Business Architecture Design in Indonesia's Property Development Industry

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Abstract—In the highly complex Indonesian property development industry, companies require a robust framework to effectively integrate diverse business and technological elements. This study addresses this need by designing a comprehensive business architecture model utilizing an Enterprise Architecture approach and ArchiMate modeling language. The research began by employing Business Model Canvas (BMC) to identify and analyze four primary revenue streams for property development companies: property sales, leasing income, hospitality income, and revenue from the retail and entertainment sectors. For each of these streams, a detailed business architecture model was constructed using ArchiMate, meticulously mapping the intricate relationships between key components such as business actors, business processes, supporting applications, data, and underlying system technologies. The resulting four business architecture models visually articulate the value flows and critical interconnections within each revenue stream. These models provide valuable insights, demonstrating how property developers can strategically manage, optimize, and align their operations with overarching business objectives. This research makes a significant contribution to the understanding and application of Enterprise Architecture within the property industry. It showcases the potential of ArchiMate to create more structured, integrated, and strategically aligned business models. The findings are intended to serve as a practical reference for property development companies in Indonesia, guiding them in the design and management of their business models to enhance competitiveness and drive sustainable growth in a dynamic market.

Keywords—Business Architecture, Enterprise Architecture, ArchiMate, Business Model Canvas, Property Developer, Business Model

I. INTRODUCTION

The property development industry in Indonesia stands as a cornerstone of the national economy, acting as a strategic sector that contributes significantly to economic growth and societal progress. Its influence extends far beyond the construction of physical structures, creating a powerful multiplier effect that stimulates ancillary industries, including manufacturing, finance, and professional services, while generating substantial employment opportunities. The persistent rise in demand for diverse real estate products spanning from residential housing and vertical apartments to integrated commercial areas and innovative lifestyle-supporting facilities compels industry players to relentlessly innovate. This innovation is no longer confined to delivering products that merely meet basic market needs, it now encompasses a deeper commitment to reflecting superior aesthetic value, enhanced functionality, and long-term sustainability.

(PwC and the Urban Land Institute, 2020; Attah et al., 2024; Tiwari & Shukla, 2022). In this highly competitive and increasingly complex context, the discipline of architecture assumes a pivotal role that transcends its traditional boundaries. Architecture is not merely about designing the physical form of buildings, it has evolved into the art and science of shaping holistic spatial experiences, which have become an integral and defining component of a property development project's overarching value strategy (Ching, 2023; Jaglarz, 2023; Arbib, 2021; Mugnai; 2022). The business of architecture cannot be viewed as a siloed or secondary function. Instead, it must be comprehensively and strategically designed as an inseparable part of the core business model of modern property development companies (Chatzopoulou, 2023; Arbib, 2021).

For a property developer aspiring to achieve a leadership position in the Indonesian market, the vision often involves a commitment to consistently delivering optimal economic value to a wide array of stakeholders, including customers, employees, shareholders, and the broader community. To realize such a vision, many leading firms have adopted an integrated or mixed-use development model, which involves creating large-scale townships that synergistically combine residential areas, bustling shopping centers, hotels, and other commercial properties. This approach, while potentially lucrative, introduces a formidable layer of complexity. It necessitates the management of multiple, distinct revenue streams from property sales and leasing to hospitality and retail

operations each with its own unique processes, customer segments, and performance metrics. Successfully orchestrating these multifaceted developments requires an exceptionally robust and agile architectural business system, one that can address diverse and often conflicting cross-sectoral needs in a synergistic manner (Gabryelczyk et al, 2021; Arnold, 2022; Alméstar, 2025; Sesi & Mwangi, 2025). The architectural process in this context must ensure that the design of a residential tower complements the foot traffic flow of an adjacent retail mall, or that the aesthetic of a hotel enhances the value proposition of nearby commercial offices (Alméstar, 2025).

