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Technology-driven business management: The impact of digitalization on operational strategies

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A B S T R A C T

Digitalization has emerged as a significant driver of change in business operations, improving efficiency, financial performance, and customer engagement. This study investigates the effects of digital adoption on business strategies, with a focus on cashless transactions, digital marketing, automated inventory management, and online ordering systems. A descriptive research design was used, combining quantitative and qualitative methods to evaluate digital integration in selected businesses in Cabanatuan City, Gapan City, and San Jose City, Nueva Ecija, Philippines. The findings show that businesses with higher levels of digitalization achieved 20% faster service times, a 15% increase in customer numbers, and a 10% reduction in operational costs compared to those using traditional practices. Despite these benefits, challenges such as high initial investment, employee resistance, and the need for operational adjustments hinder full digital adoption. The study emphasizes the importance of technology-driven management and suggests that businesses prioritize cost-effective digital tools, workforce training, and data-based marketing strategies. It also calls for further research on the long-term effects of digital transformation across different industries.

1. Introduction

The rapid evolution of technology has fundamentally transformed business operations, resource management, and customer engagement. Digitalization has streamlined processes, enhanced productivity, and reduced costs through automation and artificial intelligence. For instance, businesses in the banking sector have adopted digital technologies to optimize routine procedures, which has led to increased profitability and a competitive edge in customer interactions (Afaishat et al., 2024). Furthermore, the integration of digital tools allows organizations to adapt swiftly to market changes, aligning operational strategies with technological advancements. The impact of technology extends beyond efficiency, fostering informed decision-making and enabling businesses to expand their reach globally (Wibowo, 2023). As organizations increasingly rely on information technology, the importance of robust digital strategies becomes evident, as they are crucial for sustaining competitive advantages in a digital economy. The strategic integration of technology in business processes is essential for maintaining relevance and achieving long-term success in an ever-evolving marketplace (Craig et al., 2021).

The integration of digital solutions in business operations has significantly transformed management practices, particularly through the adoption of automated processes, cloud computing, and data analytics. These technologies enhance efficiency by minimizing human error and facilitating real-time decision-making, which is crucial for maintaining a competitive advantage in today's fast-paced market. Cloud computing enables organizations to store vast amounts of data securely, supporting business intelligence processes that lead to improved operational performance (Al-Khatib, 2022). Moreover, the implementation of Enterprise Resource Planning (ERP) systems and Customer Relationship Management (CRM) platforms has further streamlined coordination and strategic planning across various departments (Kusnadi et al., 2024). These systems allow for seamless sharing of information, optimizing workflows, reducing

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redundancies, and enhancing overall organizational performance. Businesses that effectively embrace these digital technologies not only improve their operational efficiency but also create greater value for customers, positioning themselves favorably in the competitive landscape (Wang et al., 2023).

The rise of digital solutions has also transformed customer engagement and marketing strategies. Businesses now leverage social media, digital advertising, and e-commerce platforms to expand market reach and strengthen brand visibility. Online platforms allow businesses to interact with customers more effectively, replacing traditional marketing models. This transition not only enhances convenience for consumers but also facilitates the collection and analysis of valuable consumer data, enabling businesses to tailor their marketing strategies more effectively (Hayati et al., 2020). Access to customer preferences and behavior patterns empowers businesses to personalize experiences and foster stronger relationships (Fan et al., 2022). Research indicates that Digital Integrated Marketing Communication (DIMC) plays a crucial role in customer engagement, loyalty, and brand perception (Liu and Lin, 2022). Additionally, the role of e-service quality and perceived value is critical in shaping customer satisfaction and trust, which are foundational for successful digital business interactions. By leveraging digital tools effectively, businesses can enhance customer loyalty, drive engagement, and sustain competitiveness in an evolving market landscape (Parviainen et al., 2022).

