

Transforming Real Estate: Leveraging TOGAF ADM for Digital Optimization in Enterprise Architecture

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Abstract: In this research paper, we propose an Enterprise Architecture (EA) design for PT XYZ, a middle up class real estate development company in Indonesia, leveraging the TOGAF ADM framework. The study centers on optimizing five key business processes—commercial leasing, residential sales, hotel banquet rentals, waterpark ticket sales, and parking fee collection—to enhance operational efficiency and support digital transformation. Using ArchiMate modeling for clear visualization, this architecture spans from the Preliminary Phase, Phase A Architecture Vision, Phase B Business Layer, Phase C Information System Architecture (Application Layer) to the Phase D Technology Architecture. It provides a strategic blueprint to address common challenges like data fragmentation, reliance on manual processes and human resources readiness. By implementing this EA, PT XYZ can expect improvements in scalability, flexibility, and overall agility. This approach aims to position PT XYZ as a modern, digitally-driven entity, aligning technology investments with business objectives for long-term success. Future research is recommended to explore later phases of TOGAF ADM (Phase E – Phase H) and potentially integrate additional business areas for a holistic digital transformation.

Keywords: Digital Transformation; Enterprise Architecture; leasing; Real Estate; sales; TOGAF ADM

INTRODUCTION

Indonesia's Real Estate and Construction is the fourth-largest sector in Indonesian economy. Both of this sector contributes around 12.5% in 2022 and 12.4% in 2023 in the country's Gross Domestic Product (Constant Price) (BPS - Statistics Indonesia, 2024). The development of residential and commercial projects in Java Island was one of the main growth contributor of 2023 real estate sectors (Permata Institute for Economic Research, 2023).

Demand and prices of Indonesia's property rise due to rapid population growth and high urbanization, the Indonesia real estate market is one of the most vital sectors in the region. It was one of the few sectors that was not significantly affected by the COVID-19 (Mordor Intelligence, 2024).

Information technology has had-pressed the Real Estate companies (developers) to adapt the rapid evolving development of this information technology (Digital Transformation). Digital Transformation will lead to more efficient business operational, supply-chain, resources and create higher profit at the end (Maulidya Izzati et al., 2020).

Like many other industries, the real estate is increasingly in need of solutions that enhance efficiency and effectiveness, particularly in marketing activities. However, existing platforms often require frequent adjustments to keep pace with rapidly changing situations. It remains relatively regressive, relying heavily on traditional, manual methods & approaches (Ullah et al., 2021).

In this context, the demand for more responsive and adaptable platforms is urgent. Research that addresses these challenges and provides systems capable of ensuring data security, accommodating diverse requirements, and allowing for future expansion will be vital for contemporary and forward-looking real estate companies (Hindarto & Putra, 2023).

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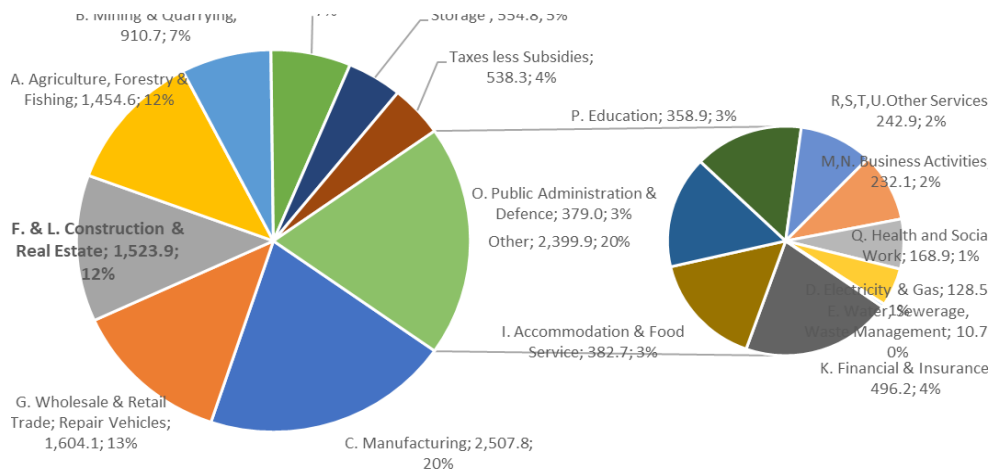


Figure 1. Indonesia GDP 2023 (Rp Trillion, Constant Price 2010) (BPS - Statistics Indonesia, 2024)

Even though a significant allocation of budget has been invested, many current solutions continue requiring more adaptive platforms in current conditions. Some of the issues namely: lack of deep integration, disparate systems, inability to adjust rapid changes, and inconsistent security provisions (Afarini & Hindarto, 2023). However, recent literatures and studies in implementation of Enterprise Architecture (EA) provide considerable evidences in rectifying the above handicaps (Hindarto, 2023a).

In the real estate industry, the EA principles provide a more robust groundwork for the development of more receptive and accommodative digital platforms. EA provide more resilient integration, that enables platforms to manage diverse data from various sources with greater flexibility & efficiency (Hindarto, 2023b).

EA is a set of artifacts that designate various facets of organization from an integrated business and information technology (IT) perspective. EA commonly consists of four interrelated layers: business, information (data), application and technology (infrastructure). EA defines an organization’s future direction, alignment and guidance to enterprise transformation. (Khairina et al., 2024) (Dumitriu & Popescu, 2020). Implementing EA influences IT investment by enhancing the quality of the decision-making process. Organizations using EA for IT investments achieve better outcomes (Dumitriu & Popescu, 2020) (van den Berg et al., 2019).

