

SUB THEME 09

The Impact of Technology on Socio-Economic Crises

Review on Enhancing Infrastructure Resilience with Smart Technologies in Sri Lanka

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Abstract

Construction industry plays a significant role in developing economies across the world. At present, industry is experiencing a groundbreaking transformation with the adoption of artificial intelligence and blockchain technology. While global implementations have reflected the success in infrastructure resilience, application of these technologies in developing nations, particularly in Sri Lanka, remains limited. Hence, this paper aims to analyze the current state of adoption of smart technologies in the context of construction sector benchmarking the global applications. A systematic review was conducted with a focus on key parameters such as disaster management and resource optimization. Findings revealed the challenges hindering the implementations and the potential of these technologies to improve the infrastructure resilience. Challenges included uneven access to digital infrastructure, policy and regulatory barriers and inadequate technical expertise which make the gap increased. On the other hand, review highlighted that these technologies can be adopted to ensure transparency in supply chains and predict construction failures by identifying disaster risks in local context. Therefore, outcomes suggest future pathways for enhancing infrastructure resilience in Sri Lanka's civil engineering sector.

Keywords: *Adoption, Artificial intelligence, Blockchain Technology, Challenges, Construction industry, Sri Lanka*

Introduction

At present, enhancing infrastructure resilience has become paramount with the increasing challenges such as climate change, natural disasters and socio-economic uncertainties in worldwide. Infrastructure resilience refers to the ability of systems, such as electricity grids, transportation networks, and civil structures, to withstand, adapt to, and recover from adverse scenarios. On the other hand, smart technologies like blockchain and artificial intelligence (AI) have the potential to drastically change the construction sector by reducing risks and enhancing infrastructure resilience (Musarat, Irfan, Alaloul, Maqsoom, & Ghufuran, 2023). In order to handle the complexity of contemporary infrastructure systems, these technologies provide enhanced real-time data processing, predictive analysis, and facilitate transparent management.

Further AI is being utilized to improve project planning, optimize resource allocation, and forecast infrastructure breakdowns. AI-driven models, for example, have the ability to predict the structural health of buildings, bridges, and dams, enabling immediate maintenance and lowering the risk of catastrophic collapses (Raffaele, Sina, Giuseppe, & Alessandro, 2022). Nevertheless, blockchain is transforming the supply chain for building by using decentralized, immutable ledgers to increase trust and transparency. It is used in project management to facilitate safe stakeholder interactions, lower fraud, and guarantee accountability (Mohd, Abid, Ravi, Shahbaz, & Rajiv, 2021).

While global applications of AI and blockchain have been successful in enhancing infrastructure resilience, the adoption of these technologies in Sri Lanka's construction industry is still at a poor level. The country faces specific challenges, including inadequate digital infrastructure, limited access to advanced technologies, and regulatory barriers that slow down the way forward (Bandara, J, & Coomasaru, 2024). This paper aims to provide a comprehensive review of how AI and blockchain can enhance infrastructure resilience, particularly focusing Sri Lanka. By examining best

practices and identifying local challenges, the study expects to offer insights into the potential applications of these technologies in improving infrastructure robustness as well as socio-economic resilience in Sri Lanka's construction industry.

Literature Review

It is important to acknowledge the early findings which has contributed to the research development in addressing the gaps in knowledge. The Construction industry has benefited considerably from the shift from traditional to digital transformation requirement worldwide. Several technologies have been utilized recently in the building life cycle. Building Information Modeling (BIM), virtual reality, augmented reality, mixed reality, 3D printing, cloud computing, AI, bigdata, and the internet of things (IoT) are all examples of digital technologies, in addition to robotics, drones (unmanned aerial vehicles), mobile and wearable devices, and smart data (Khalid, Murat, Fahid, Abdulla, & Hamed, 2024).

Predictive models driven by artificial intelligence are utilized to anticipate infrastructure failures, maximize resource consumption, and improve maintenance procedures. AI models are used in earthquake-prone areas like Japan to create building constructions that are resilient to seismic waves (Pengcheng & Amir, 2019). Furthermore, AI-powered systems are used to analyze damage sustained after a disaster in the United States (Saman, Firouzeh, & Holger, 2023). The ability of AI to analyze extensive data sets and anticipate malfunctions provides a major benefit for upholding robust infrastructure systems. On the other hand, blockchain is being utilized in China and Dubai to manage procurement contracts, guaranteeing that all parties involved meet project budgets and schedules (Celik, Abraham, & Attaran, 2024). Due to its decentralized structure, blockchain ensures accountability in building projects by preventing manipulation of data. Furthermore, blockchain has shown promise in post-disaster rehabilitation, where resource monitoring and transparent finance allocation are essential (Yue & Limao, 2021).