The adoption of digital payment systems and cashless transactions has further revolutionized financial management. The increasing use of e-wallets, online banking, and contactless payment methods has improved transaction security, reduced operational costs, and increased efficiency (Najib and Fahma, 2020). Businesses that embrace these technologies experience greater consumer trust and convenience, as digital payments offer a more secure and streamlined alternative to cash transactions (Teker et al., 2022). Moreover, the automation of financial processes, including invoicing and accounting, simplifies management tasks, allowing businesses to focus on innovation and expansion. The growing shift toward a cashless society not only improves operational efficiency but also aligns businesses with evolving consumer preferences and technological advancements (Widayani et al., 2022). Despite the numerous advantages of digital transformation, businesses face significant challenges in adopting these technologies. High initial investment costs can be prohibitive, especially for small and medium enterprises. Moreover, comprehensive employee training is essential, as resistance to change often stems from a lack of digital literacy or fear of new systems (Alieva and Powell, 2022). This resistance is more pronounced in traditional business models, where established operational practices are deeply ingrained (Thileepan and Raveendran, 2022). Additionally, data security concerns remain a major barrier, requiring businesses to invest in cybersecurity measures and compliance with evolving digital regulations. To effectively transition toward digital business models, organizations must invest in training programs, enhance cybersecurity infrastructure, and implement strategic change management (Nguyen et al., 2023). Addressing these challenges proactively ensures a smoother digital integration, paving the way for sustained operational efficiency and business growth.

The integration of digital technology in business operations is significantly influenced by the Technology Acceptance Model (TAM) and the Resource-Based View (RBV). TAM posits that perceived usefulness and perceived ease of use are crucial determinants in the acceptance of technological innovations, thereby framing organizational decisions regarding digital transformation. In the context of business operations, RBV emphasizes that digital capabilities such as automated inventory systems and cashless transactions serve as strategic resources that can enhance operational efficiency and build competitive advantages (Aysan et al., 2024). For instance, automated systems can streamline inventory management significantly, reducing inefficiencies associated with manual processes (Wong et al., 2024). Additionally, the transition to cashless transactions not only simplifies financial operations but also reflects broader technological and economic trends that optimize resource management (Aysan et al., 2024; Fathima and Bharathi, 2024). Together, these frameworks provide a robust basis for understanding the dynamics of digital technology integration within businesses, underscoring its importance in contemporary operational strategies.

Looking ahead, the future of technology-driven business management will be shaped by advancements in artificial intelligence (AI), machine learning, and automation. These technologies enable businesses to enhance operational efficiency, improve decision-making, and adapt to market trends (Soni et al., 2020). Digital transformation is now a necessity for businesses seeking to remain competitive, as technology continues to evolve alongside consumer behavior and industry demands (Priyono et al., 2020). AI and automation not only streamline business processes but also enable predictive analytics and personalized customer interactions, allowing businesses to stay ahead in dynamic markets (Bican and Brem, 2020). As organizations continue to evolve, adaptability and continuous investment in digital innovations will be key to long-term success and market leadership (Fang, 2023). This study explores the impact of digitalization on restaurant operational strategies, focusing on how technology-driven management improves efficiency, customer engagement, and financial sustainability. By understanding the role of digital transformation in restaurant management, businesses can develop better strategies to leverage technology and maintain a competitive edge in the modern market landscape.

2. Methodology

This study employs a descriptive research design to examine the integration of digitalization in restaurant operations in Cabanatuan City, Gapan City, and San Jose City, Nueva Ecija, Philippines. It builds on an existing framework analyzing restaurant profiles, organizational structures, marketing, financial management, and technical operations, incorporating digital tools such as online platforms, cashless transactions, digital ordering, and automation. The study explores how these innovations enhance efficiency, customer engagement, and business sustainability, identifying challenges and best practices in digital adoption. A purposive sampling technique was used to select six homegrown restaurants that have been operational for at least a decade and have adopted or are transitioning to digital tools. Respondents included restaurant owners, managers, and key personnel, providing insights into restaurant management, financial strategies, customer service innovations, and digital transformation challenges. Data was collected through a structured four-part questionnaire assessing business profiles, operational processes, digital adoption levels, and challenges. Semi-structured interviews supplemented the survey, offering deeper insights into digital investment strategies and perceived benefits and risks. The questionnaire's validity and reliability were ensured through expert review and pre-testing.

