Development and Validation of an Information System Implementation Readiness Assessment Tool for Government Organizations in Sri Lanka

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Abstract: In Sri Lanka, the current government is heading for a major digitalization programme to streamlining the administrative processes of government organizations with the view of expediting workflows improving their services. Past experience shows that many such major transformations, in both in public and private sectors, have failed. One major reason behind experiencing such problems associated with digitalization programs has been the lack of readiness with respect to implementation of information systems (IS). Assessment of readiness with respect to implementation of IS is a critical prerequisite for addressing the anticipated problems in future digitalization programs. A comprehensive literature review of a wide spectrum of published research articles in reputed journals, points to the fact that there are neither IS implementation readiness frameworks nor comprehensive instruments for making such assessments suitable for public sector organizations. This is particularly true to government sector in the context of Sri Lanka, where the social, cultural and other environmental aspects are somewhat unique. Therefore, this research aims to a comprehensive IS readiness framework and an instrument that can be used to assess the IS implementation readiness in government organizations focusing on Sri Lanka, to bridge the above-mentioned knowledge gap. This paper presents the results of the first phase of this study dedicated to developing the framework that explains the implementation of IS readiness and the associated instrument. After a comprehensive literature review, a tentative conceptual framework has been developed for using it as the basis to refine the IS readiness framework through qualitative investigations. A series of one-on-one interviews with IS professionals in universities and practitioners, including those in the Ministry of Public Administration, Home Affairs and Local Government were conducted. The interview findings were then analysed as an expert opinion review to derive the framework with 07 dimensions and 31 measurement items. These findings are to be used in the next phase of investigation to develop a valid and reliable IS implementation readiness instruments applicable to government organizations in Sri Lanka.

Keywords: *Government Sector in Sri Lanka, Information Systems (IS), Instrument Development, IS Implementation*

Introduction

The Sri Lankan government organizations are currently moving forward to implement major digitalization programs with a view of providing efficient and effective service to the public (Presidential Media Division, 2025). IS implementations have been a persistent challenge, and the failure rate of e-government initiatives worldwide has been considerable, with over 60% of efforts to date failing to produce satisfying outcomes, despite some notable achievements in the Asian region, such as in Korea, Malaysia, and Singapore (Rainford, 2006). In terms of Sri Lankan context, in 2013, e-pensions project which provides pensions to pensioners through utilizing state funds initiated by ICTA at a cost of Rs.232 million ended up as a failure (News.lk, 2020). However, due to hardware and software issues the project was not implemented. Similarly, ICTA's google loon project aimed at providing nationwide internet access, was considered a failure, with Rs.1.8 million spent to release the google loon to the customs and Rs.6.4 million was spent on promotions.

The reasons for these major initiatives to fail with a huge loss is due to launch of any feasible studies, the lack of timelines, scalability plans, inadequate monitoring and performance. One of the main reasons is the lack of readiness for IS implementations (Dolfing, 2019). With that, definition of readiness can be described as the state of being equipped with skills that are needed to prepare for the future and contribute to current events (University of Minnesota, 2015).

A main factor contributing to the failure is the lack of IS implementation readiness among government employees. To ensure its success, it is necessary to have a thorough understanding of the extent to which these organizations are ready across key areas. A trustworthy measurement instrument is therefore required to measure this readiness in a methodical manner. While similar tools have been developed and are available in the literature, none have been designed to handle the setting of Sri Lanka's government organizations.

Research Gap

The research gap for this study centers on the lack of a mechanism to assess IS implementation readiness within the specific socio-technical landscape of Sri Lanka. IS implementation readiness is a multi-dimensional construct influenced by various dimensions. As a result, different countries and contexts require different assessment tools.

Currently, there is no validated tool specifically designed for the Sri Lankan government sector that can accurately assess the factors that influence the success or failure of IS implementations. This absence leaves a significant gap, as practitioners are forced to apply generalized metrics that may not capture the drivers of readiness in Sri Lankan government entities. Therefore, this study explains a clear research gap in developing an instrument to assess IS implementation readiness tailored to the government sector of Sri Lanka.