The construction sector's adoption of new technologies, such as blockchain, may vary based on several variables, including firm size, project type, geography, and regional technology adoption rates (Ahsan, Abdul, Idris, Noha, & Marc, 2024). However, it is commonly acknowledged that the sector is a relatively conventional and conservative industry. Many industries may be unwilling to adopt new technology owing to cost, safety, and integration issues (Ahsan, Abdul, Idris, Noha, & Marc, 2024). This can be vividly noticed in the construction sector of developing nations owing to different barriers. Hence, the study aims to address this gap of knowledge.

Methodology

A systematic review was conducted to examine existing literature on the use of AI and blockchain in civil engineering referring to academic databases, peer-reviewed journal articles, case studies, and government reports. The review also focused on Sri Lanka's civil engineering sector, particularly post-disaster recovery efforts and resource management projects. Research gaps in were identified by comparing worldwide best practices with the contemporary state of technology adoption in the country.

Results and Discussion

The study identified several challenges that hinder the implementations. Centralized nature of the existing construction industry was identified as a major barrier in both global and local context particularly in developing countries like Sri Lanka. Along with that, technical barriers like inadequate technical expertise and uneven access to digital infrastructure specially in rural small and medium-scale construction projects were noticed. In terms of economic barriers, high implementation costs and inadequacy of proper administrative structure were noticed with reference to different case studies. Additionally, work environment barriers like less confidence to shift from conventional technologies and regulatory barriers like inadequate data privacy were highlighted from the survey results in the literature.

Despite the challenges encountered in local construction sector, several potential areas where these technologies can be applied to improve the infrastructure resilience were identified. Natural disasters specially the cascading events of rain in Sri Lankan context affect the project schedule and the budget. Hence, AI driven models can be suggested to implement to predict and manage the risks incorporated with the disasters. On the other hand, blockchain technology can be implemented for transparency in post-disaster reconstructions in terms of decentralized ledger system of blockchain. This would significantly ensure the smooth allocation of funds and materials. Further, blockchain technology can be implemented to optimize resources ensuring the construction projects to complete on time within the allocated budget which would reduce the delays and room for corruption.

However, the higher implementation cost plays the consistent hinderance in Sri Lankan context. Hence, study suggests to have more collaborations of Government and private sectors in developing such models as well as in capacity building programs and policy reformations.

Conclusions

Blockchain and artificial intelligence have enormous potential to improve socioeconomic resilience through civil engineering both locally and globally. These technologies could help with issues related to infrastructure transparency, urbanization, and disaster preparedness in Sri Lanka. Sri Lanka must prioritize creating digital infrastructure, passing laws that will help, and funding the development of local engineers' and government officials' capacities if it is to fully capitalize on the promise of AI and blockchain in the field of civil engineering. Although acceptance in Sri Lanka is slow, local governments and business stakeholders can use the worldwide success of these technologies as a guide to incorporate blockchain and AI into infrastructure projects to improve resilience.

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**Factors Affecting Successful E-Government Implementation:
Use of Fcc Model in Divisional Secretariats in Sri Lanka**

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Abstract

In recent years, the majority of countries have integrated Information Technology (IT) into their national economic development strategies and plans. Governments view IT as a way to improve the quality of life of their citizens. The scale of activity on the part of public sectors in leveraging IT has increased in volume (Smith, 2008). The Survey of UN E-Government revealed that United Kingdom has pursued continued development on e-government innovation, and its Government Digital Service has been replicated by other countries around the world. Meanwhile, Australia and the Republic of Korea have recently strengthened their telecommunications infrastructure, invested in human resource development, expanded the use of e-government platforms, and enhanced service delivery. (UN E-Government Survey, 2022). E-government has become a pivotal force in revolutionizing the delivery of government services in developed nations, and its transformative impact is now becoming evident in various developing countries, such as Sri Lanka. Developing countries are behind in this race to provide e-government services to their citizens. This can be attributed to several factors, including inadequate communication infrastructure, low levels of computer literacy, and limited internet access (Akther et al., 2007). These challenges must be addressed before developing e-government applications. Officials should be aware of the obstacles before starting an e-government project because they are long and costly project (The working group, 2002). Hence, this research aims to explore critical factors effecting to successful e-government

