Journal of Information Systems and Informatics
Vol. 6, No. 4, December 2024 e-ISSN: 2656-4882 p-ISSN: 2656-5935
DOI: 10.51519/journalisi.v6i4.922 Published By DRPM-UBD

Strategic Information Systems Planning Analysis Using the Ward and Peppard Method: A Case Study

Muhammad Ardiansyah[1], Angga Wahyudi[2]

[1]Information Systems, Batam International University, Batam, Indonesia
[2,3]Faculty of Computer Science, Batam International University, Batam, Indonesia
Email: [1]muhammad.ardiansyah@uib.ac.id, [2]2131128.angga@uib.edu

Abstract

This paper aims to develop a strategic information systems (IS) plan using the Ward and Peppard methodology, employing a qualitative approach with data collected through direct observations, interviews with key stakeholders, and a comprehensive literature review. The study integrates analytical tools such as SWOT, Value Chain, Porter's Five Forces, PEST, and McFarlan's Strategic Grid to evaluate internal and external environments. Findings reveal strengths in operational efficiency and customer engagement, alongside challenges like reliance on manual reservation systems and limited product diversification. Based on these insights, a strategic IS application portfolio and phased implementation plan were proposed to align IT investments with strategic objectives. The proposed solutions are expected to improve reservation handling, enhance customer engagement, and increase operational efficiency. This study highlights the innovative application of the Ward and Peppard methodology in the recreational sports industry, offering a scalable framework for other businesses to address similar operational challenges. Future research could extend this approach to real-world implementations or explore its adaptability across diverse sectors.

Keywords: Strategic Planning, Ward and Peppard Methodology, SWOT Analysis, Information Systems, Recreational Sports

1. INTRODUCTION

Billiards, is a classic sport that emphasizes "position play" strategy, requiring players to anticipate ball positions with each shot. Originating as an outdoor pastime in Europe, it evolved into an indoor sport during Victorian England, refined through advanced tables and balls, and eventually became a staple of global sports culture [1]. Despite its recreational appeal, operational inefficiencies in managing billiard facilities remain an underexplored area.

In Batam, the billiard industry has undergone substantial growth, with venues increasing from four to forty-four over the past two years, signaling a burgeoning competitive landscape [2]. Mammoth, a prominent billiard facility in Batu Aji, Batam, epitomizes the operational challenges of this industry. Offering premium

amenities such as 20 tables, including VIP setups, Mammoth relies on manual reservation management via WhatsApp. This method results in significant inefficiencies, particularly during peak hours, and negatively impacts customer satisfaction [3].

The integration of information systems (IS) has revolutionized numerous industries, including business, healthcare, and education, enhancing service quality and operational efficiency [4]. IS capabilities, such as real-time data management, inventory optimization, and process streamlining, have demonstrated their ability to reduce operational strain and foster customer satisfaction [5], [6], [7]. Yet, the application of IS to niche industries, including recreational sports like billiards, remains limited. This gap highlights the untapped potential of IS to address inefficiencies in these settings.

Ward and Peppard's strategic IS/IT planning methodology offers a comprehensive framework for aligning IS with organizational objectives by evaluating internal and external contexts [8], [9]. This methodology has been applied in various domains, including public administration and youth sports management, with proven success in enhancing efficiency and aligning strategies with operational goals [10], [11], [12]. However, the methodology's application to recreational sports businesses, particularly in billiards, is virtually unexplored, creating a unique opportunity to examine its relevance in this context.

This study addresses these challenges by applying Ward and Peppard's IS/IT strategic planning methodology to Mammoth. Specifically, the research explores how IS solutions can improve reservation management, enhance customer experience, and support long-term growth. By demonstrating the applicability of this methodology within the billiard industry, this research contributes to bridging the gap in IS literature for recreational sports businesses, offering actionable insights for leveraging IS/IT for competitive advantage.

2. METHODS

This research employs a qualitative method grounded in the Ward and Peppard information systems planning methodology, which is designed to align IS/IT strategy with organizational objectives through structured input and output stages [13]. The study integrates multiple analytical tools—SWOT, Value Chain, Porter's Five Forces, PEST, and McFarlan's Strategic Grid—to comprehensively assess Mammoth Pool Billiards' internal and external business environments.

