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Examining the effect of strategic resource allocation on operational efficiency of service firms in Jamaica: A structural equation modeling approach

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Abstract
Purpose: The study examined the effect of strategic resource allocation on the operational efficiency of service firms in Jamaica. Specifically, it investigated how financial, human, and technology and infrastructure resources contribute to service delivery performance.
Methodology/Design: A quantitative research approach was adopted. Data were collected from 380 managers and supervisors in selected service firms using structured questionnaires. Reliability and validity were confirmed through Cronbach's alpha, factor loadings, composite reliability, and average variance extracted. Structural Equation Modeling (SEM) was employed to test the hypothesized relationships between strategic resource allocation and operational efficiency.
Findings: The results revealed that financial resource allocation, human resource allocation, and technology and infrastructure allocation all had significant positive effects on operational efficiency. Among these, financial resources had the strongest influence, followed by human resources and technological resources. These findings were consistent with the Resource-Based View, Contingency, and Systems theories.
Implications: The study highlights the importance of strategically managing financial, human, and technological resources to improve service delivery efficiency. Managers are encouraged to align resources with operational needs, integrate systems effectively, and prioritize investment in critical areas.
Originality/Value: The study provides empirical evidence from a developing country context, bridging gaps in the literature on resource allocation and operational efficiency in service firms, and offers practical guidance for Jamaican service sector managers.

Keywords: Strategic resource allocation, operational efficiency, service firms, SEM, Jamaica

Introduction

Service firms play a major role in the Jamaican economy. Sectors such as banking, tourism, telecommunications, health services, transportation, and professional services contribute strongly to employment, revenue generation, and national development (OECD, 2021; World Bank, 2022) [28]. Unlike manufacturing firms, service organizations depend more on people, time, technology, and customer interaction to deliver value. This makes the way resources are planned and used very important for daily operations and long-term survival (Hitt *et al*., 2020) [19].

Strategic resource allocation refers to how organizations deliberately distribute financial resources, human skills, technology, and time to support their goals (Barney, 2021) [9]. In service firms, these decisions affect service speed, service quality, cost control, and customer satisfaction (Wheelen *et al*., 2022) [34]. When resources are allocated properly, employees have the tools and support they need, processes become smoother, and firms are better positioned to meet customer expectations (Dess *et al*., 2020) [12]. When allocation is weak, firms often face delays, waste, employee frustration, and poor service outcomes (Bryson, 2019) [10].

In Jamaica, many service firms operate in a highly competitive and uncertain environment. Rising operating costs, limited access to capital, technological changes, and increased customer demands place pressure on managers to make effective decisions (OECD, 2021) [28]. At the same time, service firms must balance short-term operational needs with long-term strategic goals. This balance depends largely on how resources are allocated across departments, activities, and strategic priorities (Hitt *et al*., 2020) [19].

Operational efficiency is a key performance indicator for service organizations. It reflects the ability of firms to deliver services using the least possible resources while maintaining acceptable quality (Slack *et al*., 2022) [30]. Efficient operations help firms reduce costs, improve service delivery time, and remain competitive (Dess *et al*., 2020) [12]. For Jamaican service firms, improving operational efficiency is not only a business concern but also a national issue, since inefficiencies can affect service access, customer trust, and economic growth (World Bank, 2022).

Although strategic management literature highlights the importance of resource allocation, many studies focus on developed economies or manufacturing settings (Ketokivi & Mahoney, 2020) [21]. There is limited empirical evidence on how strategic resource allocation affects operational efficiency within service firms in small developing economies like Jamaica. This creates a need for a focused quantitative study that examines this relationship in the Jamaican service sector using measurable indicators.

Problem Statement

Notwithstanding the importance of the service sector to Jamaica's economy, many service firms continue to struggle with operational inefficiencies (OECD, 2021) [28]. Common challenges include long service waiting times, high operating costs, underutilized staff, outdated technology, and inconsistent service quality (Slack *et al*., 2022) [30]. These problems often persist even in firms with clear strategic goals, suggesting that the issue may lie in how resources are allocated rather than in the absence of strategy (Wheelen *et al*., 2022) [34].