implementation within Sri Lanka Divisional Secretariats. The scope of this study reveals a critical empirical research gap in understanding the interplay of crucial factors influencing e-government implementation within Sri Lanka Divisional Secretariats. The existing literature lacks conclusive evidence from empirical findings, particularly in examining the relationship and effect between essential factors in the successful adoption of e-government. Moreover, there's often a lack of comprehensive studies focusing specifically on the challenges encountered by employees at the divisional level in Sri Lanka.

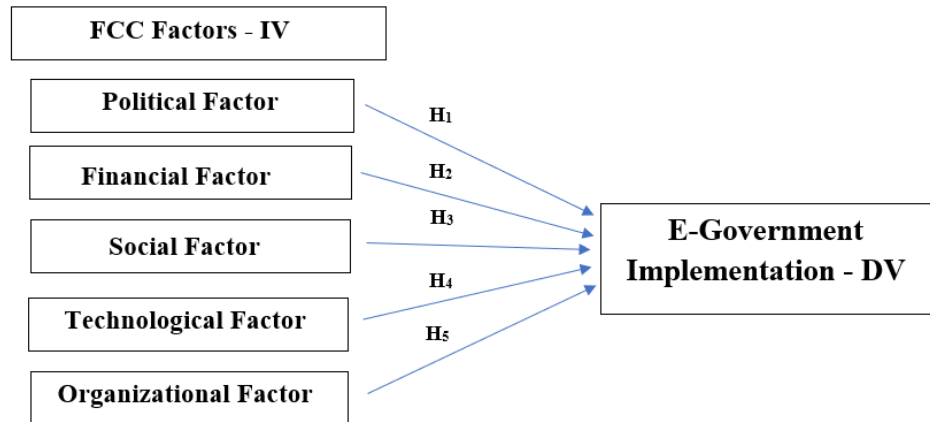
Literature Review

An in-depth analysis of the e-government literature indicates that while researchers have highlighted diverse factors influencing e-government implementation and diffusion, these factors can be generally categorized into five overarching themes. To gain a comprehensive understanding of the composition and effect of these five broad themes on e-government implementation and diffusion, we conduct a thorough examination of the current e-government literature, aiming to identify the challenges and complexities associated with each theme political, technological, Financial, social and organizational (Weerakkody et al., 2011). In view of the foregoing, Peckitt et al., (2002) contend that these societal, organizational, financial, technological and political forces that dictate the prevalent attitudes and behaviors within a given culture are fundamental to the study.

The interaction of these factors is complex and interconnected. Harmonious alignment of institutional, political, social, financial and technological elements has a synergistic effect on e-government implementation. For example, a supportive organizational culture that promotes innovation combines with social factors by encouraging employee adoption of new technologies. Likewise, political stability facilitates long-term financial planning, enabling sustained investment in technological infrastructure. Social factors, including public trust, digital literacy, and societal needs, influence how citizens interact with e-government services,

shaping the design of user-friendly platforms and encouraging inclusivity. Technological advancements, such as infrastructure, cybersecurity, and system interoperability, provide the backbone for e-government, but these advancements are often driven by political decisions regarding investment and regulation. Financial factors directly impact the sustainability and expansion of e-government projects, as adequate funding is required to develop and maintain the technological infrastructure, train staff, and ensure equitable access. Organizational factors, such as internal capacity, management practices, and readiness for digital transformation, affect how public institutions adapt to e-government solutions. Further, a lack of political will can lead to underfunded projects, limiting the technological advancements needed for efficient service delivery, while poor organizational capacity can slow down the adoption of digital tools despite technological readiness and social demand (Heeks, 2006; Layne & Lee, 2001). The success of e-government, therefore, depends on the alignment and interaction of these factors. The integration of these factors ultimately effects employee experiences, citizen satisfaction, and the overall success of e-government initiatives (Peckitt et al., 2002).

