



Information Systems Strategic Planning Using the TOGAF ADM Framework at PT Columbia

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Abstract

PT Columbia Palembang is a business entity operating in the electronics retail sector, utilizing both cash and credit sales systems. Currently, the company faces significant operational challenges regarding its creditworthiness assessment process, which is still conducted manually; this results in decision-making cycle latency averaging two days. This situation hinders the company's competitiveness in a dynamic market. This study aims to design an enterprise architecture blueprint using The Open Group Architecture Framework Architecture Development Method (TOGAF ADM). The research findings encompass strategic planning that integrates business, data, application, and technology architectures, serving as the foundation for developing a credit-granting Decision Support System (DSS). Implementing this architecture is expected to significantly enhance operational efficiency and the accuracy of credit decisions.

Keyword: Strategic Planning, Business Processes, Architecture, TOGAF ADM.

1. Introduction

In the modern business ecosystem, aligning business strategy with Information Systems and Information Technology (IS/IT) strategy is an absolute prerequisite for achieving sustainable competitive advantage (Bhatt & Grover, 2005; Doherty & Terry, 2009; Reynolds & Yetton, 2015). An organization's inability to synergize these two aspects often results in IS/IT investments that fail to deliver optimal added value for operational efficiency (Henningsson & Kettinger, 2016; Kude et al., 2018).

PT Columbia Palembang, located on Jl. Kolonel Atmo, Palembang, is a key player in the local electronics retail industry. The company's service advantage relies on the convenience of credit transactions. However, problem identification reveals critical bottlenecks in the consumer creditworthiness verification process. The current process is conventional and manual, requiring an average of two days to process a single credit application. This latency in the decision-making cycle not only diminishes customer satisfaction but also creates inefficiencies that strain company resources.

This research aims to address these challenges by designing an enterprise architecture using the TOGAF ADM methodology. The primary focus is to produce a strategic plan document and a comprehensive architecture blueprint (Sardjono & Vijayanto, 2021; Sidiq & Sumitra, 2019), specifically to facilitate the development of an automated and precise Decision Support System (DSS) for granting product credit.

2. Literature Review

2.1 The Concept of Information Systems Strategic Planning

- **Strategic Planning**
Bryson (2012) defines strategic planning as a disciplined effort aimed at producing fundamental decisions and actions to shape and guide an organization in understanding its identity (what an organization is), its activities (what it does), and the rationale behind those activities (why it does it). The success of this planning is measured by the level of stakeholder satisfaction (Zhang et al., 2009).
- **Information Systems Planning**
Drawing on the work of Segars & Grover (1999), information systems planning is a crucial organizational activity involving the identification and determination of information system portfolio requirements for the next three to five years; these requirements are then formalized into a strategic development plan document to enhance organizational operational efficiency.
- **Information Systems Strategy**
According to Chen et al. (2010), strategy represents the overall direction an organization takes to achieve its mission effectively. Information systems strategy serves to identify information needs that support the organization's overarching business strategy, focusing primarily on answering the question: "What should the organization do with this technology".

2.2 SWOT and Gap Analysis

- **SWOT Analysis**
An assessment of the organization's internal and external environments is conducted using SWOT analysis to identify internal Strengths and Weaknesses, as well as external Opportunities and Threats (Abubakar & Bello, 2013; Akinyemi et al., 2020). Quantitative measurement using a SWOT matrix diagram categorizes the organization's strategic position into four quadrants. Quadrant I represents a highly favorable growth scenario where the organization possesses the internal strengths to aggressively capitalize on external opportunities, whereas Quadrant IV represents a vulnerable situation characterized by the organization facing multiple external threats alongside internal weaknesses.
- **Gap Analysis**
Based on the concept proposed by Westwood (2004), gap analysis is an analytical technique used to compare the current state (Existing/As-Is) with the ideal future state (Future/To-Be) (Xirogiannis & Glykas, 2007). This analysis helps bridge performance gaps across business operations, information systems, and technology, enabling the organization to achieve its strategic targets without necessitating changes to fundamental policies (Kamarudin, 2024; Wahyuningrum et al., 2023).

2.3. Enterprise Architecture and the TOGAF ADM Framework

- **The Open Group Architecture Framework (TOGAF)**
Hermawan Sumitra (2019) defines TOGAF as a widely accepted framework and method for designing, producing, evaluating, and maintaining enterprise architecture.



