

A Quick Start Approach of Enterprise Architecture Implementation in the Investment Industry Sector

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Abstract

Investment companies need to keep up with emerging technologies if they want to remain competitive. If this pattern persists, the investment industry could lose many customers. Several reports stress the importance of rethinking the business model of the investing industry in the Fourth Industrial Revolution. Enterprise architecture is the way to go when controlling an organisation's information technology systems' structure, behaviour, and interconnections. Organisational activities and data flows can be better managed with the help of enterprise architecture. This study aims to help readers comprehend the investing business by delving into its fundamental ideas, advantages, disadvantages, and potential application settings. Enterprise architecture is how a business should run and how many components should collaborate. An all-encompassing architectural framework addressing enterprise IT, application software, and infrastructure are included in this analysis. The proposed design is aimed to facilitate the investment firm's incorporation of state-of-the-art technologies.

Keywords: Enterprise Architecture Investment company

1. Introduction

The corporate world is not immune to rapid digital transformation or technological advancement changes. It has the potential to improve upon established practices by introducing novel, flexible methods of operation[1]. If a business or consultancy is trying to determine what kind of technology it needs, it should look at how the current setup stacks up against the requirements. This study examines the implementation of Enterprise Architecture (EA) at an asset management firm like the Employee Provident Fund (EPF) to coordinate better the firm's information technology (IT) infrastructure and its technological and operational processes. Aware of the potential for EA to streamline processes, establish dependable technical procedures, and ensure that technology is implemented consistently across all business and functional areas[2]. In addition, EA can aid a company in reaching future performance targets that are well-defined and backed up by data, apps, and IT resources[3].

Among the world's most significant pension funds, EPF Malaysia is ranked sixth. However, the company has a problem: most divisions operate independently,

undergo frequent reorganisations and the applications and technologies it employs are disorganised and dispersed amongst various divisions. This results in duplicated efforts and unnecessary expenditures. In addition, some sections used antiquated hardware, software, and networks, which increases the risk of a data breach and disrupts data usage, storage, and application. Threats like malware, ransomware, and data breaches become increasingly pervasive as computer systems age. Therefore, insecure systems can be compromised through the use of antiquated software. Therefore, this proposes a quick-start approach to EA implementation in the investment industry sector, aims to assist the EA project team and subsequently will boost the success of the EA project.

2. Literature Review

Numerous studies examined how to quantify the outcomes of adopting an architectural stance, especially in creating and deploying IT systems[4, 5]. Multiple studies have concluded that EA helps businesses achieve their goals by coordinating IT and business operations [1, 6]. Ideas have been made to measure the EA technique's impact, but research reveals particular findings. Several businesses have turned to EA in recent years due to the increasing complexity of corporate IT systems. EA is defined as a field that can provide the perspective and insights required to translate strategy into execution, allowing senior management to accept ownership of essential choices on the architecture of the future organisation[7, 8].

One of these is the option to invest in IT. Investment decisions in IT involve selecting and funding initiatives, addressing how much to spend, what to spend it on, and how to fulfil the interests of various stakeholders[8]. This study focuses on the EA aspect directly contributing to quality IT investments. To begin, an EA practice must reach a certain level of maturity. The entire collection of behaviours, responsibilities, and participants participating in the development and deployment of EA is the definition of an EA practice[9]. The level of quality in an EA practice can be gauged by looking at how long it has existed. Ultimately, cultivating an EA practice aims to increase efficiency and productivity over time[10, 11]. Furthermore, EA offers essential information that helps shape IT investment decisions[12]. These discoveries should give upper-level management the authority to make important organisational design calls.

MyGovEA is a framework and methodology for guiding the public sector agencies in Malaysia in building EA practices. The primary aim of MyGovEA is to provide a common approach, steps and templates to ensure a consistent method of EA development in the public sector[13]. MyGovEA Methodology describes an essential framework component focusing on providing a comprehensive step-by-step guide to be followed by agencies embarking on building EA practices. The methodology comprises five (5) development stages. Each stage consists of defined objectives and outcomes and is supported by templates and tools to assist the agency in accomplishing the stage. The stages are as follows, Stage 1: Initiate; Stage 2: Assess; Stage 3: Define; Stage 4: Build/Operate; and Stage 5: Monitor.

Pengurusan Projek ICT Sektor Awam (PPrISA) aims to provide comprehensive guidance for managing Information and Communication Technology (ICT) projects in Public Sector agencies[14]. The PPrISA Guide contains procedures for implementing ICT projects from the Initial Phase, to the

Planning Phase, to the Implementation and Control Phase and finally to the Termination Phase. This PPrISA aims to provide a standard guide so that the management of ICT projects in public sector agencies can be implemented more consistently and disciplined. This guide can be used to manage ICT projects whether implemented internally, externally/outsourcing, those using external services or co-sourcing (a combination of internal and outsourcing).

