Enterprise Architecture Planning for the Coffee Shop Sector Using ADM at Big Coffee Signature

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Abstract— The coffee shop industry in Indonesia is experiencing rapid growth, along with the increasing demand for more innovative and efficient customer experiences. To maintain competitiveness and improve operational efficiency, coffee shop companies need to utilize technology in a structured manner. This study aims to design and develop an Enterprise Architecture (EA) model that can be applied to Big Coffee Signature in order to align business strategy with the technology used. In this study, the TOGAF and ArchiMate frameworks are used to design an enterprise architecture that is integrated with online ordering systems, digital payments, customer management, and raw material stock management. Through the implementation of EA, Big Coffee Signature can optimize the use of technology to improve operations and provide better customer experience. The application systems used, such as the Smart Ordering System, Multichannel Payment System, and Inventory Management System, are integrated to improve efficiency, transparency, and convenience for customers. This study also shows that by integrating third-party platforms such as *GoFood* and *GrabFood*, companies can expand their market reach and provide greater convenience for customers in placing orders. The results of the study show that the implementation of a structured EA can provide significant benefits in terms of operational efficiency, aligning technology with business needs, and improving customer service. The suggestions provided, such as further development of the customer loyalty system, utilization of AI for service personalization, and development of a cloud-based POS system, are expected to help Big Coffee Signature to increase the competitiveness and sustainability of their business.

Keywords— Digital Transformation, Enterprise Architecture, Technology Integration

I. INTRODUCTION

The coffee shop industry in Indonesia has experienced rapid development in recent years, along with the increasing demand for more innovative and efficient customer experiences. This phenomenon involves not only an increase in the number of outlets, but also the development of technology-based services, such as online ordering, digital payment systems, and the use of loyalty applications (Putri & Sulaeman, 2022). These changes have made the coffee shop industry increasingly competitive, where business actors are required to adapt quickly to changing trends and evolving market needs.

One way to survive in this competition is to utilize technology in a more structured way. Information technology now functions not only as an operational tool but has become a key factor in creating sustainable added value and long-term competitive advantage. The use of big data, artificial intelligence (AI), and cloud-based systems plays a significant role in increasing efficiency, better decision making, and a more personalized customer experience (Thirasakthana & Kiattisin, 2021; Liu, Wan, & Yu, 2023). Therefore, coffee shop companies need to utilize information technology to optimize their operations and strengthen relationships with customers.

This study aims to describe how enterprise architecture (EA) can be applied in the context of a coffee shop company, with a focus on developing technology solutions that can improve operational efficiency and provide added value to customers. By implementing a systematic architectural approach, coffee shop companies can design systems that can support more effective and sustainable digital transformation (Priyono, Shukor, Moin, & Salikin, 2025; Ainurrokhim, Hati, & Adibta, 2024).

Enterprise Architecture (EA) offers a systematic approach that enables companies to design, align, and optimize business processes, applications, and technology infrastructure within a coherent framework. EA helps companies to see the big picture of existing architecture and map the relationships between existing domains, such as business, applications, and technology, thus enabling organizations to make more informed strategic decisions, avoid redundancy, and increase efficiency (Wang, 2021). One framework that can be used for EA implementation is ArchiMate, which facilitates modelling the relationships between architectural elements clearly and consistently (Srinivas, Gill, & Roach, 2020).

However, the challenge often faced by coffee shop companies is how to integrate new technology with existing infrastructure without disrupting the main operational flow. Many companies, especially SMEs, have difficulty in choosing and implementing the right technology that can support their business vision and strategy (Tadimarri et al., 2024). Without careful architectural planning, the adoption of new technology can actually exacerbate complexity and slow down the innovation process (Gunturu, 2022).