1. Data Collection
a. Place of Study
   The research was conducted at Mammoth Pool Billiards, Batu Aji, Batam, Indonesia. Observations focused on real-time operational workflows and

key challenges, such as inefficiencies in reservation management and customer service during peak hours.

b. Semi-Structured Interviews
Interviews were conducted with key stakeholders, including management, staff, and customers. These interviews aimed to identify operational pain points, gather expectations, and validate opportunities for IS/IT enhancement.

c. Literature Review
A comprehensive review of academic and industry research provided theoretical support for applying Ward and Peppard's methodology within the context of Mammoth's operations.

2. Integration of Analytical Tools

a. SWOT Analysis
Used to evaluate internal strengths, weaknesses, opportunities, and threats, providing insight into an organization's market position and informing strategic IS/IT priorities [14].

b. Value Chain Analysis
Used to identify Mammoth's primary and support activities within its business processes, assisting in understanding how to create competitive advantage through process management and pinpointing areas where IS/IT could enhance value creation and efficiency [15].

c. Porter's Five Forces
Used to assess competitive dynamics—including the influence of rivals, substitutes, buyers, suppliers, and potential new entrants—to inform Mammoth's competitive strategy. This tool aids in understanding the intensity of industry competition and the company's strategic position, evaluating factors that affect industry attractiveness and profitability [16].

d. PEST Analysis
Used to analyse political, economic, socio-cultural, and technological changes in the business environment, helping Mammoth understand the broader shifts they face and enabling them to capitalize on available opportunities [17].

e. McFarlan's Strategic Grid
Utilized to categorize Mammoth's IS applications based on their contribution to organizational business processes, dividing them into four quadrants—strategic, high potential, key operational, and support—to ensure alignment with long-term business goals [18].

3. Processing Data

a. Interview Findings
Cross-referenced with SWOT insights to validate operational inefficiencies and customer service gaps.

b. Observational Data
Highlighted inefficiencies in manual reservation processes, providing actionable inputs for IS strategy formulation.

These tools are integrated within the Ward and Peppard methodology to develop a strategic IS/IT planning portfolio, as illustrated in Figure 1, which demonstrates the structured input and output stages ensuring alignment with Mammoth's broader business goals.

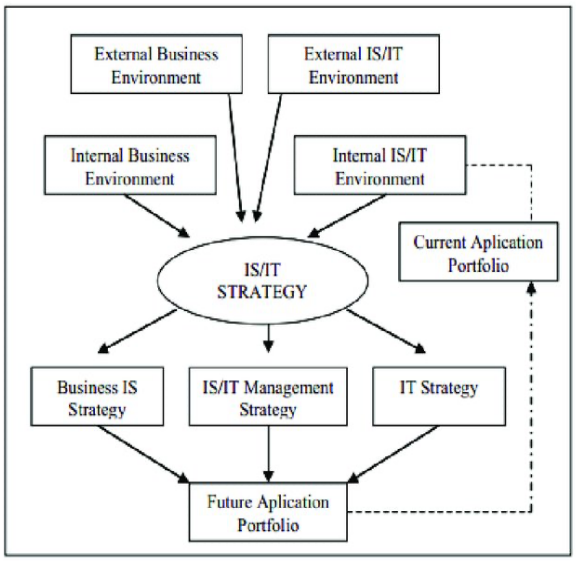

Figure 1. Ward and Peppard IS/IT Strategic Planning Framework

The structured IS/IT planning process is divided as follows:
Input Stages for IS/IT Strategic Planning Model

1. Internal IS/IT Business Environment Analysis
This stage analyzes Mammoth's current business processes using tools like SWOT and Value Chain Analysis to identify inefficiencies, operational bottlenecks, and opportunities for IS/IT enhancements that can create value and improve efficiency.
2. External IS/IT Business Environment Analysis
Using Porter's Five Forces framework, this stage evaluates Mammoth's competitive landscape by assessing rival strategies, potential substitutes, and supplier influence to address external market pressures effectively.
3. Internal IS/IT Environment Analysis
Mammoth's existing IS/IT resources are evaluated with McFarlan's Strategic Grid to determine their strategic importance, while SWOT analysis highlights internal strengths and weaknesses in IS/IT capabilities.

4. External IS/IT Environment Analysis
   This stage applies PEST analysis to assess macro-environmental factors, such as technology trends and shifting customer expectations, which influence Mammoth's future IS/IT strategies.