Despite the clear need for such integration, the property industry in Indonesia continues to face significant and persistent challenges in designing architectural business models that are adaptive to these complex dynamics. A primary obstacle is the profound lack of integration between the architectural design process and the company's broader value chain, leading to a disconnect between creative vision and market reality. There is often a suboptimal utilization of architectural human resources, where highly skilled architects are confined to technical drafting roles rather than being empowered as strategic partners who can provide critical insights into value creation from the project's inception. Compounding these issues are weak coordination systems between the design team and other essential business units such as marketing, finance, and operations. This fragmentation results in communication breakdowns, costly rework, project delays, and missed opportunities for innovation. These systemic issues collectively indicate an urgent need for a new, more structured paradigm shift in developing an architectural business framework that is not only more effective and efficient but is also firmly aligned with the principles of good corporate governance and a forward-thinking culture of continuous improvement (Tang et al., 2025; Kusuma and Prasetyo, 2023).

This study is conducted to directly address these multifaceted challenges by designing a comprehensive architectural business model specifically tailored to the intricate needs of Indonesia's property development industry. The research moves beyond traditional, function-based organizational views to propose a holistic framework using an Enterprise Architecture (EA) approach. The focus is to formulate and validate an approach that strategically positions the architectural process not as a cost center, but as a primary driver of value creation across all stages of a property development project. By systematically mapping the relationships between business strategy, operational processes, supporting applications, and underlying technologies, this study aims to provide a clear blueprint for integration. It is anticipated that the findings of this research will offer a meaningful contribution at both theoretical and practical levels. Theoretically, it demonstrates the application of EA principles in a new domain, while practically, it provides industry practitioners with a strategic, measurable, and highly competitive architectural system designed to enhance operational excellence and drive sustainable

growth in a dynamic market (Busch & Zalewski, 2025; Korsten et al, 2025; Farhan and Iskandar, 2023)

The resulting models are intended to serve as actionable references, guiding Indonesian property developers in structuring their operations for greater coherence, efficiency, and strategic alignment.

II. LITERATURE REVIEW

The development of business models in the property industry requires a systematic and integrated approach. As such, a solid understanding of concepts such as Enterprise Architecture, Business Model Canvas, Value Streams, and ArchiMate forms a crucial foundation for designing a competitive architectural business structure.

A. Enterprise Architecture

Enterprise Architecture (EA) is a strategic framework used to align business processes and information technology within an organization (Arnold, 2022; Busch & Zalewski, 2025; Pancote et al, 2025; Maulana et al, 2021; Rahimi et al, 2023). EA provides guidance on how organizational structure, processes, information, and technology interact to support business objectives. In the property sector, EA plays a key role in ensuring the integration of architectural design, business operations, and regional development strategies (Rahimi et al. 2023).

One commonly used framework is TOGAF (The Open Group Architecture Framework), which divides architecture into four domains: business, data, application, and technology (Josey & Hornford, 2022). These domains are then further detailed using the ArchiMate 7 modeling scheme to represent the architecture related to the three main revenue streams. This allows for a clear visualization of the interactions between business processes, applications, databases, technologies, and business actors involved in each process. With this approach, companies can build structures that are responsive to market changes and efficient in resource management.

B. Business Model Canvas and Value Streams

The Business Model Canvas (BMC) is a strategic visualization tool developed by Osterwalder and Pigneur to represent the key elements of an organization's business model (Amelia, 2022; Alves et al., 2025; Setiyowati et al. 2025). The BMC consists of nine components used to describe and map out business architecture, as illustrated below:

1. Customer Segments
   The groups of customers targeted by the organization.
2. Value Propositions
   The core value or benefits offered to customers.
3. Channels
   The distribution or communication channels used to reach customers.
4. Customer Relationship
   The ways in which an organization builds and maintains relationships with customers.
5. Revenue Streams
   Sources of income generated from customer segments.

6. Key Resources
   Main assets used to create value.
7. Key Activities
   Core activities carried out to operate the business.
8. Key Partnerships
9. Networks of partners that help support business operations.
10. Cost Structure
   The cost implications of all activities and resources

In the context of property development, the BMC can be used to analyze the role of the architectural team in supporting value propositions for consumers, as well as how the integration of the design process can enhance internal efficiency and customer satisfaction (Alves et al., 2025; Matricano & Liguor, 2024).

