

The Use of Business Intelligence to Support Strategic Decision Making in Digital Retail Companies in Indonesia

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ABSTRACT

This study explores the role of Business Intelligence (BI) in supporting strategic decision-making within digital retail companies in Indonesia. In an increasingly competitive digital retail environment, BI enables managers to transform raw data into actionable insights for informed decision-making. Using a qualitative approach, in-depth interviews were conducted with five informants, including managers and decision-makers from various digital retail companies. The findings reveal that BI enhances decision quality, provides operational efficiency, and supports proactive strategies by offering accurate, real-time information on customer behavior, market trends, and business performance. However, challenges such as system complexity, data integration issues, and limited analytical skills pose barriers to effective BI utilization. This study contributes to a deeper understanding of BI implementation in the Indonesian digital retail sector and offers practical insights for managers aiming to leverage BI for strategic advantage.

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1. INTRODUCTION

The rapid advancement of digital technologies has transformed the retail industry worldwide, including in Indonesia, shifting from traditional brick-and-mortar models to digital platforms that open opportunities for businesses to expand market reach, enhance customer experiences, and streamline operations. This transformation has also intensified competition, requiring companies to adapt quickly and base their strategies on timely and accurate information, where Business Intelligence (BI) emerges as a critical tool for managerial decision-making and

organizational performance improvement. By integrating digital technologies such as AI and IoT, BI supports data-driven decision-making and strategic planning, allowing retailers to provide personalized customer experiences through data analytics and AI that predict consumer behavior and preferences [1], [2]. In Indonesia, e-commerce platforms have effectively leveraged BI to enhance customer engagement and strengthen their contribution to the digital economy [3]. BI also enhances operational efficiency by optimizing supply chain management and logistics, which are vital for maintaining inventory stability and meeting

market demands [4], while digital integration improves efficiency in transaction processing and fulfillment services [5]. Moreover, the use of BI provides retailers with a competitive edge by enabling quick adaptation to market dynamics and consumer trends [2], as well as supporting strategic differentiation to avoid homogenization through market data analysis [4].

Business Intelligence (BI) refers to a collection of methodologies, processes, architectures, and technologies that transform raw data into meaningful and useful information for business purposes, enabling digital retail companies to analyze customer behavior, identify market trends, optimize supply chains, and develop strategies that enhance competitiveness. In Indonesia, where the digital retail market has rapidly expanded due to increased internet penetration and mobile commerce adoption, the integration of BI systems has become increasingly essential for survival and growth. BI systems transform raw data into actionable insights, supporting companies in maintaining their competitive edge within a fast-evolving market by providing structured and analyzable perspectives that facilitate informed decision-making processes through data warehousing and analytical tools [6], [7]. Furthermore, BI enhances business process optimization by eliminating bottlenecks, automating routine tasks, and introducing new levels of work organization and prioritization, thereby boosting efficiency and productivity in the retail sector [6]. Through advanced technologies such as ETL, data warehousing, and data mining, BI enables the collection, consolidation, and analysis of large volumes of data to generate data-driven insights that improve decision-making and help enterprises increase profits and market share [8]. Additionally, BI provides real-time access to complete business information in various formats—including reports, graphics, and dashboards—which strengthens strategic decision-making and guides the company's long-term direction [9].

Despite its potential, the implementation and effective use of Business

Intelligence (BI) in Indonesia's digital retail sector remain varied, as some companies have successfully integrated BI into their decision-making processes while others face significant challenges such as limited resources, lack of expertise, and data integration issues that hinder optimal utilization for strategic purposes. The effectiveness of BI implementation is influenced by key factors, including data quality and integration, where poor data management and weak infrastructure can severely restrict BI usage [10], [11]; organizational support and culture, which require fostering a data-driven mindset and strong executive sponsorship to overcome resistance to change and encourage adoption [10], [12]; technical infrastructure, as robust IT systems are essential for enabling real-time analytics and cloud-based solutions that improve agility and competitiveness [12]; and project management and strategy, since effective planning and management are critical for handling managerial challenges in BI adoption, as shown in large retailer case studies [13]. Among the common obstacles, resource limitations—such as high implementation costs and lack of skilled personnel—can be mitigated through agile project management approaches and investment in user training [10], [12], while the complexities of integrating BI systems with existing processes demand careful alignment of technical and managerial strategies to ensure successful implementation and sustainable usage.