Output Stages for IS/IT Strategic Planning Model

1. IS Strategy
   Develops a plan to leverage information systems for achieving Mammoth's business objectives by enhancing customer engagement and streamlining operations, supported by insights from SWOT and Value Chain Analysis.
2. IT Strategy
   Focuses on the deployment of IT resources, including tools like self-ordering systems, to improve scalability and operational efficiency while addressing value chain gaps.
3. IS/IT Management Strategy
   Establishes a framework for effectively managing IS/IT resources, ensuring alignment with strategic priorities and phased implementation to deliver sustained value.

3. RESULTS AND DISCUSSION

The following describes the steps involved in developing the strategic plan for Mammoth's information system.

3.1 Analysis Internal/external business environment

This study employed a comprehensive analysis of Mammoth's internal and external environments using a combination of SWOT, Value Chain, Porter's Five Forces, and PEST frameworks. The SWOT analysis revealed four fundamental dimensions: internal strengths, such as a skilled workforce and a strong industry reputation; weaknesses, including reliance on manual operational processes and limited product diversification; external opportunities in technological advancements and strategic partnerships; and threats from increasing competition and shifting customer preferences [19]. These findings informed targeted strategies, such as automating operations and diversifying product offerings, to bolster Mammoth's resilience and adaptability in a competitive market.

Table 1. SWOT Analysis

Strength (S)	Weakness (W)
1. Skilled and experienced workforce	1. Limited product diversification

2. Strong industry reputation 3. Good relationships with stakeholders	2. Manual operational processes 3. Reliance on key customers
Opportunity (O)	**Threats (T)**
1. Rapid market growth 2. Strategic partnership potential 3. Technological advancements	1. Increasing competition 2. Changing customer preferences 3. Raw material price fluctuations

Based on the results of the SWOT analysis, a targeted set of strategies has been developed to address Mammoth's challenges and optimize growth opportunities. Table 2 present matrix organizes these strategies, detailing actionable measures for competitive enhancement.

Table 2. SWOT Matrix

SO Strategies	**WO Strategies**
Leverage automation and diversify the product range to reduce reliance on major customers, enhancing resilience and responsiveness to shifting customer preferences	Capitalize on market growth, strategic partnerships, and technological advancements to expand the product range, automate operations, and reduce dependency on key customers
ST Strategies	**WT Strategies**
Utilize skilled talent, industry reputation, and stakeholder relations to counter rising competition, adapt to changing customer needs, and negotiate against raw material price volatility	Mitigate risks from competition, evolving customer preferences, and raw material costs by diversifying products, automating operations, and reducing dependency on major clients

Building on the strategic insights gained from the SWOT analysis, the Value Chain framework examines Mammoth's internal processes to identify areas where operational efficiencies and value creation can be enhanced.

The Value Chain analysis systematically examined Mammoth's organizational activities to pinpoint areas where value creation could be maximized. By segmenting activities into primary functions, such as customer engagement, and support functions, such as administrative and technology management, this framework identified critical areas for improvement and competitive differentiation [20]. Primary activities, including customer engagement, were found to be essential for elevating the customer experience, while support activities were noted for their role in sustaining operational efficiency and adaptability. This analysis underscored the need for IS/IT solutions that enhance both categories, creating a pathway for sustainable growth. The results of Mammoth's Value Chain analysis are illustrated in Figure 2.