3. Methodology

Procedures for rolling out the EA plan are outlined as discussed in this section, adapted from myGovEA and PPrISA. Based on these two methodologies, the following is the proposed quick-start approach to implement the EA project focusing on the investment sector, as shown in Figure 1.



Figure 1. A Quick Start Approach of Enterprise Architecture Implementation in the Investment Industry Sector

First, organisations should implement an EA system focused on achieving corporate goals. Employing an EA strategy motivated by business results is a great place to start when building the organisation's EA infrastructure. In today's digital era, EA programs prioritising satisfying business, technical, or IT tactical objectives often fail to prove and deliver commercial value. Connecting all IT and EA projects to the organisation's goals and strategy is essential before diving into the why and what of doing EA.

The second stage entails developing a unique selling proposition. The organisation must pledge its values and create and present a value proposition to win over leadership and gain support for an EA project. The EA value proposition needs to be interesting, convincing, and credible.

The third step is to lay the groundwork for business architecture. Implementing the organisation's strategic strategy is greatly facilitated by recognising business architecture as an integral part of EA. This is due to the in-depth familiarity with the strategy, its implications for the business and IT, and the implementation rules. Start the BODEA initiatives by ensuring the EA deliverables created are engaging and helpful for upper management.

Fourth, figure out the structure of the organisation. Collaborate with the CIO and other IT leaders to set up the EA program's organisational structure, establishing links to other business and IT departments. The organisation's structure for the EA

program should enable initiatives to respond to disruption and change, foster collaboration, and provide flexibility around key ideas in digital business.

Fifth, determine the necessary resources regarding time, budget estimation, personnel, and expertise. Assess the team's existing skill sets, develop a strategy to fill the knowledge gap, and enable digital transformation. It is also crucial to create a training program to enhance the capabilities of the EA team and chart their professional development.

Sixth, establish administration and protection measures. The EA and technical innovation leaders are responsible for defining the EA program's decision-making authority (governance) and compliance rights (assurance). They should provide appropriate guidance and support for projects and products. The traditional "command and control" approach to EA governance and assurance is obsolete in today's highly automated and interconnected world.

Seventh, measure business value. Modify key performance indicators (KPIs) to reflect the value of EA and the success of EA initiatives. A practical evaluation is necessary to demonstrate that the EA program's delivery was worth investing time and money in. EA leaders should devise efficiency and effectiveness measures to quantify the value EA adds to the organisation.

Finally, the eighth step is to draft a Charter. EA leadership should develop a practical and achievable EA charter. An efficient EA charter outlines the program's parameters and conveys its objectives to upper management, the EA group, and the rest of the organisation. An EA charter based on traditional EA principles will lead to a weak initiative.

4. Result and Discussion

EA is a strategic framework that assists in identifying and managing the overall structure of the enterprise, comprehending its operation, making informed decisions about its future development, and aligning IT expenditures with business goals. EA aims to improve an organisation's efficiency by improving its information technology (IT) use, ensuring regulatory compliance, protecting shareholder value, increasing customer satisfaction, and lowering risk[15]. Integration platforms such as IBM System z® Express™ for Integration Services Standard Edition V7, a process-oriented design methodology, an ERP/ESE strategy, and an Open Systems Integration (OSI) method are all distinct types of EA.

EA is a set of guidelines for managing IT within an enterprise context. It is a strategy that assists a company in assessing its current IT situation, planning for future growth, and evaluating available IT solutions. Businesses can make informed IT investment decisions by utilising EA. They thoroughly understand their informational needs and how various forms of technology can meet them, as emphasised by previous studies [6, 16]. Furthermore, they understand how IT can improve business operations and link these processes to IT. This enables businesses to understand the total cost of ownership for their IT solutions and the flexibility to upgrade and modify them as business requirements change.

For financial investment firms, using EA has numerous advantages. The initial realisation represents the actual cost of IT solutions. They stop paying for ineffective treatments. Second, they are given an overview of the company's information technology, including where they are now, where they want to go, and

how far different paths will set them back. As mentioned by a previous study, this enables them to make sound financial decisions[15]. EA allows financial investment firms to quickly and easily assess how potential changes to the specific business activity will affect the IT infrastructure. Without EA, financial investment firms cannot function. It allows them to assess how a change to a single business process will affect the IT infrastructure, allowing them to make more informed investment decisions. The following conditions must be met before any EA programmes can be launched.

4.1 Principles of EA

EA principles considerably improve the technology decisions made by investment firms. EA aligns long-term goals, technical goals, and institutional impact, resulting in dependable, high-quality technology decisions. JPMorgan Chase, for instance, effectively implemented EA principles by creating a map of IT resources and business processes, facilitating strategic alignment and innovation. EA frameworks, which include the four fundamental domains of business, data, applications, and technology, produce a comprehensive plan for technology decisions in financial investment enterprises [5].