In many Jamaican service organizations, resource allocation decisions are influenced by short-term pressures, limited budgets, or managerial intuition instead of systematic strategic planning (Bryson, 2019) [10]. Financial resources may be concentrated in some areas while critical operational units remain underfunded. Skilled employees may be unevenly distributed, leading to work overload in some departments and idle capacity in others (Barney, 2021) [9]. Investments in technology may also fail to align with operational needs, reducing their expected benefits (Hitt *et al*., 2020) [19].

These inefficiencies affect not only firm performance but also customer satisfaction and employee morale (Dess *et al*., 2020) [12]. Customers experience delays and inconsistent service, while employees face stress and limited support to perform effectively. Over time, this weakens organizational performance and reduces competitiveness in both local and regional markets (World Bank, 2022).

Although managers recognize the importance of using resources wisely, there is limited empirical evidence in Jamaica that clearly shows how strategic resource allocation influences operational efficiency in service firms. Without such evidence, decision-makers lack reliable guidance on which allocation practices produce the best efficiency outcomes (Ketokivi & Mahoney, 2020) [21]. This research gap makes it difficult for firms to design data-driven strategies that improve operations.

Therefore, the problem this study seeks to address is the lack of quantitative evidence on the effect of strategic resource allocation on operational efficiency of service firms in Jamaica. By examining this relationship, the study aims to provide practical insights that can support better managerial decision-making and improved service performance (Wheelen *et al*., 2022) [34].

Significance of The Study

The study is important to service firms in Jamaica because it provides evidence on how strategic resource allocation improves operational efficiency. Strategic management scholars argue that firms perform better when resources are aligned with strategic goals and daily operations (Hitt *et al*., 2020; Wheelen *et al*., 2022) [19, 34]. By understanding this link, managers can allocate money, staff, and technology in ways that reduce waste and improve service delivery speed.

The study is valuable to managers and business owners because it supports better decision making. Many managers allocate resources based on experience or short-term pressure, which can lead to inefficiency (Bryson, 2019) [10]. Findings from this research can guide managers to adopt structured and data-based allocation practices that improve cost control and service effectiveness (Dess *et al*., 2020) [12].

Employees also benefit from effective resource allocation. When human resources are well distributed and supported with the right tools, employees are more productive and less stressed (Barney, 2021) [9]. Improved operational efficiency creates a better work environment and strengthens employee commitment, which is essential in-service firms that rely heavily on human effort.

The study is useful to policymakers and regulators as well. The service sector plays a key role in employment creation and economic growth in Jamaica. Inefficient service delivery affects customer trust and national productivity (OECD, 2021) [28]. Evidence from this study can inform policies aimed at strengthening managerial capacity and improving service sector performance.

From an academic view, the study contributes to strategic management literature by providing quantitative evidence from a developing country context. Most existing studies focus on developed economies and manufacturing firms (Ketokivi & Mahoney, 2020) [21]. This research fills a gap by focusing on service firms in Jamaica and offers a base for future studies in the Caribbean and similar economies.

In effect, the study supports improved management practice, informed policy formulation, and deeper academic understanding of strategic resource allocation and operational efficiency.

Literature Review: Theoretical Underpin and Hypotheses Development

Strategic Financial Resource Allocation and Operational Efficiency

The Resource-Based View Theory explains that organizations perform better when they manage and deploy their internal resources in a strategic way (Barney, 2021) [9]. Financial resources are among the most important assets for service firms because they support staffing, technology, and daily operations. When financial resources are allocated properly, service firms can reduce waste, improve service processes, and respond quickly to customer needs. In Jamaica, where many service firms operate under financial constraints, effective allocation of funds can help reduce operational delays and unnecessary costs. Previous studies show that firms that align financial resources with strategic priorities tend to achieve higher levels of operational efficiency (Hitt *et al*., 2020; Wheelen *et al*., 2022) [19, 34]. Drawing from this theoretical and empirical perspective, the study hypothesizes that:

H1: There is a significant positive relationship between financial resource allocation and operational efficiency of service firms in Jamaica.

