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Review Article 01

The Role of Technology in Enhancing Operational Efficiency in SME Hotels in Sri Lanka: A Review

H.G.C. Senarathne[1], B.E.A. Jayasekara[2], L.M.F. Adams[3]

[1]Lincoln University College, Malaysia
[2]Department of Science for Technology, Faculty of Technology, University of Sri Jayewardenepura, Sri Lanka
[3]Institute of Knowledge Academia, Sri Lanka
[1]https://orcid.org/0009-0008-4149-4218
[2]https://orcid.org/0009-0004-7433-5353

Abstract

The hospitality industry is one of the major economic drivers in Sri Lanka, and Small and Medium-sized Enterprise (SME) hotels plays vital role, but SMEs are especially prone to operational inefficiencies due to many concerns, such as limited resources, manual processes, and growing competition from the larger and tech-enabled hotel chains. Despite the digital tools advancement in the global, there is a research gap in understanding the barriers and enablers of technology adoption specific to SME hotels in Sri Lanka. Recent Sri Lankan research indicates limited but growing attention to digital transformation in SME hotels; however, most studies remain fragmented and lack theoretical depth. This review article addresses the gap by critically examining and analysing how emerging technologies such as Hotel Property Management Systems (PMS), cloud platforms, Artificial Intelligence (AI), and the Internet of Things (IoT), could enhance operational efficiency in SME hotel operations. This review is based on a narrative literature review methodology, blended with peer-reviewed research published from 2015 to 2024. A thematic analysis, utilising key theoretical frameworks, including Technology Acceptance Model (TAM), Resource-Based View (RBV), and Dynamic Capabilities Theory (DCT), to critically examine the role of digital tools such as PMS and others mentioned above in enhancing the operational efficiency of SME hotels in Sri Lanka. Finding reveals that the technological solutions provide many opportunities to streamline their operations, improve the services, and reduce costs, major challenges such as financial constraints, resistance to change, and low digital literacy persist. The paper concludes that contextual readiness and targeted policy support are essential for meaningful technology adoption. Many recommendations are proposed, such as promoting Software as a Service (SaaS) models, improving digital skills, introducing mobile-based management tools, and finally implementing government-supported incentives to enable a sustainable digital transformation. The revised paper also elaborates the review methodology, inclusion criteria, and conceptual integration among TAM, RBV, DCT, and Stakeholder Theory to improve theoretical clarity and methodological transparency. This study's importance is rooted in its comprehensive theoretical framework and its practical applicability to a vital but minimally researched element of the hotel industry in Sri Lanka.

Keywords: Digital transformation, operational efficiency, SME hotels, Sri Lanka, technology adoption

Corresponding Author: H.G.C. Senarathne – hgcsenarathne@gmail.com
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Introduction

The international hospitality sector continues to be a foundation of economic growth, cultural diplomacy, and job creation. SMEs, and more specifically SME hotels, are a significant yet concealed element of the sector's role in the provision of culturally ingrained, bespoke experiences. Sri Lankan SME hotels are embedded within the nation's tourism economy, and they contribute to about 52% of GDP and about 45% of overall employment (Sri Lanka Ministry of Industry and Commerce, 2020). Yet, while they are dominant in number and socio-economic impact, such businesses still suffer from inherent inefficiencies in operations and structural weaknesses, especially when compared with technology-savvy, well-resourced multinational hotel chains.

Whereas chain or larger hotels have introduced digitalisation in the form of technologies such as Property Management Systems (PMS), cloud computing platforms, AI, and IoT solutions, but Sri Lankan SME have been slow followers in the adoption of these technologies. This slower pace of technology uptake is the result of a combination of financial constraints, inadequate infrastructure, lack of technical competencies, ongoing brain drain, and organizational resistance to change. The COVID-19 pandemic was both a disruptor and an accelerator, making the need for digital agility more apparent but also amplifying the gap between tech-enabled operations and traditional manual workflows (Sigala, 2022). Several Sri Lankan researchers, including Fernando (2020), Perera and Karunaratne (2022), and Gunawardana and Jayasinghe (2019), have explored aspects of technology readiness and digital barriers within the local hotel sector. However, their findings remain limited to descriptive assessments or individual system evaluations. The lack of a multi-theoretical, integrative approach highlights the need for a comprehensive review combining behavioural (TAM/UTAUT), strategic (RBV), and dynamic (DCT) dimensions specific to SME hotels.

Critically, although there is global literature recognizing the transformative influence of digital technologies on operational efficiency, little context-specific empirical work exists that addresses how such technologies could be tailored to the specific needs, constraints, and cultural sensitivities of Sri Lankan SME hotels. Current research overgeneralizes findings from advanced hospitality economies with limited pragmatic recommendations for SMEs operating in resource-poor settings. This constitutes a gap in fundamental research, a shortage of in-depth, context-specific examination of the barriers to and facilitators of technology adoption among Sri Lankan SME hotels.

Conceptually, this research draws on three supporting theories, such as 1 - the Technology Acceptance Model (TAM) (Davis, 1989), which explains behavioural intention, perceived usefulness, and ease of use. 2 - Resource-Based View (RBV), which theorises technology as a strategic asset. And 3 - Dynamic Capabilities Theory (DCT) (Teece et al., 1997), which highlights the hotel's ability to integrate, develop, and change internal competencies as a response to environmental turbulence. Collectively, these frameworks facilitate a multi-perspective comprehension of how Sri Lankan SME hotels can leapfrog the technology gap, not simply through the purchase of equipment but through the development of organizational flexibility and absorptive capacity to achieve sustainable digital change.

Moreover, Stakeholder Theory (Freeman, 1984) demands the joint involvement of policy makers, governments, technology providers, and societies in enabling digital empowerment in the SME hotels. In the absence of policy support, investment in infrastructure, and capacity-

building initiatives being aligned, technology investments may at best produce isolated or non-sustainable results.

As digital innovation and sustainability imperatives reshape the future of hospitality globally, Sri Lanka's SME hotels are at a juncture. This research, thus, seeks to address the imminent research need by exploring how best digital technologies could be leveraged to drive operational efficiencies as well as surmount the socio-economic and behavioural adoption barriers.

