
# Enhancing Block chain Technology in Governmental Operations:

# A Comprehensive Framework for User Adoption

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I certify that I have read this thesis and that in my opinion it is fully adequate, in scope and in quality, as a thesis for the degree of Master of Science.

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## DECLARATION

This is to certify that the work is entirely my own and not of any other person, unless explicitly acknowledged (including citation of published and unpublished sources). The work has not previously been submitted in any form to the Sri Lanka Institute of Information Technology or to any other institution for assessment for any other purpose.

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Date: 12/11/2024

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## ABSTRACT

The purpose of this study is to investigate the factors that affect Blockchain adoption in governmental operations in Sri Lanka, and thereby to propose a comprehensive adoption framework for Blockchain technology in Sri Lankan governmental operations. The Technology-Organization-Environment (TOE) framework is utilized for this purpose due to its capacity to encapsulate the complexities of technological adoption in the public sector, effectively addressing both internal (organizational) and external (environmental) factors that influence the adoption process. Given the unique structural, regulatory, and data sensitivity challenges of governmental settings, unlike many other models, TOE framework comprehensive integrates employee insights from technological, organizational, and environmental perspectives, making it both adaptable to the public sector's needs and scalable for implementation across various government entities. More importantly, the TOE framework is uniquely designed to account for the regulatory and operational needs specific to Sri Lankan public sector institutions. It addresses critical compliance requirements, such as data privacy and security regulations, while aligning with the structural intricacies of government workflows, enabling a practical pathway for Blockchain adoption that respect the local regulatory landscape and operational demands.

This study has employed various statistical methods to ensure the validity and reliability of the data collected through a structured questionnaire distributed to Grade I – IT Directors to obtain their perceptions and experiences with Blockchain technology. Using the structural equation modelling (SEM), this study reveals that all three perspective of the TOE framework (i.e. technological, organizational and environmental) are significantly influence the Blockchain technology adoption in Sri Lankan governmental operations. More specifically, SEM results show that compatibility, trust, security, support from higher authority, monetary resources, firm size, regulatory support, and rivalry pressure are critical technological, organizational and environmental determinants in developing an adoption framework for Blockchain technology in Sri Lankan governmental operations.

The expected impact of the proposed framework based on the findings of this study on public sector operations includes significant improvements in processing times for administrative tasks, a reduction in risks of corruption, and enhanced citizen trust through greater transparency. By addressing the specific challenges faced by the Sri Lankan government in adopting Blockchain technology, this study contributes valuable insights to the discourse on digital transformation in public sector operations.

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