EA promotes discussions on implementing business strategy via IT, optimising resource allocation and refining processes. By providing a holistic view of IT systems, applications, and data sources, EA also combats complexity within financial investment firms. By effectively managing complexity, businesses increase their efficacy and optimise their operations. In conclusion, the EA principles are indispensable for financial investment enterprises. By utilising EA concepts, businesses can make dependable technology decisions, align business objectives with IT capabilities, and manage complexity effectively. J.P. Morgan Chase's successful EA implementation demonstrates how it promotes strategic IT alignment and fosters innovation within financial investment firms.

4.2 EA Process

EA is a process that defines, communicates, and enhances essential requirements, concepts, and models to influence the future state of a financial investment company. By implementing EA, businesses can effectively align their business strategy with IT capabilities, promoting long-term organisational change [17]. EA is a comprehensive framework for analysing, formulating, planning, and executing an enterprise's strategy. It organises corporate operations and IT resources to accomplish strategic objectives and maximise overall performance. In financial investment firms, EA applications extend beyond data warehousing. It provides recommendations for streamlining, standardising, and integrating operations to improve customer service. Enterprise architects maintain a prioritised and aligned inventory of current and future activities and roadmaps to ensure coherence between business objectives and IT initiatives [11].

In addition, EA plays a significant role in developing hardware and software components. Advanced programmers utilise EA to describe the infrastructure components of a website, including web servers, databases, NoSQL database caches, API endpoints, and content delivery networks. Businesses can guarantee a robust and optimised web infrastructure by incorporating these components into an EA framework.

Goldman Sachs, a global investment banking firm, is a notable example of successful EA implementation. They utilised EA principles to align their business strategy with IT capabilities, which resulted in the standardisation of processes, improved data administration, and enhanced cross-functional collaboration [19]. In conclusion, EA allows financial investment firms to transform their operations and align them with their business goals. Businesses can improve customer service and achieve long-term objectives by streamlining processes, standardising operations, and leveraging optimised IT infrastructure. Goldman Sachs exemplifies the practical implementation of EA principles in the financial investment industry to drive operational efficiency and innovation.

4.3 EA Team and Tools

Financial investment firms require EA to align their IT landscape with business objectives. It foresees the organisation's future state and outlines a path to accomplish it through the strategic use of information technology. Leading EA tools, such as Oracle EA and ABACUS EA, facilitate the development of strategic roadmaps and architectures, thereby enhancing collaboration between IT and business domains [18]. BlackRock, a multinational investment management company, is an exemplary case of effective EA implementation. BlackRock implemented EA principles to optimise operations and enhance decision-making processes. By utilising EA tools, they obtained a comprehensive view of their technology landscape, enabling them to maximise investment strategies and deliver improved client outcomes [20].

EA empowers financial investment firms by promoting informed decision-making, fostering innovation, and attaining strategic objectives. It goes beyond simplifying technical concepts to facilitate collaboration between IT and business domains to align organisational objectives. However, it is essential to recognise that implementing and utilising EA tools may initially present difficulties for novice users. The complexity of these tools necessitates appropriate training and support to utilise their capabilities effectively. Individuals can leverage the maximum potential of EA to align their IT infrastructure with business requirements with the proper resources. In conclusion, EA is a crucial component for financial investment firms, allowing them to align their IT landscape with their business objectives.

EA tools have been effectively utilised by industry leaders such as BlackRock to optimise operations, improve decision-making, and drive innovation. While there may be obstacles to employing EA tools, the benefits of strategic alignment and informed decision-making transcend the initial learning curve. By adopting EA, financial investment firms can realise their full development and success potential in a swiftly changing industry.

5. Conclusion

In conclusion, EA research and implementation are now required for businesses to plan their future business architecture and generate revolutionary technological and process advancements. EA gives investors a framework for decision-making and a standardised vocabulary, allowing them to efficiently evaluate prospective investments and make decisions based on rigorous analyses. It also facilitates business-wide collaboration, information sharing, and standardisation, laying the groundwork for effective future architecture. By

leveraging EA, organisations can maintain consistent investment returns by evaluating the efficacy of their current strategies and confidently implementing any necessary adjustments. EA enables quantification of investment efficiency, resulting in targeted spending and a clearer comprehension of the organisation's development towards its objectives.

Despite implementation challenges, EA enables businesses to monitor investments, assess progress, and make well-informed decisions. This is especially true for smaller enterprises with limited resources. Future developments in EA methodologies should address scalability and accessibility issues, making EA more applicable to organisations of all sizes. Integrating emergent technologies such as artificial intelligence and blockchain can further improve EA frameworks' decision-making and automation. Developing industry-wide standards and best practices will encourage business collaboration, knowledge sharing, and benchmarking. In addition, efforts should be focused on cost-effective implementation strategies, workforce readiness, and change management techniques to facilitate the adoption and pervasive application of enterprise architecture (EA). The financial investment industry can unlock even greater potential for strategic planning, informed decision-making, and sustainable success by advancing EA research and practice.

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