This study aims to explore the use of Business Intelligence (BI) in supporting strategic decision-making within digital retail companies in Indonesia by adopting a qualitative design that provides deeper insights into the practical applications, benefits, and challenges experienced by managers, differing from previous studies that predominantly employ quantitative approaches to measure BI's impact. Through in-depth interviews with five informants, the research offers an empirical understanding of how BI contributes to strategy formulation, operational improvement, and competitive positioning in the Indonesian digital retail

industry. The significance of this study lies in its dual contribution to theory and practice: theoretically, it enriches the literature on BI adoption in emerging markets where organizational contexts, technological readiness, and managerial capabilities may differ from developed countries, while practically, it provides valuable guidance for managers and decision-makers in digital retail companies to optimize BI utilization for strategic advantage.

2. LITERATURE REVIEW

2.1 Business Intelligence in Organizations

Business Intelligence (BI) is a critical component for digital retail companies, transforming vast amounts of data into actionable insights that support strategic decision-making through technologies such as data warehousing, data mining, and online analytical processing (OLAP), which together provide a comprehensive view of operations. Data warehousing serves as a central repository for structured and unstructured data, enabling easy access and analysis [7], [14], while data mining extracts patterns to anticipate customer preferences and identify sales opportunities [15]. OLAP and reporting tools allow complex analytical queries and generate reports on sales and inventory [14], and dashboards provide real-time visualization of key performance indicators for swift managerial response [14]. Collectively, these components deliver major benefits, including enhanced decision-making for strategic planning and efficiency [14], [15], better customer understanding to improve satisfaction [15], greater operational efficiency through streamlined processes and supply chain optimization [14], and competitive advantage by enabling quick adaptation to market trends [16].

2.2 Strategic Decision Making

Strategic decision-making is vital for top-level managers as it defines long-term goals and actions to achieve organizational objectives, and in today's complex environment shaped by digital transformation and globalization, timely and

accurate information is essential. Business Intelligence (BI) supports this process by providing insights into past performance and predictive trends, enabling informed decisions in areas such as market expansion, pricing, product assortment, customer segmentation, and promotions. Strategic decisions require assessing risks, seizing opportunities, and aligning choices with long-term objectives, influenced by organizational culture, leadership style, and external factors, with models and frameworks guiding alternative evaluations [17]. These decisions are critical for navigating technological disruption and global competition [18], significantly affect organizational survival (Rau & Bromiley, 2012), and are often irreversible, shaping most organizational actions [19]. In this context, BI strengthens decision-making by delivering timely information for proactive strategies, while decision support systems enhance effectiveness by ensuring prompt access to essential data [20].

2.3 BI Adoption in Digital Retail

The adoption of Business Intelligence (BI) in Indonesian digital retail offers significant potential for enhancing strategic decision-making by integrating diverse data sources to provide a comprehensive view of business operations and consumer behavior, which is critical in the fast-evolving e-commerce and mobile commerce landscape. While BI delivers key benefits such as improved decision-making through actionable insights that enhance strategic alignment and operational efficiency [10], [21], better resource allocation and inventory management that increase revenue and refine customer segmentation [22], and stronger customer experience through integrated data that improves satisfaction and competitiveness [23], its implementation faces notable challenges. High costs and the need for skilled personnel present significant barriers for small and medium-sized retailers [10], [12], while issues of data quality and system integration remain critical for ensuring BI effectiveness [21], [22], and organizational resistance to change can

further hinder adoption and optimal utilization [22].

2.4 Conceptual Framework

Based on the literature, this study examines BI as a tool to support strategic decision making in digital retail companies. The conceptual framework emphasizes the relationship between BI implementation, managerial utilization, and strategic decision outcomes. The framework considers the benefits of BI in providing timely and accurate information, as well as the challenges and contextual factors influencing its effective use. By focusing on the perspectives of managers and decision-makers, this study aims to provide a nuanced understanding of how BI supports strategic decision making in the Indonesian digital retail context.