Research Gap

Despite the increasing global interest in technology transformation in the hospitality sector, Sri Lankan SME hotels remain significantly under-researched. Most of the existing literature focuses on large or chain hotels in developed economies, with very minimal focus on resource-constrained SMEs in developing markets. Additionally, several studies have investigated the technological tools such as PMS, AI, and IoT solutions. But few studies have explored how the above tools interact with managerial culture, strategic leadership, or national policies in the Sri Lankan context. Further, there is also a lack of integrated theoretical frameworks in prior studies that capture both social and strategic factors of technology adoption, particularly for SMEs. These research gaps limit both theoretical and policy-related research, emphasising the need for a contextually grounded, theory-informed review that can offer actionable insights.

Therefore, this study differs from prior work by explicitly quantifying and synthesizing evidence from both global and Sri Lankan literature to reveal under-examined intersections between technology adoption, operational efficiency, and contextual readiness in SME hotels. While earlier works focus on isolated technologies or managerial aspects, this review provides a holistic, theory-driven analysis covering the period 2015–2024.

Research Objectives

The main objective of this research is to critically review the adoption of technologies to enhance the operational efficiency in the SME hotels in Sri Lanka. The main objectives are as follows.

1. To investigate the current level of digital technology adoption, including PMS, AI, cloud computing, and IoT, among the SME hotels in Sri Lanka.

2. To analyse the key barriers and enablers influencing the adoption and effective utilization of digital tools in operational processes.

3. To evaluate the role of organisational, behavioural, and policy factors through the lenses of TAM, RBV, and DCT in shaping digital transformation outcomes.

4. To develop strategic and policy recommendations aimed at fostering sustainable digital innovation and operational efficiency in the Sri Lankan SME hospitality sector.

Research Problem

What is the role of Technology in Enhancing Operational Efficiency in SME hotels in Sri Lanka?

Significance of the Study

Theoretical Significance

This study contributes to the theoretical development of technology adoption in SMEs by synthesizing three frameworks, such as TAM, RBV, and DCT, into an integrated model that addresses behavioural, resource, and strategic adaptability dimensions. Testing the above theories in the relatively untested setting of Sri Lankan SME hotels, this research increases their explanatory potential and contextual applicability in emerging economies.

Empirical Significance

Empirically, the research addresses a significant gap in the literature by presenting evidence-based findings on Sri Lankan SME hotels' actual challenges and opportunities for adopting digital technologies. Which contributes deeper understanding of digital transformation across diverse business sizes and economic settings, encouraging further data-driven research in non-Western contexts.

Practical Significance

In practice, the implications of this research provide actionable advice to SME hoteliers, policymakers, and technology providers. Suggests mobile-enabled PMS interfaces, SaaS propositions, staff skilling, and public-private partnerships can help to build a digitally enabled and competitive SME hospitality industry in Sri Lanka. It also notifies the government and SME development authorities in tourism by offering technology interventions that are relevant to local conditions.

Definition of Key Terms

- SME Hotels - Small and medium-sized independent lodging establishments, typically locally owned, employing fewer than 250 people, and with limited access to financial and technological resources.
- Operational Efficiency - The ability of a hotel to optimize resources, streamline workflows, and deliver quality services at reduced cost and time.
- Digital Transformation - The strategic integration of digital technologies such as AI, IoT, and PMS into business operations, culture, and customer engagement practices.
- PMS - A digital platform used in hotel management to automate core operations, including reservations, front desk, housekeeping, and billing.
- TAM - A behavioural theory explaining how user perceptions of usefulness and ease of use influence their acceptance of technology.
- RBV - A strategic management framework positing that sustainable competitive advantage is derived from a firm's internal resources and capabilities.
- DCT - A framework describing how firms can adapt and reconfigure their resources to meet changing external environments and achieve long-term success.

IoT - A network of interconnected devices embedded with sensors and software that collect and exchange data to optimize operations, such as energy management or predictive maintenance.

Literature Review

Overview of SME Hotels in the Global and Sri Lankan Context

In developing countries, SMEs greatly support the economy by helping to create jobs, bring new ideas, and boost the nation's GDP. On the basis of job numbers and financial turnover, the European Commission and World Bank define what SMEs are and how they shape the economy (European Commission, 2020; World Bank, 2021). About 98% of businesses in Asia are SMEs, and two-thirds of private sector jobs are created by them. Despite the great importance of SMEs, they are still held back by financial restrictions, scattered policies, and low use of digital tools (Dasanayaka, 2006; Yoshino & Taghizadeh-Hesary, 2016). SMEs make up about 52% of Sri Lanka's GDP and provide jobs for 45% of the workforce (Sri Lanka Ministry of Industry and Commerce, 2020). SME hotels in tourism have increased because people now appreciate a more personalised service that reflects local culture (Perera & Samarakoon, 2021). Yet, they frequently use hand methods, get little exposure through marketing, and are less developed online. Lokas said the government provides both tax reductions and support for capacity building, but current pressures, such as problems with the exchange rate and COVID-19, still present difficulties (Lokeshwara et al., 2024).

SME Industry

SMEs are vital for the economy around the globe, supporting growth, offering jobs and bringing innovations. SMEs mean something different everywhere and are generally sorted into groups by how many employees they have, their profits, or what they own. SMEs, in the sense used by the European Commission, have fewer than 250 employees and earn less than €50 million annually (European Commission, 2020). In the same way, the World Bank sees SMEs as businesses with less than 300 employees and an annual turnover of less than $15 million (World Bank, 2021). The idea never really changes: SMEs are smaller than large companies, but they can still have a big impact on the economy.

There are very few large businesses in Asia; the vast majority (98%) of companies are SMEs, which support two-thirds of jobs in the private sector. In many places, these enterprises are important for advancing local innovation and meeting service needs, mainly in the informal and semi-formal sectors. Yet, in spite of SMEs' size and significance, regular challenges, for example, unreliable access to finance, a lack of digital tools, and various government policies, can stop them from thriving (Dasanayaka, 2006; Yoshino & Taghizadeh-Hesary, 2016).

In Sri Lanka, SMEs formed nearly 52% of the national GDP and took up 45% of all jobs in 2020 (Sri Lanka Ministry of Industry and Commerce). Their activities affect agriculture, manufacturing, retail, and the service sector, which also includes tourism. The rise in eco-tourism, interest in boutique hotels, and interest in localised hospitality have resulted in more SMEs participating in this industry (Perera & Samarakoon, 2021). Nevertheless, these business owners find themselves working with limited money, mostly do things by hand, get little exposure for their brand, and rely on unofficial hiring practises.