Research Objectives

To address the research gap identified above, the following objectives can be determined.

- To determine dimensions and measurement items representing "IS implementation readiness construct".
- To achieve this objective, an in-depth literature review was conducted aimed at identifying the pool of dimensions and measurement items. This leads to the next objective:
- To develop a preliminary instrument for measuring "IS implementation readiness".

To achieve this objective, a qualitative study was conducted using expert insights and thematic analysis to identify the key dimensions and measurement items of the IS implementation readiness construct for government organizations in Sri Lanka.

Literature Review

IS Implementation for the Digitalization of Government Sector

Digital transformation in the government sector has become a priority in recent years, as they seek to improve efficiency, integration, transparency, and responsiveness using IS. In such an environment, the introduction of IS are not only about implementation but also involves major organizational and process adjustments within public service and communication between stakeholders. The existing literature suggests that the successful implementations depend on a multi-dimensional framework that comprises citizen orientation, technological ability, channel integration, and institutional alignment, instead of relying solely on technology itself (Malodia et al., 2021; Haug et al., 2024 ;Syed, Bandara, et al., 2023). Public institutions often face uncertainty about their own capacity to undertake digital projects, highlighting the importance of evaluating readiness before implementing IS (Klievink et al., 2017).

IS Implementation Readiness

IS implementation readiness specifying to the extent of preparation of an organization for adopting, implementing, and using a new IS in view of having the required structures, capabilities, resources, and human support systems. Hence, readiness has been approached as a pre-implementation criterion that assesses the ability of an organization to embrace technological change. Readiness was conceptualized by (De Soysa & Nanayakkara, 2006) as the evaluation phase through which ERP implementation could be assessed for its viability. Further, readiness for e-government adoption was linked by (Punchihewa, 2006) to the competence of government organizations to deliver digital services. In addition, readiness for IS implementation in the public sector needs to be operationalized into measurable organizational factors according to (Klievink et al., 2017) show that readiness assessment needs to take into consideration the alignment of human, organizational, and technological factors.

IS Readiness Frameworks and Dimensions

Scholars have identified several key theoretical perspectives that can be used to understand IS readiness and implementation context. One such approach is the Technology-Organization-Environment (TOE) approach that posits that adoption occurs due to the interactions of the technological, organizational, and environmental contexts(Baker, 2012) . At an individual level, the Technology Acceptance Model (TAM) considers the perceptions of usefulness and ease of use by the intended users of the IS (Davis, 1989). Another approach, the HOT-Fit framework emphasizes the alignment of human, organizational, and technological considerations in the evaluation of IS (Kosasi et al., 2022). Furthermore, research on ERP readiness has recognized the need for the proper consideration of technoware, humanware, infoware, and orgaware, while digital readiness reviews point

out that different models consider distinct dimensions of readiness (De Soysa & Nanayakkara, 2006 ; Soomro et al., 2020). In general, all these models emphasize technology, organization, people, and environment even though they employ different terminologies and definitions (Baker, 2012; Davis, 1989; Kosasi et al., 2022; De Soysa & Nanayakkara, 2006; Soomro et al., 2020).