3. METHODS

This study employs a qualitative research design to explore the use of Business Intelligence (BI) in supporting strategic decision-making within digital retail companies in Indonesia. A qualitative approach is considered suitable because it allows for an in-depth understanding of complex phenomena, particularly how managers perceive, interpret, and utilize BI in their decision-making processes (Creswell & Poth, 2018). Unlike quantitative research, which emphasizes numerical measurement, qualitative research focuses on rich, descriptive data that reveal contextual and practical aspects of BI implementation. The study involves five informants selected through purposive sampling, a non-probability technique commonly applied in qualitative studies, chosen based on their roles as managers or decision-makers with direct experience in BI utilization. These include a Head of E-Commerce Operations at a leading Indonesian digital retailer, a Marketing Manager at a mid-sized online retail company, a Supply Chain Manager in a digital retail startup, a Business Analyst responsible for BI reporting in a digital retail company, and a General Manager overseeing strategy and planning. This selection ensures

a diverse range of perspectives from individuals directly involved in BI-supported strategic decision-making. Data were collected through semi-structured, in-depth interviews conducted either face-to-face or via online video conferencing, each lasting 45–60 minutes. Key questions explored included BI implementation, its role in strategic decisions, benefits, challenges, and examples of BI influencing strategic outcomes. All interviews were recorded with consent and fully transcribed for analysis.

The study employs thematic analysis to identify patterns, themes, and insights from the interview data (Braun & Clarke, 2006). The process began with familiarization, where interview transcripts were read and re-read to gain a deep understanding of the data, followed by coding, in which relevant segments related to BI use and strategic decision-making were labeled. These codes were then grouped into broader themes that captured the benefits, challenges, and practical applications of BI in digital retail. Finally, the themes were interpreted within the context of existing literature and research objectives to generate meaningful conclusions. This analytical procedure ensures that the findings not only reflect the lived experiences and perspectives of informants but also maintain academic rigor through systematic and transparent interpretation.

4. RESULTS AND DISCUSSION

4.1 Descriptive Overview of Informants

This study involved five informants from digital retail companies in Indonesia, all of whom hold strategic roles related to decision-making and the utilization of Business Intelligence (BI) systems. The informants were selected through purposive sampling to ensure they had direct experience in applying BI for managerial and strategic purposes. Table 1 summarizes their positions, years of experience, and company sizes: (1) Head of E-Commerce Operations with 10 years of experience in a large company, (2) Marketing Manager with 7 years of

experience in a medium-sized company, (3) Supply Chain Manager with 5 years of experience in a startup, (4) Business Analyst with 6 years of experience in a medium-sized company, and (5) General Manager for Strategy & Planning with 12 years of experience in a large company. Collectively, they represent diverse functions including strategic planning, operations, marketing, and data analysis, which allows for a comprehensive view of BI adoption in different organizational contexts. Their professional experience, ranging from 5 to 12 years, reflects both operational expertise and strategic insight into decision-making processes.

The diversity of company sizes—ranging from large corporations to medium-sized firms and start-ups—further enriches the study by highlighting how organizational scale shapes BI adoption and utilization. Informants from larger companies emphasized the advantage of having dedicated BI teams and sophisticated analytical tools, while those from smaller firms noted resource constraints and difficulties in fully leveraging BI systems. Despite these differences, all informants reported frequent use of BI systems in their daily work, particularly dashboards, reporting tools, and analytics platforms. BI was described as essential for monitoring sales performance, tracking customer behavior, forecasting demand, and informing strategic initiatives. This overview confirms that the selected informants are well-positioned to provide valuable insights into the role of BI in supporting strategic decision-making in Indonesian digital retail companies.

4.2 Key Themes from the Interviews

Thematic analysis of the interviews with five informants revealed several key themes regarding the use of Business Intelligence (BI) to support strategic decision making in Indonesian digital retail companies. These themes reflect both the benefits of BI implementation and the challenges faced by managers. The three main themes identified are: enhanced decision

quality, improved operational efficiency, and challenges in BI utilization.

4.2.1 Enhanced Decision Quality

All informants emphasized that BI significantly improves the quality of strategic decisions. By providing accurate, timely, and relevant data, BI allows managers to make informed choices about marketing strategies, product assortment, pricing, and market expansion. For example, the Head of E-Commerce Operations explained that BI dashboards offer real-time insights into customer purchasing patterns, enabling the company to anticipate demand and tailor promotions accordingly. Similarly, the Marketing Manager highlighted that predictive analytics within BI systems allows the company to forecast market trends and optimize marketing campaigns.

4.2.2 Improved Operational Efficiency

Informants reported that BI enhances operational efficiency by streamlining processes and reducing the time required for decision-making. The Supply Chain Manager noted that BI provides visibility into inventory levels and logistics performance, allowing the company to respond quickly to fluctuations in demand and supply. The Business Analyst added that automated BI reporting reduces the need for manual data collection, freeing managers to focus on strategic tasks rather than operational reporting.

This theme demonstrates that BI not only supports strategic decisions but also improves day-to-day management. The integration of data from multiple sources enables cross-functional coordination and minimizes inefficiencies, allowing companies to respond more quickly to market changes.