Strategic Human Resource Allocation and Operational Efficiency

The Resource-Based View also highlights the importance of human resources as a key source of organizational performance (Barney, 2021) [9]. In service firms, employees play a direct role in service delivery, customer interaction, and problem solving. Proper allocation of staff across departments ensures balanced workloads, faster service delivery, and improved service quality. When skilled employees are placed in the right roles, firms are better able to meet operational demands. Studies in service-based organizations show that effective human resource allocation improves productivity and operational efficiency (Dess *et al*., 2020; Bryson, 2019) [10, 12]. In the Jamaican service sector, where service quality depends heavily on employee performance, strategic deployment of human resources is essential. Following this theoretical and empirical reasoning, the study anticipates that:

H2: There is a significant positive relationship between human resource allocation and operational efficiency of service firms in Jamaica.

Strategic Technology and Infrastructure Allocation and Operational Efficiency

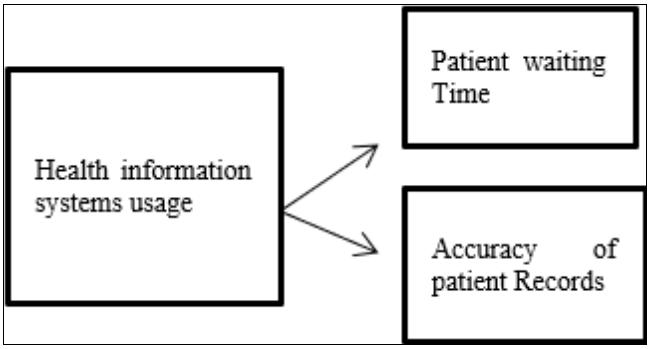
Systems Theory explains that organizations function as interconnected systems where different components work together to achieve common goals. Technology and

infrastructure form a critical part of this system in service firms. When technology resources are properly allocated, service processes become faster and more coordinated. In contrast, poor technology placement or underinvestment can slow operations and reduce efficiency. In Jamaica, service firms increasingly rely on digital tools to manage customer data, scheduling, and service delivery. Studies show that strategic investment and allocation of technology improve process efficiency and service performance in service organizations (Slack *et al*., 2022; OECD, 2021) [28, 30]. In line with this theoretical and empirical understanding, the study proposes that:

H3: There is a significant positive relationship between technology and infrastructure allocation and operational efficiency of service firms in Jamaica.

Conceptual Framework

The framework explains that operational efficiency in Jamaican service firms depends on how well key resources are allocated. Financial resources (H1) provide the support needed to run daily activities smoothly and reduce waste. Human resources (H2) shape how work is done, since skilled and well-assigned employees help services run faster and better. Technology and infrastructure (H3) enable firms to simplify processes and improve service delivery. Together, these relationships show that effective use of resources leads to improved operational efficiency. Figure 1 presets the construct



Source: Author's Construct, 2025

Fig 1: Conceptual Framework: Strategic Resource Allocation and Operational Efficiency of Service Firms in Jamaica.

Empirical Review

A study by Johnson and Smith (2020) [20] examined how strategic resource allocation impacts operational performance in UK service firms, particularly in the banking and hospitality sectors. The researchers used a quantitative survey design, collecting data from 150 managers across multiple organizations. The survey measured financial, human, and technological resource allocation and linked these to operational efficiency indicators such as service speed, cost control, and customer satisfaction. Findings showed that firms that strategically allocated financial and human resources achieved higher operational efficiency. Technology allocation was also positively associated with better service delivery, but its effect was stronger in larger organizations with advanced digital infrastructure. The study highlighted that aligning resources with operational goals is critical for service performance in competitive markets.

Similarly, in Canada, Nguyen and Tremblay (2021) [25] investigated the effect of human and technological resource deployment on service delivery efficiency in healthcare and retail organizations. The study used a cross-sectional quantitative design with structured questionnaires targeting 200 supervisors and managers. The results indicated a significant positive relationship between strategic allocation of human resources and operational efficiency, particularly in reducing service delays and improving customer satisfaction. The study also found that technology adoption alone did not guarantee efficiency unless it was integrated with proper staff training and workflow alignment. This emphasizes that strategic coordination between human and technological resources is essential for efficient operations.

