ADOPTION OF ARTIFICIAL INTELLIGENCE TO MITIGATE AND RESOLVE DISPUTES IN THE SRI LANKAN CONSTRUCTION INDUSTRY

W.R.G. C. Janaka

209174J

Dissertation submitted in partial fulfilment of the requirements for the degree

M.Sc. In Construction Law & Dispute Resolution

Department of Building Economics

Faculty of Architecture

University of Moratuwa

Sri Lanka

February 2026

DECLARATION

I declare that this is my own work and this dissertation does not incorporate without acknowledgement any material previously submitted for a Degree or Diploma in any other University or Institute of higher learning and to the best of my knowledge and belief it does not contain any material previously published or written by another person except where the acknowledgement is made in the text. I retain the right to use this content in whole or part in future works (such as articles or books).

Signature: Date:

The above candidate has carried out research for the Masters dissertation under my supervision. I confirm that the declaration made above by the student is true and correct.

Name of the supervisor:

Signature of the supervisor: Date:

DEDICATION

Dedicated to all striving to advance the Sri Lankan construction industry through innovation.

ACKNOWLEDGEMENTS

The completion of this research bears testimony to the steadfast dedication, scholarly inspiration, and expert guidance provided by numerous individuals throughout its execution. Sincere gratitude is hereby extended to all contributors, whose intellectual contributions, moral encouragement, and resolute commitment have been indispensable to its fruition.

Particular indebtedness is acknowledged to the Department of Building Economics, University of Moratuwa, and its academic and nonacademic staff, for their sustained assistance and substantive support. Profound thanks are due to Mr. Suranga Jayasena, Head of the Department, whose perspicacious counsel, motivational impetus, and directional oversight were instrumental in guiding this dissertation to fruition.

Preeminent recognition is accorded to Prof. (Mrs.) Anuradha Waidyasekara, dissertation supervisor, for her perspicacious guidance, steadfast encouragement, and meticulous supervision, which collectively rendered this work feasible. Appreciation is likewise extended to the professionals and experts who participated in the data collection, generously devoting their time and expertise.

In conclusion, deepest approbation is conveyed to all who proffered direct or indirect support through encouragement, camaraderie, and inspiration, thereby rendering this scholarly endeavor both efficacious and profoundly gratifying.

ABSTRACT

Construction industry is a sector frequently affected by conflicts arising from contractual ambiguities, delayed payments, scope variations, and quality deficiencies. These disputes often cause project delays, cost overruns, and deterioration of professional relationships, while conventional mechanisms such as litigation and arbitration remain adversarial, time consuming, and costly. Consequently, there is a clear need for more efficient, technology enabled approaches to dispute management such as natural language processing, machine learning, and expert systems. These technologies can support automated contract review, prediction of claims, early identification of dispute risks, and data driven support for negotiation and mediation. However, despite the global diffusion of such tools, their integration into the Sri Lankan construction sector remains limited. Therefore, this study examines the adoption of artificial intelligence (AI) technologies to enhance dispute mitigation and resolution within the Sri Lankan construction industry. It aims to assess the current level of awareness and willingness among industry professionals to implement AI tools, alongside evaluating the perceived benefits and utility of these technologies in managing construction disputes.

The study employed a quantitative research design and targets construction and information technology professionals actively engaged in the sector. Data were collected using structured questionnaires developed from the Technology Acceptance Model, Innovation Diffusion Theory, and Institutional Theory to capture awareness, perceived usefulness, perceived ease of use, and institutional pressures. The data are analysed using descriptive statistics to concerning the determinants of AI adoption intention.

The findings indicate that perceived usefulness and awareness of AI are the most influential drivers of willingness to adopt AI based tools, while technological complexity, regulatory ambiguity, organizational resistance, and cost related concerns significantly hinder adoption. Cognitive and institutional factors emerge as more critical than mere technological readiness. The study proposes strategic actions including targeted professional training, phased implementation of AI solutions, clearer regulatory guidance, and investment in digital infrastructure. These initiatives are expected to narrow the gap between AI's potential and its practical deployment, and to support the evolution of a more transparent, efficient, and collaborative dispute resolution environment aligned with Sri Lanka's long term development objectives.

Key Words: Artificial Intelligence, Construction Industry, Dispute

TABLE OF CONTENT

LIST OF TABLES

LIST OF APPENDIES