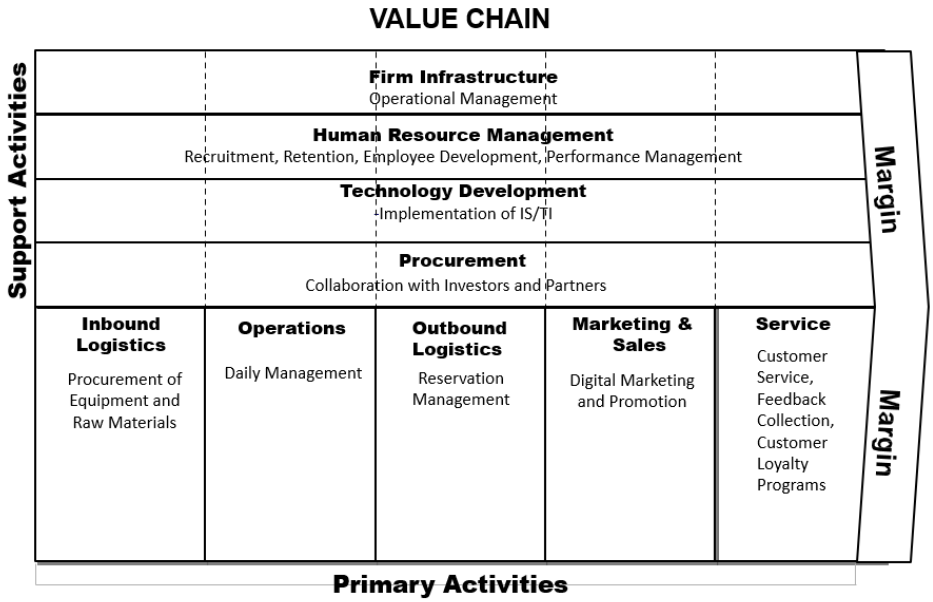

Figure 2. Value Chain Analysis

As shown in Figure 2, the Value Chain framework categorizes Mammoth's organizational activities into primary and support functions, providing a structured view of each activity's role in creating value and supporting strategic goals.

1. Primary Activities
   The primary activities in Mammoth's Value Chain are integral to delivering value, from initial contact to ongoing customer engagement. Together, these processes elevate customer experience, strengthen operational efficiency, and enhance market positioning.
2. Support Activities
   Mammoth's support activities provide a stable foundation for operations, enabling efficient processes and continuous improvement. These

p-ISSN: **2656-5935** http://journal-isi.org/index.php/isi e-ISSN: **2656-4882**

activities not only sustain operational effectiveness but also drive Mammoth's adaptability in a competitive landscape.

The Value Chain analysis highlights Mammoth's key value drivers, enabling a strategic focus on processes that enhance operational effectiveness and customer satisfaction.

To further contextualize Mammoth's strategic position, the Porter's Five Forces analysis evaluated competitive pressures, including industry rivalry, the threat of new entrants, substitutes, and the bargaining power of buyers and suppliers. While Mammoth benefits from strong supplier relationships and a loyal customer base, the threat of substitutes and rising competition necessitates proactive differentiation through improved service quality and operational efficiency. For instance, competitors' unique service models pose a risk that can be mitigated by leveraging customer engagement strategies and technological enhancements.

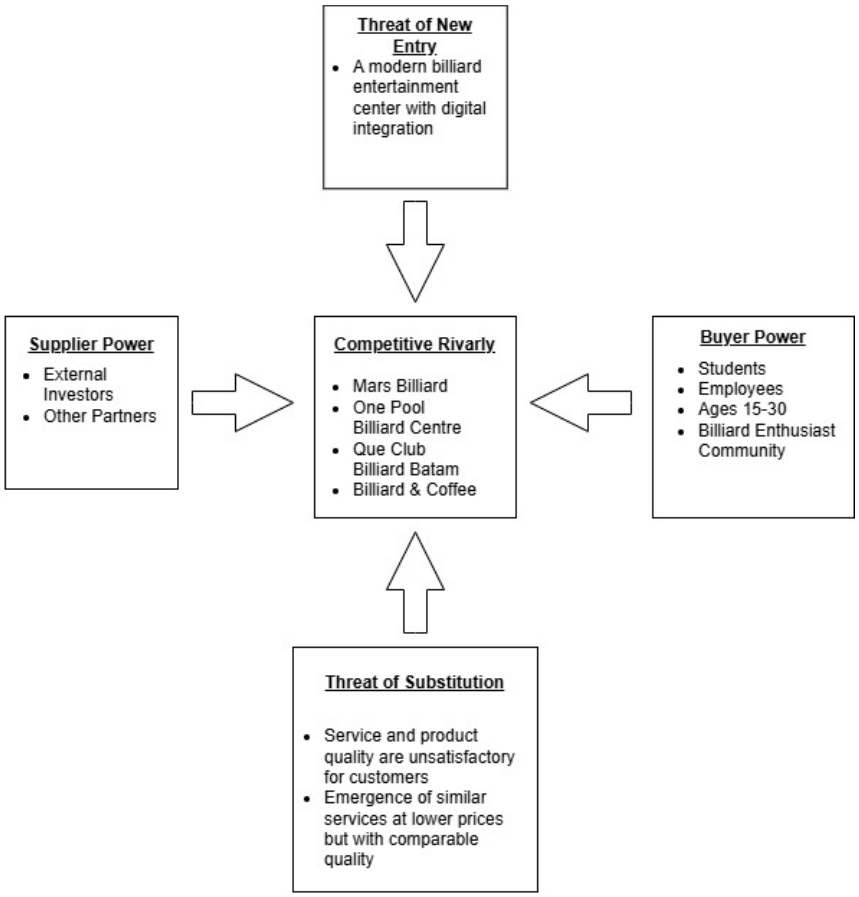

Figure 3. Porter's Five Forces Analysis

p-ISSN: **2656-5935** http://journal-isi.org/index.php/isi e-ISSN: **2656-4882**

The following analysis explores how each force impacts Mammoth's strategic approach and market positioning, detailing the influence of competitive rivalry, potential new entrants, substitute products, and the bargaining power exerted by buyers and suppliers.