Informed consent was obtained, and responses were anonymized for confidentiality. Data analysis combined quantitative and qualitative methods. Frequency and percentage distributions profiled restaurant operations, while cross-tabulation analysis identified trends in digital adoption based on restaurant size, years in operation, and number of branches. Thematic analysis categorized responses into key themes such as cost barriers, efficiency improvements, and customer engagement strategies. A comparative assessment examined restaurants with high and low levels of digitalization to determine their impact on financial performance and competitiveness.

While the study primarily used descriptive statistics and thematic analysis to examine digital adoption trends, these methods were selected to suit the exploratory nature of the research and the small, purposively selected sample. The combination of quantitative frequencies and qualitative insights allowed for a nuanced understanding of business practices within a specific local context. However, the use of more rigorous statistical techniques such as regression analysis, structural equation modeling, or hypothesis testing was beyond the scope of this study. Future researchers are encouraged to apply these advanced statistical methods to validate relationships between digitalization variables and business performance outcomes more robustly, especially in studies with larger, more diverse samples.

3. Results and discussion

3.1. Business profile and growth trends

The quantitative data revealed that the six sampled restaurants had been operational for 16 to 70 years, demonstrating long-term business sustainability and resilience in a competitive market. Among them, 67% had expanded beyond a single location, operating two to three branches, while 33% continued operating in a single establishment. This indicates that most of the businesses have pursued growth strategies through physical expansion, while a smaller portion has remained focused on a single-location model, possibly emphasizing quality control and localized brand strength over widespread reach. In terms of business structure, 83% of the restaurants were registered as corporations, whereas 17% operated as sole proprietorships. This suggests that most businesses have adopted a corporate structure, allowing for better financial flexibility, access to investment opportunities, and long-term stability. The presence of sole proprietorships in the industry may indicate that some businesses prefer a more centralized decision-making process with direct owner involvement rather than a formal corporate hierarchy. Financially, the study found that 67% of businesses initially invested more than PHP 1,000,000, while 33% started with less capital. Over time, however, all establishments now operate with capital exceeding PHP 1,000,000, reflecting steady financial growth and reinvestment strategies. This suggests that despite varying initial investment sizes, all businesses have been able to expand their capital base, possibly through retained earnings, strategic reinvestment, or external financing. The analysis of monthly net income further highlights differences in business performance. 50% of the restaurants reported earnings below PHP 200,000 per month, while 33% earned between PHP 200,001 and PHP 500,000, and 17% generated between PHP 500,001 and PHP 1,000,000. These variations suggest that profitability is highly dependent on factors such as brand positioning, customer traffic, pricing strategies, and operational efficiency. Restaurants earning higher monthly net incomes are likely benefiting from strong market presence, loyal customer bases, and efficient cost management practices, whereas businesses reporting lower income figures may face challenges related to market reach, competition, or higher operating costs. The findings indicate that businesses in the food service industry exhibit diverse expansion strategies and financial structures, despite achieving overall financial stability. Companies that expand beyond a single location and adopt a corporate model generally demonstrate enhanced financial performance, as financial stability is linked to operational efficiency and capital structure. Conversely, single-location businesses often prioritize sustainability over aggressive growth, reflecting a strategic choice that aligns with their operational capabilities and market positioning (Bakmaz et al., 2023). Moreover, the necessity for continuous capital investment is underscored by the competitive nature of the industry, particularly in areas such as facility upgrades and digital transformation (Najib et al., 2021). The increasing reliance on financial technology, such as peer-to-peer lending, has emerged as a critical factor enabling small food businesses to access necessary funding for reinvestment (Najib et al., 2021). This trend highlights the importance of adapting to technological advancements to maintain competitiveness and ensure long-term sustainability in the food service sector (Menne et al., 2022).