In designing EA, the organization will need a common taxonomy to integrate and communicate the concept to internal parties (between departments) or to the external parties. Thus, the organization needs an Enterprise Architecture Framework (EAF) (Dumitriu & Popescu, 2020). This paper use TOGAF ADM to design the EA.

The TOGAF ADM research in Real Estate industry is relatively rare, especially in Indonesia. Some of the rare papers are focusing on the Sales process, rarely on the recurring revenue side of business. In the real estate industry, besides the residential sales products, which are more common in this industry, there are also recurring sides. The recurring revenues namely could come from leasing properties (shopping centers, hotels, apartments, offices, warehouses) or from operational (parking, management fee, utilities and others).

The primary goals of this research are to provide an EA with TOGAF Method for a case study of PT XYZ, a real estate development company. The EA processes coverage includes the commercial leasing, selling, hospitality (Hotel Banquet), waterpark ticket sales and revenue from parking. The EA will include the Preliminary Phase, Architecture Vision, Business Architecture, Information System Architecture and Technological Architecture. In providing the EA, the research uses ArchiMate to visualize the concept.

The five business processes selection is based on two considerations: business process typology and magnitude of revenue contribution.

LITERATURE REVIEW

Besides the supporting literatures, the research has collected some literature with high relevance related to the topic. Table 1 is the summary of the literature studies.

From the Table 1, EA for Real Estate company covers the selling (transactional / non-recurring), recurring and the operational activities altogether is rarely available. Most of the papers of EA in Real Estate review the selling processes, or partial of the company’s business. More established real estate companies who have large land bank and have been in the business long enough, usually has a more balanced selling (transactional) and recurring revenue. This is the major gap and the novelty that this research would like to propose.

Table 1. Literature Study Summary

No	Reference	Supporting / Relevant Findings for the Research	Gap / Limitation
1	(Hindarto & Putra, 2023)	EA for property sales, using TOGAF, including Marketing and CRM. Middle Apps: Project Management, Inventory, Design, Planning. Backend Application: Finance Accounting, Human Resource and Legal System. Review includes Information Architecture and Technology Architecture.	No EA for recurring business (Leasing) or Revenue from Operational (parking, maintenance etc.).
2	(Wang et al., 2022)	The paper incorporates EA with IoT in Real Estate. The IoT-based Business Application Network focuses in selling houses, additional features for interior modelling.	No EA for recurring business (Leasing) or Revenue from Operational (parking, maintenance etc.).
3	(Sudarsono et al., 2022)	Scope includes Preliminary Phase up until Phase F Migration Planning. Three main applications are Operational, Salary Payment, Delivery, Stock Management and Sales.	
4	(Gunawan et al., 2021)	EA for recurring business (Theme Park) almost similar to Waterpark Business in PT XYZ. The EA starts from Preliminary up until Technology Architecture.	No EA for selling properties and too simple compare to Company (PT XYZ)
5	(Ullah et al., 2021)	Most important disruptive technologies not adopted: AI, Big Data, VR, Cloud Computing, SaaS, AR, Blockchain, Wearable Gadget / Device, Drones, IoT, 3D Printing & Scanning. Research conducted in Australia for implementation of Smart Real Estate (SRE). Barriers to implementation: legal, standardization, technology integration, awareness of benefits, funding, external support, adaptability / reluctance, lack of user / public demand.	No particular EA discussed.
6	(Legowo & Aprianto, 2019)	EA with TOGAF ADM focuses on reducing the cancellation rates of post sales transactions of residential products. The EA proposes a screening process to reduce rejection rate during mortgage application process.	The scope of EA is too small, only partial of sales process, no EA for other types of business process (leasing, operational).

METHOD

In this paper, the method denoted to Design Science Research Cycle in the following Figure 1. (Maulidya Izzati et al., 2020) (Hevner & Chatterjee, 2010).

Environment in this Method referred to the People, Organization, Technical Systems, Problems & Opportunities. People are those involved in the implementation of the EA. Organizations are the Goal, Vision and structure. Technical Systems are the current (baseline) and target, how is the environment of technology now and when the EA will be applied. Problems are current issues with the business process, procedure, needs. And Opportunities are the chances and possibilities in the future that may be benefited the organization.

Design & Research in the Method is the proposed EA, starting from the Preliminary Phase artifacts up until the Technology Architecture. The proposed EA has been iterated with interview and testing to the stakeholders. Meanwhile the Design & Research step are influenced by the Knowledge Base which are the theories & methods, experts and possibilities of applications / technologies available in the market.

Some researchers have evaluated TOGAF outperforms the FEAF, ZEF, RM-ODP in overall scores in Data Architecture, environment management, performance management, compatibility, flexibility and software configuration (Dumitriu & Popescu, 2020). In other research, TOGAF ADM has been claimed to be adaptive and has the flexibility to adapt the needs and problems of the organization (Maulidya Izzati et al., 2020) (Pratama, 2024). The nature of open-source also admitted to be one of the advantages of TOGAF ADM framework (Preising et al., 2022). TOGAF ADM has 9 phases including Preliminary. The overall method can be reviewed in Figure 1. (Harrison, 2009) (The Open Group, 2009).

The Preliminary Phase defines the groundwork and commencement activities required to create an Architecture Capability. The steps will include the scope of company organization, define EA team and organization, define architectural principles.