4.2.3 Challenges in BI Utilization

Despite its advantages, informants identified several challenges in implementing and effectively using BI. Common issues include data integration difficulties, lack of skilled personnel, high system complexity, and limited resources, particularly for smaller companies. The General Manager explained that while BI provides valuable insights, interpreting the data requires training and

experience, and not all team members have the necessary analytical skills. Start-ups and medium-sized companies often face budget constraints that limit the adoption of advanced BI tools, affecting the overall effectiveness of BI in decision-making.

4.3 Discussion

The findings of this study indicate that Business Intelligence (BI) plays a pivotal role in supporting strategic decision-making in Indonesian digital retail companies, with interviews revealing its contribution to enhanced decision quality, improved operational efficiency, and proactive strategic planning—aligning closely with prior literature. In terms of decision quality, BI systems enhance both speed and accuracy by delivering high-quality data and analytics, which are crucial for informed managerial decisions [10], [24]. The integration of BI further enables organizations to control and monitor decision bases, thereby improving decision quality when statistical and factual data are required [24]. With respect to operational efficiency, organizations using BI report significant gains through optimized resource allocation and improved customer satisfaction [10], while BI's capacity to process large volumes of business data at exponential speeds ensures agility and accuracy in volatile business environments [25].

Furthermore, BI strengthens proactive strategic planning by offering deeper insights into market trends and customer behavior, thereby enabling managers to formulate forward-looking strategies [10], [26]. The integration of AI with BI further amplifies this role by uncovering significant patterns and trends that inform strategic investments and stimulate innovation [27]. All informants emphasized that BI delivers accurate, timely, and relevant data, which reduces uncertainty and supports data-driven strategies. In the fast-paced digital retail environment, where customer preferences and market conditions change rapidly, BI allows companies to anticipate trends, optimize pricing, and design targeted marketing campaigns. Thus, BI is not only a tool for analyzing historical performance but

also a proactive instrument for shaping future strategies and sustaining competitiveness.

The study also shows that Business Intelligence (BI) contributes to operational efficiency by streamlining routine processes, automating reporting, and providing clear dashboards for performance monitoring. This finding is consistent with literature that emphasizes BI's role in integrating data across departments and improving organizational coordination. By reducing manual data collection and enabling faster access to insights, BI allows managers to shift their focus from repetitive operational tasks to higher-level strategic priorities. This dual impact—enhancing both strategic alignment and operational effectiveness—underscores the comprehensive value of BI in digital retail management. BI systems improve decision-making efficiency by providing timely insights [10], enhance operational effectiveness through better resource allocation and customer satisfaction [10], and support strategic alignment by offering deeper market and customer insights that strengthen competitive advantage [10].

However, the findings also highlight challenges in BI implementation, including system complexity that requires robust IT infrastructure and skilled personnel [12], data integration issues that demand seamless coordination across diverse sources [10], and resource limitations such as high implementation costs and financial constraints (Judijanto et al., 2024). Human resource barriers, particularly the lack of skilled personnel and resistance to organizational change, further complicate BI adoption [12]. These challenges align with prior studies on BI adoption, which stress technological, financial, and human factors as key barriers. Thus, while BI has strong potential to enhance decision-making and operational efficiency, organizations must overcome these obstacles through targeted training programs, investment in user-friendly systems, and the development of robust data management strategies to ensure effective and sustainable implementation. The study highlights the influence of

organizational context on BI effectiveness. Large companies with dedicated BI teams and sufficient resources are better positioned to fully leverage BI's benefits, whereas smaller and medium-sized companies often face constraints that limit its optimal use. This contextual factor underscores the need for adaptive BI strategies that account for company size, resource availability, and technical expertise.

5. CONCLUSION

The study demonstrates that Business Intelligence (BI) is a vital tool for enhancing strategic decision-making in Indonesian digital retail companies by providing timely, accurate, and relevant data that enables managers to make informed choices in areas

such as marketing, inventory, customer engagement, and market expansion, while also improving operational efficiency through streamlined reporting and quicker responses to dynamic market conditions. Nevertheless, challenges including system complexity, data integration difficulties, and the shortage of skilled personnel underscore the need to address organizational and technical barriers for successful BI adoption. Overall, BI functions as both a strategic and operational asset that supports informed decision-making and strengthens competitive advantage, with companies that invest in training, system usability, and robust data management being better positioned to leverage BI effectively and ensure that data-driven strategies contribute to long-term business success.

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