Designing Enterprise Architecture at Sonic Advertising Company Using TOGAF Framework

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Abstract

In the contemporary landscape of intense business competition, effective advertising is paramount for the successful introduction of products. This study delves into the realm of Sonic Advertising, a prominent advertising agency situated in Purwokerto, with a specific focus on its print media advertising services. Despite the prevalence of the information technology era, Sonic Advertising has not fully embraced enterprise architecture, persisting with a reliance on manual processes. The research employs the TOGAF (The Open Group Architecture Framework) framework as a comprehensive tool to scrutinize and model the business processes within Sonic Advertising. The primary aim is to assess the company's current utilization of information technology and provide strategic guidance for the implementation of enterprise architecture. By doing so, the study aspires to contribute insights that can significantly enhance operational efficiency, positioning Sonic Advertising competitively in the dynamic business landscape. As the research unfolds, it seeks to shed light on the potential benefits and challenges associated with adopting enterprise architecture, ultimately offering valuable recommendations for navigating the evolving advertising landscape.

Keywords: Advertising, Sonic Advertising, TOGAF Framework, Enterprise Architecture

1. Introduction

Advertising will never be idle, given its function in introducing products with effective and efficient utility. The variety of products and services continues to expand, and each year sees the establishment of numerous companies with their flagship products. With more competitors, the competition intensifies, necessitating advertising strategies and concepts that can capture consumer interest. In today's advertising world, there is a growing need for advertising agencies with quality and professionalism to ensure that the advertisements they present to the public are precisely targeted [1][2].

The existence of an agency is closely tied to its clients, who are crucial in the advertising industry. Client revenue and loyalty are the primary goals for advancing and surviving in the competitive world of business. The communication strategy employed is crucial in retaining clients amid business competition from other competitors vying for client/customer trust. Advertising companies that are part of the Indonesian Advertising Companies Association (PPPI) are actively involved in the advertising industry. Agencies or companies like these are sought after by consumers to promote the products and services they offer. Competition among advertising agencies will always exist and increase year by year, with this escalation aimed at maintaining the existence of their advertising agencies [3][4].

Sonic Advertising, operating in the field of print media advertising services, is an advertising agency located in Purwokerto. It emerged due to market needs related to advertising and construction. The company's processes, starting from finance, ordering, marketing, sales, and promotion, have not fully embraced enterprise architecture to support its operations, as data handling is still mostly done manually. Therefore, the importance of modeling in this research is to determine the extent to which the company utilizes information technology in its activities. To support the implementation of enterprise architecture in this company, analysis and modeling are performed using the TOGAF framework [5][6].

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For the next step in studying fault spread and recovery strategy, the fault spread of the urban rail transit system is investigated. By simulating the fault-spreading process, relevant parameters of the system network after the fault spread can be obtained, and the fault spread law of the urban rail transit system can be derived from the changes in these parameters. Finally, an efficient post-fault recovery scheme is proposed to quickly recover the system after the fault spread using reasonable and efficient recovery methods.

The research presentation is structured as follows: Section 2 introduces the basic methods of the simulation system, Section 3 displays the simulation system implementation and analysis, and Section 4 concludes the paper and suggests future work.

2. Literature Review

2.1. Information System
An Information System encompasses a cohesive ensemble of interconnected components, including hardware, software, brainware, procedures, and rules. These elements are strategically organized and integrated to facilitate the seamless processing of raw data and facts. The primary objective is to transform this processed information into a valuable and actionable form, empowering organizations to effectively address and resolve challenges. By harmonizing the interplay between technological infrastructure, human expertise, and established protocols, Information Systems play a pivotal role in not only managing data but also in harnessing it to make informed decisions and optimize operational efficiency within an organization [7].

2.2. IT Concept
IT (Information and Technology) is an unofficial acronym in the Indonesian language. It serves as a comprehensive term for technology that aids humans in the processes of creating, modifying, storing, communicating, and/or disseminating information [8][9]. In the current era of globalization, the role of IT has become increasingly crucial as the backbone of digital transformation, playing a key role in connecting and advancing societies, businesses, and the public sector. With ongoing innovations in the field of IT, we witness new breakthroughs that reshape the way we interact, work, and access knowledge.

2.3. Strategic Planning
Planning is a process that involves determining the goals and objectives of an organization, developing comprehensive strategies to achieve the set goals, and creating a comprehensive plan hierarchy to integrate and coordinate activities [10].