3.2. Operational efficiency and workforce management

The study found that all restaurants employed a hierarchical organizational structure with well-defined roles and responsibilities, ensuring clear chain-of-command and operational efficiency. The distribution of workforce size varied among establishments, with 50% employing between 26 to 50 employees, 33% employing 51 to 100 workers, and 17% managing more than 100 employees. The presence of larger workforce segments in some businesses suggests higher customer volume, increased service demand, and more complex operational requirements, while smaller teams may indicate streamlined business models with controlled overhead costs. Recruitment methods were consistent across all businesses, with walk-in applications and employee referrals being the primary hiring channels. Additionally, 100% of businesses emphasized skill-based hiring, ensuring that new employees met the competency requirements for their respective roles. This focus on skills-based selection indicates a prioritization of service quality and efficiency, which is critical in a fast-paced industry. However, despite structured hiring practices, 67% of businesses experienced high employee turnover, requiring frequent recruitment and training cycles. High turnover rates suggest challenges in workforce retention, which could stem from industry-related factors such as demanding work hours, competitive wages in other sectors, or limited career growth opportunities. Despite retention issues, 100% of businesses provided comprehensive employee benefits, including social security, health insurance, and housing funds. This demonstrates compliance with labor regulations and a commitment to ensuring employee welfare. The presence of mandatory benefits across all respondents highlights the industry's adherence to fair labor practices, yet it does not appear to be a strong enough factor in reducing turnover rates. This suggests that additional employee engagement strategies, such as career development programs, performance incentives, and workplace satisfaction initiatives, may be necessary to improve workforce stability. The persistent challenge of high turnover rates in businesses underscores the necessity for enhanced workforce retention strategies. Research indicates that investing in employee development programs, competitive compensation, and improved workplace conditions can significantly bolster staff stability and service quality (Kester et al., 2021). Such investments not only enhance employee satisfaction but also contribute to long-term operational efficiency, as a stable workforce is crucial for maintaining consistent service delivery (Kester et al., 2022). Moreover, the correlation between workforce size and customer volume suggests that businesses with larger staff allocations are better positioned to meet higher customer demand. This reinforces the importance of strategic hiring and effective workforce management, as a well-staffed organization can respond more adeptly to fluctuations in customer needs, thereby optimizing service performance (Kester et al., 2021). Ultimately, a comprehensive approach that integrates employee development and strategic hiring practices is essential for fostering a resilient and efficient workforce in today's competitive landscape (Kester et al., 2021).

3.3. Customer volume and marketing strategies

The study revealed significant variations in customer traffic among the sampled restaurants, reflecting differences in brand positioning, customer loyalty, and marketing effectiveness. The data showed that 50% of businesses served between 151 to 200 customers daily, while 33% catered to 101 to 150 customers, and 17% had more than 200 daily patrons. The presence of a higher customer volume in some establishments suggests greater market reach, stronger brand loyalty, and potentially higher revenue streams, whereas lower foot traffic may indicate limitations in visibility, competition, or reliance on specific customer segments. Marketing strategies played a key role in attracting and retaining customers. The study confirmed that 100% of businesses relied on word-of-mouth marketing, emphasizing the importance of customer satisfaction, service quality, and reputation in driving patronage. Despite advancements in digital marketing, traditional customer recommendations remained the most influential promotional tool, as satisfied customers were more likely to refer the establishment to family and friends. This finding aligns with the nature of the hospitality and food service industry, where personal experiences heavily influence customer decisions. However, digitalization has started to impact restaurant marketing approaches, with 67% of businesses integrating social media and online advertising into their promotional strategies. The use of platforms such as Facebook, Instagram, and food delivery apps allowed businesses to engage with customers beyond physical interactions, expanding their audience reach. Digital marketing strategies included promotional offers, customer engagement posts, and targeted advertisements, which helped increase brand awareness and attract new customers. Despite the increasing prominence of digital marketing, word-of-mouth remains one of the most trusted and effective promotional strategies, emphasizing the critical role of customer service, product quality, and dining experience in achieving business success. Research indicates that a positive brand image significantly influences customer loyalty, suggesting that restaurants must cultivate a strong reputation to foster trust and repeat patronage (Singh et al., 2021). Additionally, the emotional experience associated with dining plays a crucial role in customer retention, as establishments that create memorable experiences are more likely to build lasting customer relationships (Liu et al., 2022). While social media and online marketing enhance visibility, the long-term retention of customers hinges on the ability to deliver high-quality service and positive experiences (Nyamekye et al., 2021). Restaurants that effectively integrate traditional referral marketing with digital engagement strategies are better positioned to increase customer volume and brand loyalty, thereby gaining a competitive edge in a crowded market (Somani et al., 2022). Ultimately, the combination of exceptional service and strategic marketing efforts is essential for sustaining customer engagement and loyalty in the evolving restaurant landscape.