This study attempts to explain the concept of e-government by defining various vital perceptions and their relationships involved in embracing e-government. The research introduced here draws upon Five Categories Classification Model defined by Alassaf et al., 2020. Alshehri & Drew, (2010) has categorized various factors influencing e-government implementation into five groups: financial barriers, leadership and management support, social barriers, organizational barriers and technical barriers. Based on these aspects, the new developed model (FCC) can be integrated and captured in a conceptual model as key factors to consider when studying e-government and its implementation barriers (Alassaf et al., 2020).



Alshehri & Drew, (2010)

Methods and Methodology

In the present study, a deductive research approach has been employed (Wilson et al., 2014). Quantitative research follows the deductive approach to concern the relationship between variables and provides evidence for the study. utilizing a survey strategy to collect data via a self-administered questionnaire (Ponto et al., 2015). The questionnaire utilized a five-point Likert scale ranging from "strongly disagree" to "strongly agree" to measure responses. The target population the study focused on Senior officials of Divisional Secretariats in Sri Lanka and the population was taken as unknown. Accordingly, samples were taken using Cochran's Formula (1953) which consist of 385 respondents. Respondents were carefully selected from each district within the Divisional Secretariats in Sri Lanka to ensure a broad and representative sample covering the full spectrum of cultural diversity, socioeconomic variations and language differences. This approach is designed to capture unique perspectives and experiences across populations, providing a well-rounded and inclusive understanding of the research subject. Sample techniques was used as snowball sampling, which is a non-probability sampling method for this study. The snowball sampling technique is effective for populations where members are interconnected but not easily identifiable through traditional

methods. Further, to examine the relationship and effect between research variables, correlation and regression analyses were conducted.

Results and Discussion

Table 1. Reliability

According to Sekaran (2003) the Cronbach's alpha reliability is closer to 1.0 is better. In general, reliabilities less than 0.60 are considered to be poor, those in the 0.70 range, acceptable, and those over 0.80 good. This result 0.722 shows the reliability of the questionnaire used in this survey. Accordingly, all 5 variables have a value of more than 0.7 Therefore, the items used are reliable in the present study. To test the validity of the measures,

Variable	Cronbach's Alpha	Comment
Political Factor	0.776	Accepted
Financial Factor	0.758	Accepted
Social Factor	0.843	Accepted
Technological Factor	0.750	Accepted
Organizational Factor	0.842	Accepted
E-Government	0.750	Accepted

Table 1. Reliability

Source: Survey Data, (2024)

The normal P-P Plot of regression analysis denoted that the variables are closer to linear and that demonstrated that data are normally distributed.

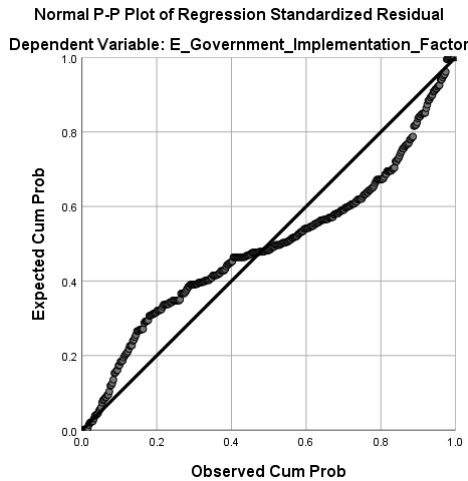


Figure 2. Normal P-P Plot Source: Survey Data, (2024)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.782 ^a	.612	.603	0.191

Table 2. Model Summary

Source: Survey Data, (2024)

As per the table, R^2 value is 0.612 which denotes that 61.2% - government implementation is explained by FCC factors in this study and the remaining 38.8% of variance in FCC Factors is determined by other factors which are not indicated in the conceptual model.