According to the Sri Lankan government, SMEs are grouped by specific thresholds related to both employment and sales income. For example, a small enterprise in manufacturing hires

between 11 and 50 employees and generates annual revenue between LKR 16 million and LKR 250 million, and a medium enterprise hires between 51 and 300 staff and has an annual revenue of LKR 251 million to LKR 750 million (Sri Lanka Ministry of Finance, 2021). To recognise their value, the National Policy Framework includes tax incentives, subsidised loans, and programmes that help SMEs get better at what they do.

Even so, the sector is susceptible to unexpected changes from outside. Problems like recent foreign exchange shortages and COVID-19 have amplified difficulties in finances and operations for most tourism SMEs. The costs associated with running the businesses, missing working funds, and being poorly connected online usually limit how long these firms can survive (Lokeshwara et al., 2024). Also, mobile technologies and internet services in the cloud are not being fully used because people have trouble with digital skills, find them too costly and do not always have good internet connections.

This specific research is not freely available online, although its topics are discussed in related studies. Since SME hotels need to be competitive and ensure their future, technological development is necessary for them. It has been found that making greater use of information technologies helps businesses perform better and organise their operations (Ranatunga et al., 2021). How ready the organisation is and the state of the competitive market and support from technology vendors are both essential in choosing new technology (Yazeer & Sachithra, 2024). Still, there aren't many studies dedicated to explaining how these dynamics work in the Sri Lankan small and medium hotel sector.

Most literature points out the important role of SMEs in the economy and gives overviews of data, although it does not often present sector-specific details about, say, tourism-dependent SMEs in Sri Lanka. Much of the research fails to recognise the unique problems that hospitality SMEs have to face in their operations, finances and technology. More empirical, qualitative, and area-specific studies are required to understand how these businesses face changing technologies in rapid and dynamic settings.

Technology Adoption in Hospitality: Theoretical and Empirical Studies

More and more, there has been academic work on understanding the effects of behavioural, organisational, and strategic factors on technology application in hospitality. The use of models such as TAM, UTAUT, and CTUAT by Davis (1989), Venkatesh et al. (2003) and Alam et al. (2024) make it easier to explain how and why people adopt technology. How these frameworks work depends a lot on variables such as usefulness, ease of use, social forces, and the right setting. Meta-analysing studies has added a lot of value to this field. Ciftci et al. noted that personal innovativeness is a meaningful predictor of technology acceptance, with a medium effect size (0.38). Ma et al. discovered, however, that both usability and engagement play a key role in how customers respond to new service technologies. But most of what we learn comes from studies in prosperous nations and high-ranked hotel brands, which restricts its use for SMEs in emerging markets.

Lately, researchers have tried to make these frameworks specific to different contexts. Alam et al. (2024) studied the influence of strategic orientation and organisational resources on hotel managers' adoption of Big Data and AI using CTUAT, and their results showed that while managerial innovation was not a major factor, being prepared for change in the industry was

more important. Similarly, Ho et al. (2022) updated TAM by including mental factors such as people's belief in their skills and the expense of using the system in Malaysian hotels.

Fernando (2020) conducted the first study of digital transformation in SME hotels in Sri Lanka and found that cultural norms, limited digital competence and inferior infrastructure were hindering change. Ho, Lee and Wang (2022) reported in a similar manner that the main reasons behind employees using smart technology are their level of technological skill and how valuable they think these programmes will be. Managerial attitudes towards AI services depend greatly on cost, how confident they are and how broadly the services fit with their organisation's strategy.

Researchers also concentrate on special areas such as cryptocurrency payment methods and the use of self-service technology (SST). According to Nuryyev et al. (2020), recognising the advantages of blockchain and considering what others think were the main reasons for usage by tourism SMEs. After COVID-19, using SSTs has made check-ins easier, saved on staff and boosted guest confidence in hygiene (Giousmpasoglou & Hua, 2020; Singh et al., 2024). Still, their results on how employees feel and the quality of service provided are not consistent (Katidou & Sakalidou, 2020).

Regional Empirical Insights

In addition, research done in Bangladesh, India and Thailand adds useful comparisons to the study of other emerging economies. Shahadat et al. (2023) showed in Bangladesh that ICT uptake was largely supported by managerial dedication, finance and special incentives from the government. Islam et al. (2021) reported that, while enterprises in Nepal have essential ICT devices, making use of e-commerce remained low due to a lack of both training and awareness.

A look at Thailand reveals more details about hospitality SMEs. The work of Sastararuji et al. (2022) found that support from vendors and peer pressure in the industry had a big impact on Thai SMEs starting to use cloud accounting services during the pandemic. Interestingly, a Thai hotel study showed that using Self-Service Textologies (SST) increased customer satisfaction and brought back customers, meaning it is possible for Sri Lankan SME hotels to use this benefit after the pandemic (Kankaew et al., 2023).

India is confronted by the same problems. It is well known that MSMEs in Sri Lanka are held back by problems with infrastructure, digital skills and awareness. Since many nations have worked on digital adoption, acceptance is still low, mainly in the hospitality sector, since delivering good service and ensuring a good experience relies on technology but resources are missing.

All of these works help move away from simple adoption models and toward ones that are adapted to the conditions SMEs experience in emerging countries. Even so, there are important gaps still present. The majority of literature still favours larger hotels in developed countries, not providing much help for small hotels crowded by SMEs in Sri Lanka. Besides, not much research mixes behavioural and planning approaches at the same time and even less explores how digital transformation evolves over an extended period.

Bringing in examples from different regions makes existing theoretical models more useful and emphasises that using technology well depends on each region's situation. Citizen science projects depend on having tools, an appropriate ecosystem, digital skills, strong leaders and

local tailored approaches. As a result, it is important to conduct additional SME hotel-related research in South Asia, with models that capture the combined impact of individual, organisational and institutional influences on technology use.

Existing Research on Technology and Operational Efficiency in Hotels

Improved operations in the hospitality sector are thanks in large part to technology. To run a hotel efficiently, resources are managed better, less waste is created, staff work is streamlined and service to guests is improved at reasonable costs. Many researchers have considered how automation, AI, Cloud PMS and IoT are able to help with these goals (Yadav & Raju, 2024) (Shashwat & Rani, 2023).