As a complement, the concept of Value Streams is employed to map the flow of value from a product or service from its inception to delivery to the customer. A value stream does not only focus on functional activities but emphasizes how each activity contributes value to the customer (Pellegrini, 2021; Setiyowati et al. 2025). In the property industry, mapping the value stream from the design phase to the handover of the building is crucial to identifying opportunities for value enhancement.

C. ArchiMate

ArchiMate is an enterprise architecture modeling language designed to provide a clear and structured way of representing relationships between business, application, and technology domains (Nystrand, 2023; Ferruz & Höcker, 2022). The application of ArchiMate in the property sector enables the comprehensive visualization of organizational structures and information flows, thereby enhancing data-driven decision-making and supporting well-documented structural frameworks (Benkeltoum, 2025). Within the ArchiMate framework, architecture models are composed of several core elements:

1. Business Actor
   Individuals or organizational units that carry out business processes.
2. Business Event
   Events that trigger or influence business processes
3. Business Process
   A Sequence of activities within the business domain
4. Application
   Software tools that support business processes
5. Data
   Information that flows between components in the system
6. System Software
   The technological infrastructure that supports applications and data storage
7. Stakeholders
   Individuals or groups with an interest in architectural outcomes

The application of ArchiMate in the property sector enables the comprehensive visualization of organizational structures and information flows, thereby enhancing data-driven decision-making and supporting well-documented structural frameworks (Amaral, 2024)

D. Case Studies on Cloud Technology Implementation

Several studies have demonstrated the successful implementation of cloud technology in the property industry. PwC and the Urban Land Institute (2024) shows that companies adopting cloud technology have experienced a 35% increase in operational efficiency, primarily through data integration and reduced project cycle times.

Bhatt et al (2025) highlights how cloud-based architecture helps property companies manage complex infrastructure, enabling cross-team collaboration without geographic limitations. Cloud technology has proven to provide significant benefits to the property industry, especially in terms of collaboration, data management, and information security. This study aims to apply the insights from this literature to the context of property companies in Indonesia, evaluate its impact, and identify areas for further improvement.

III. METHODS

This study adopts a qualitative approach using an exploratory method to design an architectural business model tailored to the needs of Indonesia's property development industry. The main focus of this research is to conceptually examine how the Enterprise Architecture approach can be utilized to map and develop a business model that is structured, efficient, and strategically valuable.

The type of research employed is a literature review, involving the identification and analysis of relevant scholarly sources such as academic journals, books, industry standards, and professional articles. This approach is used to construct a conceptual framework and to inform the model design using insights derived from existing studies and previous research findings.

A. Data Collection

Data collection in this study was carried out through a literature review of relevant sources from both international and national publications. The primary focus of data collection was directed towards 3 key topics:
1. Enterprise Architecture and its application in organizational management and the property development industry
2. The Business Model Canvas and Value Streams as tools for analyzing and mapping business value within the property sector
3. The ArchiMate modeling language, which is used to visually and structurally represent the relationships among business elements.

B. Data Analysis Technique

The data analysis in this study was conducted using a qualitative descriptive approach to interpret the results of the literature review. This approach was employed to understand the patterns, relationships, and emerging

concepts from various sources, thereby enabling the construction of a business architecture model suited to the characteristics of the property development industry in Indonesia. The analysis process aimed to classify, synthesize, and design a conceptual model that illustrates the interconnection between business actors, processes, supporting applications, data, and technologies.

1. Information Classification
   Information gathered from various sources was classified according to four main themes: Enterprise Architecture, Business Model Canvas, Value Streams, and ArchiMate. This categorization facilitated concept mapping within the research context.
2. Theoretical Synthesis
   The classified information was then synthesized to construct a conceptual framework. This synthesis process integrated multiple theories and findings into a cohesive structure, supporting the design of a robust and applicable architectural business model.
3. Model Design
   Based on the theoretical synthesis, the architectural business model was designed using the ArchiMate modeling language. This model visualizes the relationships among key elements, which include: Business Actor (entities performing the business processes), Business Event (triggers that initiate

business activities), Business Processes (sequences of activities that generate value), Application (systems or software that automate business processes), Data (information that flows between applications and processes), System Software (technological infrastructure supporting the applications), and Stakeholders (internal and external parties with vested interests in the outcomes).