Table 3: Multiple Regression Analysis

Model	Unstandardized Coefficients		Standardized Coefficients	Sig.	Tolerance	Statistics VIF	
	B	Std. Error	Beta				
1	(Constant)	.071	.032		.163		
	Political Factor	-.004	.065	-.006	.810	.083	8.528
	Financial Factor	.232	.043	.223	.000	.106	8.887
	Social Factor	.114	.059	.111	.000	.098	8.556
	Technological Factor	.348	.048	.371	.000	.106	8.589
	Organizational Factor	.276	.047	.271	.000	.107	8.550

Source: (Survey Data, 2024)

According to rule of thumb, if the VIF value lies between 1- 10, then there is no multicollinearity. According to the above table the VIF values lies between 1 – 10 for all the variables. Therefore, researcher concludes that there is no multi collinearity exist among the independent variable. The multiple regression analysis was conducted to test the hypothesis. According to the table, all variables are statistically significant except Political Factors ($p > 0.05$). Moreover, financial, social, technological, and organizational factors demonstrated a notable effect on successful e-government adoption, supporting an alternative hypothesis. However, the regression analysis discovered an insignificant relationship between the political factor on e-government implementation, leading to the rejection of the alternative hypothesis in this context. According to the overall analysis of the research, the multiple regression model can be derived for the independent variable as follows:

$$Y = \alpha + \beta_1(X_1) + \beta_2(X_2) + \beta_3(X_3) + \beta_4(X_4) + \beta_5(X_5) + e$$

$$\text{E-Government Implementation} = 0.061 - 0.006 (X_1) + 0.222 (X_2) + 0.113 (X_3) + 0.366$$

$$(X_4) + 0.276 (X_5) + 0.042$$

Y=Dependent Variable (E-Government Implementation)

X1= Political Factor

X2 = Financial Factor

X3 = Social Factor

X4 = Technological Factor

X5 = Organizational Factor

β_0 = Intercept of the regression model

$\beta_1 - \beta_5$ = Coefficients of the Regression Model

ε = Error of the regression model

Conclusions and Remarks

Public administration is fundamental to the functioning of governments and plays a crucial role in improving the quality of life for citizens. As illustrated in this chapter, amidst the political, financial, social

and organizational challenges, e-government is continuing to play an important role in enabling the delivery of quality public services that meet citizen needs and goals by transforming how the public sector works. As the global economy begins to recover from one of the most severe economic crises in decades, information and communication technologies (ICT) are set to play an increasingly pivotal role in driving renewed and sustainable growth. ICT has become a fundamental component of the infrastructure that supports competitive economies, positioning it as a key enabler of future economic development. This paper presented the results of a quantitative study into the issues surrounding the utilization and implementation of e-Government in Sri Lanka as articulated by the divisional secretariats. Despite all its promise, e-Government in Sri Lanka is still in its early stages and needs more research to improve the effectiveness of e-Services development and to attain wide public acceptance. Through the research, the researcher was able to conclude that there is a significant effect between critical factors on E-government implementation, with use of FCC model in divisional secretariats in Sri Lanka. E-Government implementation challenges can be technological; a country's infrastructure and economic problems can often derail e-Government services initiatives and lack of funding for implementation, and cultural problems. These challenges have been identified and discussed. This study provides substantial contributions to Sri Lanka's e-Government services initiative, as well as to the growing body of knowledge surrounding the topic area. This study of e-government implementation in divisional secretariats of Sri Lanka emphasize the need for targeted interventions. Addressing financial constraints, improving technological infrastructure, social interfere, streamlining organizational processes and ensuring political stability emerge as key factors. In modern business world, organizations are faced with huge competition, therefore, e-government initiatives have become increasingly crucial in enhancing efficient and effectiveness of public services. In conclusion, this study may help developing countries like Sri Lanka to exploit the potential benefits of

e-Government services to transform the way they govern and facilitate the development of their economies. Finally, it is important for policy makers to refrain from assuming that there are generic e-Government challenges for all nations. The research findings are used to give future researchers and marketers better understanding into FCC model factors. Future researchers can gain the knowledge generated from the study to deepen their investigations, enhance methodological approaches, and contribute to the ongoing evolution of digital governance strategies.

Keywords: *E-Government, Five Categories Classification Model, Divisional Secretariats, Information Technology, Traditional Government*

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The Role of Technology Self Efficacy on Human Resource Analytics user behaviour in the Public Sector HR Professionals in Sri Lanka: A Conceptual Study

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Abstract

The lack of user adoption of Human Resource Analytics significantly impedes effective Human Resource Management decision-making and performance enhancement in the Sri Lankan public sector. Despite the growing interest in HR analytics, research on its user adoption within organizations remains limited. This study aims to investigate the barriers to HR analytics adoption, focusing on user acceptance and utilization within the public sector, which is still in its infancy. It will also explore the role of Technology Self-Efficacy (TSE) as a psychological factor influencing user behavior towards HR analytics.