1. Competitive Rivalry
   Mammoth faces competition from established billiard venues such as Mars Billiard and Que Club, each with unique aesthetics and service models. Mammoth capitalizes on its unique design and customer experience to differentiate itself and secure its competitive position. This differentiation strategy strengthens Mammoth's market position and reduces vulnerability to price competition.
2. Threat of New Entrants
   While no significant new entrants currently replicate Mammoth's model, advances in digital and consumer trends could invite future competition. Mammoth proactively enhances its offerings and customer satisfaction to remain appealing and resilient against potential new players.
3. Threat of Substitutes
   Substitute leisure options and similar offerings from competitors present a risk if Mammoth's quality or service declines. To counter substitution risks, Mammoth focuses on high-quality experiences that build brand loyalty, reducing the likelihood of customer switching. By consistently delivering quality, Mammoth cultivates brand loyalty, thereby reducing the risk of customer substitution.
4. Bargaining Power of Buyers
   Mammoth's primary clientele—billiard enthusiasts aged 15-30—exerts notable bargaining power with high expectations for quality and convenience. Mammoth addresses this by offering premium experience and responsive service to retain this key demographic.
5. Bargaining Power of Suppliers
   Strong, stable relationships with suppliers and investors help Mammoth maintain quality and reduce supplier influence. These partnerships support consistent operations and secure access to high-quality resources essential for service reliability.

Each of these competitive forces' shapes Mammoth's strategic imperatives, collectively providing a comprehensive view of the external pressures it faces. This analysis informs strategies that reinforce Mammoth's resilience and adaptability within the market. In addition to industry and external analyses, understanding the broader macro-environment is essential for Mammoth's strategic planning. The PEST analysis examines political, economic, social, and technological factors shaping the company's operational landscape and long-term strategy. These insights highlight actionable opportunities and challenges that Mammoth can leverage to strengthen its market position.

1. Political Factors
   Political stability and regulations, such as Tourism Regulation No. 26 of 2015, establish compliance standards for billiard businesses in Indonesia, including licensing and safety. Additionally, a stable climate in Batam and government support for tourism enhance investment appeal and visitor rates.
2. Economic Factors
   Economic conditions—like inflation, interest rates, and income levels—affect consumer spending on recreation. During downturns, Mammoth can counter decreased demand through affordable promotions, while economic growth boosts spending on recreation.
3. Social Factors
   Trends among Generation Z and a preference for social experiences present opportunities for Mammoth. Hosting "Game Nights" or billiard tournaments and using social media to share interactive content helps attract young adults and foster community. Promoting billiards as a healthy, inclusive activity can also broaden its appeal.
4. Technological Factors
   Advances in technology are vital for maintaining efficiency and customer engagement. By continuously updating its technological infrastructure, Mammoth can streamline operations and meet evolving customer expectations in a competitive digital landscape.

The PEST analysis complements the findings from other frameworks by identifying macro-environmental factors shaping Mammoth's strategic landscape. Political stability and tourism regulations offer opportunities for growth, while technological advancements provide tools to streamline operations and improve customer interactions. By integrating these external insights, Mammoth can proactively address industry challenges and leverage opportunities to reinforce its competitive edge. Together, the insights from Porter's Five Forces and the PEST analysis provide Mammoth with a comprehensive understanding of the external environment. By integrating these factors into strategic planning, Mammoth can strengthen its resilience, adapt to emerging trends, and capitalize on growth opportunities within the billiard industry.