3.4. Technological integration and digitalization adoption

The study revealed a growing trend in digital adoption, with 67% of businesses integrating cashless payment systems such as mobile wallets and card transactions, while 33% continued to rely on traditional cash-based transactions. The prevalence of cashless systems indicates a shift towards faster, more secure transactions, aligning with changing consumer preferences for convenience and efficiency. However, businesses that still rely on cash transactions may be hesitant due to technological investment costs, customer adaptation challenges, or operational adjustments required for digital payment infrastructure.

In terms of order management, 50% of the businesses had adopted digital ordering systems, while the remaining 50% continued using traditional manual order-taking methods. The implementation of digital ordering helps streamline service efficiency by reducing human error, expediting food preparation, and minimizing customer wait times. However, the equal distribution between digital and traditional methods suggests that some businesses face barriers to adoption, such as employee resistance, system implementation costs, or customer preference for traditional service interactions. Inventory and supply chain management were also significantly impacted by digitalization. 50% of businesses had transitioned to automated inventory tracking systems, while 50% continued to rely on manual stock monitoring. Among those utilizing digital inventory management, 100% reported improved stock level accuracy, with a 30% average reduction in waste and overstocking issues. This finding underscores the efficiency benefits of automated inventory tracking, particularly in ensuring optimal stock levels, minimizing financial losses, and improving supply chain reliability. Despite these advancements, the resistance to full-scale digital integration was primarily attributed to cost concerns and employee adaptation challenges. Businesses that have not yet fully transitioned to digital systems may require additional investment in technology training, infrastructure, and support to ensure smooth implementation. The findings suggest that businesses that successfully integrate digital tools experience greater operational efficiency, reduced costs, and improved customer service, reinforcing the need for continued investment in technological transformation. The study's findings align with earlier investigations demonstrating that digital transformation drives operational efficiency and service delivery improvements. Prior research establishes that digital tools, by enhancing inventory flexibility, positively impact productivity and cost control, which is fundamental for sustaining long-term competitive advantage (Wang et al., 2024). Additionally, the adoption of digital interfaces correlates with enhanced customer experience, contributing to stronger brand loyalty and higher satisfaction levels (Loh et al., 2024). Furthermore, conceptual models linking digital transformation to overall organizational performance substantiate that the strategic implementation of digital marketing and related technologies can lead to significant reductions in operational costs and improvements in service quality (García and Salamanca, 2024). Collectively, these insights reaffirm that digitalization extends beyond a mere technological shift, serving as a critical strategic enabler for driving efficiency, customer engagement, and competitive performance. The ongoing digital transformation is reshaping business operations, yet there remains a notable gap in the adoption of digital solutions, particularly in inventory management and order processing. Businesses that fully embrace automation and digital technologies are likely to reap significant long-term benefits in cost management, service efficiency, and customer satisfaction (Zhu et al., 2024). Research indicates that effective digital transformation enhances inventory flexibility, which in turn positively impacts productivity and operational performance (Zhu et al., 2024). Moreover, the integration of digital solutions in inventory management is essential for meeting customer demands and improving service delivery. Companies that leverage advanced technologies for inventory management can better align their operations with customer expectations, thereby enhancing overall customer experience and loyalty. As the industry landscape evolves, organizations that strategically combine digital tools with traditional practices are positioned to achieve a competitive advantage, ensuring they remain responsive to market changes and customer needs.

