TOGAF Framework For an AI-enabled Software House

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Abstract: The integration of artificial intelligence (AI) in software development has revolutionized the industry, leading to faster and more accurate results. However, the implementation of AI requires a robust framework to ensure effective planning, design, implementation, and maintenance of AI-enabled software systems. The Open Group Architecture Framework (TOGAF) provides such a framework, enabling organizations to develop a structured and integrated approach to AI-enabled software development. In this journal, we present a case study of how a software house utilized the TOGAF framework to integrate AI in their software development processes. We discuss the challenges faced by the organization in the integration process and how the TOGAF framework provided a structured approach to overcome these challenges. We also highlight the benefits that the organization realized through the implementation of AI-enabled software systems. The case study presented in this journal demonstrates the applicability of the TOGAF framework in AI-enabled software development, and its potential to enhance the capabilities and competitiveness of software houses. The TOGAF framework provides a structured approach to the integration of AI in software development, ensuring that organizations can effectively leverage the benefits of AI while minimizing the associated risks and challenges.

Keywords: Artificial Intelligence, TOGAF, Enterprise Architecture, AI-Enabled, Software House.

INTRODUCTION

The integration of artificial intelligence (AI) in software development has revolutionized the industry, leading to faster and more accurate results. However, to effectively implement AI, a robust framework is required to ensure effective planning, design, implementation, and maintenance of AI-enabled software systems. The Open Group Architecture Framework (TOGAF) is a well-known enterprise architecture (EA) framework that provides such a method for planning, designing, and realizing company structures, business processes, information systems, and related infrastructure (TOGAF, 2011). TOGAF offers high-level guidance in identifying which areas of business and technology should be considered when creating an enterprise architecture (Wamba-Taguimdje et al., 2020). Although TOGAF has been used in various industries, including software development, urban data spaces, and ICT services management, there is still a need for research that examines its effectiveness and applicability in AI-enabled software development.

The importance of AI in software development has been highlighted, including its potential to revolutionize the industry, improve efficiency, automate operations, and enhance decision-making mechanisms. Despite its numerous benefits, using AI can also present challenges, including redefining markets and addressing moral and legal issues (Davenport, 2018; Elliott & Soifer, 2022). Therefore, it

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is crucial to examine how a well-established EA framework such as TOGAF can provide a structured approach to the integration of AI in software development.

The research objective of this study is to present a case study of how a software house utilized the TOGAF framework to integrate AI in their software development processes. By examining the challenges faced by the organization in the integration process and how the TOGAF framework provided a structured approach to overcome these challenges, this study aims to demonstrate the applicability of the TOGAF framework in AI-enabled software development. Furthermore, this study will highlight the benefits that the organization realized through the implementation of AI-enabled software systems.

The unique contribution of this study lies in its focus on the use of the TOGAF framework in the context of AI-enabled software development, which has not been extensively researched. By examining a case study of a software house, this study will provide insights into the effectiveness of TOGAF in integrating AI in software development, and its potential to enhance the capabilities and competitiveness of software houses.

LITERATURE REVIEW

Some of the research in this field has explored the use of enterprise architecture in cloud computing companies, software houses, and big data analytics. While these studies have provided valuable insights into the role of enterprise architecture in these contexts, there has been relatively little exploration of the integration of AI in an AI-enabled software house using the TOGAF framework. Below are tables which explain the previous studies about AI and the use of Enterprise Architecture and TOGAF.

Table. 1 Previous Studies which discuss Enterprise Architecture

Author	Topic	Advantage	Disadvantage
(Michael D.,2022)	Implementation of Enterprise Architecture in Cloud Computing Companies	Discussion of Enterprise Architecture is completed with multiple domains, from Business Architecture to Technology Architecture, which includes the implementation.	AI is not integrated as of the creation of the research, which will be discussed on this research.
(Muhammad S. A, 2022)	Kajian Pengembangan Enterprise Architecture Pada Industri Software House	Discussion on the use of Enterprise Architecture in Software House also on the flow of the architecture used.	AI is not integrated as of the creation of the research, which will be discussed on this research.
(Gong & Janssen, 2021)	Roles and Capabilities of Enterprise Architecture in Big Data Analytics Technology Adoption and Implementation	Adoption of the Enterprise Architecture on Big Data Analytics.	AI is not integrated as of the creation of the research, which will be discussed on this research.
(Schkarin & Dobhan, 2022)	Prerequisites for Applying Artificial Intelligence for Scheduling in Small- and Medium-sized Enterprises	The article discusses the challenges that SMEs face when implementing AI, such as a lack of AI experts and data organization,	AI is mentioned, but is not implemented in the form of TOGAF.

