between organizations	y	0.126	0.126 × y	
6	We have Coordination between functional units to utilize and introduce new DT.	y	0.125	0.125 × y	
7	We have a Budget for developing or implementing DT or Research & Development	y	0.122	0.122 × y	
8	Our Talent pool for utilizing cutting-edge DT is sufficient	y	0.108	0.108 × y	
	TOK Total Score				X
	ELPA Group				
9	We have KPIs regarding implementing digital technology	y	0.151	0.151 × y	
10	Our financial capability is high to manage the risk associated with DT adoption	y	0.148	0.148 × y	
11	Our organizational culture values/welcomes digital technology implementation and adoption	y	0.146	0.146 × y	
12	We have a well understanding of the legal & ethical regulations regarding DT adoption	y	0.144	0.144 × y	
13	Our top management understands the importance of integrating emerging technologies	y	0.141	0.141 × y	
14	Our Leadership/executive authority promotes the adoption of digital technology	y	0.139	0.139 × y	
15	The attitudes and beliefs of our employees are toward the adoption of digital technologies	y	0.132	0.132 × y	
	ELPA Total Score				Y
	Total Score Possible				7
	Organizational Readiness Score (0.496 × X + 0.504 × Y)				Z
	Organizational Readiness Towards DT Adoption = (Z/7)×100%				