

Applying the Zachman Framework to Enterprise Architecture in E-Commerce Retail Services

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| ARTICLE INFO | ABSTRACT |
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| <p>Keywords: Zachman Framework, Enterprise Architecture, E-Commerce, Retail Services</p> <p>Received: Jan 12, 2025 Accepted: Feb 23, 2025 Published: Feb 28, 2025</p> | <p>Zachman Framework is an architectural framework used to analyze and organize the various perspectives involved in a system. In the context of AliExpress's retail services, the application of the Zachman Framework can provide a comprehensive understanding of the system, facilitate coordination between business entities, increase operational efficiency, promote continuous development and innovation, and assist in better risk management. In implementing it on AliExpress, the Zachman Framework helps in understanding the business entities involved, such as suppliers, customers, deliveries, and sellers, and identifying their roles and interactions. Through in-depth analysis, this framework enables AliExpress to better coordinate business activities, increase synergies, and reduce bottlenecks. In addition, the Zachman Framework also allows AliExpress to analyze and understand their operational processes from various perspectives, such as business, technology, and data perspectives. With a better understanding of their systems, AliExpress can identify areas where operational efficiency can be improved, optimize processes and increase productivity.</p> |

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1. INTRODUCTION

AliExpress is a fast-growing global e-commerce platform that offers a wide range of products to consumers around the world. To maintain its market position and meet customer needs, AliExpress needs to have a solid and effective enterprise architecture (EA) strategy. EA helps companies to organize their information technology (IT) infrastructure, business processes, data, and applications to work together in a coordinated and effective manner. A popular EA framework used by companies is the Zachman Framework. The Zachman Framework is a structural approach that identifies and organizes the essential elements of enterprise architecture. In the literature, there are studies that apply the Zachman Framework to e-commerce companies. For example, Li et al. (2019) proposed the use of Zachman Framework in developing EAs for e-commerce companies.

However, the use of the Zachman Framework in implementing EA on global e-commerce platforms such as AliExpress has not been widely studied. Therefore, this article aims to be able to analyze and evaluate the application of the Zachman Framework in implementing EA on AliExpress.

Several related studies on the Zachman Framework in EA and e-commerce can be found in international and national literature. For example, Hamdan et al. (2019) analyzed the use of Zachman Framework in EA in the financial industry, and Hidayanto et al. (2016) proposed an EA framework for cloud-based e-commerce companies. Aliexpress is a platform that allows users to shop digitally with a business-to-consumer (B2C) model, where in the business-to-consumer model, a business sells directly to consumers with a smaller number of units.



The Aliexpress platform is very famous as a place to get goods at low prices, although there are some issues in it where there are 'cheating' sellers, but this platform has proven to be able to handle these problems quite well, so that it can maintain its reputation as one of the largest e-commerce platforms today. If we look at the business model of Aliexpress, this company only acts as a platform / intermediary media between sellers and buyers, unlike its competitor Amazon where amazon in addition to being an e-commerce platform, amazon also sells its own goods to customers.

In addition to the above, Aliexpress also has regulations / mandatory provisions for sellers and buyers that are quite unique, namely Aliexpress does not allow foreign companies / not from China, to be able to sell on their platform, and for buyers they prohibit buyers from within China. This raises some good and bad opinions, the bad opinion of this is that customers find it difficult to verify the seller because of the difficulty / lack of information that can make the seller truly trustworthy, plus there is a language barrier between buyers who are all from outside China and sellers who are dominant in Mandarin, but Aliexpress can once again handle this problem quite well, by proving that the goods purchased can be guaranteed to reach the buyer so that it can maintain its reputation as one of the largest e-commerce platforms today.

The good opinion of this aliexpress business model, comes from the support of the people in China where they support this business model because they think that with this business model, small businesses in China can get big profits, without having to be overshadowed by competition from large companies in China. And although Aliexpress is often considered a shopping place with a negative stigma due to the lack of clarity of seller information in foreign languages so that people are afraid of being threatened and because it comes from China which is famous for kw and low quality products.

But the fact is that the products on the Aliexpress platform can prove the quality of the products and prove that they have trusted sellers, although there are still scam sellers but overall Aliexpress has proven to be an e-commerce platform that is in demand and very popular in Brazil, Russia, Europe and parts of North America.

Also in luring new customers and regular customers to continue shopping at Aliexpress, they provide free shipping with standard Aliexpress shipping conditions, namely if the delivery time is around 20-35 days, Aliexpress has also begun to expand its market reach to the Asian region, especially Southeast Asia (SEA), but only time can decide how successful Aliexpress will be in its expansion into the Southeast Asian region, especially Indonesia, but considering that most Indonesians shop by choosing bahrang with a low budget, Aliexpress has a solid advantage in achieving its success in the Indonesian market.