The positivism approach will be adopted for the study to examine the causal effects among the UTAUT variables direct relationships as well as the moderations among the control variables and the main moderation suggested of the Technology Self-Efficacy of the HR Analytics users on the relationship between the behavioural intention to use the HR Analytics and The Behaviour of using HR Analytics. For the analysis the SEM will be used in analyzing the data collected from pre validated questionnaires adopted from literature. Employing a positivist approach, the study will utilize Structural Equation Modeling (SEM) to analyze data collected from validated questionnaires, examining the causal relationships among UTAUT variables and the moderating effects of TSE on the relationship between behavioral intention and actual usage of HR analytics in this conceptual study.

Keywords: *HR Analytics, Technology Self-Efficacy, UTAUT Variables*

Introduction

HR analytics is defined as the practice of making data-driven HR decisions (Belizón & Kieran, 2021). Furthermore, it was noted that HR analytics involves addressing operational or strategic HR issues using various data sources, including HR data, commercial data, and external data. Sierra-Cedar (2019) reported that just 17% of organizations employ analytics for HR forecasting, while 22% are in the process of assessing analytics tools. Furthermore, Deloitte (2019) discovered that only 26% of organizations apply analytics in HRM. A KPMG (2019) survey revealed that merely 20% of organizations consider analytics a key HR initiative for the upcoming one to two years. Particularly there is a dearth of studies conducted on studies in HR Analytics adoption that must be included, should represent a broader spectrum of industries, sectors and geographical locations as per Prikshat et al 2023.

Despite these findings, the technology user behaviour related theories, such as the most validated Unified Theory of Acceptance and Use of Technology (UTAUT) model, was insignificantly extended with the individual psychological aspect of Technology /Computer Self Efficacy concept so far (Venkatesh et al., 2016). Therefore, this shows a theoretical gap. HR professionals' acceptance and utilization of human resource analytics will depend on their confidence in their own ability to achieve satisfactory performance levels using these tools (Vargas et al., 2018).

One of studies indicates that crucial factors influencing the acceptance and adoption of HR analytics in large Palestinian enterprises include self-efficacy, performance expectancy, effort expectancy, resource availability, quantitative self-efficacy, data availability, and social influence (Tunsi et al., 2023). Several studies indicate that insufficient resources and the use of inappropriate resources are key reasons for poor organizational performance (Mosadeghrad & Ansarian, 2014; Vergas, 2015).

Lack of Human Resource Analytics Use in terms of User

Acceptance and Human Resource Analytics Use Behaviour in the Sri Lankan Public Sector. Therefore the study aims to find What is the role of Technology Self Efficacy on Human Resource Analytics User Acceptance and Human Resource Analytics User Behaviour in the public sector HR Professionals in Sri Lanka. The main objective of this study is to investigate role of Technology Self Efficacy on Human Resource Analytics User Acceptance and Human Resource Analytics Use Behaviour in the public sector HR Professionals in Sri Lanka.

Literature Review

UTAUT Model and the validated relationships among the variables

HR analytics is a contemporary trend and valuable area in the current era in human resource management (McCartney & Fu, 2022; Piyasena, 2022). It supports workforce analysis and discovers modern and significant employee patterns (Prkishat et al., 2023). However, there remains a dearth of research on user adoption of HR analytics within organizations (Arora et al., 2024a; Arora et al., 2024b; Piyasena, 2022; Prkishat et al., 2023). Ellmer and Reichel (2021) and Greasley and Thomas (2020) identified that the Key Performance Indicators (KPIs) in HR analytics are more complex to determine compared to other business domains such as marketing, operations, and finance. HR analytics enhances HR management by utilizing HR data to gather insights about particular functions or departments within an organization and making improvement decisions based on these insights (McCartney & Fu, 2022).

Researchers have examined the factors influencing the lack of user adoption of HR analytics in employee performance management. The successful adoption of HR analytics in employee performance management is significantly influenced by various factors, including the perceived complexity of the technology, the quality of training provided, and the alignment of the technology with organizational goals.