- **Architecture Development Method (ADM)**
TOGAF provides the ADM as a core methodology a cyclical and iterative process comprising nine main phases (Kotusev, 2018). These phases begin with the Preliminary Phase to establish architecture governance principles, followed by Phase A: Architecture Vision, Phase B: Business Architecture, Phase C: Information System Architecture (data and application architecture), Phase D: Technology Architecture, and finally Phase E: Opportunities and Solutions, which presents a draft solution portfolio and the results of a system gap analysis (Fawazzie et al., 2025).

2.4 Enterprise Architecture Planning Tools

- **Value Chain**
The value chain concept is a highly effective analytical tool for identifying the strengths and weaknesses of an organization's business functionality (Amini & Jahanbakhsh, 2023). According to Llorente et al. (2023), organizational activities within this model are mapped into two groups: primary activities—comprising inbound logistics, operations, outbound logistics, marketing/sales, and service—and support activities, which include firm infrastructure, human resource management, technology development, and procurement.
- **Flowcharts and DFDs**
Flowcharts are used—as noted by Jung et al. (2004)—to depict procedural algorithmic logic in a structured manner using standard symbols. Meanwhile, Data Flow Diagrams (DFDs)—based on Rosa (2013)—are employed to model data flow and system functional transformations hierarchically (ranging from the Context Diagram to detailed-level DFDs); however, it should be noted that DFDs are less suitable for object-oriented programming environments (Pertiwi & Linda, 2025).
- **Entity-Relationship Diagram (ERD)**
Drawing on the concepts of Bender et al. (2022), an ERD models persistent data storage structures, illustrating data objects (entities), attributes, and the logical relationships existing between entities within a database.

3. Method

This research was conducted using a systematic approach comprising the following stages:

1. **Data Collection Methods** - Three methods were employed, et:
 - a. **Observation:** Conducting in-depth, direct observation of business process flows and operational data governance at PT Columbia Palembang.
 - b. **Interviews:** Technical and managerial discussions with an authoritative source—Ms. Zelmi, the Head of HRD—to map functional requirements and organizational constraints.
 - c. **Questionnaires:** Data collection via a census sample (surveying the entire population) of 45 PT Columbia employees to obtain valid primary data serving as the basis for SWOT analysis (Karim & Andryana, 2025; Puspitasari, 2019).
2. **Analysis Method:** The analysis utilized the TOGAF ADM framework (Anindita & Huda, 2025; Fawazzie et al., 2025), specifically focusing on the following phases:
 - **Preliminary Phase:** Architecture initiation and determination of fundamental principles.
 - **Phase A: Architecture Vision:** Defining the architecture vision and scope.
 - **Phase B: Business Architecture:** Modeling target business processes.
 - **Phase C: Information System Architecture:** Designing data and application architectures.
 - **Phase D: Technology Architecture:** Specifying supporting technology infrastructure.
 - **Phase E: Opportunities and Solutions:** Identifying implementation opportunities and conducting a gap analysis.

4. Result and Discussion

4.1. Organizational Strategic Analysis (SWOT)

Based on the evaluation of questionnaires from 45 respondents (see Table 1), the company's strategic profile is defined as follows:

1. Strengths
A clear organizational structure, full management support for information system development, and a business strategy with a proven track record.
2. Weaknesses
Lack of data integration across business units, extreme reliance on manual verification, and high latency in processing information for decision-making.
3. Opportunities
Availability of information technology enabling service automation, alongside the digitalization trend in the electronics retail sector.
4. Threats
Intense competition from similar rivals that have adopted cutting-edge information systems to accelerate service cycles.

Table 1. SWOT Analysis Results

	Supporting Factors	Rating	Weight	Rating	Score
1. Strength					
Str_1	Employee recruitment process with strict terms and conditions	4	0.21	3	0.63
Str_2	The company maintains good customer relations	3	0.16	2	0.48
Str_3	The company utilizes a user-friendly information system	4	0.21	3	0.63
Str_4	The company effectively manages materials and inventory	4	0.21	3	0.63
Str_5	The company has its own product label	4	0.21	3	0.63
	Total Strength	19	1	14	3
2. Weakness					
Wea_1	Company vision and mission not yet fully realized	3	0.15	2	0.45
Wea_2	Obstacles in implementing the company's vision and mission	4	0.2	2	0.4
Wea_3	Obstacles in conducting business activities	4	0.2	2	0.4
Wea_4	Obstacles in the customer credit process	3	0.15	3	0.45
Wea_5	Absence of an application for the credit process	3	0.15	3	0.45
Wea_6	Slow company network connection	3	0.15	3	0.45
	Total Weakness	20	1	14	2.6
3. Opportunities					
Opp_1	The company continuously innovates to deliver superior products.	4	0.2	3	0.6
Opp_2	The company offers affordable prices.	4	0.2	3	0.6
Opp_3	The company maintains strong partnerships with	4	0.2	3	0.6