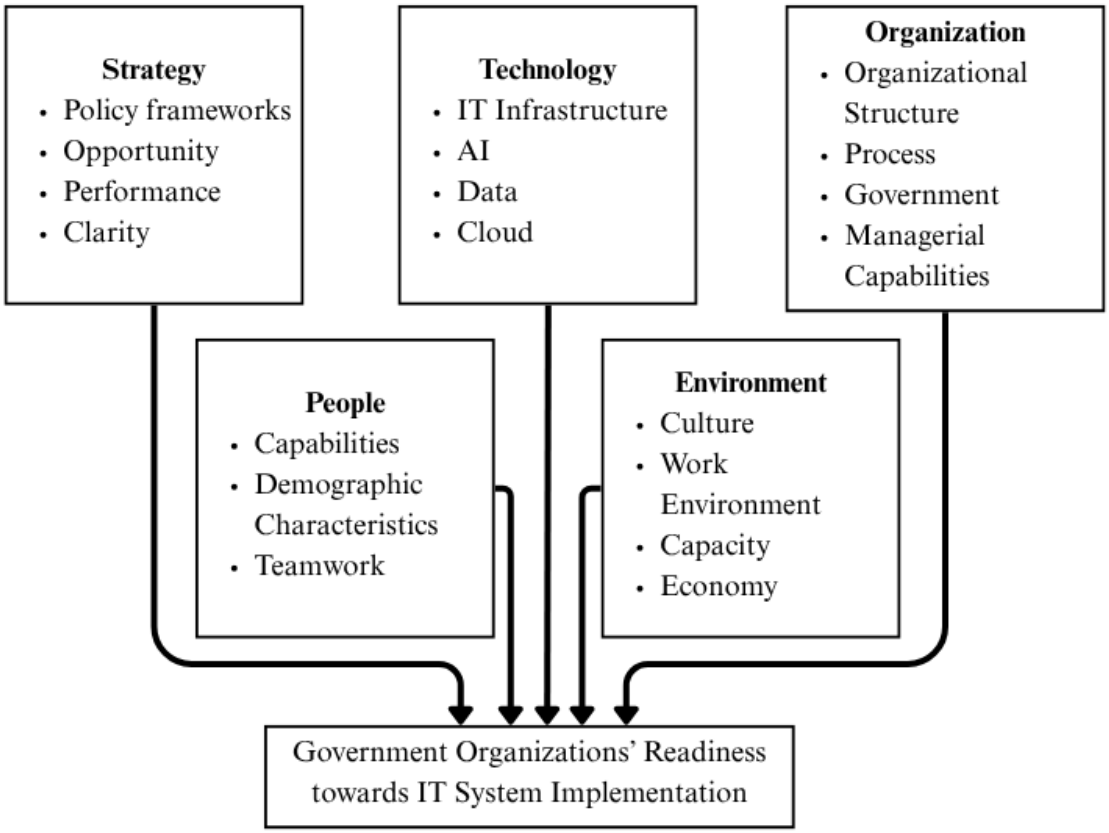

Figure 1:Tentative Conceptual Framework

Limitations of IS Readiness Frameworks – Government Sector Context

Despite the usefulness of the frameworks above in providing guidance on theory and practice, none agree on a common comprehensive list of readiness dimensions, and they do not all apply effectively in public sector contexts. TOE framework is purposefully flexible and generalizable, which has made it widely used. However, its adaptability means that the constructs included have differed considerably between different studies (Baker, 2012) . TAM framework is appropriate for explaining the acceptance of technology by the users. However, it is not adequately covering the organizational and institutional readiness (Davis, 1989). HOT-FIT is a more complex socio-technical framework, although it was developed from the context of health IS and not public sector administrative reform (Kosasi et al., 2022). In addition, studies on public sector digital transformation show that the success or failure is influenced by external factors that include culture, leadership, capabilities of the implementation agency, governance structures, and even macro-influences.

Tentative Conceptual Framework

This study's conceptual framework is shown in Figure 1 to demonstrate the relationship between government organizations readiness towards IS implementation which is developed based on existing literature which identifies 5 dimensions, these dimensions are analyzed through qualitative investigation with expert and practitioner review sessions for further refinement.