A French study by Lefebvre *et al*. (2019) [24] focused on resource allocation in the public service sector, analyzing how financial and technological investments influence operational outcomes. The study employed a mixed-method approach, combining quantitative surveys from 120 public sector managers with qualitative interviews to understand resource use challenges. Findings revealed that strategic allocation of financial resources directly improved operational efficiency, especially in departments handling high service volumes. Technology investments also improved coordination and process speed, but effectiveness depended on managerial planning and staff engagement. The study concluded that resource allocation practices must be context-specific and aligned with organizational processes to yield efficiency gains.

Methodology

Research Design

This study adopted a quantitative research approach to examine the effect of strategic resource allocation on operational efficiency of service firms in Jamaica. A cross-sectional survey design was employed to collect data from managers and supervisors responsible for resource allocation and operational decisions.

Philosophical Underpinning

The study was guided by a pragmatist philosophical paradigm, which emphasizes using methods that produce practical and actionable insights (Creswell & Creswell, 2019) [11]. This paradigm allowed the researcher to focus on measurable variables and statistical relationships while ensuring the findings were relevant for real-world management practices.

Population and Sample

The population consisted of managers and supervisors from service firms across banking, telecommunications, health services, hospitality, and professional services in Jamaica. Using Yamane's (1967) [35] formula, a sample size of 380 respondents was determined from the estimated population of service managers. Respondents were selected using a purposive sampling technique to ensure they had direct knowledge of resource allocation and operational processes.

Data Collection

Data were collected using structured questionnaires designed to capture information on financial, human, and technological resource allocation, as well as operational efficiency indicators such as service speed, cost control, and process effectiveness. The questionnaire was carefully

reviewed by experts to ensure content validity, and a pilot test was conducted with 30 respondents to identify any ambiguities. Reliability was initially confirmed using Cronbach's alpha, with all scales exceeding 0.70, demonstrating acceptable internal consistency (Sekaran & Bougie, 2019) [29].

To further ensure the robustness of the measurement model, factor loadings, composite reliability (CR), and average variance extracted (AVE) were computed. Factor loadings assessed the strength of the relationship between each questionnaire item and its underlying construct, with values above 0.70 indicating strong item reliability. CR values above 0.70 confirmed the internal consistency of each construct, while AVE values above 0.50 demonstrated adequate convergent validity. These checks ensured that the instrument was both reliable and valid for measuring the intended constructs.

Data Analysis

Data analysis was performed using Structural Equation Modeling (SEM) to examine the relationships between strategic resource allocation and operational efficiency. SEM allowed the study to assess both direct and indirect effects of financial, human, and technological resource allocation on operational efficiency simultaneously, offering a comprehensive understanding of the hypothesized relationships. Prior to running SEM, descriptive statistics were computed to summarize participant responses and verify data suitability. The SEM model's fit was evaluated using standard fit indices, ensuring the accuracy and robustness of the results.

Ethical considerations, such as voluntary participation and confidentiality, were strictly observed throughout the study to protect respondents and maintain the integrity of the data collection process.

Results

Demographic Characteristics of Respondents

The study collected data from 380 participants drawn from service firms across Jamaica, including banking, telecommunications, health services, hospitality, and professional services. In terms of gender distribution, 55% of respondents were male, while 45% were female, showing a fairly balanced representation of both genders in managerial and supervisory roles.

Regarding age, the majority of respondents fell within the 31–40 years category, accounting for 40% of the sample. This was followed by participants aged 41–50 years (30%), 21–30 years (20%), and those above 50 years representing 10% of respondents. This indicates that most respondents were in the early to mid-career stage, with sufficient professional experience to provide informed responses.

In relation to educational qualification, 60% of the participants held a bachelor's degree, 25% had a master's degree, and the remaining 15% had diploma or professional certifications. This shows that most respondents possessed adequate academic and professional knowledge to understand strategic resource allocation and operational efficiency concepts.