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			which may also apply to AI-enabled software houses.
(Kerzel, 2021)	Enterprise AI Canvas Integrating Artificial Intelligence into Business	Explaining how AI can help in making decisions for the company.	No further explanation or diagram for the implementation.

From the above table, it can be concluded that the implementation of AI in an AI-enabled software house using the TOGAF framework to be a particularly intriguing and promising area of research. While there has been a significant amount of research on enterprise architecture and AI in various contexts, including cloud computing, software houses, and big data analytics, there has been relatively little exploration of the integration of AI in an AI-enabled software house using the TOGAF framework. This suggests that there is significant potential for innovation and growth in this area, as well as opportunities to address potential challenges and obstacles to successful implementation.

However, it is important to note that the implementation of AI in an AI-enabled software house using the TOGAF framework is not without its potential risks and challenges. For example, there may be a lack of AI experts or data organization within the organization, which could hinder successful implementation. Additionally, the integration of AI technologies into the enterprise architecture using the TOGAF framework will require careful planning and evaluation to ensure that the benefits of AI are fully realized and that potential risks and challenges are managed effectively. By addressing these challenges and exploring the potential benefits of AI, the implementation of AI in an AI-enabled software house using the TOGAF framework can be critical in ensuring the long-term competitiveness and success of software houses in today's digital world.

METHOD

The implementation of TOGAF for an AI-enabled software house company involves using Enterprise Architecture (EA) as the basis for guiding the organization's development and deployment of AI solutions. To select and design the methods for this study, the authors conducted a literature review of existing research on the use of TOGAF in AI-enabled software development.

The EA approach provides a holistic method for architecture development that considers the alignment of the organization's business processes, data, applications, and technology infrastructure with its strategic goals and objectives (Bernaert, 2013). This approach ensures that the organization's AI solutions are efficient, effective, and scalable. To implement TOGAF for an AI-enabled software house company, the organization must first define its architecture domains, including the business, application, information, and technology architecture domains. These domains serve as the foundation for the development of the organization's overall architecture vision, which outlines the goals and objectives that the architecture will help achieve.

The Business Model Canvas (BMC) is an essential tool for the successful implementation of TOGAF for an AI-enabled software house company. The BMC provides a visual representation of the organization's business model, including its key activities, resources, partners, and customers (Pereira, Medina, Gonçalves, & Da Silva, 2016). This information is critical for defining the organization's business architecture domain, which serves as the foundation for the development and deployment of AI solutions.

In the case of an AI-enabled software house, the BMC can be used to identify key business processes, capabilities, and goals, and align them with strategic objectives to ensure that AI solutions are developed and deployed in a way that supports the overall business strategy. By using the BMC, organizations can identify customer segments, value propositions, channels, customer relationships, revenue streams, key resources, key activities, key partnerships, and cost structure. This information can be used to develop a lean framework to support digital new ventures in the BMC process (Raffaello Balocco et.al, 2019).

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Customer Segments	Value Proposition	Key Activities
Technology firms	AI-enabled solutions	AI research and development
Enterprises	Personalized services	Custom solution development
Governments	Faster decision-making	Testing and quality assurance
Researchers	Cost-effective solutions	Marketing and sales
Consumers	Enhanced customer experience	Customer support and service
Channels	**Customer Relationships**	**Key Partnerships**
Website	Personalized service	Technology providers
Social media	Exceptional customer service	Data providers
Direct sales	Self-service	Business partners
Referral marketing	Community building	Research institutions
Partner network	Feedback and reviews	
Revenue Streams	**Key Resources**	**Cost Structure**
Project-based	AI talent	AI talent
Subscription-based	Proprietary technology	Infrastructure
Licensing fees	Cloud infrastructure	Marketing and sales
Maintenance and support	Partner network	Research and development
Consulting fees	Funding and investment	Administration and overhead

Fig. 1 Business Model Canvas
Source: researcher property

The data of the implementation of TOGAF in the AI-enabled software house company will be compiled through interviews with key stakeholders involved in the implementation process. These stakeholders include the organization's EA team, software development team, and business leaders. The authors will analyze the interview data to evaluate the effectiveness of using TOGAF in AI-enabled software development.