The model was designed to map the value streams across four primary revenue sources in the property development company: Property Sales, Leasing Income, Hospitality Revenue, and Retail & Entertainment Revenue.

IV. RESULT AND DISCUSSION

This study aims to design an architectural business model for a property development company using the ArchiMate approach, based on the Business Model Canvas (BMC) framework. Before presenting the four architectural business models corresponding to the company's four main revenue streams, the key elements of the BMC that serve as the foundation for constructing these business architecture models are first outlined. Figure 1 shows the BMC used as the foundation for developing business architecture models.

Figure 1. Business Model Canvas

The BMC mapping provides a strategic framework for understanding how a company creates, delivers, and captures value. Based on this BMC structure, the architectural business models were subsequently developed using the ArchiMate approach.

This study produced four architectural business models, each designed according to the company's four main revenue streams: Property Sales, Leasing Income, Hospitality Revenue, and Retail & Entertainment Revenue. Each model was constructed using the ArchiMate modeling language, encompassing both strategic and operational elements such as business actors, business events, business processes, businesses, applications, data, system software, and stakeholders.

A. R1 – Property Sales

For the Property Sales revenue stream, the designed business architecture illustrates a comprehensive integration between sales processes, digital technologies, and customer interactions. Figure 2 shows the process begins with market research and design planning, during which the company's internal team conducts market trend analysis and develops property design concepts using digital sources such as Google Search. This information supports marketing activities aimed at capturing customer interest through various digital channels, one of which is WhatsApp Business, which also functions as a platform for communication and customer inquiry management. The stored chat history becomes an essential part of business data for subsequent processes.

Following the initial interaction phase, customers are encouraged to visit the property site and select their desired units. At this stage, the integration with services like Google Maps helps customers evaluate the geographical location of the property, enhancing the user experience and supporting decision-making processes. Once the customer makes a selection, the process proceeds to the financial planning and sales agreement stage. Digital payment systems such as Midtrans facilitate the transaction, while agreement documents and invoices are stored in an organized manner using Google Drive, which functions as a supporting application component in the business architecture.

After the transaction is completed, the company advances to the construction and design customization phase based on the customer's preferences. This continues until the handover of the unit, during which the customer receives documents, keys, and access to after-sales services. In the post-sale service phase, customers are invited to fill out a satisfaction survey via Google Form, which is part of a feedback collection process categorized as a business event for service improvement. Additionally, the system supports recurring payments for property maintenance fees.

This architecture reflects the involvement of various business actors (architectural, marketing, finance teams, and customers), business processes (from initial design to post-sale), and application services (such as WhatsApp Business, Google Workspace, Midtrans, and other digital payment systems). Each process and technology component is integrated within a single digital ecosystem, enabling efficient information management and enhancing the overall customer experience. As such, this business architecture model provides added value through the utilization of cloud-based technologies and data-driven process mapping.
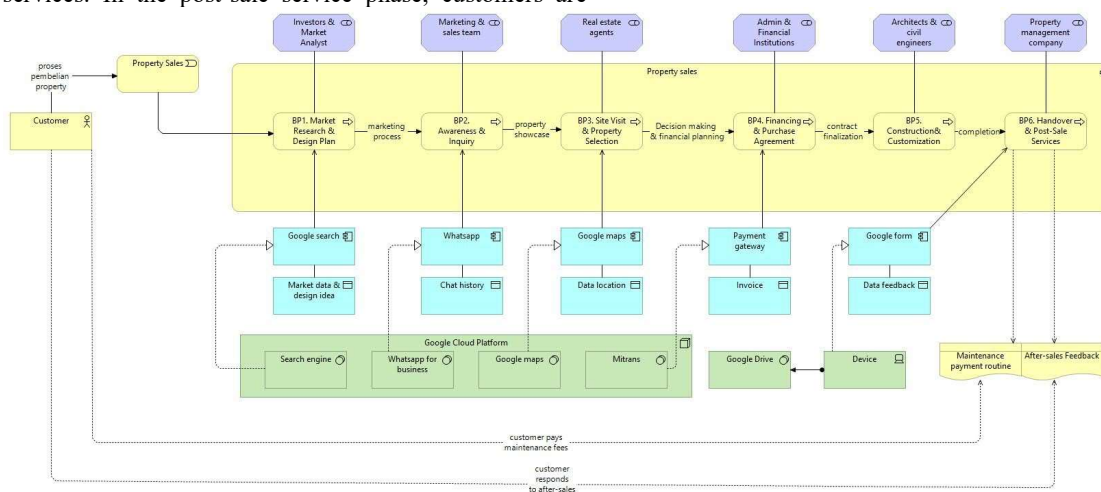