The addition of PMS, AI for customer service and predictive analytics to hotel companies has brought about clear improvements. The authors noted that using PMS and IoT, hotels could make guest check-in/check-out automatic, manage room bookings more efficiently and conserve energy. Additionally, according to Bessonova et al. (2024), using digital marketing automation, customer relationship management and AI chatbots together increased brand loyalty and improved resource usage.

Phu (2024) carried out research in Southeast Asia and pointed out that IoT improves predictive maintenance and cuts energy waste, while its integration with existing systems causes problems. According to Prince (2024), using AI in the supply chain cut costs by up to 20% for big properties, though these results could not be confirmed for smaller properties yet.

Smart hotel research indicates that automation increases how well the hotel works and how content guests are, but limitations include the first costs and worries about data privacy (Dayour et al., 2023) which stop it from being common practise. They found that putting PMS and AI applications on the cloud in Indonesian hotels led to efficiency improvement by 30% and job duties being reduced by 70%.

Terdpaopong (2020) discovered that hotels in Taiwan used digital transformation to achieve better exposure and flexibility, supported by better integration of department software and quick access to analytical data. Many of these results may not be applied to SME hotels in countries that are not highly digitised.

Even though the research shows how technology helps increase operational efficiency, most of it deals with luxury international chains operating in well-resourced areas. Hotels in the SME category are far less visible in developing countries, notably Sri Lanka. The use of these technologies by SME hotels, with little financial means, know-how and technology, still seems uncertain. Therefore, detailed research is necessary to understand how individual hotel technologies influence operating results in the real SME environment.

Benefits of Adopting Technology in SME Hotels

Technology adoption provides numerous advantages to the SME hotels, including operational efficiency, customer experience, profitability and many more. Automating routine tasks like check-in, billing, and scheduling housekeeping activities not only saves labour expenses but minimises human errors and improves consistency (Buhalis & Leung, 2018). Those improvements are very important for them, as they have fewer employees and also tighter margins. In addition, the usage of Information Communication Technology (ICT) results in improved survival and sustainability. Further, increased operational effectiveness, improved customer experience, and improved competitiveness are among the benefits (Dayour et al., 2023).

Petrov notes in his article that technological adoption in SME hotels improves guest satisfaction with increased connectivity and smart spaces across different segments, such as in guestrooms and public areas. It also highlights the need to use technology intelligently in a bid to maximize energy efficiency and reduce carbon footprints. In the post-pandemic era, not only do such policies enhance the overall guest experience, but they also contribute to sustainable causes, and the embracement of technology becomes necessary for SME hotels to remain competitive and environmentally conscious (Petrov, 2022).

Kosnikova et al. (2024) find that digitalization speeds up service delivery and personalization of customer services. The utilization of income management systems and online booking systems has facilitated better financial planning and market positioning. AI technologies, including chatbots and recommendation systems, automate interactions with customers and facilitate dynamic pricing systems that balance supply and real-time actual demand.

Expósito et al. (2021) identified that product, process, and organizational innovation in SME hotels are directly linked to business efficiency and profitability. ICTs have also been demonstrated to cut overheads, enhance communications, and facilitate data-driven decision making. Yadav and Raju (2024) also contend that smart hotel technologies like IoT and AI have the potential to streamline energy consumption and staff productivity into more efficient operations.

In Sri Lanka, research conducted by Abeysekara (2017) and Sharma et al. (2023) reveals that mobile technology guarantees increased market exposure, easy customer engagement, and helps in real-time management of services. SME hotels benefit from the utilization of OTAs and big data analytics to compete through increased efficiency of service delivery and guest satisfaction.

Oliinyk et al. (2024) stress a balance between efficiency and flexibility, whereas Roy and Pagaldiviti (2024) highlight the human technology interface, where, although automation will substitute certain functions, it will need to coexist with human touchpoints to maintain service levels.

The advantages of technology in SME hotels are extensively documented, ranging from cost-effectiveness, process enhancement, customer satisfaction, and sustainability. Most literature remains technology-focused and has a tendency to assume ideal implementation environments. Minimal analysis has been given to contextual limitations like digital maturity, culture, and scalability. Furthermore, research barely investigates how such advantages develop over time or engage with innate competences, thereby rendering additional longitudinal and case-study research valuable, particularly in underrepresented areas such as South Asia.

Challenges of Adopting Technology in SME Hotels

Even though adopting technology helps SME hotels, many difficulties make it hard for them to do it well. Cost is by far the main concern when purchasing, linking and running digital systems. Because SMEs have small budgets and are not always flexible with their money, they don't usually invest upfront in advanced technology (Dayour et al., 2023; Mgoduka et al., 2024). In many developing countries like Sri Lanka, getting access to cheap financing is still a big issue.

The state's infrastructure can also stop people from using electricity. A lot of small and medium hotels don't have the internet access or technology needed for today's digital tools (Kaur, 2023). Lots of issues with compatibility and integration appear, especially if a new

system has to work with old manual approaches (Rokhim et al., 2018). In Sri Lanka, many small and medium companies do not have the needed IT systems needed for advanced technology. For example, the school may still use hardware and software that older systems can't support (Athapaththu & Nishantha, 2018).

Many hotel owners and employees have difficulty using technology in their jobs. Because of a lack of training and contact with digital tools, people are less likely to adapt to new systems and the software packages introduced are often unsuitable for the region, according to both studies. SME hotels often miss organisational readiness because leadership isn't committed and the culture doesn't support innovative ideas (Subedi & Bhandari, 2024). Strategic leadership is usually helpful for small hotels, but it's best to think about what each hotel needs and what conditions it faces. An analysis in Malaysia revealed that aspects of strategic leadership such as people development, might lead to worse results, as found by Kong Yeok Mui (Kong Yeok Mui et al., 2018). For this reason, small and medium hotel companies should customise their strategic leadership according to what their company needs and faces.

Concerns about data security and privacy are a significant challenge too. Because cloud computing and data analytics growth bring more threats, SMEs are concerned about stolen or misused data, mainly due to the absence of solid cybersecurity procedures (Ofe et al., 2023).

Other challenges, such as rules that are not clear, an unstable market and the use of informal practises, can stop companies from adopting new approaches. These hurdles are more difficult to overcome where organisations supporting SMEs and digital progress are limited.

While we know about the barriers to taking up new technologies in SME hotels, few studies have looked into ways to overcome them. We do not have systematic evidence that suggests these efforts work. More research should concentrate on finding solutions that work well and can be applied for SME hotels in different financial, infrastructural and cultural situations, primarily in low- and middle-income countries like Sri Lanka.