EA provides guidance for designing flexible and adaptive technology systems to market changes, as well as aligning business strategies with technological capabilities (Liu et al., 2023). Thus, the proper implementation of EA can improve a company's ability to respond to change quickly and effectively, and avoid irrelevant or uncoordinated technology investments (Odedina, 2023). In addition, (Alghamdi, 2024) highlights that implementing Enterprise Architecture enables companies to identify digitalization opportunities tailored to their operational needs, reinforce system integration, and enhance customer experience through strategic utilization of data and technology. This underscores the value of EA in aligning digital initiatives with real-world business processes, a benefit minimarket can leverage despite resource constraints. Studies also show that the digital transformation of customer experience is not only a technology matter but requires a fundamental understanding of customer needs, continuous experimentation, and feedback loops (Syafrizal, 2022). This reinforces the importance of integrated architectures that support real-time decision making and personalized services (Li, 2022). Furthermore, EA implementation must be backed by governance models and measurable benefits to ensure its sustainability and alignment with long-term business outcomes (Sari, Mulyana, & Mukti, 2025).

II. METHODS

The method used in this study is a qualitative approach with literature studies and conceptual modeling. This study aims to design an Enterprise Architecture (EA) model that can be applied in the coffee shop industry to improve operational efficiency and support business strategies. The research process begins with a literature study conducted to understand various basic concepts related to Enterprise Architecture and its application in similar sectors, such as the retail and restaurant sectors. This study aims to build a solid theoretical framework, as well as to explore knowledge about relevant architectural modeling tools, such as TOGAF and ArchiMate, which will be used in this study.

The application of a structured architectural framework, as described in TOGAF ADM, will be used to design and manage architectural changes with clear stages. This includes identifying needs, designing technology solutions, and planning the implementation and management of change on an ongoing basis. In this case, TOGAF ADM provides a clear framework for defining and documenting each stage of architectural change, from planning to execution, to ensure that the technology system implemented is in accordance with the coffee shop company's business strategy.

In addition, this study also uses Business Model Canvas (BMC) as a tool to describe the business model applied to coffee shops. BMC is a visual tool used to describe and design the main elements in a business model. In the context of a coffee shop, BMC helps describe customer segments, value propositions, distribution channels, customer relationships, revenue sources, and key resources and activities that support business operations. By using BMC, researchers can describe how each element of the business is connected and how the designed technology architecture can support each element more efficiently. This BMC provides a clear picture of how coffee shops create value and how technology can help strengthen each part of the business model.

After getting a theoretical basis from the literature, this study continues with the use of the TOGAF framework to design and compile an Enterprise Architecture model that is relevant to the needs of coffee shops. This framework helps in designing enterprise architecture that aligns business processes, applications, and the technology infrastructure that supports them. In addition, ArchiMate is used to describe and visualize the relationships between architectural elements in three main layers: the business layer, the application layer, and the technology layer. This modeling aims to describe how technology can support the business needs of coffee shops and integrate systems efficiently.

This research is expected to provide useful recommendations for the development of more effective and efficient architecture, which is in line with the business and technology needs of coffee shop companies. By using TOGAF ADM in designing the architecture, this study aims to ensure that architectural changes can be implemented in a structured and sustainable manner and can provide significant added value to the company.

III. RESULTS AND DISCUSSION

A. Business Architecture

In the context of business architecture, the Business Model Canvas (BMC) is used to describe the key elements that make up a coffee shop's business model, including how the coffee shop creates and delivers value, and how each component of the business interconnects to achieve the company's goals. The BMC is an effective tool for mapping out key aspects of Big Coffee Signature's operations, such as customer segments, value propositions, distribution channels, and key resources that support their success. By using the BMC, the company can identify key areas of their business and ensure that all of these elements are well integrated.

By leveraging the insights gained from the BMC, Big Coffee Signature can also better align its strategic initiatives with customer needs and market trends. This alignment helps the company remain agile in responding to external changes while maintaining a strong internal structure. Furthermore, the clarity provided by the BMC encourages cross-functional collaboration and informed

decision-making across departments, ultimately supporting the company's long-term growth and innovation goals. This strategic clarity also enables the company to identify potential areas for technological innovation that can further enhance customer satisfaction and operational excellence.

