

Digitalization and Cost Optimization: Strategies for Sri Lankan Enterprises

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Abstract

In the ever-changing economic environment of Sri Lanka, businesses are increasingly focused on cost optimisation as a critical approach to enhance operational efficiencies, establish a competitive edge, and assure the long-term sustainability of their organisations. This article examines the vital role of digital technologies in driving cost optimisation approaches for Sri Lankan enterprises. The study contributes to the academic discussion by synthesising insights from extant literature and provides a holistic framework for Sri Lankan enterprises to utilise digital technologies for cost optimisation while resolving contextual constraints.

1. Introduction

Cost optimisation is a strategic imperative for firms operating amidst the economic landscapes of Sri Lanka, which are driven by operational efficiencies to enhance competitive advantage and organizational viability. The relevance of cost planning and cost reduction-related methods to the corporate context of Sri Lanka has emerged as a new stream of scholarly research. Firms in Sri Lanka have a heightened tendency to use strategic management accounting tools explicitly for cost containment, as empirically supported through several investigations (Indrani, Naidoo & Wickremasinghe 2020). Furthermore, innovation in management accounting techniques, including product costing architectures, has a salient influence over the cost optimisation initiatives of Sri Lankan publicly listed corporations. The modern trend, especially in Sri Lankan businesses, emphasizes cost management sustainability practices, which have also been found as an added path for optimising the company's cost efficiency. The general signal is a move toward greener operations by local entities, which will also benefit from streamlining costs in the long term. Moreover, the emerging literature has identified corporate governance as a major determinant of cost optimisation paths (Nuskiya et al. 2021).

2. Role of digital technologies in cost optimisation

In cloud computing, optimisation algorithms have been developed to enhance cost-effectiveness. For instance, a cloud computing task scheduling model based on an improved Whale Optimisation Algorithm has been shown to reduce completion time, enhance node load efficiency, and decrease operating costs (Jia, Li & Shi 2021). Further, multi objective genetic algorithm-based optimisation for virtual machine (VM) resource allocation minimizes cost, considering resource price, quantity of VMs, and supply capacity of suppliers (Shi & Lin 2022). Furthermore, the combination with other optimisation algorithms, such as the Grey Wolf and Whale Optimisation Algorithms, has shown effectiveness in defining virtual machine allocation and scheduling strategies to optimize the operational cost of data centers and application performance. The cost optimisation is realized with the help of digital technologies, specifically the Internet of Things (IoT) and sensor technologies (Krishnamurthi et al. 2020). Other critical aspects IoT and sensors contribute to cost optimisation are effective data collection and processing. However, an important need is to efficiently control the huge amount of data these sensors produce to avoid

prohibitive computation costs and resource overutilization. These could be achieved by applying advanced data processing, fusion, and analysis techniques that would assist organizations in extracting meaningful information from sensor data while filtering out noise at minimal costs (Tagle et al. 2020).

3. Automation and robotics

Cost optimisation includes major activities that streamline optimisation across industries, such as digital technologies through automation and robotics. Robotic Process Automation (RPA) encourages companies to automate repetitive tasks and processes, eliminating manual errors that usually hamper high performance (Syed et al. 2020). Automation and robotic technologies within the manufacturing industry are set for process optimisation through digital technologies to reduce costs and increase product quality. The designing process is also automated for offsite construction with robotics, optimally using resources and cost-effective sensors to control materials, leading to timely project outcomes. Furthermore, digital technologies integrated into tax organizations can enhance cost optimisation, streamline tax administration, and reduce time spent on tax transactions, contributing to cost optimisation (Maksimchuk et al. 2021). In the agriculture sector, digital crop production technologies are increasing actual yields while reducing input costs, such as seeds and fertilizers, demonstrating cost-saving potential from digital solutions. Automation and robotics will also be adopted in internal logistics operations for improved efficiency, cost savings due to minimal manual labour, and increased productivity.

4. Data analytics and business intelligence

These digital technologies, led by data analytics and business intelligence, need to be used to drive cost optimisation efforts across industries. These technologies are organisational enablers in setting up their processes so that costs get reduced and the decision-making process improves with insights from their data. By leveraging data warehouses and visualisation tools, companies can identify cost-saving opportunities, optimise resource allocation, and improve service quality. Adopting a business intelligence system appliance can greatly affect the efficiency of operations, if not all industries, and even the entire decision-making process. Furthermore, it only sought to answer how AI and advanced analytics can re-engineer information technology infrastructure to optimise the operations and decision-making processes (Kissi, Nat & Idowu 2017). Studies have indicated that the application of digital technology has caused a reduction in costs, rationalising of activities, and improved transparency in economic operations in the tax sector (Lahlali, Berbiche & Alami 2021).