Gaps in Literature and Need for Further Research

Although we see a lot of research on technology use in hospitality, we still find major shortages when it comes to SME hotels in Sri Lanka. The focus of current studies is mainly on large hotels in advanced economies, where resources and technology are very different compared to SMEs in less developed parts of the industry (Jayawardena et al., 2021).

There is a large gap in the research, as SME hotels are not studied separately from the larger hospitality sector. Much of the research overlooks the unique issues that smaller properties encounter due to evaluating the sector as a single unit. Since findings are not tailored to sectors, their use may be limited by SMEs who have a small team, little access to technical tools and unconventional management practises.

Not many studies look at these effects at a regional level. Many papers in the field are written in North America, Europe and East Asia, so they may not relate well to Sri Lanka which has a different infrastructure, set of policies and use of technology. Formulating strategies that fit SME hotels well is harder if localised studies are not considered (Gunawardana & Jayasinghe, 2019).

Also, much of the literature fails to give a clear picture of people's long-term development. The use of cross-sectional studies and case studies by many researchers means that they often miss the ongoing effects of technology on operational efficiency, keeping customers and

competing in the market. Studies that follow a process for a long period offer a better understanding of how digital initiatives hold up and spread.

How theories can be used in practise is something that should improve. While TAM, UTAUT, RBV and DCT are used extensively elsewhere, their combined use in SME hotels in emerging economies is still very small. Studies can build on these ideas and tailor them to address the actual problems and supporting factors in Sri Lanka.

Technological progress in back-office functions such as human resources, procurement and money management is overlooked more than progress in guest apps or booking systems. A better idea of using technology in multiple parts of the company would improve our knowledge of its value to the entire organisation.

Theoretical Framework

This research includes four theoretical models to carefully investigate how technology adoption by SME hotels affects their performance: the Technology Acceptance Model, the Unified Theory of Acceptance and Use of Technology, the Resource-Based View and the Dynamic Capabilities Theory. Only by looking at these models together can we learn about adopting technology in behaviour, organisations and strategies.

According to Davis (1989), TAM suggests that PU and PEOU are the two main factors that influence whether users adopt new technology. PU in hospitality could include efficient processes or great service and PEOU reflects if it is straightforward to handle a PMS or any type of mobile tool. Despite the fact that many use TAM, it has been criticised for lacking the flexibility needed in companies that depend on context.

Unified Theory of Acceptance and Use of Technology (UTAUT): Created by Venkatesh et al. (2003), it enhances TAM with the following four points: how users forecast that TAM will affect them, ease of use, social effects and conditions that aid TAM usage. UTAUT plays a role in exploring both personal opinions and how peer behaviour and environment affect adoption. While this practise has been confirmed in several other sectors, it is not used much by hospitality businesses in South Asia.

According to Barney (1991), who created RBV, organisations can gain a competitive advantage from technology if it has value, is rare, can’t be imitated and is supported by specific company skills. For small hotels, success with technology depends on their IT skills, available money and good leadership. Even so, RBV has come under fire for not keeping up with changes and for only generally explaining how companies should create their abilities.

Instead of RBV’s shortcomings, DCT (Teece et al., 1997) studies how an organisation can change and use its competencies better in constantly shifting markets. DCT highlights that small hotels need to be flexible and learn fast in technology to react to market and customer changes.

Each theoretical model brings a distinct explanatory lens to the analysis. TAM and UTAUT capture behavioural and perceptual dimensions influencing technology acceptance; RBV frames technology as a strategic resource that supports long-term competitiveness; and DCT focuses on adaptability and learning as dynamic enablers. Stakeholder Theory complements these by emphasizing collaboration between government, industry, and technology providers in fostering digital readiness.

By joining these models, this research presents a complete approach for assessing how new technology is adopted. TAM and UTAUT analyse the factors that lead to specific behaviours by individual users in SME hotels. It is thought in RBV and DCT that technology belongs to the core resources and may turn into a dynamic capability, depending on leadership, cultural factors and external events. For Sri Lanka, specifically, it is important to look at this issue because SMEs operate unpredictably and need both management practises and a suitable structure to adapt to technology.

Some parts of the current research are well developed, but few studies provide the focused insights needed for practical use in the SME hotel field. Future researchers should use mixed methods, design models suitable for specific economies and research the lasting effects of integrating technology in firms. Collaboration with industry leaders is necessary to decide on solutions that will function properly and grow in the local economy.

Also, using TAM, UTAUT, RBV and DCT together makes it possible to look at technology adoption from more than one perspective. Yet, these models are most often used alone rather than together which means they do not explain as much. Further study is needed to confirm this method within the setting of SME hotels in Sri Lanka. When studying several theories together, it may become evident that the effects of each factor on behaviour change in different situations and show up as new patterns.

Proposed Conceptual Framework

Based on the review of existing literature and integration of relevant theoretical models such as TAM, UTAUT, RBV, and DCT, a conceptual framework is proposed to illustrate the relationships between technology adoption and operational efficiency in SME hotels in Sri Lanka. This framework identifies Technology Adoption as the core independent variable and Operational Efficiency as the dependent outcome, while incorporating organizational, behavioural, and contextual dimensions that influence the adoption process.