Then, as shown in Figure 1, it shows the Business Model Canvas used in this study. In the context of Key Partnerships, Big Coffee Signature establishes strategic relationships with several important partners to support smooth operations and customer transactions. Partnerships with local coffee farmers are essential to ensure that this coffee shop can obtain a supply of high-quality coffee beans that can meet their product standards. By establishing close relationships with local farmers, Big Coffee Signature not only supports the local economy but also ensures stable and guaranteed quality of raw materials. In addition, Big Coffee Signature collaborates with digital payment platforms that facilitate online transactions, either through the coffee shop's application or website, to ensure that the customer payment process runs smoothly and safely. This collaboration is important to provide convenience for customers who choose to make transactions online, as well as expanding the available payment methods, so that customers can choose the method that best suits their preferences.

Figure 1. Business Model Canvas Big Coffee Signature

In Key Activities, Big Coffee Signature emphasizes two main activities that are the core of their operations, namely quality coffee processing and efficient coffee shop operational management. This activity includes the management of coffee bean supplies that are continuously monitored to maintain product quality and availability. In addition, the company also focuses on regular barista training to ensure that the coffee served has a consistent taste and satisfies customers. Promotion management carried out on social media and digital platforms is also an important part of coffee shop activities, to attract new customers and maintain the loyalty of old customers. In addition, the adoption of online ordering and payment application technology is a strategic step taken to expand market reach. With this technology, customers can place orders more easily and quickly, without being limited by time or location, which is in line with the digitalization trend in the food and beverage industry which is growing rapidly.

Key Resources owned by Big Coffee Signature include quality human resources, especially trained baristas who have expertise in serving coffee with high taste, as well as shop managers who are experienced in managing daily operations. These resources are vital in ensuring that coffee shops continue to always provide the best quality of service to customers. In addition, Big Coffee Signature also relies on application technology to facilitate the ordering and payment process, which further speeds up and simplifies the customer experience. Another very important resource is the supply of high-quality coffee from local coffee farmers, which is the main ingredient in their products. By combining the right human resources and technology, this coffee shop can focus on providing services that greatly satisfy customers, as well as ensuring that the quality of the coffee served is always maintained.

In terms of Value Proposition, Big Coffee Signature offers a service that is very focused on premium coffee that has maintained quality, as well as personal and friendly

service. This service is offered with easy access through a digital platform, which allows customers to order coffee online or directly at the shop. Their main advantage lies in the quality of the coffee beans that are very carefully selected, as well as the ability to provide an experience that is more in line with the preferences of increasingly digital customers. By paying attention to every detail in products and services, Big Coffee Signature can offer more value to customers compared to other coffee shops, which encourages them to keep coming back and enjoy a consistent and high-quality coffee experience.

For Customer Relationships, Big Coffee Signature focuses on building closer and more personal relationships with customers, both through direct interactions at the shop and through digital platforms. They strive to maintain consistent and active communication through various social media channels such as Instagram, Facebook, and Twitter, which are a means to build customer engagement, provide the latest information, and respond to customer complaints or requests quickly. By using these digital platforms, coffee shops can increase interaction with customers and make them feel more appreciated. In addition, customers are also encouraged to join loyalty programs, which provide additional benefits such as discounts and exclusive access to certain products. These loyalty programs not only serve to improve customer experience but also to maintain long-term relationships with customers, which in turn can increase purchase frequency and help retain loyal customers. Big Coffee Signature identifies their Customer Segments into several main groups, such as traditional coffee lovers who like coffee with a rich and consistent taste, digital users who prefer a more flexible coffee experience that can be enjoyed anytime and anywhere, and millennials and Gen Z who prioritize a social experience in consuming coffee. Each of these customer segments has a different approach, which is reflected in the services offered and the way they interact with the coffee shop. By understanding the needs and preferences of each of these customer segments, Big Coffee Signature can better design the right products and services to attract and retain customers from various backgrounds.

Channels used to reach customers include comfortable and modern physical stores to enjoy coffee directly on the spot, as well as mobile applications and websites that allow customers to order coffee online from anywhere. These digital distribution channels provide great advantages in terms of ease of access, as they allow customers who are in locations far from physical stores to still be able to enjoy Big Coffee Signature products without having to come to the store in person. This allows Big Coffee Signature to expand its market reach and meet customer demand from various locations, as well as increase flexibility in the services provided.