Methodology /Design

Research Design

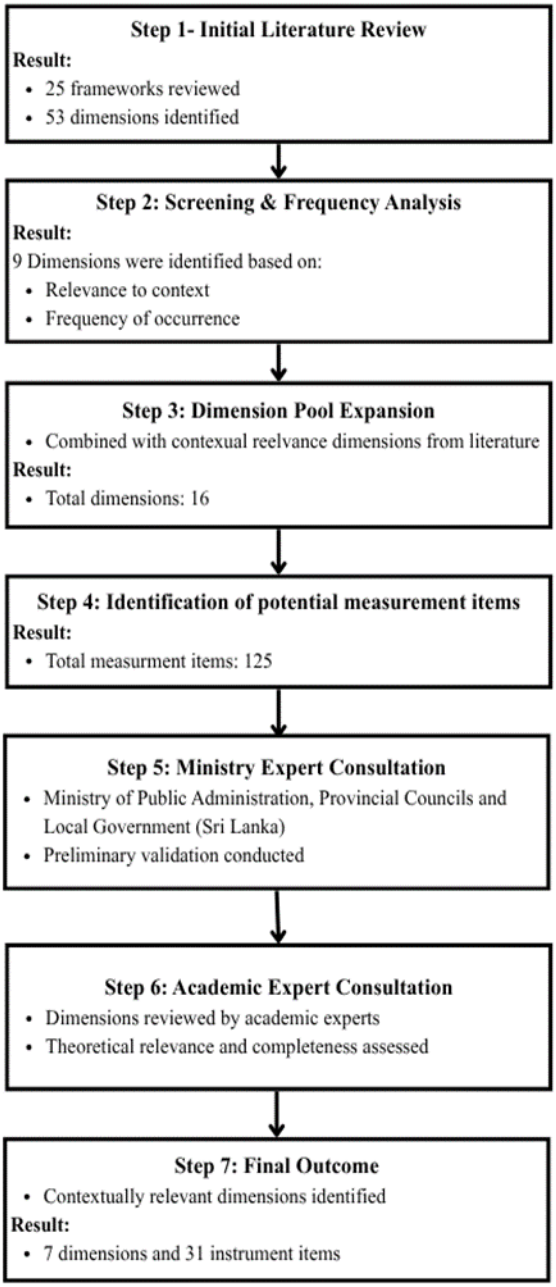

Figure 2: Instrument Development Process

This study adopts a qualitative approach to develop an instrument that can be used to assess readiness for implementing IS in government organizations. The instrument was developed following a comprehensive review of literature on IS implementation and government organizational readiness. The scope of this paper is dimension identification, measurement item identification, expert validation and instrument development.

Instrument Development

The instrument was developed to assess the readiness levels of government organizations for IS implementation.

Expert Selection Criteria

Experts were selected using purposive sampling based on their knowledge, experience, and relevance to the study. The expert selection process was carried out in three phases to obtain key insights. First, officials from the Ministry

of Public Administration, Home Affairs and Local Government were selected due to their direct involvement in government processes, policy implementation, and practical understanding of IS adoption within the government sector. Second, academic experts from SLIIT were selected based on their subject knowledge in IS, IS management, research methodology, and instrument development. Third, industry IT experts were selected based on their professional experience in system implementation.

This selection approach ensured that the instrument was reviewed from government, academic, and industry perspectives, thereby improving its relevance and applicability.