As per Igarria and Iivary (1995) Technology experience impact on a user's self-efficacy, which is identified as Technology self-efficacy, a type

of specific self-efficacy (Compeau & Higgins, 1995; Bandura, 1997). It is mentioned that Technology Self Efficacy influences the Perceived Ease of Use or Behavioural Intention to Use in terms of the HR Analytics related technology use behaviour (Hu, Clark, & Ma, 2003). The validated studies depict that Self-efficacy impacts Behavioural Intention to Use technologies such as HR Analytics (Vijayarathy, 2004). Therefore, the Technology Self Efficacy in terms of technology acceptance is identified as the judgment of HR Analytics user's ability to use the technology in accomplishing tasks (Compeau & Higgins, 1995; Bandura, 1997). Given the novel literature on HR Analytics user acceptance Chiu and Wang (2008) extended the validated UTAUT model with Technology Self Efficacy as an independent variable to show Technology Self Efficacy as a significant exogenous variable in individuals' intentions to continue using technology. It is also found that self-efficacy is a predictor variable of technology adoption in the study based on UTAUT model

Technology Self Efficacy, Behavioural Intention to Use HR Analytics and HR Analytics Use Behaviour

(Yuen, Yeow, Lim, & Saylani, 2010). As per the findings of Mckenna, Tuunanen, and Gardner (2013), Self-Efficacy was identified as a predictor of behavioural intention and on the contrary, Xiong, Qureshi, and Najjar (2013) in their study on information communication adoption, revealed that Self Efficacy is not a predictor of behavioural intention. Despite the prior findings on CSE, it can be stated that the most validated UTAUT model has insignificantly addressed the phenomena of leadership and Technology Self Efficacy in explaining the individual IS user acceptance and user behaviour (Venkatesh et al., 2016).

Social Cognitive theory plays an important aspect in interpreting of behaviour (Bandura,1986). The cognitive theory applied and extended (Compeau & Higgins, 1995) in the technology context with Technology Self Efficacy as it was theorized properly stating that Self efficacy not to be a direct determinant of intention. 'Technology Self Efficacy has a direct

positive effect on technology acceptance' (Hu et al., 2003, p. 230). HR Analytics related technology User Acceptance has a positive influence on the Behavioural intention to use Information Systems (Wixom & Todd, 2005; Venkatesh et al., 2016; Venkatesh et al., 2003; Neufeld et al., 2007) where self-efficacy was found to be having a significant positive effect on behavioral intention to use the information technology such as HR Analytics (Al-Haderi, 2013). Further to this Vijayasathy (2004) self-efficacy influences on behavioural Intention to Use Technology as well as per Hu et al. (2003) Technology Self Efficacy influences on behavioural Intention to Use as well.

In the context of this study the behavioural Intention to Use HR Analytics is used as a proxy for the individual's decision to use Technologies. According to Compeau and Higgins (1995) it is stated that the individuals with a weak sense of self-efficacy will be frustrated more easily by obstacles to their performance and will respond by lowering their perceptions of their capability and the individuals with a strong sense of efficacy will not be deterred by difficult problems, will retain their sense of self-efficacy, and as a result of their continued persistence are more likely to overcome whatever obstacle was present. Also it is evident that 'a moderator-interaction effect would be said to occur if a relation is substantially reduced' (Baron & Kenny, 1986, p. 1174). 'Technology Self Efficacy makes a difference in the perception among individuals about technology, that is for, those with high Technology self- efficacy may be technology literate than those with low self-efficacy' (Al-Haderi, 2013, p. 193). In accordance with the Social Cognitive Theory, 'Self-efficacy impact the choices of the users in terms of selecting which behaviors to undertake, as mentioned by Compeau and Higgins' (1995). Self-efficacy was identified to be conceptually and empirically distinct from Effort Expectancy or the perceived ease of use and the Self-efficacy concept was modeled as an indirect determinant of behavioural intention fully mediated by perceived ease of use (Venkatesh 2000). In line with the above finding Venkatesh et al.

(2003) found in their UTAUT study that the self-efficacy appears to be a significant determinant of intention in Social Cognitive Theory without controlling for the effect of Effort Expectancy. Hence in the view point of Venkatesh et al. (2003) it was stated that future research should focus on identifying constructs that can add to the prediction of intention and behavior over and above what is already known and understood.