3.2 IS/IT Environment Analysis

Following the analysis of external competitive and environmental factors, it is essential to evaluate Mammoth's internal information systems to understand their strategic role within the business. Strategic alignment of IS/IT with business goals is critical to enhance operational efficiency and support long-term strategic objectives, as suggested by Ward and Peppard's framework for information systems management [13]. After evaluating Mammoth's internal strengths and weaknesses alongside external market forces, a focused analysis of the company's

p-ISSN: **2656-5935** http://journal-isi.org/index.php/isi e-ISSN: **2656-4882**

IS/IT environment is essential for aligning technology investments with business objectives. McFarlan's Strategic Grid provides a structured framework for assessing the strategic importance of each system, categorizing them by their role in supporting Mammoth's current operations and future growth. By categorizing applications as Support, Key Operational, High Potential, or Strategic, this mapping enables management to prioritize IS development and ensure alignment with strategic goals. This assessment clarifies each application's role within the business environment, helping Mammoth allocate resources effectively and guide future IS investments. Currently, Mammoth's information systems supporting its business activities include:

Table 3. McFarlan's Application Portfolio

Strategic	**High Potential**
Cashier IS	-
Finance IS Warehouse IS	Microsoft Word, Excel Google Docs, Sheets Instagram
Key Operational	**Support**

3.3 Proposed IS Application Portfolio

An evaluation of Mammoth's IS/IT environment using McFarlan's Strategic Grid revealed significant gaps in the alignment of current systems with strategic objectives. Existing systems, such as basic accounting and inventory tools, were categorized as supportive rather than strategic, underscoring the need for high-potential and strategic applications. Utilizing McFarlan's Strategic Grid to categorize applications enables organizations like Mammoth to align their IT investments with operational priorities and strategic aspirations, providing a clear pathway for technology-driven growth [21]. This model facilitates future strategic IS planning by mapping out an architecture of information systems that align with Mammoth's business goals.

Table 4. Proposed IS Application Portfolio

Strategic	**High Potential**
Cashier IS CRM IS	Chatbot WhatsApp
Finance IS	Microsoft Word, Excel

Warehouse IS Self-Ordering System IS	Google Docs, Sheets Instagram Payroll IS
Key Operational	**Support**

The proposed IS portfolio (Table 4) identifies critical IS needs, allowing Mammoth to prioritize the development of applications that address operational inefficiencies and support strategic growth. The inclusion of a CRM system addresses customer retention by enabling personalized interactions and streamlined communication. Similarly, self-ordering tools and WhatsApp chatbots enhance operational efficiency by reducing manual workloads during peak times. Together, these systems transform Mammoth's IS infrastructure from a supporting role to a strategic enabler of growth, fostering alignment between IT investments and broader business objectives.

3.3 Implementation Plan

After proposing an information systems portfolio for Mammoth, as shown in Table 4, and mapping each system based on its strategic role using McFarlan's Strategic Grid, an implementation plan is developed to guide the phased deployment of these systems. Effective IS/IT implementation planning supports organizational strategy, enabling systematic, phased deployment to achieve targeted outcomes and enhance business resilience [22]. This plan ensures that Mammoth's IS portfolio is introduced in alignment with strategic priorities, supporting the company's objectives effectively and sustainably. The implementation plan spans a period of two years (2024–2025) and is designed to provide a structured roadmap for the phased introduction of each information system, based on its designated role in supporting Mammoth's operations and competitive goals. The table below presents Mammoth's planned implementation schedule:

Table 5. Implementation Plan

IS/IT Solution	2024	2025
SI CRM	Strategic	
SI Self Ordering System		Key Operational
Chatbot WhatsApp		High Potential
SI Penggajian	Support	

p-ISSN: **2656-5935** http://journal-isi.org/index.php/isi e-ISSN: **2656-4882**

3.4 Discussion

The application of SWOT, Value Chain, Porter's Five Forces, and PEST frameworks within this study reveals key insights into strategic positioning. Mammoth's strengths, such as operational efficiency and strong customer engagement, are contrasted with challenges like reliance on manual processes and limited product diversification. The Value Chain analysis highlights the need for IS/IT solutions that enhance primary activities like customer interaction and support functions such as technology management, while Porter's Five Forces and PEST analyses underscore the pressures of increasing competition, shifting customer preferences, and technological advancements. The proposed IS portfolio, including CRM systems and self-ordering tools, directly addresses these challenges by automating operational bottlenecks and enhancing customer satisfaction. By implementing a phased approach to align IT investments with long-term strategic goals, this study provides a roadmap for operational resilience and sustainable growth.