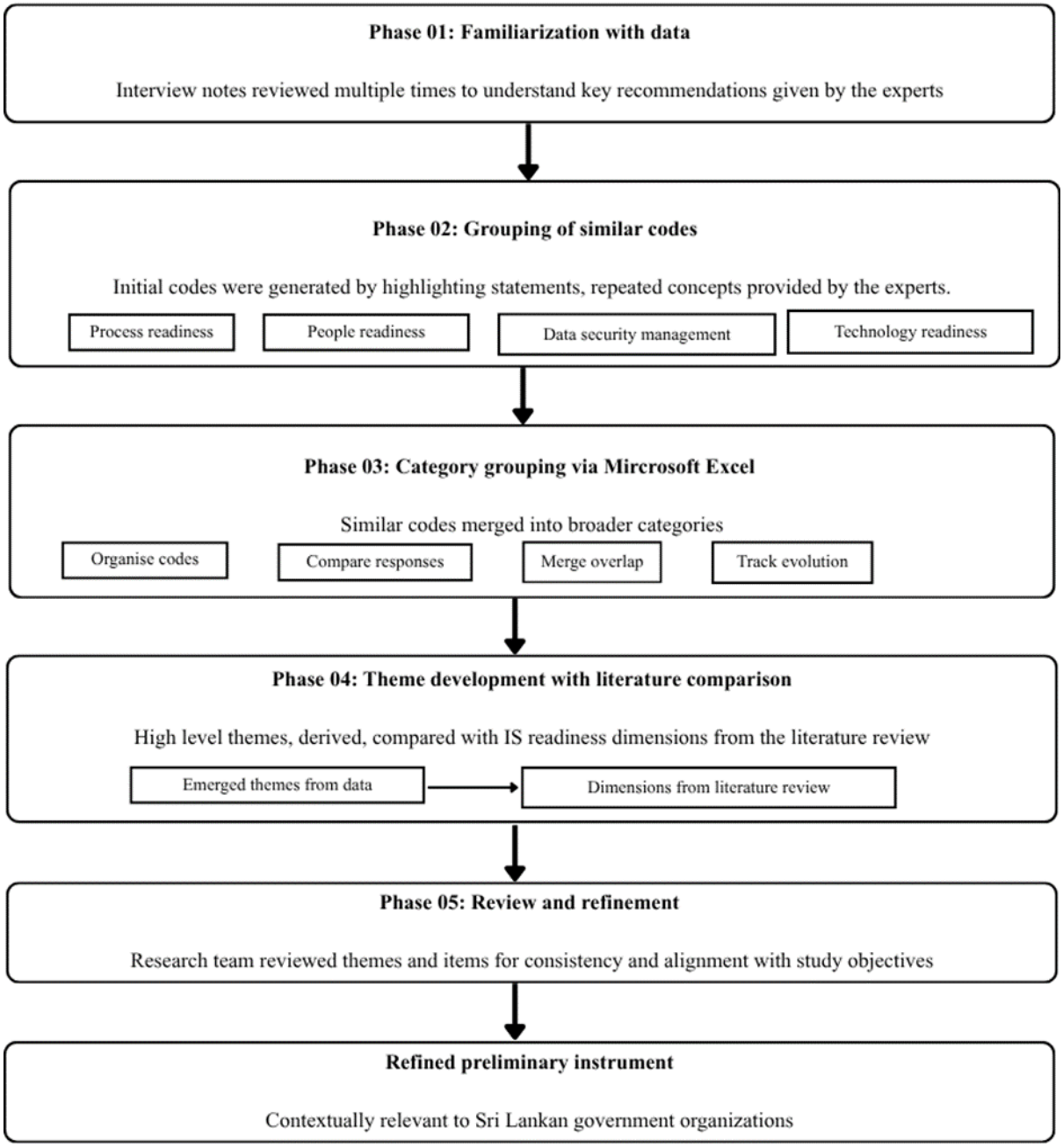

Figure 3: Thematic Analysis Process

Interview Protocol

Data were collected through expert discussions using the card sorting method to make the evaluation process simple and interactive. Experts were presented with cards containing the proposed dimensions and measurement items and were requested to share their opinions regarding relevance, clarity, suitability, duplication, and missing

aspects. The revised set of cards was then presented to experts systematically, together with brief explanations of the changes made based on previous expert feedback. This step-by-step approach enabled continuous refinement of the instrument.

Validation Process

The validation process was conducted in several stages. First, the initial instrument was developed based on prior literature and conceptual synthesis. Second, experts reviewed the recommended dimensions and measurement items to assess their relevance, clarity, and completeness. Third, the feedback gathered from each expert was compared to identify required revisions. Finally, the instrument was refined through rewording, removing, combining, and adding items required.

