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Strategic Analysis of Information Technology Architecture With Pepprard and Ward Methods At PT. Bank XYZ

Reza Irsyadul Anam, Gerry Firmansyah, Nenden Siti Fatomah, Budi Tjahjono
Universitas Esa Unggul, Indonesia
E-mail: reza.irsyadul@gmail.com, gerry@esaunggul.ac.id, budi.tjahjono@esaunggul.ac.id

***Correspondence:** gerry@esaunggul.ac.id

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ABSTRACT
The rapid development of the digital era has placed Information Technology (IT) as a crucial element in the banking industry. PT. Bank XYZ aims to enhance its IT capabilities to achieve its business objectives and become one of Indonesia's top banks. In line with the regulatory requirements of POJK No. 11/POJK.03/2022, this research focuses on a strategic analysis of PT. Bank XYZ's IT architecture using the Pepprard and Ward methods, combined with Anita Cassidy's approach. The research analyzes the current conditions of the bank's IT architecture and external factors, employing PEST and Porter's Five Forces methods, followed by a SWOT analysis to identify strengths, weaknesses, opportunities, and threats. From this analysis, strategic recommendations are provided to support the bank's IT goals over a four-year period (2024-2028). The strategic plan consists of 19 key IT programs covering applications, data, and technology, aimed at enhancing customer experience, data quality, and infrastructure resilience. This roadmap will help PT. Bank XYZ improve its IT operations and align its technological advancements with its business objectives, positioning the bank for growth in the competitive banking sector. The research contributes practical insights into developing an IT strategy that complies with regulatory standards and supports long-term corporate goals.

Introduction

The banking industry has now entered the digital era where Information Technology has an important role for businesses. In order to realize the Bank's corporate goals and plans to advance its business and develop the information technology department to become one of the best banks in Indonesia, Bank xyz has made various efforts which are reflected in the Information Technology Performance Overview. As a continuation for Bank xyz to develop the Information Technology section and as compliance with POJK No. 11/POJK.03/2022, the Information Technology Strategic

Plan (RSTI) outlined in the Information Technology Capability Target (Ezizwita & Sukma, 2021).

This Strategic Analysis of Information Technology Architecture was created so that the Bank can achieve business objectives consisting of target capabilities in each field of information technology starting from (1) Applications, (2) Data, (3) Technology (Infrastructure and Security). This Information Technology Architecture Strategic Plan can be realized if the Bank develops IT capabilities in terms of Human Resources, Processes, and Technology (Fauzi et al., 2014). Based on these capability targets, a roadmap consisting of 19 programs can be formed that will be carried out in 2024 – 2028. The 19 programs are formed based on 84 initiatives from four fields of information technology that can be used as a guideline for the Bank in implementing the Information Technology Strategic Plan (Kristanto, 2015).

The research steps that will be carried out in this thesis are 3 (three), namely: to conduct an analysis on the architectural strategy of the current condition at PT. Bank xyz. To target application, data, and technology architecture capabilities with a focus on information technology development. To provide recommendations on the information technology architecture at PT. Bank xyz (Asemi & Jazi, 2010).

In order to achieve the goals outlined in the Information Technology Strategic Plan (RSTI), Bank XYZ must continuously enhance its Information Technology (IT) capabilities in alignment with evolving regulations and technological advancements. This necessitates an in-depth understanding of the current IT infrastructure, data management practices, and application deployment across the organization (Malik, 2005). A detailed assessment of the bank's existing IT architecture is essential to identify areas that need improvement or transformation to meet future demands, regulatory requirements, and business growth. The importance of building a scalable and secure IT framework is critical as the bank aims to position itself as one of the top financial institutions in Indonesia (Porter, 2008).

The next step in developing the IT strategy is to focus on the three critical pillars of IT architecture: applications, data, and technology. These pillars represent the foundation for digital transformation within the bank. Applications must be integrated, user-friendly, and designed to meet both customer needs and internal operational efficiencies (Rangkuti, 2015). Data management, on the other hand, should focus on accurate, secure, and timely access to information that supports decision-making processes. Technology infrastructure, including security protocols, must be robust enough to protect against cyber threats while being agile enough to support continuous innovation (Schwaber & Sutherland, 2017).

Human Resources (HR) plays a pivotal role in supporting the IT architecture strategy. Ensuring that the IT staff possess the right skills, certifications, and expertise is critical for successful implementation (Pangaribuan, 2021). As part of the bank's IT development roadmap, training and upskilling programs will be essential to empower the team to work with emerging technologies such as cloud computing, artificial intelligence (AI), and big data analytics. By building internal competencies, Bank XYZ can reduce its reliance on external vendors and improve its capacity to handle complex IT projects (Peppard, 2016).

The bank must also focus on enhancing its IT governance processes to ensure that the implementation of the IT Strategic Plan aligns with regulatory frameworks such as POJK No. 11/POJK.03/2022. Effective governance involves the establishment of policies and procedures that not only ensure compliance but also foster innovation and operational

efficiency (Ward & Peppard, 2002). A well-defined IT governance framework will guide the prioritization of IT projects, resource allocation, and risk management to ensure the strategic alignment of IT with the bank's overall business goals (Cassidy, 2016).