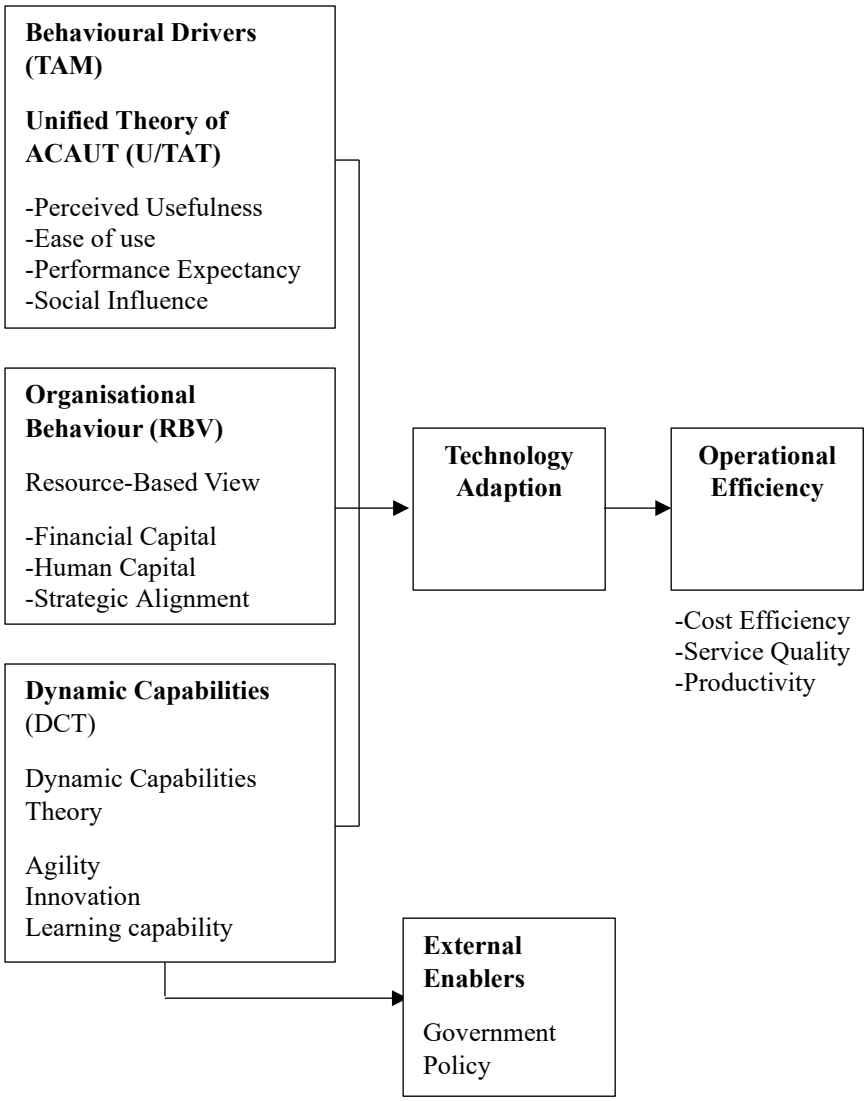

Figure 1: Proposed Integrated Framework for Technology Adoption and Operational Efficiency in SME Hotels
Source: Compiled by the researcher based on previous literature

Research Methodology

The narrative literature review was considered to establish and appropriate method was used to access various views in academic and empirical research (Ferrari, 2015; Greenhalgh et al., 2018). Although systematic reviews function under hard guidelines, narrative reviews are known to be flexible with literature types, are more useful in raising concepts and mainly help explain new areas of study.

A total of 145 articles were initially screened, out of which 56 met the inclusion criteria after a three-stage filtration process. Studies were selected based on relevance to SME hotels, hospitality technology, and operational efficiency. Exclusion criteria removed non-peer-reviewed, grey, or non-hospitality research. Thematic analysis reliability was enhanced through cross-checking themes with multiple reviewers to minimize subjectivity. As technology is changing, this is important for SME hospitality operations, as using a single approach remains difficult because of the wide range of ways things are done. This review reviews peer-reviewed literature from the years 2015 to 2024, with an emphasis on how SME hotels in Sri Lanka can benefit from recent advances in digital tools, operational technology and innovative practises. We want to determine how the adoption of these technologies impacts efficiency both in producing output and managing costs. The work covers global, regional (Southeast Asia and South Asia) and national studies so that comparisons can be made within and across contexts.

To build a solid resource list, I searched major academic sites, including Research Gate, Scopus, Web of Science, Google Scholar and ScienceDirect which index leading journals spanning business, management and hospitality topics. To improve the quality of our research results, we included words such as “technology adoption,” “operational efficiency,” “SME hotels,” “Sri Lanka,” “hospitality technology,” and “digital transformation,” all operated with Boolean (AND OR) commands (Booth et al., 2016). To make sure only suitable studies were selected for review, we used three stages: go through titles, read the abstracts and carefully cheque the full-text according to set criteria (Snyder, 2019).

Studies in the review had to be in English and no older than 2024, with the main subject being SMEs in the hospitality sector and how they used technology to improve how they operate. Studies had to use actual data or present a framework that explains the use of technology in learning. We removed articles that focused on subjects not related to the hospitality field, non-peer-reviewed papers, grey literature and literature only indirectly connected to SMEs.

While extracting data, I arranged suitable studies by their focus on PMS, AI-based tools, mobile apps, by their use of qualitative, quantitative and mixed-methods research and by using the Technology Acceptance Model (1989), Diffusion of Innovation Theory (2003) and the Unified Theory of Acceptance and Use of Technology (2003). Through these frameworks, we gained understanding about the behaviours and processes that affect the use of technology by small firms. Braun and Clarke’s (2006) six step process was used to look for key trends and differences and to reveal new themes. Thematic synthesis made it possible to bring together many research reports and classify them as regarding operational optimization, better service through technology and issues with implementation (Nowell et al., 2017).

Although this review is primarily narrative, it follows systematic rigour inspired by PRISMA principles to ensure transparency in selection and synthesis. As limitations are noted, this

review includes the influence of language lock-ins, positive outcome bias in publications and the effects subjectivity may bring from thematic synthesis (as explained by Tranfield et al., 2003). To keep its process sound and open, the review adopts a structured and clear method for choosing and blending data.

Results and Interpretations

It was found that, in general, technology influences how efficiently SME hotels operate. Using main digital tools like PMS, automated payment apps, online booking systems and mobile software boosts operations at a hotel, makes admins' jobs easier and helps avoid mistakes which humans might commit. As a result, different departments can coordinate more effectively, using their time well which adds to better services and lowers costs. The findings also demonstrate that improvements reported in Sri Lanka mirror global trends but occur on a smaller scale due to resource and skill constraints. Comparative insights reveal that while larger regional economies like Thailand and India show accelerated digital uptake due to vendor support and policy incentives, Sri Lankan SMEs require stronger institutional assistance and contextual adaptation.

Also, AI, IoT and data analytics are helping make operational predictions, control stock and analyse customer trends. These resources give SME hotels the ability to know their guests well and use resources efficiently. For hotels, using AI for booking and IoT for managing energy has brought about more bookings, happier guests and fewer costs for utilities. In addition, mobile devices and social media have improved how customers interact and how the market sees the business. Using these places, SME hotels can interact with guests before, during and after their visit which encourages them to come back again. Using digital tools helped reach guests from other countries, mainly when joined with Online Travel Agencies (OTAs) and global booking services. Even so, studies report that hotels in Sri Lanka vary in how much they rely on technology. It's common for hotels in cities or near them to more easily embrace tech solutions since these areas usually have good infrastructure, adequate skills and decent funding. Meanwhile, when it comes to hotels in less populated areas or smaller hotels, they have problems learning about and using technology, their internet is unreliable and many are reluctant to change. The gap in digital access is a serious challenge for the broad transformation of the sector.