Figure 2. Business Architecture Model R1

B. R2 – Leasing Income

Figure 3 shows, in Leasing Income revenue stream, the business architecture is structured around efficient tenant management, the use of digital systems, and the optimization of tenant experience. The process begins with market research and the identification of potential tenant profiles, conducted by the property owner and marketing teams. The information collected is stored in a Customer Relationship Management (CRM) system integrated with the customer database, allowing for more structured and real-time analysis of tenant needs. A list of available property units is then compiled and made accessible to prospective tenants, who can submit inquiries or requests for information through a Google Sheet–based system.

The potential tenants proceed to site visits and lease negotiations, which include visual presentations of interior design and layout adjustments based on tenant preferences. This design process involves the use of architectural and presentation software to ensure that customer needs are effectively visualized before the lease agreement is finalized. Once an agreement is reached, the transaction continues through digital payment systems and invoice issuance, ensuring that financial data is well-documented and accessible to relevant stakeholders.

The subsequent phase involves tenant onboarding and facility customization. In this phase, the property management system plays a key role in ensuring the readiness of the leased space and the distribution of access credentials to tenants. Information related to space usage, service schedules, and facility details is managed via a cloud-based system. Once the tenant occupies the unit, operational monitoring is carried out using Internet of Things (IoT) technologies and a tenant application that provides access to usage data, complaints, and service requests. As part of the contract, tenants are required to adhere to a scheduled maintenance routine. Maintenance costs are also managed through a digital system integrated with monthly payments. This system enables property owners to evaluate tenant performance and maintain facility standards.

This business architecture involves several business actors, including the leasing team, tenants, maintenance

technicians, and the finance team. It activates a series of business processes, ranging from marketing, design customization, and contract signing to post-leasing services. Various application components—such as CRM systems, invoicing platforms, design software, and tenant applications—form critical elements of the system. The use of cloud and IoT technologies supports seamless integration across processes, enhances service transparency, and strengthens the relationship between tenants and property managers.
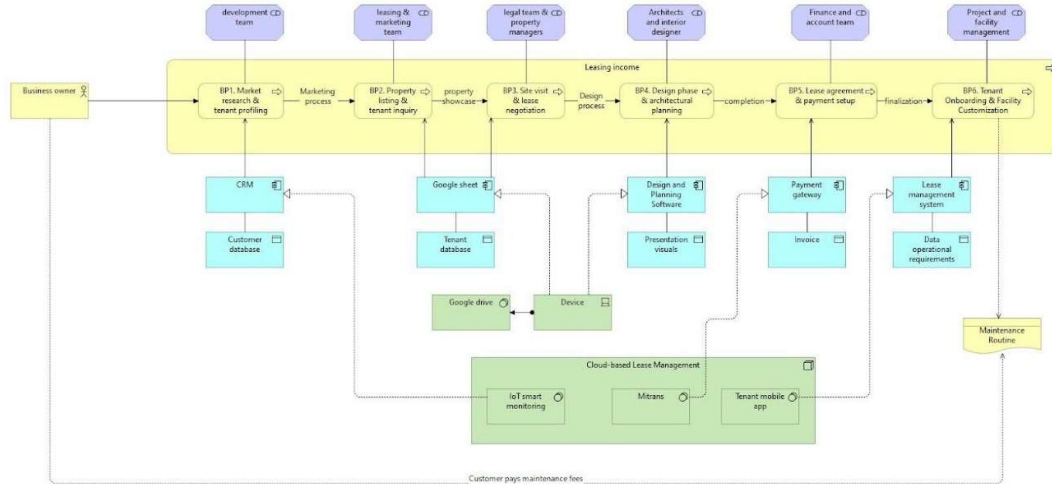