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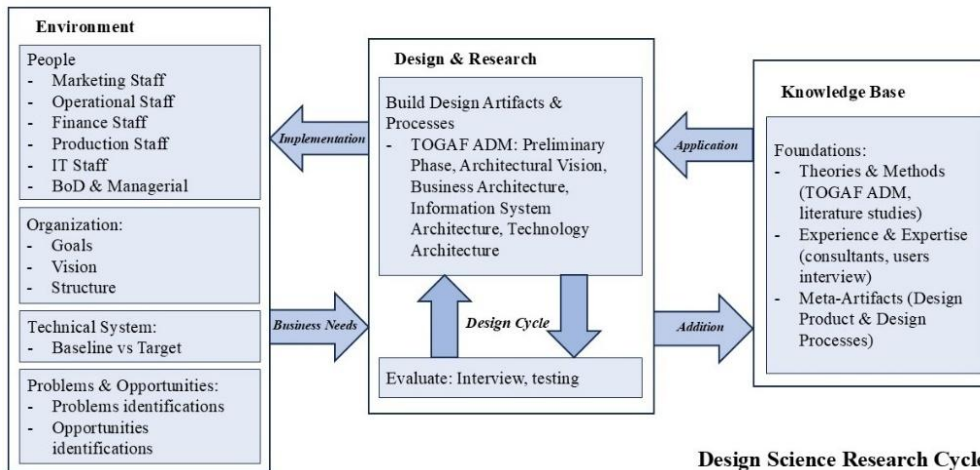


Figure 2. Design Science Research Cycle Method

Due to fundamental nature of Phase A up to Phase D and scope limitation, this paper only discusses up until Phase D (Technology Architecture).

Phase A: Architecture Vision identify stakeholders, concerns, baseline architecture and business requirements. It will confirm and develop business goals, drivers, constraints and define the scope. In this phase, Architectural Statement of Work / Vision (Problem, Purpose, Detailed high-level stakeholder requirements) should be approved.

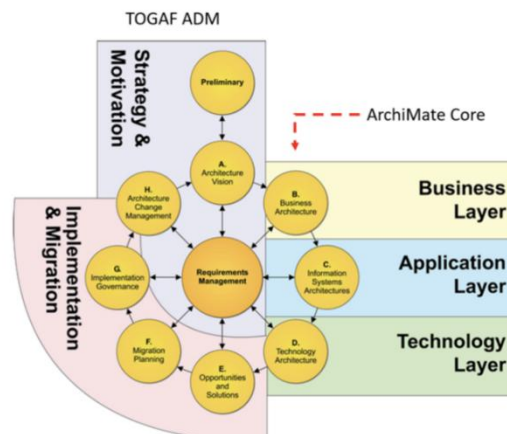


Figure 3. TOGAF ADM and ArchiMate Core

Phase B: Business Architecture involves the selection of reference models and the development of detailed representations of both the existing and future Business Architectures. This phase includes performing a Gap Analysis to identify any differences, conducting a stakeholder review to validate the proposed architecture, and compiling the findings into an Architecture Definition Document.

Phase C: Information Systems Architecture emphasizes establishing the baseline and target states for the Data Architecture, followed by a Gap Analysis to uncover potential improvements. The Data Architecture is then refined and formalized into an Architecture Definition Document.

Phase D: Technology Architecture requires defining the current and desired states of the Technology Architecture. A Gap Analysis is carried out to detect variances, after which a structured review with stakeholders is conducted. The Technology Architecture is then finalized based on the feedback and documented accordingly.

PT XYZ (Company) is a developer company founded in 1973 in South Jakarta, Indonesia. The Company develops almost 500 Hectares of land (5,000,000 m²). They started to develop and sell landed houses and two stories shophouses in the area. After developed thousands of houses, starting 1990s they developed commercial lease properties for recurring revenue: shopping center, serviced apartments towers and office towers.

In 2013, they developed three towers of strata title apartments (condominium) for sale and completed a five stars hotel in 2019, just one year before Covid-19. In 2023, the annual revenue of the Company was Rp 2.32 trillion (US\$ 150 millions) with Total Asset Rp 8.38 trillion (US\$ 544 millions). By the end of 2023, more than 80% of the annual revenue comes from recurring assets (shopping centers, office towers, rental apartments, hotel).

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Similar to other companies, PT XYZ also has competition primarily from other developers in the area. Although not really close, for shopping centers business (GC Mall, AN Mall BSD and BE Mall in Bintaro). Meanwhile for office towers they compete with more than a dozen office towers in Simatupang Area (SQ, MS, AOP, RP, Tlvr etc.). In rental apartment sector, their properties competing with another purposely built rental apartment in Senayan area, and some strata-title towers in the neighborhood whose individual owners renting their units. For their five-star hotel, the competition is not too direct, the closest five-star hotel would be Hotel M Senayan, approximately 7 km apart.

The Company’s IT Architecture is currently separated per business unit, not integrated and relatively conventional. An ERP application is acquired partially, especially for finance accounting module (billing and payment). For front liners, the digitalization mostly applied only for marketing purpose (website, Instagram). CRM module acquired from another third party serves the incoming prospect for residential sales business unit.

RESULT

In this Preliminary Phase, one of the most crucial items are to define the Architecture Principles. The following Table 2. is the Architecture Principles for this project.