RESULT

Artificial Intelligence (AI) technologies can provide significant benefits to an AI-enabled software house company. By automating repetitive tasks, organizations can free up employees to focus on more complex and creative work, leading to increased productivity and job satisfaction. Additionally, AI can enhance customer service by providing chatbots or virtual assistants that can respond to customer queries and provide product recommendations. Predictive analytics is another benefit of AI, as it can analyze data and identify patterns and trends to make better predictions about future outcomes. AI can also optimize software development processes by automating testing and debugging, leading to more efficient product releases. Finally, AI can improve cybersecurity by identifying and responding to potential threats in real-time.

The TOGAF framework provides a structured and comprehensive approach to creating an enterprise architecture. The framework helps align the organization's business goals and objectives with its technology strategy. By using the TOGAF framework in conjunction with Archimate, organizations can benefit from two architectural methods and guidance on how to integrate AI technologies into their enterprise architecture. Integrating AI technologies into the enterprise architecture using the TOGAF framework requires a structured approach. The first step is to identify the areas where AI can be used to improve business operations. The next step is to develop a roadmap for implementing AI technologies, including a detailed plan for integrating AI technologies into the organization's enterprise architecture and identifying the benefits that AI will bring to the organization.

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DISCUSSIONS

Business Architecture

The business architecture of an AI-enabled software house involves owners, partners, core process, customers, and the supporting resources of the company. Based on the findings during interviews, it can be concluded into image below:
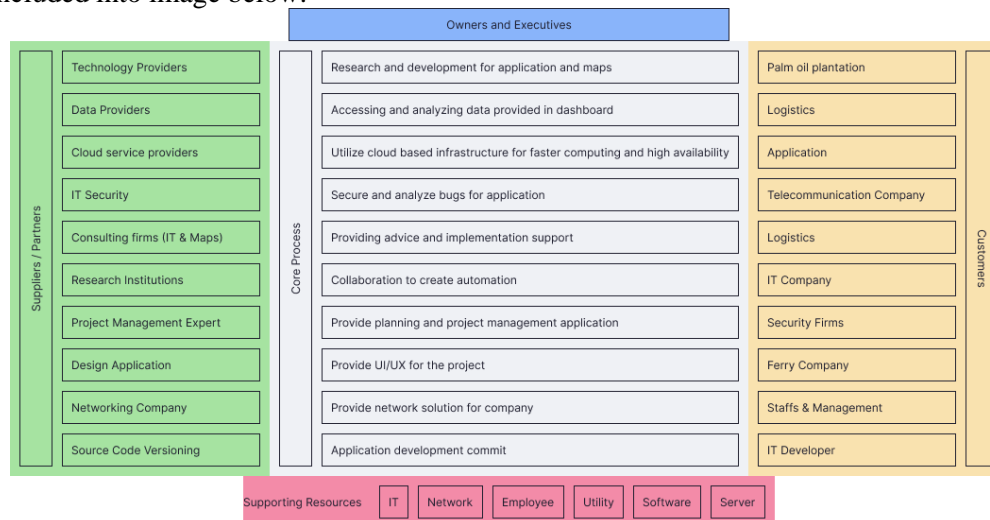

Fig. 2 Business Architecture
Source: researcher property

Figure 1 illustrates the correlation between the stakeholders (partners and customers), the core process, and the company itself. The Business Architecture serves a crucial role in facilitating this interaction. It acts as a blueprint of the entire company, offering a comprehensive view of the stakeholders' roles and responsibilities, the company's core process, and how these factors interact with each other. Below are the explanations for each stakeholder, core process, and the company infrastructure:

Partner

1. Technology Providers: These are companies that provide technology solutions, such as hardware, software, and services, to support the company's operations.
2. Data Providers: These are companies that provide data and information services, such as GIS data, market research, and customer insights, to support the company's operations.
3. Cloud service providers: These are companies that provide cloud-based infrastructure, such as servers, storage, and network resources, to support the company's operations.
4. IT Security: These are companies that provide IT security services, such as cybersecurity, compliance, and risk management, to protect the company's operations.
5. Consulting firms (IT & Maps): These are companies that provide consulting services related to IT and mapping, such as system design, implementation, and optimization, to support the company's operations.
6. Research Institutions: These are institutions that conduct research related to the company's industry, such as market trends, consumer behavior, and technological developments, to support the company's operations.
7. Project Management Expert: These are experts who provide project management services, such as planning, scheduling, and resource allocation, to support the company's operations.
8. Design Application: These are applications used for design work, such as Adobe Creative Suite, Sketch, and Figma, to support the company's operations.
9. Networking Company: These are companies that provide networking solutions, such as routers, switches, and firewalls, to support the company's operations.
10. Source Code Versioning: These are tools used to manage and track changes to the company's source code, such as Git, SVN, and Mercurial, to support the company's operations.