Data Analysis

The primary focus of the study's qualitative analysis is interpreting data from the selected readiness frameworks and expert input. To improve the content validity of the instrument, data was analyzed using a thematic analysis (Figure 3) . As the first step, a comparative analysis of the identified frameworks was carried out to identify recurring dimensions. The frequency of dimensions across the identified models was first examined to find frequently occurring constructs and were combined based on conceptual similarity and functional relevance. Expert opinions were obtained to evaluate both the measurement items and consolidated dimensions to support refinement and improve overall clarity and alignment. Table 1 illustrates the procedure used to finalize the dimensions.

Table 1 - Dimension Refinement Process

Stage	No. of Dimensions	Description of Change
Frequency analysis	9	Frequently occurring dimensions identified.
Expansion - context related dimensions	16	7 context specific dimensions were selected from the initial 53.
Content validation (Ministry Level)	16	The 16 dimensions were reviewed by experts from the government sector to assess their practical relevance.
1st Expert	11	Evaluated the dimensions for conceptual clarity, redundancy, and theoretical grounding.
2nd Expert	11	Refined dimensions were further reviewed to confirm consistency.
3rd Expert	8	Further consolidation was carried out by merging overlapping dimensions.
4th Expert	7	Redundant dimensions were removed
5th Expert	7	Minor adjustments and final consolidation resulted in the finalized set of 7 dimensions for the readiness assessment framework.

Some of the prominent opinion that were gathered from Ministry of Public Administration, Home Affairs and Local Government are as follows:

Table 2: Opinion's from the 1st Practitioner

Opinion received from	Opinion
1st Practitioner	*"People Readiness and Capacity building is the same"* hence we can merge the dimensions, along with *"Data Protection and Technology readiness should be merged".*

Table 3: Opinion's from the 2nd Practitioner

Opinion received from	Opinion
2nd Practitioner	*"Process management is an important dimension"*

	"Data protection is a distinct, crucial core feature, whereas organizational readiness is a secondary priority".

To improve the theoretical foundation of the aspects indicated by practitioners, a series of interviews with academic experts were performed to gain deeper conceptual knowledge. Below are some prominent opinions gathered.

Table 4: Opinion's from the 1st Expert

Opinion received from	Opinion
1st Expert	Proposed several strategic mergers during this session. *"ICT Infrastructure and technology readiness can combine since their operational definitions are nearly identical".*

The finalized set of 7 dimensions was subjected to a review by an industry expert emphasized the importance of People Readiness,

Table 5: Opinion received from the Industry Expert

Opinion received from	Opinion
Industry expert	*"It is essential to the success of any technology deployment".*

As a direct result of these productive consultations the study effectively determined the 7 dimensions influencing the readiness for IS implementation within government organizations.

Results

The expert review process provided detailed insights into the quality and structural suitability of the initial dimensions and measurement items. Analysis of expert opinions revealed the absence dimensions specific to government organizations in Sri Lanka. Experts highlighted the presence of double-barreled statements and recommended simplifying those statements to improve clarity. The instrument was modified based on expert insights, with items rewritten for precision, redundant elements consolidated for consistency, and new items added to solve conceptual gaps, resulting in a more thorough tool. Table 6 presents some examples of dimensions and measurement items before and after refinement.

Table 6: Sample Measurement Item Refinements

Dimension	Before Refinement	After Refinement	Reason for Modification
Strategic Readiness	The Regional Head has a vision and mission related to the development of ICT for e-government implementation.	Necessary plans have already been prepared regarding the digitalization program of our organization.	Improved clarity
Technology Readiness	Availability of basic ICT infrastructure (computers, laptops and internet network).	Our organization's existing computer equipment and network systems are at a level that is compatible with the new digitalization program.	More precise
Organizational Readiness	Availability of regulations and standard operating procedures (SOP) for implementing e-sign.	In the implementation stage of the new digitalization program, our organization has placed a clear plan to	Reduce vagueness

		facilitate the officers adapting to the new situation.	
People Readiness	The performance and productivity of ICT management personnel are adequate.	Our organization is currently recruiting dedicated teams of IT-capable officers to implement the new digitalization program.	More precise.