Related to Cost Structure, the main costs incurred by the company include the cost of purchasing coffee beans, operating a coffee shop, and marketing costs carried out both online and offline. Operational costs include rental costs, employee salaries, and procurement of equipment and tools for serving coffee. As for Revenue Streams, the main income comes from the sale of coffee and food at the store, as well as delivery services generated through the mobile application. The loyalty program also provides an additional source of sustainable income, relying on repeat purchases from loyal customers, which in turn increases customer loyalty and creates a more stable revenue stream.

Overall, the implementation of BMC at Big Coffee Signature provides a very clear and structured picture of how the company manages various important elements of their operations. This study also shows how technology and innovation in service can improve efficiency and customer satisfaction. By utilizing the right technology, coffee shops can expand their market reach, improve customer experience, and create a business model that is more adaptive to increasingly dynamic market developments.

B. Application Architecture

To support the smooth operation of the Big Coffee Signature coffee shop business, a reliable, efficient, and integrated application architecture is essential. In this case, the applications used by Big Coffee Signature are divided into several main categories, each of which supports business activities in various aspects, both for customers, internal management, and relationships with business partners. Choosing the right and relevant application will ensure that every business process runs quickly, accurately, and is well integrated across existing systems. With these applications, companies can optimize their operations, improve customer experience, and create efficient and practical solutions at every business touchpoint.

One of the main applications used by Big Coffee Signature is the Smart Ordering System. This application allows customers to order coffee and food easily and quickly through the mobile application provided. Customers only need to select the products they want from the available menu, make a payment, and the application will automatically send the order to the kitchen for processing. The real-time order tracking feature in this application allows customers to monitor the status of their orders directly, providing greater transparency in terms of order processing and delivery times. With this feature, customers can feel more comfortable and confident that their orders are being processed and can plan their time more efficiently.

In addition to the mobile app ordering application, Big Coffee Signature also allows customers to place orders through third-party platforms, such as Go Food and Grab Food. With the integration between Big Coffee Signature and these very popular food delivery platforms, customers can order coffee shop products online without having to open the Big Coffee Signature application separately. This provides additional convenience for customers who are used to using applications such as Go Food or Grab Food to order food. This easy and integrated ordering process allows the company to reach more customers without platform limitations, and orders received are still processed efficiently at the coffee shop.

In addition, Big Coffee Signature also relies on an Online Booking System that allows customers to make

reservations at the coffee shop online, both for dining in and for special events such as meetings or birthdays. By using this system, customers can easily find out the availability of tables based on the time they want, which makes it very easy for them to plan their visit without having to worry about running out of space. This reservation system provides much-needed convenience for customers who want to avoid queues or ensure that the desired place is available when they arrive.

To further enhance customer engagement, Big Coffee Signature also uses the Mobile Apps Membership System. This system allows registered customers to gain benefits such as loyalty points, special promotions, and access to exclusive offers that are only available to members. This loyalty program not only serves to improve customer experience, but also to build long-term relationships with customers which in turn can increase purchase frequency and help retain loyal customers. With this program, Big Coffee Signature can continue to provide incentives for customers to continue choosing their coffee shop every time they want to enjoy coffee. In addition, the integrated payment application, namely the Multichannel Payment System, allows customers to make payments using various methods that can be adjusted to their preferences, such as credit cards, e-wallets, or even payments with QR codes. This payment system makes it easy for customers to choose the payment method that is most convenient for them and is integrated with the POS system at the shop, so that every transaction made is directly recorded in the system and can be reported in real-time. By using various payment methods, customers can feel the convenience and ease of the payment process. On the internal operational side, Big Coffee Signature uses a cloud-based Inventory Management System, which automatically monitors raw material stock and provides automatic alerts when stock is running low or approaching its expiration date. This system can also automatically place orders to selected suppliers based on existing data, ensuring that the coffee shop always has sufficient raw material stock without excess or shortage of stock. With this system, the company can be more efficient in managing their supply chain and reducing waste. To improve operational efficiency and ensure consistent service quality, Big Coffee Signature also uses an Employee Performance System that monitors employee performance in serving customers. This system records data on how much and how fast service is provided by employees to customers, allowing management to objectively evaluate team performance and provide rewards or training as needed. This helps ensure that each employee can provide the best service and in accordance with the standards desired by the company. With the integration between these various application systems, Big Coffee Signature can manage their business processes more efficiently, improve service quality, and provide a better and faster experience for customers. All these applications work together to achieve Big Coffee Signature's business goals, which are to provide a premium coffee experience that is easily accessible, convenient, and efficient both directly in the shop and through digital platforms. The application of this technology shows how innovation in application systems can create added value for customers and increase the competitiveness of coffee shops in an increasingly competitive market.