Core Process

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1. Research and development for application and maps: This refers to the process of developing new applications and maps, as well as improving existing ones, to support the company's operations.
2. Accessing and analyzing data provided in dashboard: This refers to the process of accessing and analyzing data provided in dashboards, such as GIS dashboards, financial dashboards, and operational dashboards, to support the company's operations.
3. Utilize cloud-based infrastructure for faster computing and high availability: This refers to the process of using cloud-based infrastructure, such as AWS, Azure, and Google Cloud, to support the company's operations.
4. Secure and analyze bugs for application: This refers to the process of identifying and resolving bugs and vulnerabilities in the company's applications, to improve their performance and security.
5. Providing advice and implementation support: This refers to the process of providing advice and support to clients and partners, to help them implement and optimize the company's solutions.
6. Collaboration to create automation: This refers to the process of collaborating with partners and clients to create automated solutions, such as robotic process automation (RPA), to support the company's operations.
7. Provide planning and project management application: This refers to the process of providing planning and project management applications, such as Microsoft Project, Asana, and Trello, to support the company's operations.
8. Provide UI/UX for the project: This refers to the process of providing user interface (UI) and user experience (UX) design services, to improve the usability and appeal of the company's applications.
9. Provide network solution for company: This refers to the process of providing networking solutions, such as network design, configuration, and optimization, to support the company's operations.
10. Application development commit: This refers to the process of committing code changes to the company's applications, to improve their functionality and performance.

Customers
1. Palm oil plantation: These are customers who own or manage palm oil plantations, and may require solutions related to land mapping, crop management, and supply chain optimization.
2. Logistics: These are customers who require solutions related to logistics and supply chain management, such as inventory management, transportation management, and warehouse management.
3. Application: These are customers who require applications related to their specific industry, such as healthcare, education, or finance.
4. Telecommunication Company: These are customers who own or operate telecommunications networks, and may require solutions related to network planning, optimization, and maintenance.
5. Security Firms: These are customers who require security solutions, such as access control, surveillance, and alarm systems.
6. Ferry Company: These are customers who own or operate ferry services, and may require solutions related to scheduling, ticketing, and route optimization.
7. Staff & Management: These are customers who require solutions related to human resources management, such as payroll, benefits, and performance management.
8. IT Developer: These are customers who require solutions related to software development, such as IDEs, frameworks, and libraries.

Owners
1. Owner: This refers to the Owner of the company and boards of Executives.

Supporting Resources
1. IT: This refers to the IT resources required to support the company's operations, such as servers, storage, networking, and software.

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2. Network: This refers to the network resources required to support the company's operations, such as routers, switches, firewalls, and load balancers.
3. Employee: This refers to the human resources required to support the company's operations, such as developers, analysts, project managers, and administrators.
4. Utility: This refers to the utilities required to support the company's operations, such as electricity, water, and internet.
5. Software: This refers to the software applications required to support the company's operations, such as productivity tools, collaboration tools, and security tools.
6. Server: This refers to the servers required to support the company's operations, such as web servers, application servers, and database servers.