In this research, we will conduct a literature review and analyze how the Zachman Framework can assist AliExpress in implementing EAs related to business processes, data, applications, and IT infrastructure. The results of this research are expected to contribute to the development of EA implementation on global e-commerce platforms such as AliExpress.

2. METHOD

This research uses an approach that refers to the Zachman Framework, a framework developed by John Zachman to describe the overall organizational architecture. This framework was chosen because of its ability to map various important elements in the enterprise system in a structured and comprehensive manner. In addition, this research is also supported by literature study and document analysis methods to gain a deeper and more accurate understanding of the framework implementation, especially in the context of retail services such as AliExpress.

The literature study was conducted by exploring various sources such as scientific journals, books, and electronic articles that discuss the Zachman Framework and its application in the retail world. Through this method, researchers gained a theoretical understanding of the structure and working

principles of the framework, as well as similar relevant studies for comparison. The literature reviewed also includes best practices in the application of the Zachman Framework so that it can be effectively applied to the AliExpress case study.

The document analysis method is used to examine various documents related to the implementation of the framework on the AliExpress information system. This framework does not focus on the order of implementation, but rather ensures that all organizational perspectives are covered, namely Planners, Owners, Designers, Builders, Subcontractors, and Users. By using this approach, organizations can design information systems that are complete, easy to understand, and aligned with existing business processes.

The application of the Zachman Framework allows AliExpress to map various operational aspects, both in terms of data and functions. For example, product data such as categories, prices, and descriptions can be mapped from a data perspective, while the process of uploading products by sellers and transactions by consumers is analyzed from a functional perspective. Many organizations choose this framework to build an enterprise architecture that is adaptive to evolving business and information technology needs.

3. RESULTS AND DISCUSSION

Similar to online cinema ticketing app M-TIX, TIX ID is one of the Indonesian apps that offers a new experience in buying cinema tickets, with a total of 5 million users on the play store. However, TIX ID still has a much larger user base than other similar apps such as CGV Cinemas, which has 1 million users, Cinepolis Indonesia, which has 1 million users, and BookMyShow, which has 500,000 users.

Users can find out what films are playing, schedules, and news about various films and actors on TIX ID in addition to buying tickets (Aya, 2018). In terms of payment, TIX ID is different from other similar apps. DANA digital wallet, which can be topped up with a minimum of Rp 10,000, is used as a payment method in TIX ID. In addition, the DANA digital wallet balance in TIX ID can be used in other DANA-affiliated services including Bukalapak, Lazada, and Google Play. It can be noticed how TIX.ID uses the Zachman Framework to carry out its responsibilities and achieve its goal as an internet-based digital platform for cinema ticket buyers.

3.1. Analysis Results of Zachman Framework Implementation on AliExpress

AliExpress' implementation of the Zachman Framework helps in understanding and managing the various aspects related to their retail business as a whole. Zachman Framework is a framework used to analyze, design, and implement enterprise architecture with a structured and holistic approach. In the context of AliExpress, it is important to explore the different perspectives in the Zachman Framework, which include Executive Perspective, Business Management Perspective, Architect Perspective, Engineer Perspective, Technician Perspective, and Enterprise Perspective. In the Executive perspective, it is necessary to understand the scope of AliExpress's business and provide a contextual view of the company. The Business Management Perspective requires a deep understanding of the AliExpress business model and provides a conceptual view of the company.

Architect Perspective helps in developing system models that build a logical view of the company. Engineer Perspective focuses on developing technology models that provide a physical view of the company. Technician Perspective deals with the detailed representation of specific business items in the context of the enterprise. Finally, the Enterprise Perspective provides a working view of the enterprise from the perspective of users, such as employees, partners, or customers. To better visualize the use of the Zachman Framework on AliExpress, the following table provides a detailed description in understanding the role and contribution of each perspective in the context of AliExpress.