As per Venkatesh (2000) it was mentioned that perceptions of individuals perceived ease of use of technology would be based on individual belief on Technology as well as its use. These states the aspect that Technology Self Efficacy or an individuals' control beliefs regarding his or her personal ability to use a system. As Hwang and Yi (2003) as cited evidence by Al-Haderi (2013) the influence of intrinsic motivation and Technology Self Efficacy with the use of the Technology Acceptance Model the Behavioral Intention to Use and Technology Self Efficacy has significant influence on Use of the technology such as the HR Analytics technology. Thus, the following hypothesis is constructed for the proposed conceptual model of the study in addition to the well-established causal relationships in the UTAUT model.

Hypotheses proposed in this study additional to the validated relationships exist in the UTAUT variables related causal relationships is as follows:

H1: There is an impact of Behavioural Intention to Use HR Analytics on HR Analytics Use Behaviour.

H2: Technology Self Efficacy moderates the impact between Behavioural Intention to Use HR Analytics and HR Analytics Use Behaviour.

Methodology

This study uses quantitative methodology, and it is mainly due to the ontological and epistemological assumptions based in the Positivism Paradigm. The study adopts the deductive approach, and it is cross sectional in terms of the time horizon. A purposive judgmental sample of Human

Resource Management Professionals who use HR analytics will be effectively drawn from the public sector.

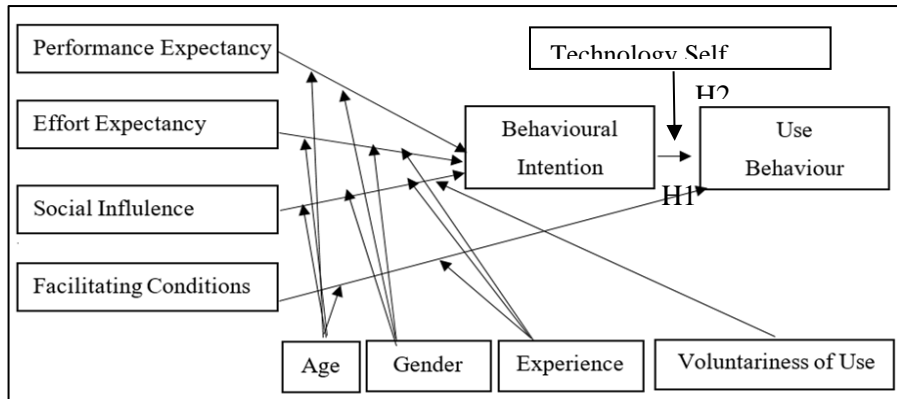


Figure 1: Conceptual Framework

Adopted from : Venkatesh et al. (2003)

The primary data will be collected using a pre validated and tested questionnaire, which will be developed using scales adopted from related literature. Structural Equation Modelling with Smart PLS will be used in analyzing the data collected in arriving at the findings of the study.

The background information or the demographics related data will be collected using the beginning of the self-administered questionnaire with the demographic factors as well as the control variables of the UTAUT study of the respondents such as age, gender, educational level, work experience etc. The latent variables of direct determinants of HR Analytics use behavior namely; Performance Expectancy, Social Influence, Effort Expectancy and Facilitating Conditions and behavioral intention to use HR Analytics along with the HR Analytics use behavior variable are to be tested using the pre validated scales used in the studies done by Venkatesh et al. (2003). The first section which comprises of questions represents the UTAUT model related latent variables.

The Technology Self Efficacy is to be measured using the pre-validated scale (Campeau & Higgins, 1995) with ten items (10) and thus the third section of the self-administered questionnaire of this study includes

ten items representing the Technology/ Computer Self Efficacy scale where the it is taken as a perception of an individual's ability to use the considered technology in the accomplishment of a job task. The 10-item measure of Computer Self Efficacy was developed by Compeau and Higgins (1995). A Purposive Judgmental sample of 400 participants of the population of HR Analytics using HR Professionals in the public sector to justify with the similar study conducted with a total of 422 sample of Information System users, where questionnaires were used (Neufeld et al., 2007).

This study reveals that Technology Self-Efficacy is a crucial determinant of HR analytics user acceptance and usage behavior among HR professionals in the Sri Lankan public sector. The findings would suggest that organizations should prioritize enhancing TSE through comprehensive training and resource allocation to promote a culture of data-driven decision-making in HR practices. This approach will ultimately lead to more effective HR management and better alignment with organizational goals, paving the way for improved performance and competitiveness in the public sector.

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