Figure 3. Business Architecture Model R2

C. R3 – Hospitality Revenue

For the Hospitality Revenue stream, the business architecture focuses on an integrated accommodation service process from the initial hotel search by customers to the checkout and service evaluation stages. Figure 4 shows the process begins when customers conduct hotel searches via search engines such as Google, using their personal devices. Preference data generated from their search history influences the hotel recommendation system to match options with the customer's needs. Once a hotel is selected, customers proceed to the reservation stage via an online booking platform, where details such as length of stay, number of guests, and room preferences are automatically recorded in the system.

Upon arrival, customers go through a check-in process supported by a cloud-based hotel management system. This system includes modules such as room management, digital key access, and a smart billing system. During their stay, customer activities are monitored through a digital key card system, which also functions as a tool for analyzing facility usage. This technology is integrated with the hotel's daily operations system to ensure both

efficiency and security, while supporting personalized guest services.

The next phase involves billing and loyalty program activation. Payments are made through payment gateways such as Midtrans, and the system automatically generates a digital invoice. Customer transaction data is stored in the hotel's financial system and used to provide personalized offers in the future. After checkout, customers are encouraged to submit reviews via Google Review or other platforms connected to the hotel's digital feedback system. This feedback is stored as part of a business event for ongoing service evaluation and quality improvement.

This business model involves business actors such as hotel guests, front desk staff, hotel managers, and backend systems. The identified business processes include booking, check-in, stay services, payment, and review collection. Digital technologies such as property management systems, cloud services, and payment integration systems support the entire value stream. This business architecture not only enables service automation and operational efficiency but also delivers a personalized and digitally connected customer experience.
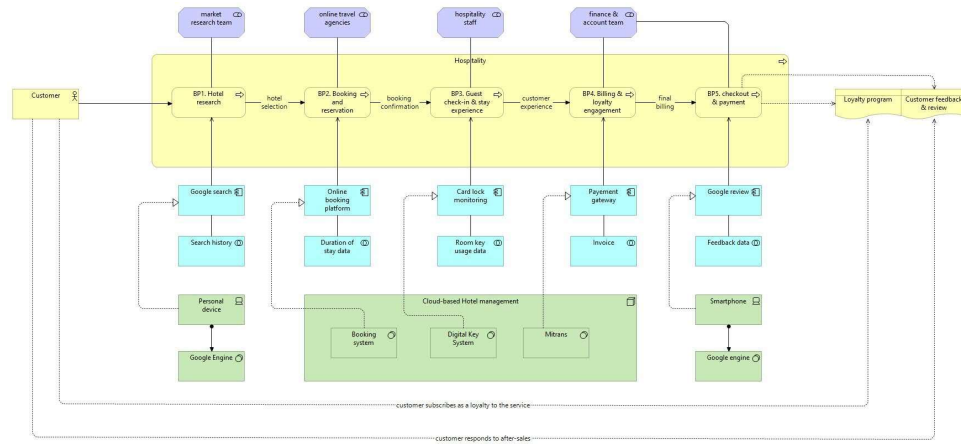
Figure 4. Business Architecture Model R3

D. R4 – Retail & Entertainment Revenue

The Retail & Entertainment revenue stream within the property development context illustrates the complex management of shopping centers and entertainment venues, which heavily relies on digital system collaboration. Figure 5 shows the business process begins with market research conducted by retail center owners to identify and select potential tenants that align with the targeted visitor segments. Once potential tenants are selected, the process continues to the negotiation and lease finalization stage, during which all agreements and documents are managed digitally and stored within a cloud-based system.

Following contract finalization, the process moves into the store preparation phase, involving layout planning and interior design by the tenants with the aid of architectural design software. Digital platforms are also utilized to plan store opening marketing strategies, including social media campaigns and digital advertisements. These activities form a crucial part of the business process aimed at increasing customer engagement from the moment the store begins operations.