	other entities (such as insurance companies, banks, etc.).				
Opp_4	An application is required for the credit process.	4	0.2	3	0.6
Opp_5	The company continuously upgrades its infrastructure (servers, networks, databases).	4	0.2	3	0.6
Total Opportunities		20	1	15	3
4. Threat					
Thr_1	Emergence of companies in the same sector offering better service	4	0.2	4	0.8
Thr_2	High level of consumer bargaining power	4	0.2	3	0.6
Thr_3	Frequent fluctuations in interest rates	4	0.2	3	0.6
Thr_4	Data processing not yet well-integrated within the information system	4	0.2	3	0.6
Thr_5	Lack of information system security	4	0.2	2	0.4
Total Threat		20	1	10	2.8

4.2. Preliminary Phase

This initiation phase establishes the operational foundation for the architecture, which is outlined in the Principles Catalog (see Table 2) as follows:

Table 2. Architectural Operational Design

Principles	Statement	Rationale	Principles
Business	Prioritizing credit cycle efficiency.	Reducing decision latency to increase sales volume.	Business
Data	Integrated and accurate data assets.	A valid and consistent basis for decision-making.	Data
Applications	Implementation of an intuitive User Interface (UI).	Minimizing operational training time and input errors.	Applications
Technology	Scalable and stable infrastructure.	Supporting long-term system development and service availability.	Technology

Context identification using the 5W+1H method designates a professional expert as the architectural designer, with the HR Department serving as the primary stakeholder. The project is located on Jl. Kolonel Atmo, Palembang, and aims primarily to transform credit service efficiency through the implementation of the TOGAF ADM methodology.

4.3. Architecture Vision

- The architecture vision is mapped using a Value Chain diagram to align IT with the company's value-creating activities:
- Design of Primary Activities, comprising Inbound Logistics (receipt of electronic products), Operations (transaction data processing), Outbound Logistics (delivery of goods to consumers), Marketing & Sales (promotional strategies), and Service (after-sales support).

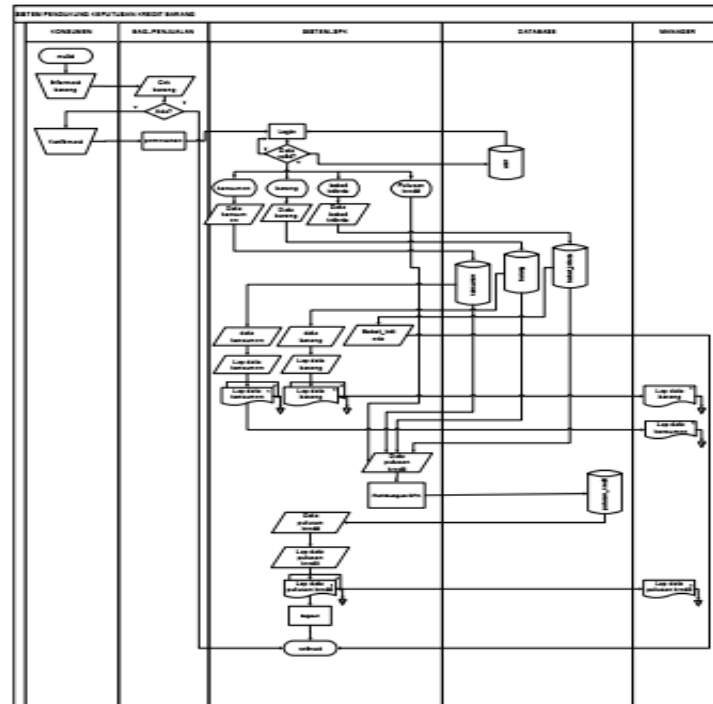


Figure 1. Flowchart Design of the to System-Be

- Design of support activities, comprising: corporate infrastructure, HR management (recruitment and payroll), technology development (systems R&D), and procurement (supplier management).