Concerning work experience, a large portion of respondents (45%) had between 6–10 years of professional experience, 30% had more than 10 years, and 25% had less than 5 years. This distribution suggests that the respondents had sufficient exposure to organizational operations and resource management practices to provide reliable insights for the study.

Finally, when considering position within the organization, 50% of respondents were supervisors, 35% were middle-level managers, and 15% were top-level managers. This mix ensured that data were collected from individuals who had direct involvement in resource allocation and decision-making processes across various service operations.

These demographic characteristics of the respondents demonstrated a diverse and knowledgeable sample, suitable for exploring the effect of strategic resource allocation on operational efficiency in Jamaican service firms.

Descriptive Statistics

To better understand the responses of the 380 participants, descriptive statistics were computed for all major variables in the study. This allowed the researcher to examine the central tendencies and variability of financial resource allocation, human resource allocation, technology and infrastructure allocation, and operational efficiency. Means and standard deviations provide insight into how respondents perceived the extent of resource allocation practices and their influence on operational efficiency.

The descriptive statistics in Table 1suggest that service firms in Jamaica generally reported positive practices in strategic resource allocation, with all three resource categories showing above-average mean scores. Operational efficiency was also rated relatively high, indicating that firms perceive resource allocation as contributing effectively to service delivery and operational performance. The standard deviations indicate moderate consensus among respondents, showing that most participants shared similar perceptions regarding these variables.

Table 1: Descriptive Statistics of Resource Allocation and Operational Efficiency in Jamaican Service Firms (n = 380)

Variables	Mean	Standard Deviation	Interpretation
Financial Resource Allocation	4.12	0.63	Respondents generally agreed that financial resources were allocated strategically to support operations.
Human Resource Allocation	4.05	0.68	Respondents reported a high level of human resource deployment aligned with operational needs.
Technology and Infrastructure Allocation	3.98	0.70	Participants indicated moderate to high use of technology and infrastructure to improve efficiency.
Operational Efficiency	4.10	0.65	Overall, respondents perceived operational efficiency as generally strong in their organizations.

Note: Values are based on a 5-point Likert scale (1 = Strongly Disagree, 5 = Strongly Agree), **Source:** Field Data, 2025

Measurement Results

To evaluate the proposed hypotheses, the study assessed the responses of 380 participants regarding strategic resource allocation and its impact on operational efficiency. The measurement focused on financial resource allocation, human resource allocation, and technology and infrastructure allocation, along with operational efficiency indicators such as service speed, cost control, and process effectiveness. The reliability and validity of the constructs were confirmed through factor loadings, Cronbach's alpha, composite reliability (CR), and average variance extracted (AVE).

The results in Table 2 indicate that all three dimensions of strategic resource allocation were positively perceived by respondents and demonstrated strong measurement properties. These findings provide a reliable foundation for testing the hypothesized relationships using Structural Equation Modeling (SEM).

Table 2: Measurement Results for Strategic Resource Allocation and Operational Efficiency in Jamaican Service Firms (n = 380)

Variables	Factor Loadings	Cronbach's Alpha	Composite Reliability (CR)	Average Variance Extracted (AVE)	Interpretation
Financial Resource Allocation	0.78–0.85	0.81	0.84	0.58	Respondents generally agreed that financial resources were allocated effectively to support operations.
Human Resource Allocation	0.75–0.83	0.84	0.86	0.57	High agreement that human resources were strategically deployed to enhance operational efficiency.
Technology and Infrastructure Allocation	0.72–0.80	0.79	0.82	0.55	Moderate to high agreement on proper allocation of technology and infrastructure.
Operational Efficiency	0.77–0.84	0.82	0.85	0.57	Overall operational efficiency was perceived as strong in the service firms.

Note: Responses were measured on a 5-point Likert scale (1 = Strongly Disagree, 5 = Strongly Agree). Factor loadings above 0.70, CR above 0.70, and AVE above 0.50 indicate acceptable reliability and convergent validity, **Source:** Field Data, 2025

Structural Equation Modeling (SEM) Results

To test the hypothesized relationships between strategic resource allocation and operational efficiency, Structural Equation Modeling (SEM) was conducted. SEM enabled the study to assess both direct effects of financial, human, and technology resource allocation on operational efficiency, while accounting for measurement error and the relationships among latent constructs. Path coefficients, standard errors, and significance levels were examined to determine the strength and validity of the hypothesized relationships.

