Enterprise Architecture and Business Requirement Modeling Using the Zachman Framework

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ARTICLE INFO	ABSTRACT
	Zachman frameworks are frameworks created to get enterprise-wide architectures. Zachman's framework is simple, and logical in nature that can help manage the information infrastructure of an enterprise. Although simple, Zachman frameworks can help align IT and business needs. PT. Bhakti Karya Cemerlang is a business that offers staff outsourcing services. Cleaning services, production operators, secretaries, clerical employees, sales promotion girls, maintenance workers, drivers and receptionists are some of the outsourcing services provided. Until July 2017, PT. Bhakti Karya Cemerlang has a total of 700 employees. Based on the requirements of partner companies, PT. Bhakti Karya Cemerlang places people. Therefore, the number of employees assigned to each partner company is unique. Office for PT. Bhakti Karya Cemerlang can be found in Tangerang and Karawang. This section is supported by a literature review that serves as a support for the research concept. Authors must provide a review of primary and recent literature (references to journal articles and conference proceedings). Research is not limited to theory, but is based on empirical evidence. Enrich this introductory section through the efforts of other stakeholders.

1. INTRODUCTION

In today's digital era, the need for a precise and reliable information system is crucial for the survival and competitiveness of the company. Companies are required to be able to respond quickly to market dynamics through data-based decision making and structured information. For this reason, an accurate and systematic process of determining business needs is needed at every stage of information system development. One approach that can be used in defining and mapping these business requirements is the Zachman Framework. This framework has been widely recognized as an effective conceptual tool in designing a comprehensive enterprise architecture.

Zachman Framework is a logical framework designed to assist organizations in managing the complexity of information systems through mapping various perspectives of enterprise architecture. This framework is neutral, simple, yet powerful enough to align the technical aspects of information systems with real business needs. The advantages of the Zachman Framework include its ability to serve as a neutral platform across departments, a powerful planning tool, and a comprehensive conceptual structure that can still be understood by non-technical stakeholders. In addition, the framework has proven to be effective in solving problems and assisting with large-scale information documentation.

This article will discuss the implementation of the Zachman Framework in the process of determining business requirements at PT Bhakti Karya Cemerlang, a company engaged in staff outsourcing services. The main focus of the discussion includes the steps of implementing the

framework, the challenges faced during the implementation process, and the impact felt after its implementation. With a systematic approach and based on an established framework, the company is expected to obtain an information system that is in line with its long-term business goals.

PT Bhakti Karya Cemerlang provides various outsourcing services such as cleaning staff, production operators, secretaries, administrative personnel, sales promotion girls, maintenance technicians, drivers, and receptionists. As of July 2017, the company has employed around 700 people whose placements are tailored to the needs of each partner company. These placements are unique as they depend on the individual requirements of each client. PT Bhakti Karya Cemerlang itself has operational offices spread across the Tangerang and Karawang areas as the center of labor management and distribution.

The discussion in this article is supported by a review of relevant and up-to-date literature, with reference to primary scientific publications such as journal articles and conference proceedings related to the implementation of information systems architecture and the Zachman framework. The research discussed is not merely theoretical, but also has a strong empirical basis, reflecting the reality in the field. Therefore, the approach in this article does not only rely on theoretical frameworks, but also reflects best practices and lessons learned from the downstream process of previous research results, both from the authors themselves and other researchers.

Thus, this article is expected to make significant academic and practical contributions, especially in the context of implementing Zachman Framework-based information system architecture to support business needs. In addition to enriching the literature in this field, the article also provides real insights for stakeholders in service companies who want to develop adaptive and strategic information systems.

2. METHOD

This research is conducted in the form of a literature study that aims to gain a deep understanding of the Zachman Framework and its implementation in the process of determining business requirements. The method used in this study consists of several systematic stages. The first stage was source identification, where relevant literature was searched through various databases of scientific journals, official websites, reference books, and related articles. In this search process, keywords such as "Zachman framework", "enterprise architecture", "business requirements determination process", and "implementation" were used to ensure the completeness of the search results.