Table 2. Architecture Principles

Principle #1:	Principles Supremacy
Statement: All of the principles apply to everyone in all the business units, head office within the enterprise. Everyone means all employees, contract or permanent.	
Rationale: To achieve a dependable and quantifiable level of information quality for decision making, everyone in the company should obey this principle.	
Principle #2:	Optimize Benefit for the Company
Statement: Information management are implemented to deliver optimum and sustainable benefit to the Company.	
Rationale: Every Decision made should have long-term / sustainable value for overall company’s perspective.	
Principle #3:	Information Management is All Employees’ Business
Statement: All business units and divisions in the Company participate in Information Management processes to accomplish Company’s Goals.	
Rationale: All business units and divisions in the Company must be involved in all aspects of the information technology to create overall alignment for all company’s divisions.	
Principle #4:	Common Use Applications
Statement: Applications should be standardized and non-redundancy for common use of all the Company not only for partial units / divisions.	
Rationale: Redundancy is expensive and creates possible conflicting data or non-compatibility.	
Principle #5:	Legal Compliance
Statement: EA should comply with all relevant authorities’ laws, policies and regulations.	
Rationale: The Company has been 50 years in operations, no any incomppliance worth the value of the sustainability of the Company.	
Principle #6:	IT Responsibility
Statement: The IT Department is responsible for keeping, applying, maintaining, updating, disseminating the whole IT processes, data, application and infrastructure.	
Rationale: Accountability should be clear and under the team that is neutral and has competence.	
Principle #7:	Protection of Intellectual Property
Statement: Any data, processes in the system belongs to the Company unless specified, and must be protected.	
Rationale: The data stored is company’s property, has high commercial value and presumed catastrophe if leaked to other party.	
Principle #8:	The Least Privilege
Statement: Anyone has access to any part of the system should have the minimum access privilege necessary to perform his / her specific task and nothing more.	
Rationale: If any data / information leaked / accessed to inappropriate staff, the risk of misuse and misconduct related to the information is nothing but counterproductive for the Company.	

The Baseline of Business, Data, Application and Technology Architecture

Currently, the business units are relatively independent, headed by one General Manager. Regularly the General Manger (GM) and business unit managers has regular meeting with the Board of Director. The regular meetings usually report the marketing progress, operational and financial performances. The GM run daily operational with the pre-approved SOP by the BoD.

Data and information of the operational of the business units are kept locally in each business units. The only exception is the billing process, these items are centralized in the head office, while the staff in business units input the data, payment schedule, tenants’ names, unit number and they have access to the information to follow up the collection, print the invoice etc.

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Since the data is relatively independently kept in each business unit, the applications are also local and relatively minimum. Most of operational process (cleaning schedule, maintenance schedule, CRM, HR) are still manually recorded and reported. The data of billing is processed with a third-party outsourced ERP system called IFCA. The Human Resource information system (HRIS) only applied in Shopping Center business unit. Other Business Units do not have HRIS. The overtime, leave, schedule is processed manually (with MSOffice). General purchasing is being centralized handled by head office, but the process still manual, every purchasing item are processed by paper internal memo.

Technology Architecture in the Company is still traditional, intranets are serving per business unit activities. Servers are local in each business units, except for billing system, the server is centralized in head office.

The current situations create some problems in the Company, namely:

1. Inefficiency and less productive, manual processes are slower, requiring more time and resources for tasks like data entry, approvals, and documentation;
2. Susceptible to Human Error, current situations are prone to errors such as miscalculation, incorrect data entry, or miscommunication;
3. Lack of Scalability, as the business grows, current processes become increasingly difficult to replicate. Adding more staff / resources does not always solve the issue;
4. Limited Control, Tracking and Insights, without automation, gaining perceptibility into processes, blockages, errors as well as anticipative insights is difficult;
5. Poor Data Accuracy, Integration and Collaboration, manual processes often result in data silos, with different divisions / business units maintaining separate data, that may not be fully aligned or shareable and difficult to integrate and to collaborate;
6. Compliance, manual processes make it harder to ensure compliance with regulations and standards. Many processes and procedures rely on person in charge in each department / business unit;
7. Security and Risk of Misconduct, manual processes often rely on physical documentation, which is more vulnerable to loss, theft, fraud, misuse or damage.

The Target of Business, Data, Application and Technology Architecture

The target Business Architecture will not much change, in general the structure remains Divisional, where each function handled by GM of Business Units (BU). The top five revenue stream still generated by commercial leasing business, residential sales, hotel banquet rental, waterpark entrance ticket sales and parking fee.

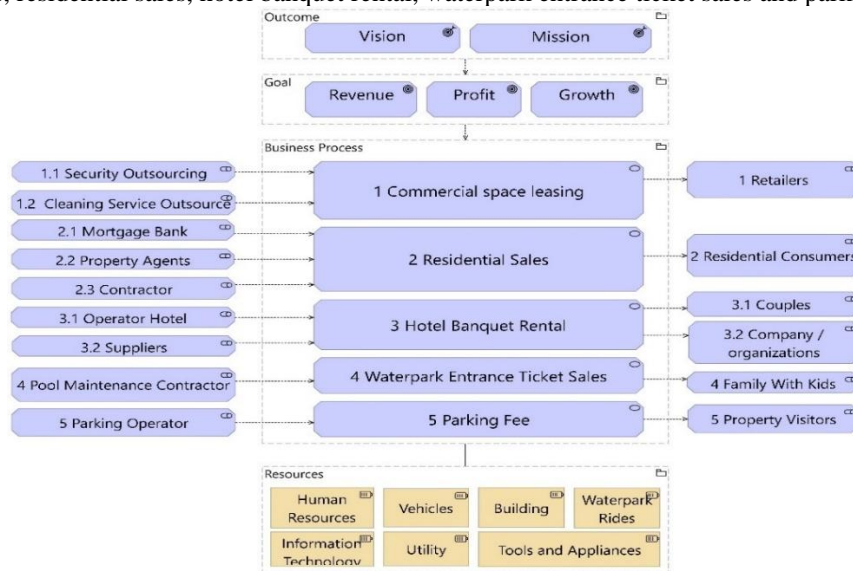


Figure 4. Architecture Vision / Business Model Canvas

The target Data Architecture suggest that care data collected in head office server. The data / information system (stock data, sales / leasing data, human resources data, building maintenance data, procurement, finance, accounting, parking, legal / administration and tax) can be retrieved in business unit. The data will be reclassified and similar data structure / feature will be standardized. The purpose of this reclassification is to allow future cross divisional analysis, comparisons and scalability.