Strategy can be defined as a set of integrated actions that serve as a tool to enhance the long-term success and strength of a company in achieving competitive advantage. Strategic planning is a business management activity aimed at ensuring that the company and all stakeholders involved work together to achieve the same business goals [11].

2.4. Enterprise Architecture
Enterprise architecture is a way to organize the elements of an enterprise information system, which can be a set of models and relationships between enterprise elements used in planning, designing, and implementing an enterprise's structure, business processes, information systems, and related infrastructure. Enterprise architecture is significant for an organization because one of its outcomes is the alignment between information technology and business needs. Some benefits of good enterprise architecture include more efficient IT operations, profitable investments, reduced risks of deviations from rules, faster and simpler operations, and more efficient business operations [12][13].

In planning and designing an enterprise architecture, a framework is needed. A framework is a blueprint that explains how information technology and information management elements work together as a whole. The blueprint serves as a guide for decision-makers in designing, planning, measuring, and monitoring the use of information technology in enterprise business processes. One framework used in planning and designing enterprise information system architecture is TOGAF [14][15].
2.5. TOGAF

TOGAF was developed by The Open Group in 1995. Initially used by the United States Department of Defense, TOGAF has since been widely adopted in various fields such as banking, manufacturing, and education. TOGAF is used to develop enterprise architecture, providing detailed methods and tools for implementation. This sets it apart from other enterprise architecture frameworks, such as the Zachman framework [1-5].

One advantage of the TOGAF framework is its flexibility and open-source nature. TOGAF provides a detailed method for building, managing, and implementing enterprise architecture and information systems, known as the Architecture Development Method (ADM). ADM is a generic method containing a set of activities used in modeling the development of enterprise architecture. This method can also be used as a guide or tool for planning, designing, developing, and implementing information system architecture for an organization [16].

TOGAF ADM is a flexible method that can identify various modeling techniques used in planning. This adaptability allows the method to be adjusted to changes and needs during the design process. TOGAF ADM also states clear visions and principles on how to conduct enterprise architecture development. These principles are used as measures to assess the success of enterprise architecture development within an organization and can be explained as follows:

1) Enterprise Principles
   Architecture development is expected to support all parts of the organization, including units that require it.

2) Information Technology Principles
   Directing the consistency of information technology usage throughout the organization, including units that will use it.

3) Architecture Principles
   Designing system architecture based on the needs of business processes and how to implement them.

3. Basic Method

3.1. Conceptual Framework

3.1.1. Problem

There is currently no method for constructing information system architecture, and the architectural design is not yet available.
3.1.2. Approach
The approach to the problem in this research involves designing the architecture of a company's information system, using The Open Group Architecture Framework (TOGAF) as the framework and the Architecture Development Method (ADM) methodology to create the blueprint for the Corporate Information System [17].

3.1.3. Identification
The identification in this stage pertains to activities related to company operations, administration, financial management, and human resources (HR) [18][19].

3.1.4. Proposed
The proposal to be submitted in this research phase involves designing the architecture of a company's information system using The Open Group Architecture Framework (TOGAF).

3.1.5. Validation
The testing was conducted using the Expert Judgment method or expert consideration. This testing was carried out to obtain the desired results from the experts [20].

3.1.6. Result
This research produces a design plan for enterprise architecture that can be utilized in the development of company information systems using the TOGAF framework.

3.2. The TOGAF (The Open Group Architecture Framework) Methodology
The Method for Role of Enterprise Architecture (TOGAF) is a comprehensive and integrated methodology for developing and maintaining enterprise architecture. The Architecture Development Method (ADM) within TOGAF is a thorough process that consists of 9 basic stages, as depicted in the figure below:

1) Framework and Principles: Define the scope, vision, and map overall strategy.
2) Business Architecture: Describe the current business architecture, objectives, and identify gaps between them.
3) Information System Architecture: Develop target architectures for data and applications.
4) Technology Architecture: Create the overall target architecture to be implemented in future stages.
5) Opportunities and Solutions: Develop an overall strategy, determine what will be bought, built, or reused, and how to implement the described architecture in Phase D.
6) Migration Planning: Prioritize projects and develop a planned migration.
7) Implementation Governance: Determine preparations for implementation.
8) Architecture Change Management: Monitor the current system for change purposes and determine whether initiating a new cycle requires revisiting the preparation stage.