Table 1. Application of Zachman Framework on AliExpress

| | What (data) | How (fungsi) | Where (network) | Who (human) | When (time) | Why (motivatio n) |
|---------------------------------|---|---|---|--|---|---|
| Excecutive Perspective | Describe the scope of AliExpress business, including product sales, order management, payment, logistics, and customer service. | Define business strategy, manage business operations and decisions, optimize customer experience. | Shows the geographic location of AliExpress' main business and the relationship between activities within the organization. | Represent AliExpress' upper management and metrics to measure their capabilities and performance. | Determine operational schedules and time criteria for AliExpress' business processes. | Explained AliExpress' business objectives, goals, business plans, and the rationale behind the organization's decision-making and knowledge architecture. |
| Business Management Perspective | Identify products and categories offered by AliExpress, target markets, and business policies. | Define marketing strategy, product development, business analysis, and risk management. | Shows the location of physical stores, distribution centers, and customer touch points. | Represent AliExpress' business management team and decision making related to managing the business. | Determine the schedule for AliExpress' product promotion, campaign launch, and business performance analysis. | Express market needs and wants, industry trend developments, and business strategies to achieve AliExpress' competitive advantage. |

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|-----------------------|--|---|--|---|--|---|
| Architect Perspective | Describe AliExpress' information system architecture, including components, integration, security, and interoperability. | Build system models that describe the functions and data flows in AliExpress information systems. | Shows the logical structure of the AliExpress information system, including the components and the relationships between them. | Represent the information systems architects responsible for the design and integration of AliExpress systems. | Determine AliExpress information system design and development schedule. | Ensure the quality and reliability of AliExpress information systems, and ensure that system architecture supports business objectives and organizational strategy. |
| Engineer Perspective | Describe the technology infrastructure used by AliExpress, including networks, servers, databases, and other technology platforms. | Build technology models that support AliExpress infrastructure and technology needs. | Indicates the location of data centers, servers, and technology infrastructure used by AliExpress. | Represent the technology team responsible for the implementation and maintenance of AliExpress technology infrastructure. | Determine the schedule for technology implementation and regular maintenance of AliExpress infrastructure. | Ensure a reliable, scalable and high security technology infrastructure to support AliExpress operations. |
| Technical Perspective | Documents specific technical details of AliExpress business | Implement technical designs, develop code, and perform | Shows technical details of system components and | Represent the technical team involved in | Determine the schedule of software developm | Ensure that the technical details of AliExpress system |

| | | | | | | |
|------------------------|--|---|--|--|--|--|
| | items, such as data structures, interface design, and programming logic. | software testing and maintenance. | hardware/software configuration at a detailed level. | software development and maintenance of the AliExpress system. | ent, testing, and routine maintenance. | implementation and maintenance are properly performed in accordance with business needs. |
| Enterprise Perspective | Provides an overall view of system operations and usage from the perspective of a user, such as an employee, partner, or customer. | Use AliExpress information systems in daily activities, such as placing orders, managing inventory, and interacting with customers. | Shows how the AliExpress information system is used by users in various locations. | Represent AliExpress information system users and their needs in accessing and using the system. | Determine the schedule of system usage and daily activities performed by AliExpress users. | Improve operational efficiency, productivity, and user satisfaction through the use of effective and user-friendly AliExpress information systems. |

3.2. Benefits of Zachman Framework Implementation at AliExpress

By utilizing the Zachman Framework and considering the various perspectives involved, AliExpress can optimize business management, design an efficient enterprise architecture, integrate technology well, and meet the needs and expectations of their users. The application of the Zachman Framework helps AliExpress face complex challenges in the global retail industry with a structured, holistic, and user-focused approach. AliExpress, as one of the largest retail commerce platforms in the world, faces complex challenges in running its operations. In order to optimize the efficiency and effectiveness of its business, AliExpress has implemented the Zachman Framework as a framework for developing a holistic and structured enterprise architecture.

The application of the Zachman Framework to AliExpress helps in systematically identifying and mapping the data used in its operations. As an online trading platform, AliExpress has thousands of sellers and millions of products on offer. By using the Zachman Framework, AliExpress can classify and organize product data, customer information, transactions, and reviews more efficiently. This provides a strong foundation for effective data management and improves the quality of product searches and recommendations provided to customers. The Zachman Framework helps AliExpress map the business processes involved in its operations. Delivery and order handling are important aspects of AliExpress'

business. By using the Zachman Framework, AliExpress can map these processes systematically. This enables identification of improvement points in the supply chain, optimizes operational efficiency, and provides a better customer experience. In addition, business process mapping also helps in the identification of potential risks and improvement of system security and reliability.

AliExpress can also utilize the Zachman Framework to map the geographic location of its operations. As a global retail platform, AliExpress has distribution centers and warehouses spread across multiple countries. Using the Zachman Framework, AliExpress can map these locations clearly. This information provides a better understanding of the logistics infrastructure and allows AliExpress to optimize delivery routes, streamline product storage and distribution, and ensure proper stock availability at each location. The Zachman Framework helps AliExpress map the organizational structure involved in its operations. AliExpress involves various parties, including managers, sellers, and customers. By using the Zachman Framework, AliExpress can map the relationships between these parties and identify their respective responsibilities. This allows AliExpress to improve collaboration between sellers and customers, increase trust, and facilitate more effective communication.