4.4. Business Architecture

A comparison between the current business model design (As-Is) and the proposed business model design (To-Be) reveals a fundamental transition in business processes (see Figure 1), specifically:

- **As-Is Model**
The credit verification workflow relies on the subjective review of physical documents by HR or credit staff, involving a two-day waiting period.
- **To-Be Model**

Implementation of an automated workflow. Credit eligibility decisions no longer rely on manual intuition; instead, they utilize algorithms based on objectively predetermined criteria and weightings, enabling instant and accurate decision outcomes.

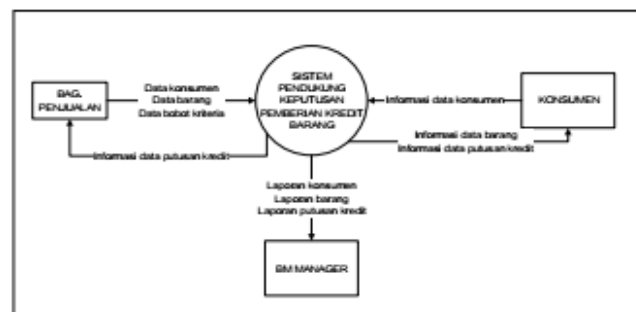


Figure 2. Context-Level Data Flow Diagram Design



4.5. Information System Architecture

This architectural design details the information flow structure and data integration, specifically:

1. Data Flow Diagram (DFD)
 - a. Context Diagram: Defines the interactions between external entities (Admin, Manager, Consumer) and the main system (see Figure 2).
 - b. DFD Level 1: Breaks the system down into major processes: data processing, decision calculation, and reporting (see Figure 3).
 - c. DFD Level 2: Comprises five core processes: (1.0) Consumer Data Processing, (2.0) Item Data Processing, (3.0) Criterion Weight Data Processing, (4.0) Credit Decision Data Processing, and (5.0) Reporting.

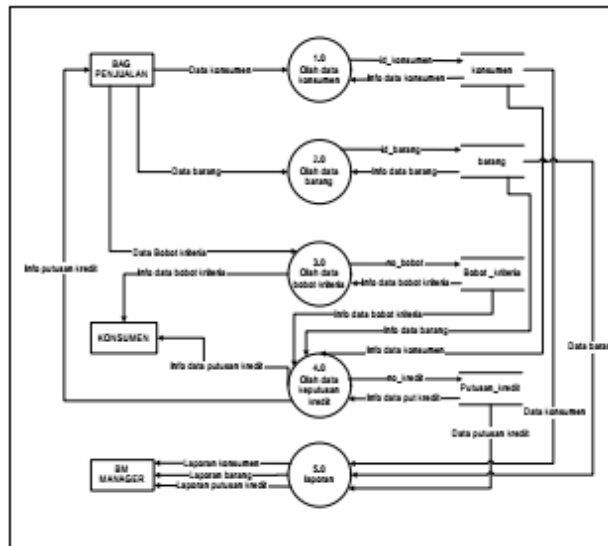


Figure 3. Level One Data Flow Diagram Design

2. Entity Relationship Diagram (ERD)

The database structure is designed through the integration of key entities—Consumer, Item, Criteria, Weight, and Decision—to ensure data integrity within the Decision Support System (see Figure 4).

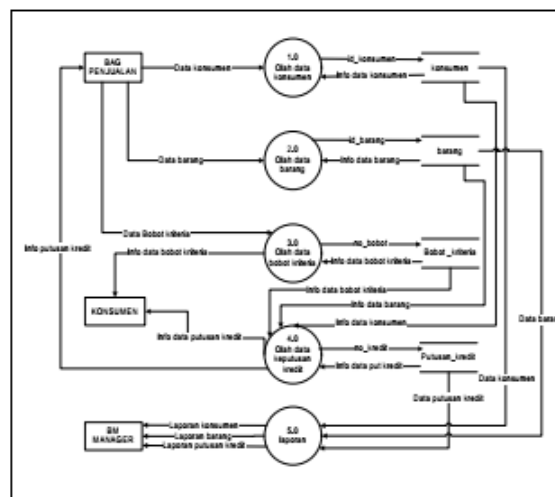


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4.6. Technology Architecture & Opportunities

The minimum infrastructure design requirements for this study consist of:

- Software: Windows 7 operating system, XAMPP as the local server, Adobe Dreamweaver for front-end development, and MySQL as the database management system.
- Hardware: An industry-standard processor, a minimum of 4GB of RAM, and a 500GB hard disk to ensure application performance.