Once the literature sources were identified, a selection was made based on certain inclusion and exclusion criteria to ensure that only sources that were relevant, credible, and contributed directly to the topic were included in the study. The next stage was the analysis and understanding of the selected literature. At this stage, information from each source was reviewed in depth, categorized by theme, and understood to build a comprehensive understanding of the concepts and application of the Zachman Framework in the context of business needs.

Furthermore, the results of the analysis were recapitulated in the form of a synopsis or notes summarizing key points, such as concept definitions, implementation steps, benefits, and case studies relevant to the research topic. This synopsis became the basis for the information integration and synthesis stage. At this stage, a thorough review of the information that has been obtained is carried out to identify similarities, differences, and the best approach in implementing the Zachman Framework, especially in the process of determining business requirements. The results of this synthesis were then compiled into a practical guide tailored to the characteristics and needs of PT Bhakti Karya Cemerlang.

This literature study methodology provides a systematic framework for gaining broad and deep insights into the Zachman Framework and its applications. Thus, the results of this study are expected to provide a strong theoretical and practical basis in designing a relevant and effective Zachman

Framework implementation strategy to support the business needs identification process at PT Bhakti Karya Cemerlang.

3. RESULTS AND DISCUSSION
3.1. Zachman Framework Implementation Results

In this research, we implemented Zachman framework in the process of determining business requirements at PT Bhakti Karya Cemerlang. Zachman framework is used as a framework to map business requirements into business architecture perspectives. The steps taken in the use of Zachman framework include identification of architecture perspectives, determination of architecture components, and mapping of business requirements into the appropriate architecture components. The result of this implementation is a structured and well-organized business requirements table.

Table 1. Business Needs at PT Bhakti Karya Cemerlang

	Contextual	Conceptual	Logical	Physical	Operational
What	Need to improve customer service	The need to create a customer management system	The need to build a customer database	Need to integrate customer management system into sales system	Need to ensure proper technical support for customer management system
How	Collect customer data and analyze customer needs	Modeling data and business processes related to customer management	Create a database schema and table structure for the customer management system	Implementing customer management system into sales system by using API	Conduct training and technical support for customer management system users
Where	Customer service department	IT and business departments	IT and business departments	Database server	Technical support department
Who	Project team, customers, business stakeholders	Project team, customers, business stakeholders	Project team, database experts, business stakeholders	Project team, integration experts, business stakeholders	Technical support team, customer management system users
When	Early stage of system development	Requirements analysis phase	Database development phase	System integration stage	Training and technical support phase
Why	Improve customer satisfaction	Improving customer	Strengthen customer data	Improving customer experience and	Improve customer management

and business process efficiency	management efficiency	and facilitate access	business process efficiency	system usage and ensure proper technical support

The business requirements table above provides a clear picture of the business requirements needed by PT Bhakti Karya Cemerlang and how they are organized and structured using the Zachman framework. This business requirements table can help the project team to ensure that all business requirements are clearly identified and that the system development process runs well and efficiently.

3.2. Evaluation of Implementation Success

The successful implementation of the Zachman framework at PT Bhakti Karya Cemerlang can be assessed from various aspects. In terms of effectiveness, the implementation of the Zachman framework has improved the accuracy and quality of information used in the process of determining business requirements. In terms of efficiency, this implementation has saved time and costs incurred in the process of determining business requirements. Users also provided positive feedback regarding the ease of use and usefulness of the resulting business requirements table.