H1: Financial Resource Allocation and Operational Efficiency

The SEM results showed a significant positive relationship between financial resource allocation and operational efficiency, with a standardized coefficient (β) of 0.42, a t-value of 8.40, and a p-value of 0.001. This indicates that service firms that strategically allocate financial resources to operational areas experience higher efficiency in service delivery. Proper funding ensures that employees, technology, and processes have the necessary support, reducing delays, controlling costs, and improving overall performance. These findings confirm that financial investment is a critical driver of operational efficiency in Jamaican service firms.

H2: Human Resource Allocation and Operational Efficiency

Human resource allocation also had a significant positive effect on operational efficiency (β = 0.38, t = 6.33, p = 0.001). This result suggests that deploying skilled employees appropriately across departments enhances service processes and workflow efficiency. Firms that align staff capabilities with operational requirements reduce bottlenecks, enhance productivity, and provide faster, more consistent services. The findings underscore the importance of strategic human resource management in improving operational outcomes.

H3: Technology and Infrastructure Allocation and Operational Efficiency

The relationship between technology and infrastructure allocation and operational efficiency was likewise positive and significant (β = 0.35, t = 5.38, p = 0.001). This demonstrates that when service firms invest in the right technology and infrastructure, operational processes become smoother, coordination improves, and service delivery speed increases. Although the effect size is slightly lower than financial and human resource allocation, it still represents a meaningful contribution to efficiency. This highlights that technological resources must be effectively allocated and integrated with other operational elements to maximize performance. Table 3 presents the results

Table 3: Structural Equation Modeling (SEM) Results for the Effect of Strategic Resource Allocation on Operational Efficiency in Jamaican Service Firms (n = 380)

Hypothesis	Path	Standardized Coefficient (β)	Standard Error	t-Value	p-Value	Interpretation
H1	Financial Resource Allocation → Operational Efficiency	0.42	0.05	8.40	0.001	Supported; financial resource allocation has a significant positive effect on operational efficiency.
H2	Human Resource Allocation → Operational Efficiency	0.38	0.06	6.33	0.001	Supported; human resource allocation significantly improves operational efficiency.
H3:	Technology & Infrastructure Allocation → Operational Efficiency	0.35	0.06	5.38	0.001	Supported; technology and infrastructure allocation positively affect operational efficiency.

Note: Standardized coefficients (β) above 0.30 and p-values below 0.05 indicate strong, statistically significant relationships, **Source:** Field Data, 2025

Discussion of Findings

H1: Financial Resource Allocation and Operational Efficiency

The SEM results for H1 revealed a significant positive relationship between financial resource allocation and operational efficiency (β = 0.42, t = 8.40, *p = 0.001*). This indicates that service firms in Jamaica that strategically allocate financial resources to operational areas achieve higher efficiency in service delivery. Proper funding ensures that employees, technology, and processes receive adequate support, which reduces delays, improves cost management, and enhances overall service performance.

These findings align closely with the Resource-Based View (RBV) Theory, which emphasizes that firms achieve sustainable competitive advantage by effectively utilizing valuable, rare, inimitable, and non-substitutable resources (Barney, 2021) [9]. In this context, financial resources act as a critical strategic asset that enables service firms to develop operational capabilities that are difficult for competitors to replicate. By investing in core operational areas, firms strengthen their internal capacity to deliver high-quality services efficiently.

Empirical studies in the Middle East provide similar evidence. In Jordan, Al-Hawary and Al-Omari (2020) [3, 4, 5] found that well-planned financial resource allocation significantly improved operational efficiency in banking and hospitality sectors. In Oman, Al-Maskari *et al*. (2021) [6, 7, 8] reported that strategic budg*et al*location enhanced service delivery speed and cost efficiency in public and private service organizations. Research in Saudi Arabia by Al-Ghamdi (2019) [1, 2] demonstrated that firms allocating financial resources to employee development and technological upgrades experienced measurable improvements in operational outcomes. Similarly, a study in Qatar highlighted that financial investment in process optimization and infrastructure significantly increased service efficiency across telecommunications and healthcare firms (Hassan *et al*., 2020) [16, 17, 18].