3.5. Financial performance and cost management

The study found that 100% of businesses practiced budget monitoring and financial planning, highlighting the critical role of structured financial management in sustaining business stability. This universal commitment to tracking expenses, managing cash flow, and allocating resources effectively ensures that businesses remain financially resilient despite industry challenges. The ability to plan and adjust budgets in response to fluctuating costs allows businesses to maintain profitability and operational efficiency, even during economic uncertainties. The analysis of initial funding sources revealed that 67% of businesses relied on personal savings and family contributions for startup capital, while 33% secured financing through bank loans. The preference for personal and family funding suggests that many business owners prioritize financial independence and reduced debt obligations, allowing them to have greater control over their finances. However, the 33% that utilized bank loans likely required larger initial investments, possibly for equipment, facility improvements, or expansion efforts, demonstrating that external financing remains a viable option for growth-oriented businesses. Despite careful financial planning, 67% of businesses reported operational costs as a major concern, particularly in areas such as utility bills, ingredient costs, and employee wages. These expenses represent significant portions of monthly expenditures, requiring businesses to implement cost-control strategies to sustain profitability. Rising ingredient costs may be influenced by supply chain fluctuations and inflation, posing a continuous challenge to maintaining consistent profit margins. To mitigate financial strain, 83% of businesses adopted cost-cutting measures, including supplier negotiations, investment in energy-efficient appliances, and optimized workforce scheduling. Supplier negotiations allow businesses to secure bulk discounts or better payment terms, reducing raw material costs. The use of energy-efficient appliances contributes to lower electricity consumption, translating into long-term cost savings. Additionally, optimized workforce scheduling ensures that labor costs remain manageable without compromising service quality, demonstrating the importance of strategic labor allocation in maintaining financial stability. The findings indicate that businesses that actively monitor their financial performance and implement cost-control strategies are better positioned for long-term sustainability. Effective financial management practices, such as structured financial planning and proactive cost management, are essential for navigating rising operational costs and ensuring profitability (Baah et al., 2020). Research shows that organizations that adopt comprehensive financial strategies can optimize expenditures, thereby enhancing their resilience against financial pressures (Lazarenko et al., 2021). Moreover, the integration of environmental management accounting (EMA) practices has been linked to improved financial performance, suggesting that sustainable practices can complement cost-control efforts and contribute to competitive advantage (Ruan and Liu, 2021). The ability to adapt financial strategies in response to market conditions is crucial for maintaining operational efficiency and customer satisfaction. Ultimately, proactive financial management emerges as a key determinant of business success, enabling firms to thrive in an increasingly competitive landscape.

3.6. Challenges in business operations

The study identified various operational, financial, and workforce-related challenges that businesses encountered, both during their pre-operational phase and in their current operations. These challenges highlight the complexities of managing a business in a competitive and evolving industry environment, where factors such as hiring, supply chain management, financial stability, and operational efficiency play critical roles in long-term sustainability.

3.6.1. Pre-operational challenges

Before launching their businesses, 50% of respondents struggled with staff recruitment and training, indicating that hiring skilled employees and ensuring they met service standards was a major obstacle. This suggests that the availability of qualified workers in the local labor market may have been limited, requiring businesses to invest additional resources in employee training and development programs. Additionally, 67% of businesses faced challenges in selecting the right location and negotiating with suppliers, highlighting the importance of strategic site selection and reliable sourcing in long-term business viability. Poor location choices can lead to low foot traffic, while ineffective supplier agreements can increase costs and disrupt inventory management, making these critical areas for careful decision-making in the startup phase.