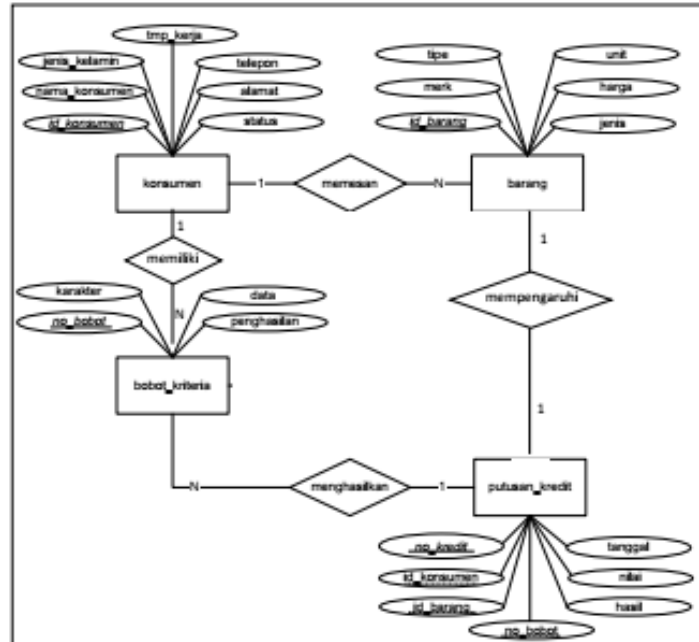


Figure 4. Entity Relationship Diagram Design

Analysis reveals a significant gap in the credit verification business function, which currently remains manual and fragmented. The target state is an integrated, automated system supported by a centralized database. The proposed mitigation strategy involves developing a Decision Support System (DSS) application that utilizes standardized criteria to bridge this efficiency gap.

In practical terms, this information systems strategic planning—conducted using the TOGAF ADM framework—provides management at PT Columbia Palembang with clear direction and a concrete blueprint for digital transformation. The resulting blueprint offers an immediate operational solution to streamline the credit eligibility analysis process; it transforms a workflow that previously took two days—due to manual surveys and managerial approval bureaucracy—into an integrated, automated process driven by the proposed DSS. Implementing this business and information system architecture enables the sales and HR departments to boost employee efficiency, minimize consumer data entry errors, and significantly accelerate credit transaction decision-making. This approach not only optimizes the internal productivity of



the 45 active employees at the branch office but also enhances consumer satisfaction and loyalty by delivering credit services that are far faster, more transparent, and more responsive.

5. Conclusion

This research has successfully produced a TOGAF ADM-based enterprise architecture blueprint aligned with the strategic needs of PT Columbia Palembang. This planning document provides a robust framework for transforming the credit verification business process from a slow, manual method into an automated system. Through comprehensive architectural mapping, the company now possesses the technical foundation to develop a Decision Support System (DSS) capable of reducing operational latency.

This enterprise architecture study has several operational and methodological limitations that should be noted. First, the scope of TOGAF ADM modeling in this strategic planning draft is limited to four primary domains—business, data, application, and technology architectures—and extends only as far as the "Opportunities and Solutions" phase, without addressing architecture governance implementation (such as Migration Planning or Architecture Change Management). Second, data collection and qualitative SWOT analysis relied heavily on the subjective perceptions of a limited internal population—specifically 45 PT Columbia Palembang employees during the 2017 observation period; consequently, the modeling does not fully account for recent dynamics in the technology market or interest rate fluctuations.

Given these identified limitations, future research should extend the TOGAF ADM process to encompass the full implementation governance phase, thereby facilitating the planning of physical migration and system integration in the field. Future researchers are strongly encouraged to implement the proposed Decision Support System (DSS) for physical credit-based goods using iterative software development methodologies, such as Prototyping or Agile. Furthermore, follow-up studies could integrate multi-criteria decision-making algorithms—such as the Analytic Hierarchy Process (AHP) or Simple Additive Weighting (SAW)—to validate the reliability of the designed qualitative credit criteria weightings, ensuring the resulting system can flexibly adapt to future credit default risks.

Acknowledgments

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