Application Architecture
The company's application architecture includes the design of the software applications, data models, data flows, and data storage required to support our business processes and activities. By following the TOGAF framework, the company ensures that its application architecture is aligned with its business goals and supports its overall enterprise architecture.
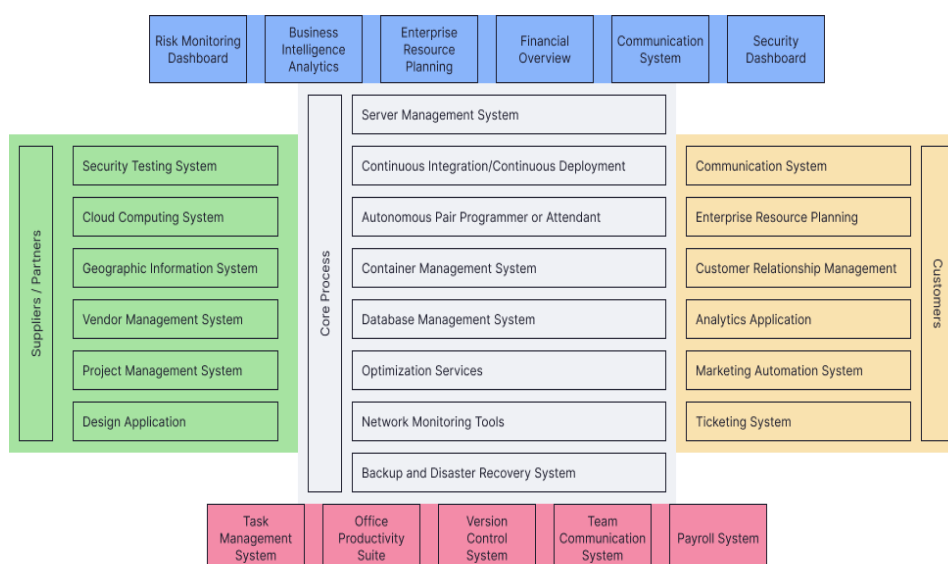

Fig. 3 Application Architecture
Source: researcher property

Partners
1. Red Team System Providers: A security testing system that assesses the security of an application or network by simulating attacks from a malicious hacker. The goal is to identify vulnerabilities and improve the security posture of the system.
2. Cloud Computing System: A cloud computing platform that allows users to deploy and manage virtual machines (VMs) and containers in the cloud. It provides infrastructure-as-a-service (IaaS) solutions that allow users to scale their applications and services without worrying about the underlying hardware.
3. Geographic Information System: A mapping and spatial analysis tool that allows users to visualize, analyze, and share data using maps and 3D scenes. It is commonly used in fields such as urban planning, environmental science, and public safety.
4. Vendor Management System: A software platform that helps organizations manage their contingent workforce, including temporary workers, contractors, and freelancers. It provides tools for recruiting, onboarding, managing, and paying these workers.
5. Project Management System: A tool for managing projects and tasks, including scheduling, assigning tasks to team members, tracking progress, and communicating with stakeholders. It

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helps ensure that projects are completed on time, within budget, and to the desired quality level.

6. Design Application: A software tool for creating, editing, and manipulating digital images, graphics, and animations. It is commonly used in fields such as graphic design, web design, and video game development.

Core Process

1. Server Management System: A set of tools and processes for managing servers, including configuring, deploying, and monitoring them. It includes tools for managing different environments, such as staging, testing, development, and production.

2. Continuous Integration/Continuous Deployment (CI/CD): A set of processes and tools that allow developers to continuously integrate new code changes into a codebase, automatically test the changes, and deploy the changes to production environments. This helps ensure that code changes are thoroughly tested and quickly deployed to users.

3. Container Management System: A tool for managing containers, which are lightweight, portable software packages that include all the necessary dependencies to run an application. It helps automate the deployment and scaling of containerized applications.

4. Database Management System: A software tool for managing databases, including creating, querying, updating, and deleting data. It includes tools for ensuring data consistency, security, and backup and recovery.

5. Optimization Services: A set of tools and processes for optimizing the performance of applications and systems, including load balancing, caching, and performance monitoring.

6. Network Monitoring Tools: A set of tools and processes for monitoring the performance and security of a network, including detecting and mitigating network attacks, monitoring bandwidth usage, and analyzing network traffic.

7. Backup and Disaster Recovery System: A set of tools and processes for backing up data and recovering it in the event of a disaster, such as a system failure or a cyber attack.

Customer

1. Communication System: A tool for communicating with customers, including email, messaging, and chat tools. It helps organizations stay in touch with their customers and respond to their inquiries and concerns.

2. Enterprise Resource Planning: A software platform for managing business processes, including finance, human resources, inventory management, and customer relationship management. It helps organizations streamline their operations and improve their efficiency.

3. Customer Relationship Management: A software platform for managing customer interactions and relationships, including sales, marketing, and customer support. It helps organizations better understand their customers and provide them with personalized experiences.

4. Analytics Application: A software tool for analyzing and visualizing data, including data from customer interactions, website traffic, and social media. It helps organizations gain insights and make data-driven decisions to improve their business performance.

5. Marketing Automation System: A software platform for automating marketing tasks, including email marketing, social media marketing, and lead generation. It helps organizations reach their target audience more effectively and efficiently.