As a result of this refinement process, the final instrument consisted of 31 items structured across 7 dimensions. Each item will be measured using a five-point Likert scale ranging from "Strongly Disagree" to "Strongly Agree". Table 7, summarizes the final dimensions along with a sample of the relevant measurement items, providing the structure of the validated instrument.

Table 7: Final Dimensions and a Sample of Measurement Items

Dimension	Measurement Item
Strategic Readiness	Our institution has already made the necessary plans for the new digitalization program.
Technology Readiness	We already have computers and technological equipment that are suitable for a digitalization program that the government hopes to implement (or plans are being made to acquire suitable computers and technological equipment).
People Readiness	I am highly prepared to receive the training necessary to use a new digitalization program once it is implemented.
Organizational Readiness	The necessary training has already been provided to the officers of our organization to adapt to the new situation that arises when implementing a new digitalization program (or plans are in place to provide the necessary training).
Policy Legal Framework Readiness	Our institution has already prepared the necessary mechanisms to deal with the risks that may arise when implementing a new digitalization program (or has made plans to prepare the necessary mechanisms).
Process Management Readiness	We are ready to make the necessary changes to the organization's current procedures when implementing a new digitalization program.
Data Protection Readiness	Measures have been taken to maintain the accuracy of the data entered when implementing a new digitalization program.

Accordingly, the final instrument demonstrates a higher level of construct validity and is better suited to assess IS implementation readiness within government organizations in Sri Lanka.

Discussion

(Malodia et al., 2021) and (Syed, Bandara, et al., 2023) proposed a multi-dimensional approach to digital government implementation, which is reinforced by the resulting instrument, which has seven dimensions and thirty-one measurement items. This study also discusses the shortcomings of the TAM. According to (Davis, 1989), the focus of TAM is on how each person views its utility and use. Ultimately, this study transforms readiness into measurable organizational elements, as advocated by (Klievink et al., 2017), providing public organizations with a tangible roadmap for reducing uncertainty prior to the start of digital projects.

The incorporation of context-specific indicators is a key contribution of this research. The specialized competencies needed for e-government and ERP viability in Sri Lanka were previously noted in literature by (Punchihewa, 2006) and (De Soysa & Nanayakkara, 2006). Our results demonstrate that general readiness frameworks frequently fall short of capturing the "reality" of Sri Lanka's public sector, including its distinctive policies, governance structures, and procedural rigidities.

Research Contribution

Theoretically this study covers existing IS readiness models by proposing a context-specific, multi-dimensional instrument. Practically, the study establishes a roadmap toward a trustworthy tool, providing government organizations with an instrument to identify procedural, technological, and strategic deficiencies prior to an IS

implementation. In the long run, a smoother digital transition is made possible by the effective implementation of these systems.

Conclusion

This study developed a preliminary instrument to assess IS implementation readiness in government organizations in Sri Lanka. The findings confirmed that readiness is a multidimensional concept shaped by organizational, technological, human, and other dimensions. Using a systematic process involving qualitative evaluation, expert validation, and analysis, the study refined dimensions and measurement items to improve clarity, relevance, and construct validity. The final instrument, which consists of 31 measurement items across 07 dimensions, provides a comprehensive and reliable tool for assessing IS implementation readiness in government organizations. By including context-specific indicators, the study addresses limitations of generic readiness models and offers a more accurate depiction of organizational readiness. Future research can extend this work through quantitative validation, including pilot testing and large-scale surveys across Sri Lankan state organizations. Techniques such as reliability analysis, exploratory factor analysis, and structural equation modeling can be applied to further refine the instrument and confirm its measurement properties. This would support the development of a fully validated tool that can assist organizations in planning and managing successful IS implementation initiatives.

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