5. Barriers to digital transformation adoption in sri lanka

Significant barriers, particularly regarding infrastructure and technology limitations, make adopting digital transformation in Sri Lanka difficult. Most citizens either lack or are in short supply of internet connectivity and access to technology, particularly in low-lying areas across the country's digital landscape connectivity and access to technology (Kumarasiri & Dissanayake 2020; Withanage, Gunawardene & Endagamage 2022). Infrastructure remains the most significant limiting factor. The country's internet penetration rate is inferior to the rest of the world. It blames this on the poor telecommunications infrastructure in rural areas, which host a more significant chunk of the population. Limited access to high-speed internet is strangling digital technologies and services. In turn, these stifle online connectivity and transactions for persons and businesses. Also, technological constraints, such as the availability of a smartphone and a computer and its affordability, are giving rise to the barrier of digital transformation in

Sri Lanka. Without access to these gadgets, participation in the digital economy for many Sri Lankans is simply impossible, particularly for those who live in rural and underprivileged areas.

Furthermore, as valid in the case of most developing countries, financial constraints and investment challenges are all over-spread barriers to any successful initiative of digitization in Sri Lanka. Capital and funding opportunities are very limited to SMEs of Sri Lanka; therefore, they lack the financial capability or cannot afford to invest in any digitization project that comes up with huge investments, training, and infrastructure in the technology field. Furthermore, ambiguous ROI and high initial investment costs are significant reasons many organizations are in two minds when adopting any digital initiative (Priyanath & Premaratne 2015).

6. Skills gaps and talent shortages

Some of the country's most significant challenges in adopting digital transformation include skills gaps and talent shortages. Studies have established that Sri Lanka faces several shortages in the skills sector (Sachitra & Mendis 2023). Further, the highlighted non-cognitive and technical skills areas were the English Language and Information and Communication Technology (ICT), which are scarce in the manufacturing sub-sectors in Sri Lanka (Asian Development Bank 2020). Additionally, the impact of talent management on employee performance has been studied in the context of public banks in Sri Lanka, focusing on Generation Y management trainees (Wickramaaratchi & Perera 2020). Strategies such as impact sourcing have been proposed to overcome talent shortages in global business services firms in Sri Lanka (Aman et al. 2018). Furthermore, a study on the performance of large construction projects in developing countries highlights the importance of identifying critical success factors to enhance infrastructure development efficiency in Sri Lanka. It is further significant to identify critical success factors seeking to improve the efficiency of infrastructure development in Sri Lanka, which is among developing countries.

7. Organisational resistance and change management

Adopting digital transformation in Sri Lanka has severe challenges, mainly from the point of view of organisational resistance and change management. These may include low awareness and high investment costs in digital transformation initiatives, a lack of knowledge of an expert, an absence of a proper regulatory framework, and a delay in getting government approvals. Public resistance also hampers the way due to the lack of awareness (Kumarasiri & Dissanayake 2020). Additionally, limited knowledge among management and building owners, high initial costs, and lack of workforce skills are key barriers to integrating smart features in commercial buildings in Sri Lanka (Dilogini, Sridarran & Mahedrarajah 2021). To address these barriers, enhancing digital literacy among citizens from an early age is crucial for the successful adoption and utilisation of e-services in Sri Lanka (Withanage, Gunawardene & Endagamage 2022). Moreover, the adoption of digital marketing tools in listed hotels in Sri Lanka is hindered by unfamiliarity with digital marketing and a lack of confidence in investing in these tools to achieve expected outcomes

8. Strategies for overcoming challenges and accelerating digital transformation

The COVID-19 outbreak has influenced the strategies to be implemented for digital transformation at a higher pace. Research indicates that the pandemic has increased remote work and accelerated the digital transformation of work processes (Nagel 2020). This acceleration has been observed across diverse industrial scenarios, where digital transformation was signaled as an added value to remain competitive within dynamic business environments. Furthermore, Xu, Li and Guo (2023) argue that innovation, human capital development, and environmental information disclosure and governance in digital transformation will enhance environmental performance. In the small and medium-sized enterprises (SMEs) domain, the effective promotion of digital transformation is recommended through digital and government support, talent recruitment, and infrastructure building of the installed base for establishing an effective digital platform (Yu & Liu 2022). Moreover, intrapreneurship in an organization has emerged as an efficacious factor for speeding up the digital transformation process by strategically transforming activities, processes, competencies, and business models (Damiani & Tumelero 2023). Social and human capital are vital to digitalization, especially within the COVID-19 juncture (Nguyen, Tran & Nguyen 2023). The main factors in accelerating digital transformation among startups were social capital, human capital, and resource accessibility.

9. Conclusion

Digital technologies, in essence, are important in optimising the cost structure for Sri Lankan enterprises. It includes cloud computing and virtualisation solutions to automation and robotics, covering the whole range of data analytics. The barriers range from poor infrastructure, low financial constraints, and lack of skills to resistance by the organisation in adopting the technologies. These need to be addressed in a multifold approach to further acceleration of digital transformation, ranging from government support and infrastructure to talent acquisition, intrapreneurship, and human and social capital. In addressing these key factors, Sri Lankan businesses can fully use digital technologies to cut costs, bring efficiency, and acquire competitiveness in the global market. Future works can further investigate the other strategies for digital transformation specific to industries and develop strong frameworks for measuring the impacts of digital technologies on cost optimisation efforts and their evaluation.

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