C. Technology Architecture

The technology architecture at Big Coffee Signature is designed to support smooth business operations and ensure a seamless customer experience. The technology infrastructure used focuses on a cloud computing-based system, which enables scalability and operational flexibility. The use of cloud-based infrastructure provides advantages in terms of centralized data and application availability, making it easier for management to control and supervise coffee shop operations remotely. One of the main elements in this technology architecture is a cloud-based POS system that integrates sales transactions with raw material and financial stock management systems, enabling more efficient and real-time management. By using cloud computing, Big Coffee Signature can manage customer transactions and data more effectively, while also facilitating data access for analysis and planning. For the ordering process, Big Coffee Signature uses the Smart Ordering System, which allows customers to place orders through a mobile application.

This application is integrated with Go Food and Grab Food, allowing customers to place orders directly through both platforms, making it easier for them without having to open the Big Coffee Signature application. This integration expands the market reach and allows more customers to access the service in the way they prefer, whether through the Big Coffee Signature app or a familiar food delivery platform. In addition, the integrated payment gateway system ensures that various payment methods, such as QR Code, e-wallets, and credit cards, can be used easily and securely by customers. This system supports various types of transactions made by customers, both through the mobile application and when visiting the coffee shop in person.

Transaction security is maintained with encryption technology and multi-factor authentication (MFA), which provides protection for customer data and sensitive payment information. The technology architecture also includes real-time order tracking, which allows customers to monitor the status of their orders from order to delivery.

This technology is essential to provide transparency to customers regarding the position of their orders and provide a sense of security that their orders will arrive on time. Big Coffee Signature can leverage this data to improve efficiency in order management and also provide better information to customers. On the internal operational side, Big Coffee Signature uses a cloud-based Inventory Management System, which automatically monitors raw material stock and provides alerts when stock is running low or approaching its expiration date. The system can also order raw materials directly from integrated suppliers, ensuring that the coffee shop always has sufficient stock without overloading the stock. This not only improves efficiency in stock management but also reduces waste and ensures sufficient raw material availability to meet customer demand. In addition, Big

Coffee Signature utilizes technology to manage employee performance through the Employee Performance System, which measures and records customer service performance data by baristas and other staff.