Analysis of the themes pointed out that external factors, like government backing, network with vendors and skilled training, greatly helped small firms. Having access to loans, programmes for special skills and locally built software often plays a big role in the success of IT adoption. The results show that having institutional support adds to the chances of a technology being adopted successfully. On the whole, the analysis shows that making technology work depends heavily on how prepared the organisation is, its culture and the environment where it operates. Therefore, a custom digital transformation process is needed for SME hotels in countries like Sri Lanka.

Discussion

The results are consistent with the wider literature of uncovering the operational advantages of technology adoption but also indicate disparities in equity, scalability, and sustainability. The digital revolution as it stands seems to favor more-resourced SME hotels disproportionately, which calls into question inclusivity. Moreover, many studies document short term gains, but evidence on long term sustainability of these benefits remains sparse. The success of technology implementation is shown to be less about the tools themselves and more about contextual readiness means underscoring the need for integrated policy support,

leadership engagement, and strategic planning within SME hotels. Comparatively, developed markets exhibit faster technology diffusion due to higher capital availability and established digital ecosystems. In contrast, SME hotels in Sri Lanka and similar emerging markets experience a delayed adoption curve caused by weak infrastructure and fragmented policy support. This contextual distinction highlights the need for localized technology design and government facilitation. Future empirical studies should investigate longitudinal outcomes and explore how digital maturity evolves over time across different SME segments. Longitudinal effects should be examined in future studies and how digital maturity changes over time across various SME segments.

The discussion demonstrates that while current theory including TAM and UTAUT is beneficial to describe individual behavioral intentions to adopt technology, it fails to accurately capture organizational constraints faced by Sri Lankan SME hotels. This validates the value of integrating RBV and DCT in order to capture the overall strategic and environmental adoption contexts. The research adds to the literature by integrating micro-level behavior theories and macro-level strategic management views in describing the adoption of technology in SMEs, thereby providing a more holistic framework for describing technology adoption in SMEs. There are limitations, however, in generalizing the findings to other settings outside Sri Lanka because of contextual and infrastructural differences between locations. Future research can investigate how such theoretical descriptions operate in other developing economies and how cross-cultural differences mediate the adoption process.

The integration of TAM, RBV, and DCT demonstrates how both human perception and organizational readiness interact to produce measurable operational outcomes, strengthening the explanatory power of the combined framework.

Conclusion and Recommendation

This critical review paper carefully examined many literatures to how the latest technologies can transform operational efficiency in the SME hotels in Sri Lanka by levelling both the transformative potential and persistent barriers inherent in this process. There are several studies (Buhalis & Leung, 2018, Sigala, 2022) which have cited the benefits of digital solutions such as PMS, AI driven analytics, IoT and many cloud based solutions. But the study identifies the reality that the implementation of such technologies among SME hotels in Sri Lanka is constrained by complex socio-economic, organizational, and infrastructural challenges. This study's novelty lies in its integration of behavioural and strategic frameworks and in its systematic synthesis of local and regional evidence, which enhances theoretical and practical relevance for policy and industry practitioners in Sri Lanka.

Based on the conclusions from the study evidently demonstrate that the financial constraints are the key challenges for the adoption of online solutions, which is corroborated by earlier research in the developing world context (Darshi, 2019; Athapaththu & Nishantha, 2018). However, this study adds fuel to the discussion by evaluating low-cost, scalable, and context-sensitive solutions such as SaaS-based PMS and mobile based applications suits for the particular financial and technical situations of SMS Hoteliers in Sri Lanka. Furthermore, skills shortages, and digital illiteracy are less operational failures than symptoms of more profound institutional lacunas and insufficient country-wide national digital strategies for the hospitality sector.

The synergy of Technology Acceptance Model (TAM), Resource-Based View (RBV), and Dynamic Capabilities Theory (DCT) offers a novel analytical model that can support micro-level behavioural intentions as well as macro-level strategic and environmental dynamics. TAM may explain individual adoption behaviours but is insufficient by itself. The RBV and DCT shows the digital uptake is not merely about perceived ease of use and usefulness, but also about leveraging endogenous capability and adapting to change, especially in the low-resource contexts. This multi-level theoretical contribution adds a richer, fuller picture than prior research relying on TAM or UTAUT in isolation.

Moreover, this study identifies a glaring underrepresentation of SME hospitality firms in the technology adoption literature most notably in emerging markets. By being geographically situated in Sri Lanka, the study contributes empirical depth to a literature that has largely been Western-centric or skewed towards large hotel chains. Since the research is context-specific and its findings are not necessarily to translate to other developing economies due to many differences such as culture, policy, and infrastructure. However, opens up opportunities for future comparative studies, especially in South and Southeast Asia, where hospitality SMEs face similar structural challenges. Future studies could also use digital maturity testing and worker generational profiling to further refine the strategic relevance of digital interventions.

In conclusion, this study both conceptually and practically contributes by addressing a crucial research gap, providing context-sensitive digital approaches, and offering an integrated conceptual framework to guide technology adoption in under-resourced SME environments.

Recommendations

Based on the findings, author could propose a few recommendations as follows to enable sustainable digital transformation in the SME hotels in Sri Lanka.

Adopt SaaS-Based Digital Platforms

The outcomes of the study encourage the widespread adoption of SaaS-based property management and guest service platforms to reduce capital expenditure. SaaS solutions—endorsed by Sigala (2022) and widely used in developed markets are particularly suitable for SMEs due to their affordability, scalability, and low technical barrier.

Promote Mobile-Accessible Operational Tools

It is recommended to develop lightweight, mobile-compatible management tools that provide SME hoteliers with real-time visibility into operations. These solutions address both infrastructural barriers/ limitations and human resource constraints by enhancing strategic decision making, especially in remote hotel locations.