In conclusion, the development of a comprehensive IT architecture strategy for Bank XYZ is a key driver for digital transformation, improved operational efficiency, and regulatory compliance (Kaplan, 2019). By focusing on the enhancement of IT capabilities across applications, data, and technology, supported by a strong governance framework and skilled workforce, the bank can position itself as a leader in the Indonesian banking industry (Riku & Setyohadi, 2017). The roadmap of 19 programs derived from 84 IT initiatives will serve as a practical guide for achieving the desired transformation over the next five years, ensuring that Bank XYZ remains competitive and agile in the digital era (Englander & Wong, 2021).

The rapid advancement of the digital era has placed Information Technology (IT) as a critical component for businesses, especially in the banking sector. However, there is a gap in understanding how traditional banks like PT. Bank XYZ can strategically align their IT architecture with modern regulatory requirements and the ever-changing competitive landscape dominated by fintech companies. While many studies focus on IT architecture in general, few have examined its application specifically within the banking sector in Indonesia using comprehensive methods like Pepprard and Ward combined with regulatory compliance frameworks such as POJK No. 11/POJK.03/2022. This research aims to fill that gap by providing an in-depth analysis tailored to the unique challenges and opportunities faced by PT. Bank XYZ.

The urgency of this research stems from the increasing digitalization of the banking sector, where competition from fintech and digital banks is intensifying. PT. Bank XYZ must adapt its IT architecture to not only meet customer expectations for seamless digital services but also comply with stringent regulations like POJK No. 11/POJK.03/2022. Additionally, the COVID-19 pandemic has accelerated the shift towards digital banking, further highlighting the need for a robust and adaptable IT framework. Failure to address these challenges could result in operational inefficiencies, security risks, and a loss of market share to more technologically advanced competitors. Therefore, this research is crucial in guiding PT. Bank XYZ towards a future-proof IT strategy that supports its long-term business goals.

The novelty of this research lies in its integrated approach to IT strategic planning for PT. Bank XYZ. By combining the Pepprard and Ward methods with Anita Cassidy's framework, this study provides a unique perspective on how a traditional bank can transform its IT architecture in response to both regulatory requirements and market competition. Unlike previous studies that often focus on isolated aspects of IT development, this research offers a holistic strategy that encompasses applications, data, and technology infrastructure. It also introduces a four-year roadmap consisting of 19 key programs designed to enhance customer experience, data quality, and infrastructure resilience, positioning PT. Bank XYZ as a leader in the Indonesian banking industry.

The primary objective of this research is to conduct a strategic analysis of PT. Bank XYZ's IT architecture, providing actionable recommendations to align its IT capabilities with business objectives and regulatory compliance. Specifically, the study aims to: (1) Analyze the current state of the bank's IT infrastructure using PEST and Porter's Five Forces methods; (2) Identify strengths, weaknesses, opportunities, and threats through a comprehensive SWOT analysis; and (3) Develop a strategic IT roadmap for the 2024-2028 period, outlining 19 key programs that address application development, data

management, and technology infrastructure. This roadmap is intended to guide PT. Bank XYZ in achieving operational excellence and sustaining competitive advantage in the evolving digital landscape.

The contribution of the research is to provide recommendations to banks in the appropriate information technology strategy architecture in compliance with POJK No. 11/POJK.03/2022 and the principles of the IT management framework that have been recognized and established on a bank-wide basis, so that they can adjust to the strategic architecture of the information technology architecture in the future.

Research Methods

The object of the research to be carried out is an analysis of the Bank's strategic direction which is carried out by understanding the Bank's Vision and Mission, as well as the corporate plan that has been prepared for 2024 – 2028, as well as the direction and aspirations of the Bank's key management and several internal IT stakeholders, in order to help sharpen the priority focus of the IT Strategic Plan for 2024 – 2028.

Assist in the preparation of reporting on POJK regulation No. 11/POJK.03/2022 as compliance with information technology capability targets and information technology roadmaps for 2024 – 2028.

Results and Discussions

Understanding Current Conditions

This stage presents an analysis of the condition of SI/IT at PT Bank XYZ that is currently being faced. Various analyses were conducted to understand how the bank operates in the face of internal and external business challenges. The methods used in this analysis include the PEST analysis and Porter's Five Forces, which are then combined into a SWOT analysis. From this analysis, relevant strategies are formulated to improve the bank's SI/IT performance and support the company's vision.

Business External Analysis

PT Bank XYZ as a financial institution is faced with various external factors that affect its operations, including changes in the political, economic, social, and technological environment. In carrying out its vision to help millions of people achieve well-being, the bank faces challenges involving personal data regulation, electronic payment systems, and competition from digital banks and fintechs. The PEST and Porter's Five Forces analysis methods were used to delve into these external factors and identify opportunities and threats that exist for PT Bank XYZ.