Can be seen in Figure 2, this data allows management to conduct real-time performance evaluations and provide direct feedback. The system also helps in providing data-based training to employees to improve their service quality. Each transaction and performance data are integrated with the POS system, which provides real-time reports that can be accessed by management for performance evaluation and more informed decision making. This technology architecture also ensures backup and disaster recovery through cloud storage, so that important data such as transaction history, customer data, and operational reports remain safe and can be recovered in the event of a system failure. With this system, Big Coffee Signature is not only able to provide efficient service to customers but can also run business operations in a more structured and secure manner, by ensuring guaranteed data security and fast system recovery in the event of a technical failure.
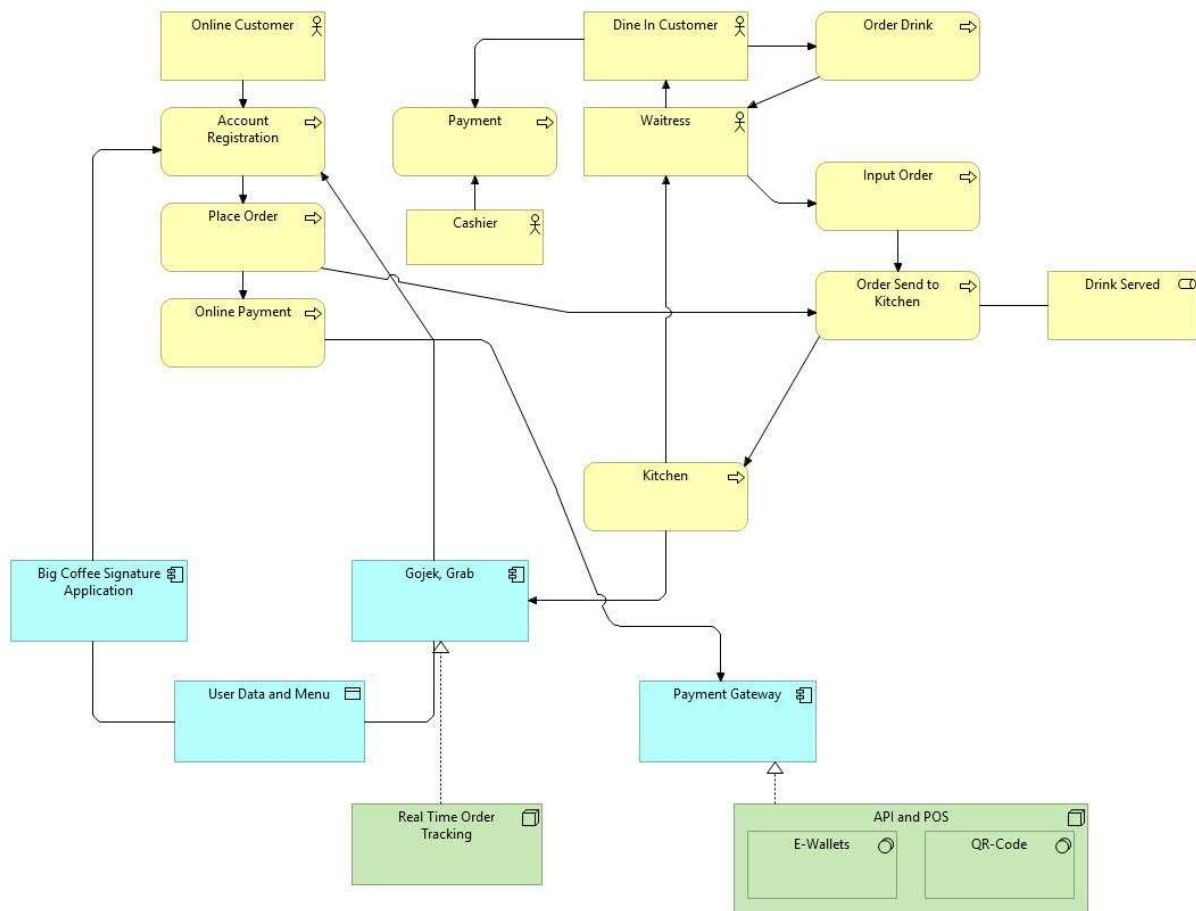

Figure 2. Core Business Process

IV. CONCLUSION

This study successfully designed an Enterprise Architecture (EA) model for Big Coffee Signature using the TOGAF and ArchiMate frameworks. The findings demonstrate that EA implementation can integrate key systems such as the Smart Ordering System, Payment Gateway, Inventory Management, and real-time order tracking. These integrations enhance operational efficiency, streamline ordering processes, and increase transparency and customer satisfaction.

By adopting cloud-based infrastructure, Big Coffee Signature can manage transactions and inventory automatically in real time while ensuring greater business flexibility. Furthermore, integration with third-party platforms such as Go Food and Grab Food expands market reach and provides customers with easier access to services. With structured architecture, the company is able to align its business strategy with technology and open opportunities for further development, including the use of big data and AI for personalized services, advanced loyalty programs, and data-driven employee performance management.

Overall, the application of EA proves to be effective in improving competitiveness, operational efficiency, and customer experience. The proposed architectural model

can serve as a valuable reference for coffee shops and other SMEs aiming to achieve sustainable digital transformation.

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