Similar applications will be synchronized, especially those with the same function. All applications will be reviewed, those which are not compatible with the new Architecture, will be replaced or modified. Additional features, if required, will be added in existing applications to satisfy this target Application Architecture.

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Currently Technology Architecture is relatively basic. Existing technology (hardware, software, networks, and communication protocols) may need improvement to accommodate Target Technology Architecture. The improvement may be included new procurement or upgrading of hardware, software, networks and communication protocols. Currently, some business units may not have advance Technology, they need advancement so that each business units have relatively equal capacity to create synergy and synchronization with the Target EA.

Commercial Space Leasing

The business process of Commercial Space Leasing starts from prospect tenant (retailer / business actor) visits the property location. The new process in new EA requires the prospect Tenant to fill in formal inquiry in the Tenant Registration System. This process makes sure no prospect overlooked (intentionally or unintentionally) by the Team, so that the selection of the Tenant may not for the best interest of the Company.

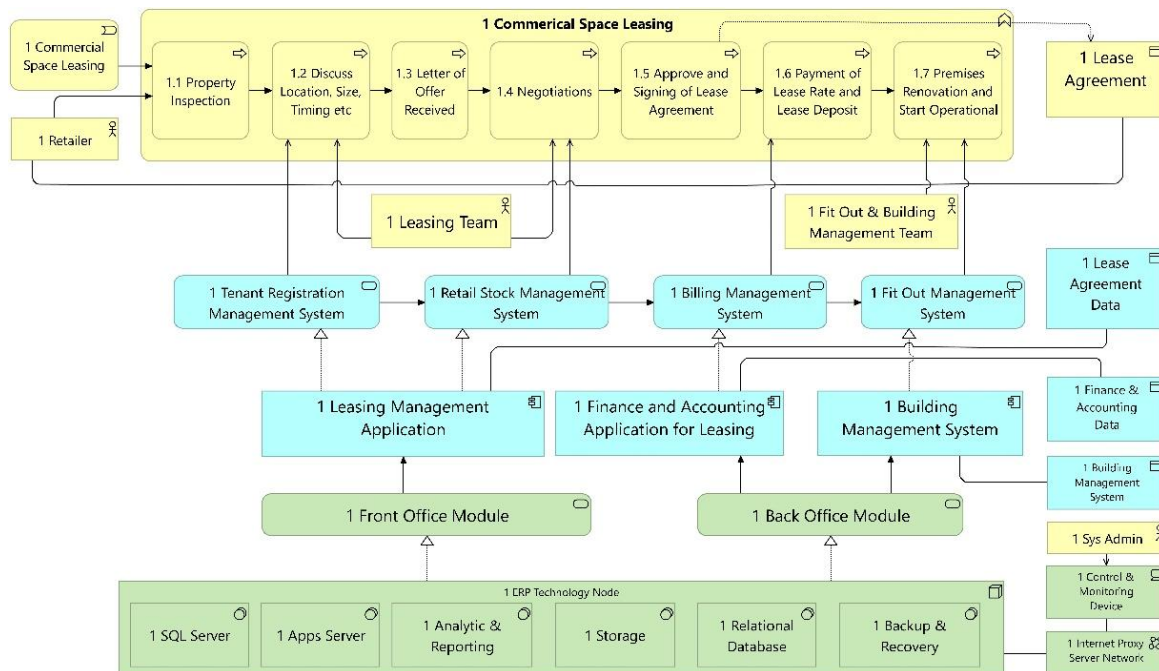


Figure 5. Commercial Space Leasing Phase B, C and D

They will meet the Leasing Team (business actor), discuss the location, size required and estimated timing of lease commencement. After met the requirement, the Leasing Team of Company will send the Letter of Offer depicting the location, size, lease commencement date, asking rate and other terms. This process requiring the Leasing Team to check the availability of units in the real time database in Retail Stock Management System.

Upon both parties' agreement, the team will send Confirmation Letter / Lease Agreement (Business Object) and the invoice of the first payment. The billing produced by Billing Management System, whose data inputted by Leasing Team and Finance Accounting Team.

After payment received, the Fit Out & Building Management Team (business actor) will liaise with the Tenant's fit out team to discuss the concept, dos and don'ts of the interior design and fit out process. The process guided by Fit Out Management System (new system), so the management could oversee all the fitting out processes in the Property. This system also used by Building Management Team so the information during fitting out process recorded properly for future purpose of building maintenance. Once the design approved, the contractor of the Tenant will start the interior renovation. After completion of the fitting out, Tenant may start the operation and Lease commence.

In the technology layer, the Company needs Front Office Module and Back Office Module to connect the Applications and ERP (Enterprise Resource Planning) Technology Node. This Technology Node go through Internet Proxy Server Network and will be controlled and monitored by Sys Admin (business actor). The Sys Admin is head office staff, may be deployed in business unit.