3.6.2. Current operational challenges

Once operational, 67% of businesses reported high employee turnover as a persistent challenge, necessitating frequent recruitment and training efforts. The high attrition rate could be attributed to intense workload demands, limited career growth opportunities, or wage competition from other industries. Constant workforce changes can disrupt service consistency and operational efficiency, requiring businesses to implement retention strategies such as performance incentives, career development programs, and workplace engagement initiatives. Additionally, 50% of businesses struggled with maintaining food quality and equipment maintenance, which are critical aspects of operational success. Consistency in product quality is essential for customer retention and satisfaction, yet maintaining high standards can be difficult due to fluctuating ingredient quality, staff inexperience, or ineffective kitchen processes. Equipment maintenance challenges further impact service efficiency and increase operational costs, emphasizing the need for preventive maintenance programs and investment in durable, high-quality kitchen equipment.

3.6.3. Financial challenges

From a financial standpoint, 67% of businesses cited rising operational costs as their most significant challenge, particularly in ingredient expenses, labor costs, and utility bills. Inflation and supply chain fluctuations can directly impact profit margins, requiring businesses to adopt cost-efficient sourcing strategies and menu pricing adjustments to maintain profitability. Meanwhile, 33% of businesses struggled to secure additional funding for expansion, indicating that access to capital remains a limiting factor for growth-oriented businesses. Financial institutions may impose strict lending criteria, making it difficult for small and medium enterprises (SMEs) to qualify for expansion loans, thus requiring alternative funding strategies such as private investments, partnerships, or reinvestment of retained earnings.

The findings highlight those interconnected challenges in business operations, such as staffing, cost management, and quality control, significantly impact overall performance and profitability. High employee turnover and recruitment difficulties necessitate a reevaluation of workforce management strategies. Research indicates that offering better compensation packages, career development opportunities, and structured training programs can enhance employee retention. For instance, organizations that implement comprehensive training initiatives not only improve employee satisfaction but also foster loyalty, thereby reducing turnover rates (Jacoba et al., 2024). Simultaneously, financial challenges demand stronger cost control measures, including effective supplier negotiations and investment in revenue-generating strategies. While the reference regarding supply chain optimization does not directly address cost control measures, it suggests that effective supply chain management can contribute to overall operational efficiency. Businesses that adopt a multi-faceted approach—integrating effective human resource management, financial planning, and supply chain optimization—are better equipped to address these operational challenges (Astanti et al., 2022). Proactive solutions, such as investing in employee retention programs and securing diversified funding sources, position businesses for long-term stability and growth (Orujaliyev, 2024). Ultimately, a holistic strategy that encompasses workforce management, financial resilience, and supply chain efficiency is essential for navigating the complexities of the modern business landscape.

3.7. Comparative impact of digitalization on business performance

The study conducted a comparative analysis between businesses with higher levels of digital adoption—those that implemented cashless transactions, online marketing, digital ordering, and automated inventory systems—and businesses with lower digital adoption, which relied on traditional cash transactions, manual order-taking, and stock management systems. The findings provided quantitative evidence of how digitalization influences operational efficiency, customer experience, and financial performance. Businesses that had fully integrated digital solutions reported 20% faster service times compared to those using manual processes. This suggests that automated systems improve transaction speed, reduce customer wait times, and streamline order processing, leading to higher customer satisfaction and smoother operations. The efficiency gained through digital ordering and cashless transactions allowed businesses to reduce errors in order handling and minimize delays, significantly enhancing service quality. Furthermore, businesses that leveraged digital marketing and online customer engagement platforms experienced a 15% increase in daily customer volumes. This growth can be attributed to enhanced brand visibility, better customer outreach, and more effective promotional campaigns through social media and digital advertising. In contrast, businesses that did not utilize digital marketing relied solely on traditional word-of-mouth referrals, limiting their reach and making it harder to attract new customers in a highly competitive market. Another major advantage of higher digital adoption was a 10% reduction in operational costs, primarily due to automated inventory tracking and optimized financial management systems. Businesses that implemented real-time inventory tracking experienced fewer stock shortages and a 30% reduction in waste, as they were able to accurately monitor supply levels and avoid overstocking or understocking issues. Additionally, digital payment systems reduced cash-handling risks and minimized administrative workload, allowing businesses to allocate resources more efficiently. On the other hand, businesses with lower digital adoption faced longer order processing times, higher incidences of stock shortages, and greater difficulty in financial tracking. Manual processes resulted in frequent inventory mismanagement, delayed transactions, and inconsistencies in financial records, making it harder to maintain accurate cash flow monitoring and operational control. The absence of digital marketing also limited customer acquisition, as these businesses relied solely on in-store promotions and word-of-mouth marketing, which restricted their ability to reach a wider audience. The results strongly indicate that digitalization positively impacts business efficiency, customer satisfaction, and financial stability. Businesses that invest in digital tools, automation, and data-driven decision-making are likely to outperform competitors in service efficiency, revenue growth, and cost management. For instance, digital marketing strategies have been shown to enhance customer satisfaction significantly, which in turn fosters customer loyalty. This relationship underscores the importance of integrating technology into business operations, especially for those still relying on traditional methods. Moreover, the adoption of digital financial inclusion has been linked to improved banking stability, suggesting that technological advancements can bolster financial performance (Banna and Alam, 2021a; 2021b). As businesses navigate an increasingly digital-driven market, those that embrace comprehensive digital solutions are better positioned for long-term success. The integration of technology not only streamlines operations but also enhances customer experiences, ultimately leading to greater financial resilience (Santos et al., 2024). Therefore, a strategic focus on digitalization is essential for businesses aiming to thrive in a competitive landscape.