Comparative analysis demonstrates the broader applicability of the Ward and Peppard methodology across industries. For example, [9] optimized workflows and improved stakeholder alignment in the business sector, while [8] applied similar tools to address manual inefficiencies in tourism transportation. Similarly, [11] improved process efficiency and user satisfaction in higher education through tailored IS applications. These comparisons validate the adaptability of this methodology to diverse sectors while emphasizing the unique challenges faced by recreational sports businesses like Mammoth. CRM systems, for instance, proven to enhance loyalty in retail, can drive engagement and retention in recreational venues. However, the reliance on qualitative data in this study highlights the need for future research incorporating quantitative metrics, such as ROI and operational cost reductions, to further validate these findings. This study thus not only addresses sector-specific inefficiencies but also contributes to the broader discourse on strategic IS planning by showcasing its scalability and transformative potential across industries.

4. CONCLUSION

This study demonstrates the application of Ward and Peppard's strategic IS/IT planning methodology within the context of Mammoth Pool Billiards, addressing operational inefficiencies such as reliance on manual reservation systems and limited product diversification, while leveraging opportunities for technological advancements and enhanced customer engagement. By integrating analytical tools like SWOT, Value Chain, Porter's Five Forces, PEST, and McFarlan's Strategic Grid, the proposed IS application portfolio—including CRM systems, self-ordering tools, and chatbots—aligns IT investments with strategic priorities, fostering improved efficiency, customer satisfaction, and resilience against

p-ISSN: **2656-5935** http://journal-isi.org/index.php/isi e-ISSN: **2656-4882**

competitive pressures. Beyond its immediate context, this research highlights the scalability of the framework, offering actionable insights for recreational businesses and demonstrating its adaptability across diverse settings, such as fitness centres and gaming venues. While the findings provide a practical roadmap for aligning IS/IT strategies with business goals, the study acknowledges limitations, particularly its reliance on qualitative data, and recommends future research incorporating quantitative metrics, such as ROI and customer acquisition rates, alongside real-world implementations to substantiate the proposed solutions. Ultimately, this research bridges the gap between theoretical IS frameworks and practical applications, illustrating how technology-driven strategies can drive innovation, operational excellence, and sustained growth in underexplored sectors.

REFERENCES

[1] L. J. Harris, "Snooker and Billiards," in *Routledge Handbook of Global Sport*, 1st ed., J. Nauright and S. Zipp, Eds., Routledge, 2020, ch. 21, pp. 227–237. doi: 10.4324/9781315714264.

[2] Redaksi, "Atmos Billiard and Caffe Dilaunching, Rumah Billiard Tumbuh Pesat di Batam," Jan. 07, 2024.

[3] M. Ardiansyah, "Analisis dan Perancangan Sistem Informasi Point of Sales Berbasis CRM," 2019.

[4] R. Komalasari, "Manfaat Teknologi Informasi dan Komunikasi di Masa Pandemi Covid 19," *TEMATIK*, vol. 7, no. 1, pp. 38–50, Jun. 2020, doi: 10.38204/tematik.v7i1.369.

[5] A. Rohman, A. Syarif Hidaytullah, and Mg. Rohman, "Implementasi Metode Waterfall pada Rancang Bangun Sistem Pengarsipan Surat Berbasis Website," *Generation Journal*, vol. 6, no. 2, pp. 93–102, Oct. 2022, doi: 10.29407/gj.v6i2.17871.

[6] J. S Pasaribu, "Development of a Web Based Inventory Information System," *International Journal of Engineering, Science and Information Technology*, vol. 1, no. 2, pp. 24–31, Mar. 2021, doi: 10.52088/ijesty.v1i2.51.

[7] D. N. A. Sari and N. Mariana, "Perancangan Sistem Informasi Persediaan Barang Menggunakan Metode FAST Pada PT Puguh Bachti Karsa," *Progresif: Jurnal Ilmiah Komputer*, vol. 20, no. 2, pp. 774–783, Aug. 2024.

[8] D. E. Prasetyo and A. F. Wijaya, "Information System Strategic Planning For Tourism Transportation Company Using Ward And Peppard Methodology," *INTENSIF: Jurnal Ilmiah Penelitian dan Penerapan Teknologi Sistem Informasi*, vol. 5, no. 1, pp. 43–57, Feb. 2021, doi: 10.29407/intensif.v5i1.14609.

[9] R. F. Azizi and M. N. N. Sitokdana, "Strategic Planning of Information System in PT Satya Mitra Sejahtera Using Ward and Peppard," *TEPIAN*, vol. 1, no. 3, pp. 111–114, Aug. 2020, doi: 10.51967/tepian.v1i3.146.