Residential Sales

The business process in Residential Sales starts when prospect buyer visits the marketing office (marketing gallery). In this step, the new Business Architecture proposes the Customer Relationship Management System (CRMS) to be implemented. The prospect or the sales who handle him/her input the information of contact, source of information (from which promotional channel he/she knows the product / Company), product that interest

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him/her. This CRMS also record the activities during negotiations / following up. Over period of time, this information may become source of marketing analysis such as conversion rate, source of initial information, comments during visits, reason of buying plan and performance of each individual sales person.

After visiting the gallery, the prospect usually will visit the show house or mock-up of the product. Commonly, the visit and show house inspection occurs in the same time. However, the visiting step usually handled by receptionist on duty and show unit inspection accompanied by sales team (business actor) on duty.

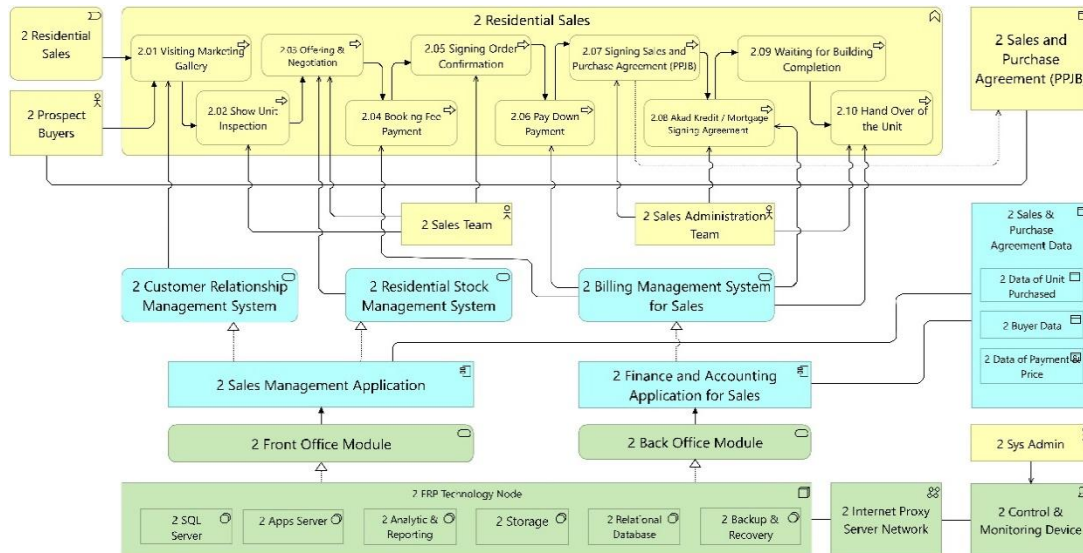


Figure 6. Residential Sales Phase B, C and D

Following the inspection of show unit, the willing prospect will select the unit's type / size and narrow down the possible payment plans. The information about available units, price and payment plan will be available in Residential Stock Management System (RSMS). This system also newly proposed in this Information System / Application Architecture. Then the sales team then will provide the description of the detail unit type, exact location, features and also the price and payment plan retrieved from RSMS. The negotiation may occur successively in shorter time or longer. This System provides real time information regarding available units, with updated prices and payment terms. So that real time updated stock information may be easily disseminated to all sales forces (inhouse or external), avoiding human errors and unequal information throughout all sales channels.

Upon pre-agreed terms and conditions, the prospect buyer will transfer the Booking Fee. Then the Sales Team will record this payment in the RSMS to avoid overlapping book by another prospect buyer.

Soon after the Booking Fee received effectively, the Prospect Buyer will sign the order confirmation. The Order Confirmation will consist of unit information, hand over schedule, price, payment schedule, detail contact information, ID number, Tax ID number, also standardized terms of condition of Sales & Purchase (including penalty of late payment, penalty of late delivery of product etc.), signature of Buyer, Salesperson, Sales Manager and Company's representative. This letter is the first administratively binding document between both parties (buyer and Company). The Booking Fee payment will be recorded by Finance Team in Billing Management System (BMSS) for Sales.

A few weeks after the Booking Fee (usually 2-4 weeks), the scheduled down payment paid by the Buyer and the Sales Administration Team (Business Actor) will arrange the signing of the Business Object (Sales and Purchase Agreement or *Perjanjian Pengikatan Jual Beli* in Bahasa Indonesia). This agreement mostly signs in front of Notary and legally binding for both parties. This agreement consists of more detail commercial, financial, administrative, legal consequences, other terms and conditions. Yet again, the payment recorded in the BMSS by Finance team, and the Sales Manager, Sales Administration can check in the system promptly.

The Buyer who chooses the Mortgage, later will sign the Mortgage Agreement with Bank for full settlement of the price. Buyer with another payment terms will skip this process.

After the signing of Mortgage and the Bank fully transfer the final settlement, the Buyer waiting for construction progress (if the products are not ready stock). Upon unit completion the Sales Administration Team will coordinate for the handover the unit. Once the full settlement paid, the BMSS will notify the concerned parties so they automatically updated.

In the Application Layer, CRMS, RSMS will be served by Sales Management Application. Meanwhile BMSS will be served by Finance & Accounting Application for Sales. Sales Management Application will be served by Front Office Module (Technology Layer), and Finance and Accounting Application for Sales will be

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served by Back Office Module. Both modules realized by ERP Technology Node, similar to Commercial Space Leasing business.