As tenants begin operating, the retail management system oversees daily transactions through payment gateways such as Midtrans. Each transaction automatically generates an invoice, and transaction data is stored as the basis for tenant performance analysis. The entire system runs on a cloud-integrated platform, which connects tenant applications (for internal use) with the mall management system. Additionally, AI-based analytics technologies are employed to analyze visitor patterns, sales performance, and customer preferences in selecting specific stores or entertainment services.

Retail center owners also utilize various digital platforms such as Google Drive for document storage and internal search systems to support efficient management. This business architecture involves business actors such as the retail management team, tenants, IT staff, and end customers, with business processes that include tenant curation, store design planning, digital marketing, daily transactions, and performance analysis. Various application components, such as the retail management system, payment systems, digital promotion platforms, and reporting tools, are deployed to support operations.

This architecture demonstrates that the retail and entertainment sector is not only centered on physical space but also depends on a digitally connected end-to-end system to enhance tenant management efficiency and deliver a dynamic and measurable customer experience.

These four models reveal that business architecture in the property development industry extends beyond physical design processes, it involves the strategic integration of business actors, information systems, and value-driven processes. By employing the ArchiMate approach, these elements can be visually structured to help companies better understand and optimize the value streams of each revenue source.
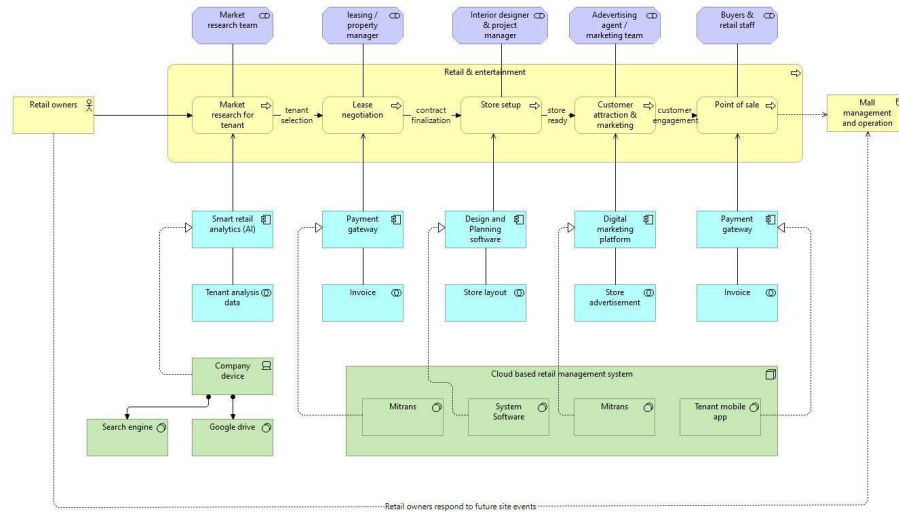
Figure 5. Business Architecture Model R4

V. CONCLUSION

This study designed a business architecture model for property development companies in Indonesia by adopting an Enterprise Architecture approach using the ArchiMate modeling language. Four business models were developed based on the company's main revenue streams: Property Sales, Leasing Income, Hospitality Revenue, and Retail & Entertainment Revenue.

Property Sales emphasizes the importance of the design phase and early communication, Leasing Income focuses on tenant management efficiency through CRM and IoT systems, Hospitality Revenue relies on digital service integration from reservation to customer feedback, and Retail & Entertainment Revenue showcases the use of AI and cloud platforms to manage tenants and visitor experiences.

The modeling results demonstrate that a business architecture approach enables organizations to systematically map activities, systems, and technologies involved in value creation. This structured approach not only enhances operational efficiency but also supports data-driven development strategies. It is recommended that companies adopt this approach gradually, starting with business units contributing the highest revenue. The digitalization of design processes, customer services, and tenant monitoring systems should be prioritized. Internal team training and socialization of ArchiMate are also essential so the model can serve as a strategic communication tool. Future research is encouraged to quantitatively assess the impact of implementing this model on overall business performance.

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