The Zachman Framework also helps AliExpress map out its operational schedule. In the retail business, time is a critical factor. Using the Zachman Framework, AliExpress can better understand delivery schedules, order handling, and customer service. By effectively mapping operational schedules, AliExpress can improve responsiveness to customer demand, minimize waiting time, and increase customer satisfaction. The application of the Zachman Framework to AliExpress helps in understanding the reasons why this company needs an effective enterprise architecture. AliExpress aims to improve operational efficiency, better meet customer needs, achieve competitive advantage, and ensure sustainable business growth. The Zachman Framework helps AliExpress formulate the right architecture strategy to achieve these goals.

3.3. Things that Affect the Application of the Zachman Framework on AliExpress

3.3.1. Data Classification and Management

AliExpress has millions of products offered by thousands of sellers. In implementing the Zachman Framework, it is important to classify and manage data properly. This involves identifying the types of data involved, such as product information, categories, prices, customer reviews, and transaction data. By applying clear classification, AliExpress can improve data management, increase product search accuracy, and provide more relevant recommendations to customers. In addition, with effective data management, AliExpress can improve the security and privacy of customer data, ensure regulatory compliance, and reduce data-related risks.

3.3.2. Business Process Automation

Business processes are at the core of AliExpress operations. By applying the Zachman Framework, AliExpress was able to map and deeply understand the processes involved, such as shipping, order handling, and customer service. The detailed mapping enables the identification of areas of improvement that can increase efficiency and productivity. For example, AliExpress can use historical data to improve delivery schedules, optimize inventory management, and enhance coordination between sellers and logistics partners. By optimizing business processes, AliExpress can reduce lead times, minimize operational errors, and improve customer satisfaction.

3.3.3. Operational Site Management

AliExpress adalah platform perdagangan ritel global dengan operasional yang melibatkan banyak lokasi geografis. Dalam konteks ini, Zachman Framework membantu AliExpress dalam memetakan lokasi-lokasi operasionalnya, seperti pusat distribusi, gudang, dan kantor cabang. Dengan memetakan dengan baik lokasi-lokasi ini, AliExpress dapat mengoptimalkan rantai pasok, mengurangi waktu pengiriman, dan mengatasi tantangan logistik. Misalnya, AliExpress dapat memilih lokasi yang strategis

untuk mempercepat pengiriman ke wilayah tertentu, mendistribusikan stok secara efisien untuk menghindari kekurangan persediaan, dan mengatur pusat distribusi dengan baik untuk meminimalkan biaya logistik.

3.3.4. Collaboration between Involved Parties

AliExpress involves various parties in its operations, including managers, sellers, and customers. In applying the Zachman Framework, it is important to clearly map the organizational structure and relationships between these parties. AliExpress can use this framework to improve collaboration between sellers and customers. For example, AliExpress can facilitate more effective communication between sellers and customers, encouraging feedback.

4. CONCLUSIONS

Overall, AliExpress' application of the Zachman Framework provides a strong foundation in developing a structured and holistic enterprise architecture. By properly mapping the aspects involved in its operations, AliExpress can improve efficiency, optimize customer experience, and gain a competitive advantage in a competitive global market. AliExpress can utilize the Zachman Framework to map the geographical locations of its operations. As a global retail platform, AliExpress has distribution centers and warehouses spread across multiple countries.

Using the Zachman Framework, AliExpress can map these locations clearly. This information provides a better understanding of the logistics infrastructure and enables AliExpress to optimize delivery routes, streamline product storage and distribution, and ensure proper stock availability at each location. Improved operational efficiency of AliExpress online retail platform that operates on a global scale. With the Zachman Framework, AliExpress can analyze and understand their operational processes from various perspectives, such as business, technology, and data perspectives.

Dengan pemahaman yang lebih baik tentang sistem mereka, AliExpress dapat mengidentifikasi area di mana efisiensi operasional dapat ditingkatkan dan mengambil langkah-langkah yang diperlukan. Pengelolaan risiko yang lebih baik Sebagai platform ritel online yang besar, AliExpress menghadapi berbagai risiko, seperti keamanan data, penipuan, dan ketidaksesuaian peraturan. Dengan menggunakan Zachman Framework, AliExpress dapat mengidentifikasi dan menganalisis risiko-risiko ini dari berbagai perspektif. Ini membantu mereka dalam mengembangkan strategi pengelolaan risiko yang lebih baik dan mengurangi dampak negatif yang mungkin timbul.

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