Design and Implement Government Incentives and/ or Policies

The government should introduce special loan scheme or grants to develop the SME hotel industry for infrastructure development such as introducing digital tools as a service model, skill training for not just the staff but for owners and investors of the value of digital tools. Government should follow models like Singapore (WTO, 2020), they should introduce targeted grants, low interest loans, or tax holidays to encourage technological adoption. Such support would help de-risk investments in innovation and digital infrastructure.

Strengthen Workforce Skills Through Industry Partnerships

It is suggested to work with tourism associations and educational institutions to design modular, multilingual training programs and micro-credentials in hospitality technology. Kanojia (2024) and Nkosana & Skinner (2016) researches are aligned with the value of the continuous learning ecosystems in the hospitality industry.

Develop Gen Z-Oriented, Tech-Savvy Work Environments

SME hotels must evolve to become attractive workplaces for younger generations by integrating flexible schedules, remote access roles, and AI-supported management tools. Such approaches can help address brain drain and staff retention issues identified in earlier research (Darshi, 2019; Oikonomou et al., 2022).

Localize Technology to Fit Cultural and Infrastructure Realities

It is encouraged to customize the digital tools in terms of language preferences, user interface simplicity, and bandwidth tolerance, making them more usable in rural or low-connectivity areas. Which confirms context-specific design significantly improves user adoption and satisfactions (Athapaththu & Nishantha, 2018).

Foster Collaborative Public-Private Innovation

Furthermore, the study recommends to establish collaborative platforms where technology firms, government agencies, hotel associations, and academic institutions can co-develop pilot projects and innovation clusters. Freeman's (1984) Stakeholder Theory supports this inclusive model of innovation, emphasizing the importance of shared value creation. Future research should also investigate long-term digital maturity progression and how generational attitudes among employees influence the sustainability of digital transformation in SME hotels.

Significance and Contribution of the Study

This research is of considerable merit both from a theoretical and a pragmatic perspective, and its contribution is multi-dimensional to the hospitality SMEs' digital transformation knowledge base in emerging economies. By focusing its investigation on the Sri Lankan setting, the research does not only cover a relatively under-investigated geographic location but also adds to the general literature on technology adoption by SMEs in structurally constrained environments in several ways. The following aspects of contribution are of particular note:

Theoretical Contribution - Integrating Behavioural and Strategic Approaches

Among the theoretical contributions of this research is its concurrent application of Technology Acceptance Model (TAM), Resource-Based View (RBV), and Dynamic Capabilities Theory (DCT) in a coherent theory of digital adoption in SME hotel contexts. Whereas TAM and its variants (e.g., UTAUT) have traditionally had the monopoly in the literature regarding individual information system acceptance, their extension to organizational-level adoption in SMEs, more so in developing economies, has been limited and simplistic. This study critically questions the adequacy of TAM by demonstrating that adoption decisions under poor-resource settings cannot be understood in terms of behavioural intention alone. By incorporating RBV and DCT, the study illustrates the influence of internal ability, organizational learning, flexibility, and environmental scanning on digital technology adoption and sustainability. This integrated model provides a more comprehensive conceptual

contribution that links technological adoption with not just users' attitudes but also with strategic resource allocation and organizational resilience.

Additionally, the research defies the stasis of most existing models in the sense that they imply a dynamic and evolving conception of capability development such as a conception that allows for uncertainty, economic instability, and fast technological evolution is required to be able to reflect SME realities in the Global South.

Empirical Contribution- Sectoral Insight and Contextual Depth

Empirically, the research fills a valuable research niche by targeting SME hotels in Sri Lanka, a setting under-represented in the mainstream hospitality and IS literature. Existing literature has predominantly targeted developed countries or big hotel chains, paying no heed to contextual idiosyncrasies of SMEs. e.g., restricted access to finance, poorer infrastructure, low e-literacy, and lack of state patronage. By bringing to life the day-to-day activities and lived experiences of Sri Lankan SME hoteliers, this study contributes empirical depth to digital transformation scholarship. The study confirms wider regional patterns in South and Southeast Asia but also reveals localized drivers such as socio-cultural attitudes towards technology, language, and intergenerational labour market shifts that mediate adoption choices. This context-specific investigation adds to external validity of current models as well as providing a standard for comparison research of additional similar emerging economies. The empirical findings also provide proof of increasing demand for "glocalisation" of technological solutions, in which best practices worldwide need to be modified to suit local constraints and opportunities.

Methodological Contribution - Multilevel and Multidisciplinary Integration

The study methodologically contributes many values to the emerging trend of multilevel and multidisciplinary analysis in hospitality research, through its integration of information systems, strategic management, organisational behaviour, and development economics perspectives, the study illustrates the value of cross-disciplinary research in addressing multifaceted, real-world issues such as digital transformation among SMEs. Particularly, the meta-analysis of existing adoption models in the research and the development of a tailored conceptual model indicate the importance of methodological pluralism. This calls upon future researchers to abandon mono-theory approaches and, in their place, build rich, responsive systems thinking in examining change in high-uncertainty, dynamic environments.

Practical Contribution - Policy and Industry Relevance

Practically the study indicates strategic, actionable suggestions to a range of stakeholders such as policymakers, technology providers, hospitality associations, and SME owners. Unlike generic “one-size-fits-all” prescriptions found in some international development discourse, the study advocates for localised, cost-sensitive, and culturally resonant solutions—including SaaS-based systems, mobile-accessible tools, Gen Z-orientated workforce policies, and public-private collaboration for technology deployment. The research directly addresses a burning issue which faced by the SME Sri hotels in Sri Lanka as how to digitalise under resource and skill constraints without compromising service quality or financial viability. In doing so, it provides a blueprint for a national digital transformation strategy in the hospitality sector, with lessons that are transferable to other low- and middle-income countries seeking to enhance tourism competitiveness through technology.

Critical Reflection on Limitations and Future Research Directions

The study critically acknowledges its limitations, especially external generalisability. The socio-political and infrastructural uniqueness of Sri Lanka means that findings may not directly apply to other national contexts without recalibration. Secondly, although the research provides strong conceptual underpinning, additional research is required in order to operationalise and empirically test the suggested integrated model on larger and more diverse datasets and mixed-methods designs. Additionally, the research also identifies key future research avenues, including roles played by digital maturity evaluations, workers' digital adoption and resilience building within SMEs in a post-COVID-19 environment. It calls for future research to explore empirically how digital transformation influences long-term organisational sustainability and how generational shift influences workforce expectations and hotel innovation capacity.

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