PEST Analysis

The PEST analysis assesses the impact of political, economic, social, and technological conditions on banks. Politically, regulations related to personal data protection, payment systems, and cybersecurity are important factors that need to be complied with. Economic conditions show a change in customer behavior that prefers digital services as a result of the COVID-19 pandemic, which has led to an increase in the use of e-channels and a decrease in branch visits. Social conditions emphasize the millennial generation which is the main driver of the banking market. Technology also plays an important role with the increasing digitalization and use of cloud-based banking applications.

Porter's Five Forces Analysis

Through Porter's Five Forces, PT Bank XYZ is analyzed from five main aspects of competition, namely competition between companies, the threat of new entrants, the

power of suppliers, the power of buyers, and the threat of substitute products. In competition with other banks, PT Bank XYZ faces challenges from digital banks and fintech, which are increasingly popular especially among the younger generation. The power of buyers is increasingly pressuring banks to provide fast and accessible digital services. Meanwhile, banks' reliance on external technology suppliers and experts creates operational risks that need to be properly managed.

SI/IT External Analysis

PT Bank XYZ's external SI/IT analysis identifies the impact of the bank's regulations, business aspirations, and strategic needs on technology development. In this case, the three main areas identified for IT development include application architecture, data architecture, and technology architecture. In the application architecture, banks need to improve the system to simplify the customer experience and integrate services. On the data architecture side, the focus is on improving data quality and analytics capabilities. Meanwhile, in technology architecture, the main challenge is to build a more flexible and secure infrastructure to support more efficient and scalable bank operations.

Internal Business Analysis

In running its business, PT Bank XYZ has three main aspirations: to become one of the top five banks in Indonesia, to be a leader in the field of payments, and to become a unique hybrid bank with global capabilities. The bank has five main business lines which include Enterprise Banking, SME Banking, Consumer Banking, Sharia Banking, and Adira. Each of these business lines is supported by specific strategies to improve the bank's operational performance and future growth. In addition, value chain analysis reveals the main and supporting activities that are important in the bank's business processes, such as operations, marketing, services, and HR, IT, and infrastructure management.

SWOT Analysis

From the SWOT analysis, PT Bank XYZ has several strengths, including a wide business line and a trusted credit ecosystem. However, the weaknesses identified include the limitations of IT human resources as well as the competitive challenges of digital banks and fintech. Opportunities that banks can take advantage of include the development of digital technology and the exploration of new markets. On the other hand, the threats faced include changing government policies and declining public purchasing power due to the economic situation.

SI/IT Internal Analysis

An internal SI/IT analysis involves identifying the technology used and the capabilities that need to be developed by PT Bank XYZ to ensure that the bank's IT strategy is aligned with its business objectives. The three main areas of focus are application architecture, data architecture, and technology architecture. In terms of application architecture, PT Bank XYZ needed to improve the customer experience with better integration and responsive service development. On the data architecture side, banks must strengthen data management and improve analytics capabilities to provide sharper business insights. Meanwhile, in technology architecture, improving IT security and strengthening infrastructure are priorities to support more efficient business growth and operations.

Formulation of Information System Strategy

In developing an information system strategy, PT Bank XYZ divides it into six main themes, namely: (1) System Orchestration, which aims to simplify coordination between systems; (2) Agile DevOps, which allows the implementation of adaptive ways

of working; (3) Capability Optimization, which focuses on developing technology, process, and human resource capabilities; (4) Governed Collaboration, which ensures targeted collaboration between business and IT; (5) Data Insight, which produces actionable insights based on data; and (6) Security and Resilience, which protects bank assets from cyber threats and ensures system resilience. These six themes translate into 23 key capabilities that need to be achieved in terms of human resources, processes, and technology.

Recommendation Stage

The final stage of the IT strategic plan is the implementation of the SI/IT roadmap which includes the implementation of technology programs for four years, from 2024 to 2028. The first phase (2024-2025) focuses on modernizing existing systems, improving infrastructure resilience, and strengthening IT security. The second phase (2026-2027) focuses on developing analytics and data management capabilities to improve customer acquisition and retention. The third phase (2027-2028) focuses on improving operational efficiency and transforming the role of IT as a business catalyst. The implementation of each stage will be carried out through specific programs that support PT Bank XYZ's business growth and digital transformation.

Conclusion

Based on the research entitled "Strategic Analysis of Information Technology Architecture Using the Pepprard and Ward Methods at PT. XYZ Bank," the author concludes that the use of the Ward and Peppard methods combined with the Anita Cassidy method is able to provide a comprehensive proposal for Information Systems (SI) and Information Technology (IT) strategies, thus supporting the achievement of PT. XYZ Bank. External and internal analysis conducted shows that PT. Bank XYZ is in the first quadrant of the SWOT Matrix, which means it supports an aggressive (SO) strategy, where internal forces are used to capitalize on external opportunities. In addition, the results of the formulation and capabilities of future applications consist of 19 programs designed to meet business needs and support corporate plans. The strategic planning produced in this study will be carried out within a period of four years, with the implementation priority of each program carried out in accordance with the summary of the strategic program that has been determined.

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