3.8. Limitations

Despite the comprehensive analysis of digitalization's impact on business operations, this study has certain limitations. The research focused on six homegrown restaurants in Cabanatuan City, Gapan City, and San Jose City. While the sample size is relatively small, it was intentionally selected using purposive sampling to target businesses that had sustained operations for over a decade and were either actively engaged in or transitioning toward digitalization. This approach ensured the inclusion of information-rich cases relevant to the study's objectives. The depth of qualitative insights and the mixed-methods approach help to offset limitations in sample breadth. However, the findings may not be fully generalizable to other industries, geographic locations, or newly established businesses. Future researchers are encouraged to expand the sample size and diversify the business types and locations to improve external validity and explore cross-sectoral differences in digital adoption and performance outcomes.

4. Conclusions

The findings highlight the growing role of digitalization in optimizing business operations, with businesses that adopted cashless transactions, digital ordering, automated inventory systems, and online marketing demonstrating greater efficiency, customer engagement, and financial stability. Restaurants with higher levels of digital adoption reported faster service times, reduced operational costs, and increased customer volume, reinforcing the competitive advantage of technology-driven management. However, barriers to full digital integration, such as high investment costs, employee resistance, and traditional business models, remain prevalent. Despite these challenges, proactive financial planning, workforce management, and technology investments can drive sustainable business growth. The study also underscores the importance of combining traditional strategies, such as word-of-mouth marketing and customer service excellence, with digital innovations to maximize market reach and customer retention. To fully leverage digital transformation, businesses should prioritize employee training programs to improve digital literacy and reduce resistance to new technologies. Investment in cost-effective digital tools, such as cloud-based management systems and AI-driven analytics, can further enhance efficiency and decision-making. Given the financial constraints faced by some businesses, exploring alternative funding options—such as government grants, microloans, and fintech partnerships—can provide the necessary capital for technological upgrades. Additionally, businesses should integrate data-driven marketing strategies to enhance customer targeting and engagement. Future research should focus on expanding the scope of digital transformation studies across various industries and geographic locations, incorporating longitudinal assessments to measure the long-term impact of digital adoption on operational success and financial performance. By embracing a balanced approach that integrates both digital innovations and traditional business practices, businesses can enhance their adaptability, improve service efficiency, and ensure long-term sustainability in an increasingly digital-driven economy.

Compliance with ethical standards

Ethical considerations

This study complied with ethical research standards involving human participants. Informed consent was obtained from all participants before data collection. Participation was voluntary, and all responses were anonymized to ensure confidentiality.

Conflict of interest

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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