6. Ticketing System: A software tool for managing customer support requests, including tracking and responding to customer inquiries and issues. It helps organizations provide timely and efficient customer support.

Owner

1. Risk Monitoring Dashboard: A tool for monitoring and managing risks to an organization, including cybersecurity risks, financial risks, and operational risks. It helps organizations identify and mitigate risks before they become major issues.

2. Business Intelligence Analytics: A software platform for analyzing and reporting on business data, including financial data, customer data, and operational data. It helps organizations gain insights into their business performance and make data-driven decisions.

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3. Enterprise Resource Planning (ERP): A software platform for managing business processes, including finance, human resources, inventory management, and customer relationship management. It helps organizations streamline their operations and improve their efficiency.
4. Financial Overview Dashboard: A tool for monitoring and managing an organization's financial performance, including revenue, expenses, and cash flow. It helps organizations make informed financial decisions and optimize their financial performance.
5. Communication System: A tool for communicating within an organization, including email, messaging, and chat tools. It helps teams collaborate more effectively and efficiently.
6. Security Dashboard: A tool for monitoring and managing an organization's cybersecurity posture, including identifying and mitigating security threats and vulnerabilities. It helps organizations protect their assets and data from cyber attacks.

Supporting resources
1. Task Management System: A tool for managing tasks and projects within an organization, including scheduling, assigning tasks to team members, tracking progress, and communicating with stakeholders. It helps ensure that tasks and projects are completed on time and to the desired quality level.
2. Office Productivity Suite: A suite of software tools for office productivity, including email, word processing, spreadsheet, and presentation software. It helps teams collaborate and work more efficiently.
3. Version Control System: A tool for managing source code and software development projects, including version control, code review, and continuous integration and deployment. It helps teams collaborate and manage code changes more effectively.
4. Team Communication System: A tool for team communication and collaboration, including messaging, video and voice calls, and file sharing. It helps teams communicate and collaborate more effectively.
5. Payroll System: A software tool for managing employee payroll and benefits, including calculating and processing employee paychecks, tracking employee time and attendance, and managing employee benefits. It helps organizations manage their workforce more effectively and efficiently.
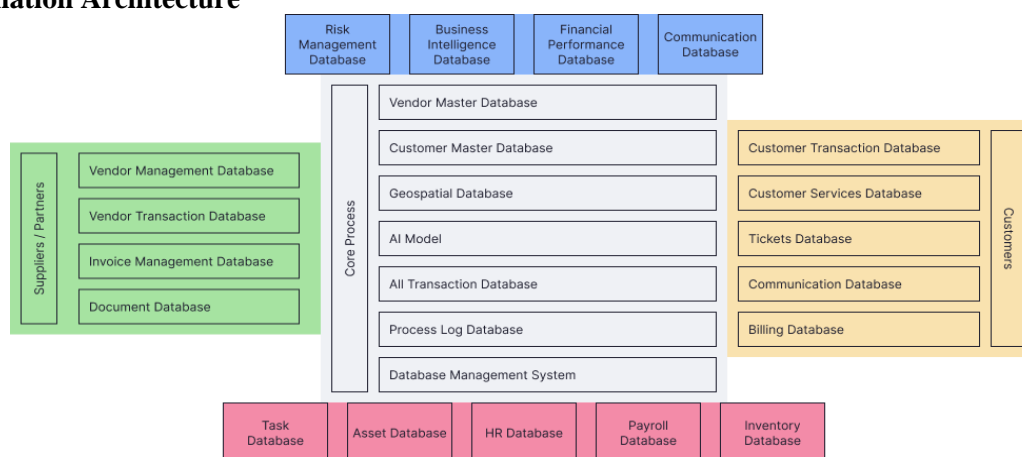
Information Architecture

Fig. 4 Information Architecture
Source: researcher property

Partners
1. Vendor Management Database: This database stores information about the vendors, including contact details, payment terms, contracts, and performance metrics.
2. Vendor Transaction Database: This database stores transactional data related to the vendors, such as purchase orders, invoices, and payments.

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3. Invoice Management Database: This database stores information about invoices, including due dates, payment status, and payment history.
4. Document Database: This database stores documents related to the vendors, such as contracts, agreements, and certifications.