[10] M. Y. Faizal and H. P. Chernovita, "Strategic Planning of Information Systems with Ward and Peppard Method Case Study of Salatiga City Youth and Sports Office," *Journal of Information Systems and Informatics*, vol. 4, no. 3, pp. 795–804, Sep. 2022, doi: 10.51519/journalisi.v4i3.281.

[11] Y. A. Singgalen, "Strategic Planning for Student Guidance Information System Design in Tourism Department using Ward and Peppard Framework," *Journal of Information Systems and Informatics*, vol. 5, no. 2, pp. 481–496, May 2023, doi: 10.51519/journalisi.v5i2.486.

[12] R. N. Salakory and A. F. Wijaya, "Perencanaan Strategis Sistem Informasi Menggunakan Metode Ward and Peppard pada Dinas Pekerjaan Umum dan Penataan Ruang Provinsi Maluku," *Sebatik*, vol. 25, no. 2, pp. 687–694, Dec. 2021, doi: 10.46984/sebatik.v25i2.1441.

[13] J. Peppard and J. Ward, "Establishing an Effective Process for Developing Information Systems," in *The Strategic Management of Information Systems: Building a Digital Strategy*, 4th ed., John Wiley & Sons, 2016, ch. 3, pp. 108–109.

[14] R. D. Perkasa, N. Sitorus, and A. W. Siregar, "Analisis SWOT Sebagai Strategi Pengembangan Usaha Koperasi Makmur Mandiri," *Scientific Journal of Reflection : Economic, Accounting, Management and Business*, vol. 7, no. 3, pp. 884–897, Jul. 2024, doi: 10.37481/sjr.v7i3.912.

[15] Moh. H. Koniyo, R. H. Dai, and I. Is. Tomu, "Pemodelan Proses Bisnis Menggunakan BPMN di Dinas Kependudukan dan Pencatatan Sipil Kabupaten Bone Bolango," *Digital Transformation Technology*, vol. 4, no. 1, pp. 126–137, Apr. 2024, doi: 10.47709/digitech.v4i1.3726.

[16] A. A. Nafisah, I. Sutantri, and M. Khoiril, "Pengaruh Perencanaan Strategi dan Inovasi terhadap Kinerja pada Rumah Makan Pondok Indah," *Jurnal Pendidikan Sejarah dan Riset Sosial Humaniora*, vol. 4, no. 2, pp. 2621–119, Jun. 2024.

[17] A. Fu *et al.*, "Penyusunan Cetak Biru Sistem Informasi Dan Teknologi Informasi Akademi Komunitas Negeri Pacitan," *Jurnal Teknik Informatika dan Sistem Informasi*, vol. 10, no. 2, pp. 160–173, Jun. 2023.

[18] Sri Anardani, Latjuba Sofyana STT, and Yessi Yunitasari, "Analisis Perencanaan Strategis Sistem Informasi dengan Metodologi Tozer pada Sabisu Interior," *Bulletin of Computer Science Research*, vol. 3, no. 4, pp. 297–303, Jun. 2023, doi: 10.47065/bulletincsr.v3i4.269.

[19] T. F. Anggreani, "Faktor-Faktor yang Mempengaruhi SWOT: Strategi Pengembangan SDM, Strategi Bisnis, dan Strategi MSDM (Suatu Kajian Studi Literatur Manajemen Sumberdaya Manusia)," *Jurnal Ekonomi Manajemen Sistem Informasi*, vol. 2, no. 5, pp. 619–629, Jul. 2021.

[20] R. Latief, A. Dirpan, and F. Jayadi, "Analisis Rantai Nilai Jagung pada PT. Sinar Terang Madani Makassar," *Jurnal Teknologi Industri Pertanian*, vol. 33, no. 1, pp. 96–103, May 2023.

[21] E. C. C. Yobel and M. N. N. Sitokdana, "Perencanaan Strategis Sistem Informasi Menggunakan Ward and Peppard di Perusahaan PTPura Barutama (Unit PM10)," *Sebatik*, vol. 24, no. 1, pp. 113–119, Jun. 2020.

[22] R. P. F. Prayogo, C. Rudianto, and P. F. Tanaem, "Perencanaan strategis sistem informasi menggunakan Ward and Peppard," *AITI*, vol. 18, no. 2, pp. 97–110, Nov. 2021, doi: 10.24246/aiti.v18i2.97-110.