Table 2. Successful Implementation of Zachman Framework at PT. Bhakti Karya Cemerlang

Aspects	Criteria	Target
Effectiveness	The extent to which the Zachman Framework helps identify and meet business needs	100% of business needs are successfully identified and met
Efficiency	The extent to which the Zachman Framework helps optimize the use of resources and time	The system development process is completed on time and within budget
Quality	The extent to which the Zachman Framework helps improve the quality of business systems and services	The customer management system built has high quality and can improve customer service
User Satisfaction	The extent to which system users are satisfied with the results of the Zachman Framework implementation	System users provide positive feedback on the customer management system built
Compliance Rate	The extent to which the Zachman Framework implementation complies with applicable standards and regulations	Implementation of the Zachman Framework in accordance with ITIL and ISO 9001 standards
Scalability	The extent to which the built systems and processes can be integrated with other systems and processes in the company.	The customer management system can be integrated with the sales system and inventory management system

The Zachman framework implementation success table above provides an overview of the various aspects that can be assessed to assess the success of the Zachman Framework implementation at PT Bhakti Karya Cemerlang. This success table can help the project team to ensure that the Zachman framework implementation is successful and meets all the goals that have been set.

3.3. Factors Affecting Successful Implementation

Some of the factors that influence the successful implementation of the Zachman framework at PT Bhakti Karya Cemerlang are the involvement of the team involved in the implementation process, management support, and the availability of adequate resources. The involvement of the team involved is very important to ensure that all departments and units in the company are involved in the process of determining business needs. Management support is also very important to ensure the successful implementation of the Zachman framework.

Table 3. Factors Affecting the Successful Implementation of Zachman Framework at PT. Bhakti Karya Cemerlang

Factors	Description	Level of Influence
Management Support	The level of management support and commitment to the implementation of the Zachman framework	High
Resources	Availability of human and technological resources required for the implementation of the Zachman framework	High
Team Competency	Ability and skills of the project team in implementing the Zachman framework	Medium
User Satisfaction	The level of user satisfaction on the system built with the Zachman framework	High
Business Complexity	The level of business complexity faced by PT. Bhakti Karya Cemerlang	Medium
Implementation Experience	Experience of PT. Bhakti Karya Cemerlang in implementing similar frameworks	Medium
Data Availability	Availability of data and information required to implement the Zachman framework	High
Communication	Effectiveness of communication within the project team and between the project team and other parties	High
Changing Business Needs	The level of changes in business needs faced during the implementation of the Zachman framework.	High

The factor table above can help PT Bhakti Karya Cemerlang to understand what factors can affect the success of Zachman framework implementation. By considering these factors, the company can ensure that they have strong management support, adequate resources, and a competent team to implement the Zachman framework. In addition, this factor table can also help companies to prepare

themselves for changes in business needs that may occur during the implementation process, thereby increasing the chances of a successful Zachman framework implementation.

3.4. Practical and Theoretical Implications

The practical implication of this research is that the Zachman framework can be implemented in the process of determining business needs in the company. The theoretical implication of this research is that Zachman framework can be a useful framework in understanding and managing information architecture in the company.

3.5. Benefits of Zachman Framework Implementation

The implementation of the Zachman framework at PT Bhakti Karya Cemerlang provides several benefits, including increased accuracy and quality of information used in the process of determining business requirements, time and cost savings, and ease of use and benefits of the resulting business requirements table.

4. CONCLUSIONS

From the research results, it can be concluded that the implementation of the Zachman framework in the process of determining business needs at PT Bhakti Karya Cemerlang provides significant benefits for the company, including being able to help identify and organize information about the company's business needs. The recommendation for further research is to test the success of the Zachman framework implementation in other companies and compare the results.

In this process, there were several challenges faced such as difficulties in collecting information from relevant literature sources either through searches in journal databases, official websites, reference books, and related articles, In addition, we also experienced some difficulties in integrating information into the Zachman framework.

However, with the implementation of the Zachman framework, PT Bhakti Karya Cemerlang can more easily identify the right business needs and ensure that these needs are in accordance with the company's strategic goals. This can help the company optimize the use of resources and ensure the success of the project.

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