Core Process
1. Vendor Master Database: This database stores the vendor master data, including basic information such as the name, address, and contact details of the vendors.
2. Customer Master Database: This database stores the customer master data, including basic information such as the name, address, and contact details of the customers.
3. Geospatial Database: This database stores geospatial data, including maps, locations, and coordinates.
4. AI Model: This database stores the AI models, including the trained data sets, algorithms, and results.
5. Load Balancer: This database stores data related to the load balancer, including the server metrics, traffic data, and configuration settings.
6. All Transaction Database: This database stores all transactional data related to the company's operations, including vendor transactions, customer transactions, and internal transactions.
7. Process Log Database: This database stores logs related to the processes, including system logs, application logs, and audit logs.
8. Database Management System: This database stores information related to the management of the databases, including configuration settings, access rights, and backups.

Customer
1. Customer Transaction Database: This database stores transactional data related to the customers, such as orders, payments, and support tickets.
2. Customer Services Database: This database stores information about the services provided to the customers, including service requests, service level agreements, and service history.
3. Tickets Database: This database stores information about the tickets raised by the customers, including the ticket details, status, and resolution.
4. Communication Database: This database stores communication data related to the customers, including email logs, chat logs, and call logs.
5. Billing Database: This database stores information about the billing, including invoices, payments, and refunds.

Owner
1. Risk Management Database: This database stores information related to the risk management, including risk assessments, risk mitigation plans, and risk control measures.
2. Business Intelligence Database: This database stores data related to the business intelligence, including sales data, marketing data, and customer data.
3. Financial Performance Database: This database stores financial performance data, including revenue, expenses, cash flow, and profitability.
4. Communication Database: This database stores communication data related to the owners, including email logs, chat logs, and call logs.

Supporting resources
1. Task Database: This database stores information about the tasks assigned to the employees, including task details, task status, and task assignments.
2. Asset Database: This database stores information about the company's assets, including the asset details, asset value, and asset location.
3. HR Database: This database stores information about the company's human resources, including employee data, payroll data, and benefits data.
4. Payroll Database: This database stores information about the company's payroll, including employee salaries, benefits, and taxes.
5. Inventory Database: This database stores information about the company's inventory, including the stock details, stock movements, and stock levels.

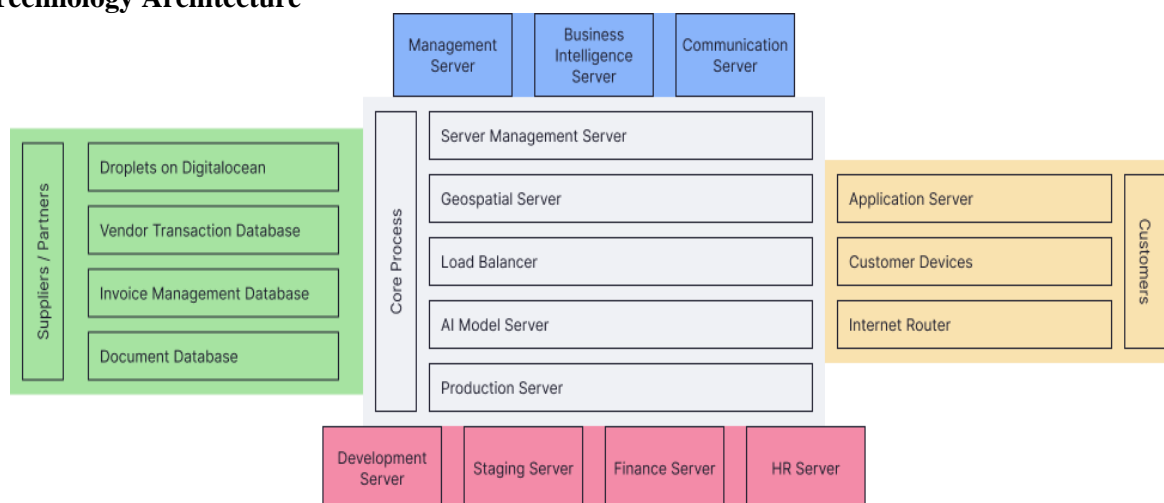*name of corresponding author

Technology Architecture

Fig. 5 Technology Architecture
Source: researcher property

Partners
1. Droplets on Digitalocean: These are virtual servers provided by DigitalOcean, which can be used to host and run applications and services.
2. Vendor Transaction Database: This database stores transactional data related to the vendors, such as purchase orders, invoices, and payments.
3. Invoice Management Database: This database stores information about invoices, including due dates, payment status, and payment history.
4. Document Database: This database stores documents related to the vendors, such as contracts, agreements, and certifications.