3.3. Company Profile
Sonic Advertising is a printing business located at Jl. Sunan Ampel No. 22 Pabuaran, Purwokerto, Indonesia, 53124.
3.4. Company Structure

3.5. Operational System
The sales recording system employed by Sonic Advertising operates as follows:

3.5.1. Order Recording Process
In this process, customers approach the administrative department. The administrative staff records customer data in the general ledger, and additionally records details of the ordered goods.

3.5.2. Production Process
This process involves the execution of orders. Once the administrative department records customer orders, the data is forwarded to the production department. The production department processes the order according to the records. Once the order is printed or completed, the production department hands it over to the administrative department.

3.5.3. Payment Process
The payment process takes place after the order has been processed. The administrative department creates a receipt form containing the item names, their respective prices, and details of the ordered items. This receipt is then given to the customer after payment. Two copies of the receipt are made, where the original is handed to the customer, and the copy is retained for archival purposes.

3.5.4. Report Generation Process
The administrative department carries out the report generation process based on customer and order data, and submits the reports to the management.

4. Results and Discussion

4.1. Result

4.1.1. Requirement Management
Requirement Management aims to identify organizational needs that are aligned with the requirement data in the ADM phase. Stages in requirement management include: Identifying the core business of the organization, Identifying organizational issues, Performance Analysis, Information Analysis, Economic Analysis, Security Analysis, Efficiency Analysis, Service Analysis.

4.1.2. Preliminary
In the organizational structure of a company, it can indicate which parts represent what can be handled by the company. Thus, the determination of the organizational structure will be crucial in the business modeling step. Therefore, the
main functional areas can be depicted based on the value chain concept in the diagram below, which can generally be grouped into primary and support activities. Primary activities consist of: Inbound Logistics, Operations, Outbound Logistics, Marketing & Sales, Service. Support activities include: Firm Infrastructure such as administration and finance, sonic advertising, Human Resource Management, Technology Development, Procurement.

4.1.3. Architecture Vision

The vision of this enterprise architecture modeling is to: Create enterprise system architecture planning that aligns with the needs of end-users and business requirements at Sonic Advertising, Develop an integrated system design that is expected to be integrated with other systems that are yet to be built, Specifically, with the existence of information systems built based on enterprise architecture, technically, the concept in this enterprise architecture is web-based. Basically, the system prioritizes the use of softcopy documents (paperless).

4.2. Business Architecture.

![Figure 1. BPMN Administration](image1)

![Figure 2. Financial BPMN](image2)
Figure 3. BPMN Recruitment

Figure 4. Payroll BPMN

Figure 5. BPMN of Down Payment Money Reception
Figure 6. BPMN Product Design

Figure 7. BPMN Raw Materials

Figure 8. BPMN Product Manufacturing
Figure 9. BPMN Digital Printing

Figure 10. BPMN Neon Box

Figure 11. Raised Letter BPMN

Figure 12. BPMN Photo Product

Figure 13. BPMN Paying the Bill in Full
Figure 14. BPMN Marketing & Sales

Figure 15. BPMN Services
4.2.1. Information system architecture

![Data Entity/Business Function Matrix](image)

**Figure 16. Data Entity/Business Function Matrix**

4.2.2. Technology architecture

Computer System and Network Model, Technology Architecture Requirement, Technology Architecture Catalog, Environment Diagram Baseline Recommendation

4.2.3. Opportunities and Solutions Phase

Information System GAP Analysis, Technology Architecture GAP Analysis

5. Conclusion

The main business modeling depicted in the form of a value chain has its core activities, namely Raw Material Inventory, Product/Service Manufacturing, Marketing, Financial Management, Human Resource Management, Reporting and Data Management. BPMN serves to provide a clear view of the process from start to finish, thus helping to create a visual pathway that bridges gaps and illustrates the sequence of business activities needed to transition from the end of one process to another. In Sonic Advertising, there is BPMN Sonic Advertising, Administration, Finance, Recruitment, Payroll, Down Payment Receipt, Product Design, Raw Materials, Product Manufacturing, Digital Printing, Neon Box, Raised Lettering, Product Photos, Full Bill Payment, Marketing & Sales, and Services. Information architecture in Sonic Advertising can assist users in finding the needed information more easily and quickly. The depiction of application architecture in this company includes various features, both for users and administrators. These features aim to facilitate users or administrators in using the application according to the intended purpose and desired needs.

6. Declarations

6.1. Author Contributions


6.2. Data Availability Statement

The data presented in this study are available on request from the corresponding author.

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The authors received no financial support for the research, authorship, and/or publication of this article.
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Not applicable.

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The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper

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