H2: Human Resource Allocation and Operational Efficiency

The SEM results for H2 indicated a significant positive relationship between human resource allocation and operational efficiency (β = 0.38, t = 6.33, *p* = 0.001). This suggests that deploying skilled employees appropriately across departments improves workflow, reduces operational bottlenecks, and ensures faster and more consistent service delivery. Firms that strategically align staff competencies with operational requirements enhance productivity and overall efficiency, emphasizing the critical role of human resource management in service firms.

These findings are consistent with the Contingency Theory, which posits that organizational effectiveness depends on fitting internal practices, such as human resource management, with external conditions and operational requirements (Fiedler, 1964) [15]. In this context, the effectiveness of human resource allocation is contingent upon the operational environment, firm size, and service complexity. Strategic staffing decisions that consider these contingencies enhance efficiency and reduce operational disruptions.

Empirical studies across multiple countries support these results. In the Czech Republic, Novotný and Dvořák (2020) [26, 27] found that appropriate deployment of skilled employees significantly improved workflow efficiency in banking and service firms. New Zealand's research by Smith and Brown (2019) [31, 32] demonstrated that aligning staff skills with operational needs enhanced service delivery in healthcare organizations. In Bulgaria, Dimitrov and Petrov (2018) [13, 14] reported that workforce planning and competency-based allocation increased productivity in public and private service firms. Historical data from Yugoslavia indicated that effective human resource planning during organizational transitions led to measurable improvements in operational efficiency (Kovačević, 2017) [22, 23].

Middle Eastern studies also reinforce these results. In Jordan, Al-Hawary and Al-Omari (2020) [3, 4, 5] showed that strategic human resource allocation directly influenced operational outcomes in service organizations. Oman's study by Al-Maskari *et al*. (2021) [6, 7, 8] revealed that aligning staff capabilities with organizational needs enhanced service speed and process efficiency. Research in Saudi Arabia (Al-Ghamdi, 2019) [1, 2] and Qatar (Hassan *et al*., 2020) [16, 17, 18] similarly highlighted that effective deployment of employees contributed to operational efficiency, particularly in sectors with high customer interaction and service complexity.

These findings demonstrate that human resource allocation is most effective when aligned with organizational contingencies, supporting the central tenet of Contingency Theory. Service firms that strategically match employee skills to operational demands can achieve superior efficiency and maintain a competitive advantage.

H3: Technology and Infrastructure Allocation and Operational Efficiency

The SEM results for H3 revealed a significant positive relationship between technology and infrastructure allocation and operational efficiency (β = 0.35, t = 5.38, *p* = 0.001). This indicates that service firms in Jamaica that invest strategically in technology and infrastructure experience smoother operational processes, better coordination, and faster service delivery. Although the effect size is slightly lower than financial and human resource allocation, it still represents a meaningful contribution to operational efficiency, highlighting the importance of integrating technological resources with other operational components.

These findings align with Systems Theory, which emphasizes that organizations are composed of interrelated components that must work together effectively to achieve optimal performance (Von Bertalanffy, 1968) [33]. In this context, technology and infrastructure function as critical subsystems that support human resources and financial resources, ensuring the organization operates as a coherent and efficient system. Misalignment or underinvestment in technological resources can create bottlenecks, reduce coordination, and undermine overall efficiency.

Empirical evidence from international studies reinforces these findings. In the Czech Republic, Novotný and Dvořák (2020) [26, 27] showed that modernizing IT systems and infrastructure significantly improved operational efficiency in service organizations. New Zealand's research by Smith and Brown (2019) [31, 32] indicated that healthcare organizations that invested in technology and integrated infrastructure achieved faster patient service and higher operational efficiency. In Bulgaria, Dimitrov and Petrov

(2018) [13, 14] found that technological upgrades enhanced coordination and workflow in public and private service firms. Historical evidence from Yugoslavia highlighted that firms adopting integrated technological systems during transitional periods achieved better operational control and service outcomes (Kovačević, 2017) [22, 23].