Core Process
1. Server Management Server: This server is used to manage and monitor the company's servers, including configuration, updates, and security.
2. Geospatial Server: This server is used to store and process geospatial data, such as maps, locations, and coordinates.
3. Load Balancer: This server is used to distribute network traffic across multiple servers, to improve performance and reliability.
4. AI Model Server: This server is used to run and manage AI models, including training, testing, and deployment.
5. Production Server: This server is used to run and host the company's production applications and services.

Customer
1. Application Server: This server is used to host and run customer-facing applications and services, such as web applications, mobile apps, and APIs.
2. Customer Devices: These are the devices used by the customers to access the company's applications and services, such as desktop computers, laptops, smartphones, and tablets.
3. Internet Router: This is the router used to connect the customers' devices to the internet, to access the company's applications and services.

Owners
1. Management Server: This server is used by the owners to manage and monitor the company's operations, including financial performance, customer relationships, and employee management.
2. Business Intelligence Server: This server is used to store and analyze data related to the company's operations, to provide insights and inform decision-making.

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3. Communication Server: This server is used to support communication and collaboration among the company's employees, partners, and customers, such as email, chat, and video conferencing.
4. Supporting Resources: These servers are used to support various functions and processes within the company, such as development, staging, finance, and HR.

Supporting Resources

1. Development Server: This server is used by the company's developers to build and test applications and services.
2. Staging Server: This server is used to test and deploy applications and services before they are moved to production.
3. Finance Server: This server is used to manage financial data and transactions, such as accounting, payroll, and budgeting.
4. HR Server: This server is used to manage employee data and transactions, such as hiring, benefits, and performance management.
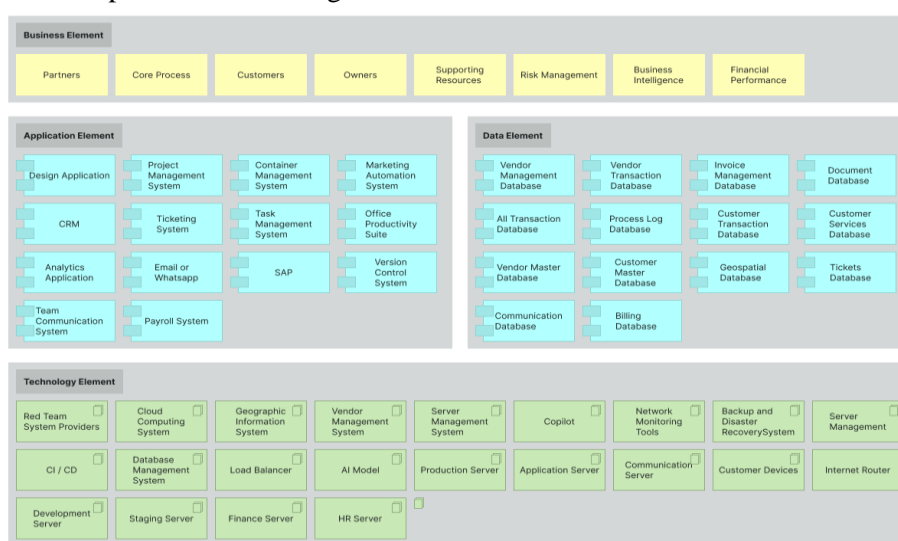

Fig. 6 Archimate Element
Source: researcher property

The ArchiMate diagram above is used for visualizing the technology architecture of the company. As shown in the diagram, the Element related to each field is clearly presented in different colors, which helps to facilitate a better understanding of the relationships between Business, Application, Data, and Technology. By using this diagram, key decision-makers can easily identify areas where improvements can be made and take proactive steps to ensure that the company is well-positioned to leverage the latest innovations in technology. Furthermore, this diagram can be used to communicate the technology architecture to stakeholders outside of the company, such as investors, partners, and customers, which can help to build trust and confidence in the company's ability to deliver high-quality products and services.

CONCLUSION

In conclusion, the integration of Artificial Intelligence (AI) technologies into an enterprise architecture using the TOGAF framework can provide a structured approach to planning, designing, and realizing the organization's structures, business processes, information systems, and related infrastructure. The benefits of AI are many, including workflow automation, customer service enhancement, predictive analytics, software development optimization, and cybersecurity improvement. By automating repetitive tasks and optimizing processes, organizations can improve efficiency, reduce costs, and enhance decision-making processes.

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