Hotel Banquet Rental

The business process of Hotel Banquet Rental starts when the prospect couples / individuals or company (Business Actor) visit the Hotel. Banquet Sales Team will then assist them to inspect the venue for their needs. Upon inspection, the prospect will choose the venue and the timing of the event. All steps' activities recorded in Hotel Customer Relationship Management System (CRMS). Similar to other business process, the information recorded in Hotel CRMS will provide sales performance tracking, loyalty program integration, transparency and information for further analysis.

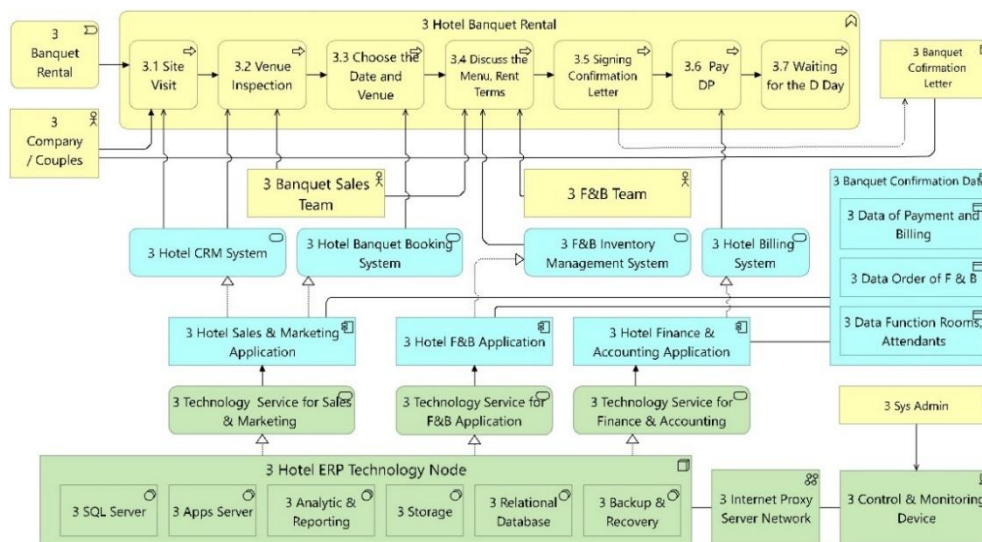


Figure 7. Hotel Banquet Rental Phase B, C and D

Soon after the venue and the date reserved (in some cases, the prospect's planned date and suitable venue may not be available), the prospect will discuss the options for Food and Beverage accompany with the Banquet Sales Team and F&B Team. The Banquet Sales Team will input the requested date and venue in Hotel Banquet Booking System to make sure there are no booking before on the same date and same venue.

After the menu selection, venue date, capacity and others terms agreed, the Banquet Sales Team will create Banquet Confirmation Letter (Business Object) consists of detail information of the prospect renter, venue, date, menu, number of guests etc. The F&B team will input the menu, number of guess and the venue date to prepare to order the F&B raw materials (F&B Inventory Management System). Besides, the F&B Team will also schedule the manning, including order for daily workers (part-timers).

Upon signing the Confirmation Letter, the renter will pay the Down Payment. Subsequently, the Finance Department will issue the receipt of the payment from the Hotel Billing System.

The Hotel CRM System and Hotel Banquet Booking System both are realized by Hotel Sales & Marketing Application (HSMA). F&B Inventory Management System is realized by Hotel F&B Application (FBA). Lastly, the Hotel Billing System is realized by Hotel Finance & Accounting Application (FAA).

HSMA, FBA and FAA are consecutively triggered by Technology Service for Sales & Marketing, Technology Service for F&B Application and Technology Service for Finance & Accounting. All Technology Services will be realized by Hotel ERP (Enterprise Resource Planning) Technology Node. A sys Admin (business actor) control and monitor the Technology Node through control device and Internet Proxy Server Network.

Waterpark Entrance Ticket Sales

The fourth business process is Waterpark Entrance Ticket Sales. The process divided by two mainstreams, the offline selling and online selling. Customer purchase the ticket offline, come to visit the property, and purchase the ticket in the ticketing booth. The payment of the purchase recorded in Payment Application Service, while the ticket issued by Ticketing Service. The business process also applicable for Online Ticket Purchase. The purchaser will get the ticket as the Business Object of this business process.

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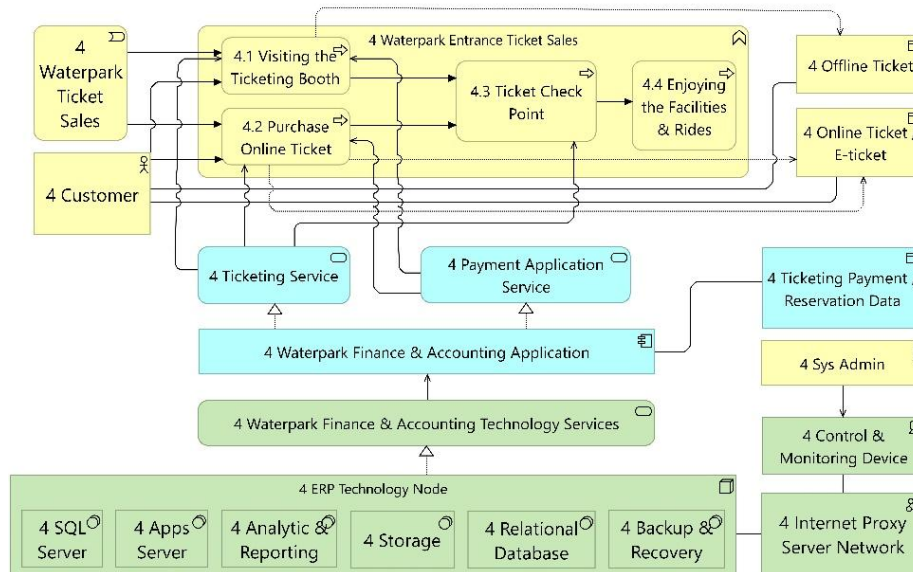


Figure 8. Waterpark Entrance Ticket Sales Phase B, C and D

After they get the ticket (both online and offline), they enter the Ticket Check Point, to check the validity of the ticket. This process is served by Ticketing (Application) Service. After they pass the Check Point, they can enjoy the facility & rides.