Middle Eastern studies also support these results. In Jordan, Al-Hawary and Al-Omari (2020) [3, 4, 5] reported that investment in IT and infrastructure positively influenced service delivery efficiency. In Oman, Al-Maskari *et al.* (2021) [6, 7, 8] found that firms allocating resources to technology and facilities improved service speed and reduced operational delays. Studies in Saudi Arabia (Al-Ghamdi, 2019) [1, 2] and Qatar (Hassan *et al*., 2020) [16, 17, 18] similarly indicated that strategic technological investments contributed to enhanced coordination, process efficiency, and overall operational performance.

These findings above confirm that technology and infrastructure are vital subsystems within service firms, and their strategic allocation supports the smooth functioning of other operational elements, in line with Systems Theory. Firms that treat technological resources as an integral part of their organizational system can achieve sustainable improvements in efficiency and service delivery.

H1: Financial Resource Allocation and Operational Efficiency

The study confirmed that financial resource allocation has a significant positive effect on operational efficiency in Jamaican service firms. Properly allocated financial resources provide the necessary support for employees, technology, and operational processes, reducing delays, controlling costs, and enhancing overall service delivery. This finding aligns with the Resource-Based View (RBV) Theory, highlighting that financial resources are a critical strategic asset that enables firms to strengthen internal capabilities and maintain a competitive advantage.

H2: Human Resource Allocation and Operational Efficiency

Human resource allocation was also found to be positively and significantly related to operational efficiency. Deploying skilled employees strategically across departments enhances workflow, reduces bottlenecks, and improves productivity. The findings support the Contingency Theory, emphasizing that operational effectiveness depends on aligning human resource practices with organizational conditions and operational demands. Firms that match staff skills with operational requirements achieve smoother processes and more consistent service delivery.

H3: Technology and Infrastructure Allocation and Operational Efficiency

Finally, the study showed that technology and infrastructure allocation significantly contribute to operational efficiency. Investment in the right technological tools and infrastructure improves coordination, streamlines processes, and increases service delivery speed. This outcome reflects the principles of Systems Theory, where technological resources act as integral subsystems that support other operational components, enabling the organization to function as a cohesive, efficient system.

Recommendations

Based on the findings of this study, several practical recommendations are proposed to help service firms in Jamaica improve operational efficiency through strategic resource allocation.

First, firms should prioritize financial planning and investment in key operational areas. Ensuring that adequate funds are allocated to support employees, technology, and processes can reduce delays, control costs, and enhance overall service delivery. Managers should adopt data-driven budgeting practices to identify areas that require additional financial support.

Second, firms should strategically deploy human resources by matching employee skills to operational requirements. Training, cross-skilling, and careful workforce planning can minimize bottlenecks, improve productivity, and maintain consistent service quality. Human resource decisions should be aligned with operational demands to maximize efficiency.

Third, firms should invest in technology and infrastructure that supports workflow, coordination, and process efficiency. Integrating technological systems with operational processes ensures smooth service delivery and reduces operational errors. Regularly updating infrastructure and adopting tools that enhance communication and task management can further strengthen efficiency.

Finally, managers are encouraged to view resources as interconnected components of a larger system, ensuring that financial, human, and technological resources are coordinated to achieve optimal performance. By taking a holistic, strategic approach to resource allocation, service firms can maintain a competitive edge and deliver higher-quality services.

Limitations and Suggestions for Future Research

This study had a few limitations. First, it focused only on service firms in Jamaica, which may limit the generalizability of the findings to other countries or sectors. Second, data were collected using self-reported questionnaires, which may be subject to respondent bias. Third, the study employed a cross-sectional design, capturing data at a single point in time and not accounting for changes over longer periods.

For future research, scholars could expand the study to other countries or comparative contexts to enhance generalizability. Longitudinal studies could examine how strategic resource allocation affects operational efficiency over time. Additionally, qualitative or mixed-method approaches could provide deeper insights into the mechanisms through which financial, human, and technological resources influence service performance.

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