

**IMPROVED TAXONOMY ALONG WITH A TOOL OF
CHALLENGES FOR CLOUD ERP SYSTEMS
IMPLEMENTATION**

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229402D

Degree of Master of Science

Department of Computer Science and Engineering
Faculty of Engineering

University of Moratuwa
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DECLARATION

I declare that this is my own work and this thesis 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: K.L.Wathsala

Date: 22/06/2024

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

Name of Supervisor: Prof.Indika Perera

Signature of the Supervisor:

Date: 25-06-2024

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ABSTRACT

The ever-growing adoption of cloud computing has significantly impacted the landscape of Enterprise Resource Planning (ERP) systems. Cloud-based ERPs offer organizations several advantages compared to traditional on-premise solutions. However, the implementation process for cloud-based ERPs presents unique challenges that can impede successful deployment. Acknowledging and addressing implementation challenges is key to a successful cloud ERP adoption. The goal of this thesis is to enhance the current understanding of the challenges that arise in the implementation of cloud-based Enterprise Resource Planning (ERP) systems. The research examines the state of the art in cloud ERP implementation and proposes an updated and more comprehensive taxonomy of challenges. The improved classification takes into account recent advancements and trends in the field and provides a clear and structured understanding of the challenges faced by organizations during the implementation process. The proposed taxonomy categorizes cloud-ERP implementation challenges across three key dimensions: Types of Challenges: This dimension classifies challenges based on the specific area they impact. It encompasses strategic challenges which are related to the organization's overall vision and goals for implementing cloud-ERP systems, organizational challenges which are pertaining to operations that can affect the system, and technical challenges which are related to the technical aspects of cloud-ERP implementation and integration. Locus of Challenges: This dimension distinguishes between challenges originating internally and externally relevant to the organization. Organization Size: This dimension acknowledges that challenges can differ based on size and structure of the organization such as small, medium, and large. Moreover this thesis proposes a tool where users will be able to input details such as their organization size and specific industry. The tool implements a machine learning model to predict challenges most likely to be encountered during the cloud-ERP implementation process by organizations based on these inputs. Both this taxonomy and tool can serve as useful references for practitioners, researchers, and decision-makers to better understand the challenges and complexities associated with implementing cloud-based ERP systems via proactive identification and prioritization of anticipated challenges based on their specific context and allows for the development of mitigation strategies, and benchmark implementation strategies. The research presented in this thesis contributes significantly to the existing knowledge on cloud-ERP implementation challenges. By proposing a comprehensive and user-centric approach, this research equips organizations with the necessary tools for navigating the complexities of cloud-ERP implementation and ultimately achieving successful system deployment.

Keywords: Cloud ERP, Implementation Challenges, Comprehensive Taxonomy, Machine Learning Tool

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LIST OF ABBREVIATIONS

Abbreviation	Description
AI	Artificial Intelligence
AIS	Association for Information Systems
C2E	Concept-to-Empirical
CSFs	critical success factors
CSP	cloud service provider
DDoS	Distributed Denial of Service
DOI	Diffusion of innovation
E2C	Empirical-to-Concept
ERP	Enterprise Resource Planning
GPUs	Graphics Processing Units
IaaS	infrastructure as a service
IoT	Internet of Things
IS	Information Systems
LANs	local area networks
ML	Machine Learning
PaaS	platform as a service
PwC	Price waterhouse Coopers
SaaS	software as a service
SLAs	service level agreements
SLR	systematic literature review
SMEs	Small and medium-sized enterprises
TOE	Technology Organization environment
EU	European Union

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