Both Ticketing Services and Payment Application Services realized by Waterpark Finance & Accounting Application. And the Waterpark Finance & Accounting Application is served by ERP Technology Node. Similar to others, this Node also monitor and supervised by Sys Admin in Head Office.

Parking Fee

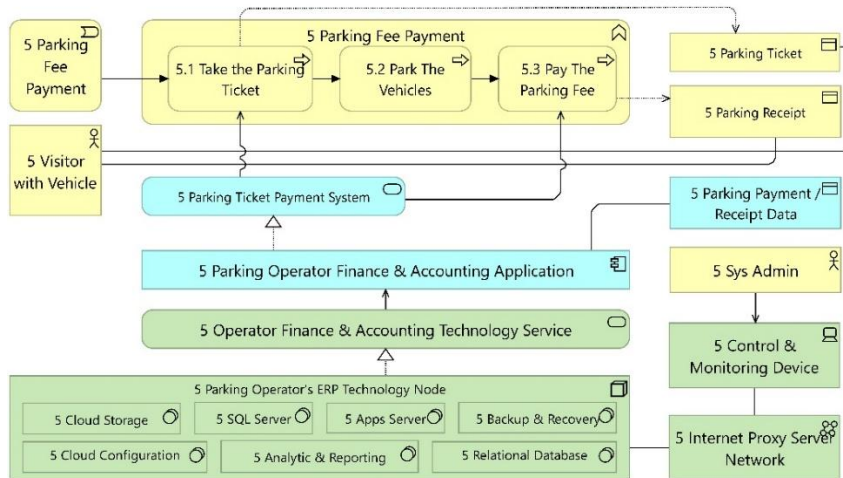


Figure 9. Parking Fee Phase B, C and D

The last business process discussed in this paper is Parking Fee Payment. It starts when Property Visitor enter the parking area. They take the parking ticket from Ticket Dispenser. The dispenser linked with Parking Ticket Payment System (PTPS). After they took the ticket, they park the vehicle in the parking lot available.

Upon finishing their activities in the Property, they get back to the parked vehicle and exit the Property. In the exit gate, the need to tap the ticket to the exit dispenser and pay the ticket fee. The information in the ticket (barcode or QR code) will retrieve the entering information and calculate the parking fee. After payment, then they exit the Property complex.

The PTPS is realized by Parking Operator Finance & Accounting Application. This Application is served by Operator Finance & Accounting Technology Service. This technology service is realized by Parking Operator's ERP Technology Node.

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DISCUSSIONS

From all five business processes, currently two of them are heavily dependent to third party in the operation. Firstly, is Hotel Banquet Rental, the process currently handled by Hotel Operator. The Hotel Operator usually has their own standard EA that applicable globally (especially for international chained hotel operator). It may be challenging to integrate this system with Company's.

Secondly, the parking fee process. Currently the Company rely on third party parking operator. And this operator has their own EA in managing parking in a lot of properties (not only Company's). Although, it is challenging, some other Real Estate Developers are managing the parking by themselves. This parking operations are simpler and may be more attainable to be operated independently by inhouse team of Company.

This research has some limitations. Firstly, the research only covers five business processes of the Company. Some others business processes are not covered, namely: Rental from Apartment, Hotel Room Rental, Hotel Laundry, Hotel Café, Shopping Center Service Charge, Shopping Center Casual Leasing, Shopping Center Advertising Media, Office Space Rental, Office Space Reserved Parking Fee etc.

Secondly, the EA does not much emphasize on digital marketing, production (construction), HR, procurement etc. This research covers the broader perspective of the company especially the overall commercial business process, especially from buyer / tenant / consumer's point of view. More detail EAs on that processes are potential for future researches.

Thirdly, the EA discussed in this paper are only Preliminary up until Phase D Technology Architecture. The research for the next Phases up until final Phase H Architecture Change Management. The next topic of research may explore this issue.

By implementing the proposed EA, the Research expects improvement of business process in the Company. However, the changes may impact many sectors of the Company and need to be integrated with high level management support. The impact may include, the upgrade of current company culture and human resources from more conventional and manual to be more modern and digitized. Training and adjustment should be implemented, however, some of the employee may be hard to be upgraded. This issue should be handled delicately, especially some of the employees may be in the key positions of current situation.

CONCLUSION

The proposed EA of the Company is expected to transform the Company into more agile, modern, efficient and adaptive to digital business landscape. Besides, the EA is also expected to create more transparent process to alleviate high dependency to people or any particular personnels. Thus, this EA will transform the people-oriented management into (digital) system-oriented. Even though the transformation process may have some challenges and initial investment, it is believed that the medium – long term benefit of the EA will be much greater than the invested resources. Although the implementation stages will be subject to further Research (Phase E – Phase H), the readiness of current human resources and corporate culture should be carefully reviewed and anticipated as early phase as possible. Any perfect EA may not be successfully implemented if the human resources and corporate culture are not accommodative and accommodated.

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