

PAPER • OPEN ACCESS

Designing Enterprise Architecture Planning in Mobile News Applications Using TOGAF ADM

To cite this article: A Fergina and I D Sumitra 2019 *IOP Conf. Ser.: Mater. Sci. Eng.* **662** 022098

View the [article online](#) for updates and enhancements.

You may also like

- [Evaluation of Raw Water Availability Kaliboyo River in the Effort for Drinking Water Meeting in the District Batang and the City Pekalongan](#)
S Syafrudin, A Sarminingsih and K Biantoro
- [Designing Enterprise Architecture Using TOGAF Architecture Development Method](#)
R A Hermawan and I D Sumitra
- [A policy review: are disaster safe schools in Pekalongan Regency necessary?](#)
Lintang Ronggowulan, Yunus Aris Wibowo and Hikari Dwi Saputro



ECS
The
Electrochemical
Society
Advancing solid state &
electrochemical science & technology

DISCOVER
how sustainability
intersects with
electrochemistry & solid
state science research

Designing Enterprise Architecture Planning in Mobile News Applications Using TOGAF ADM

A Fergina^{1*}, I D Sumitra²

¹Departemen Sistem Informasi Pascasarjana, Universitas Komputer Indonesia, Indonesia

²Departemen Manajemen Informasi, Universitas Komputer Indonesia, Indonesia

Email: anggun.75118008@mahasiswa.unikom.ac.id

Abstract. The purpose of this research is overcome the current situation of an area in Indonesia, often people still find it difficult to find news around the area, one of which is in Pekalongan City, Central Java, where the majority of the population migrates to the urban area. The majority of information around Pekalongan still uses conventional media and other media, one of which is using newspaper media. Therefore, the lack of mobile application technology on the news media always makes it difficult for people to find information about local news, especially for people outside the area who want to know the development of their urban of origin. In order to connect with the dissemination of information about these areas, we propose the design of enterprise architecture planning in mobile news applications. TOGAF ADM architecture framework using the Architecture Development Method (ADM) model to design and implement it and can provide a blueprint guide for future development. In this model, it covers the scope of data architecture, application architecture, technology architecture as corporate architectural design and development of more business processes good from previous development.

1. Introduction

Pekalongan is an online news media that aims to provide information about the area to the public. Especially for people from outside the area who want to know the development of the city of origin. The data generated is significant for the readers because it is to find out various kinds of information about the condition of the Pekalongan area and its surroundings. The importance of this information, Seputar Pekalongan will develop its business processes with media access through mobile applications. By using a mobile app, researchers will design the architecture of online news media Seputar Pekalongan with a mobile platform so that proper public rights can access it. Beside EA as a method to align between business strategy and IT strategy and also as an innovative way of rethinking the scope of a business process [1], EA can facilitate business success to the effectiveness by using the information of management strategies and IT resources. The competitive advantage depends on customer satisfaction, process life cycles, resource management, task allocation and scheduling, and estimation cost [2].

The research conducted by Yenny, et al: states that enterprise architecture planning using the TOGAF ADM framework can provide output in the form of blueprints in supporting the organization's business processes to be integrated with other systems so that the development to the next stage will be easier. The research consisted of planning, and implementation using several phases namely Preliminary, Architecture Vision, Business Architecture, Information Systems Architecture, Technology Architecture, Opportunities and Solutions, Migration Planning, Implementation Governance, and Architecture Change Management. Based on previous research, the researchers assume that enterprise architecture planning



using the TOGAF ADM framework is needed for online news media organizations Seputar Pekalongan in the modeling and development of information technology and development in business processes [3] [4].

There are currently many enterprise architecture frameworks that can be used by organizations or companies, but based on Cameron and McMillan's research on the five most commonly used enterprise architecture frameworks, TOGAF frameworks are rated as far superior compared to other frameworks. The advantages of TOGAF include process completion, TOGAF ADM, flexibility in the use of elements, integration/interconnection between layers, vendor neutrality, and alignment with industry standards. For online news media planning Seputar Pekalongan using enterprise architecture planning design in mobile news applications. TOGAF ADM uses the Architecture Development Method (ADM) within the enterprise architecture framework to design and implement it. In this model, it covers the scope of the stages of TOGAF ADM using the Architecture Development Method (ADM) such as data architecture, application architecture, and technology architecture as the corporate architectural design [5].

2. Methods

The method used in this study was a survey involving research sources as the object to be studied. This study included data contained in news online media Seputar Pekalongan using the stages of TOGAF ADM with the Architecture Development Method (ADM) model as the company's business architecture framework to be designed.

The TOGAF Architecture Development Method (ADM) provided a tested and iterative process for developing EA. It comprised instituting an architectural framework, transitioning, developing architecture contents, and governing the comprehension of architectures. Mentioned activities were fulfilled by employing an iterative cycle of continuous architecture description and comprehension that permits enterprises to transform themselves in a managed manner in accordance with business targets. TOGAF ADM was a methodology that described an iterative method for EA development. The enterprise architect must be determined some features of TOGAF methodology such as level of details, breadth of coverage, and extent of time horizon due to ADM did not provide prescription on those [6].

The following was the phase of the TOGAF ADM framework with the Architecture Development Method (ADM) model, which can be seen in Figure 1.

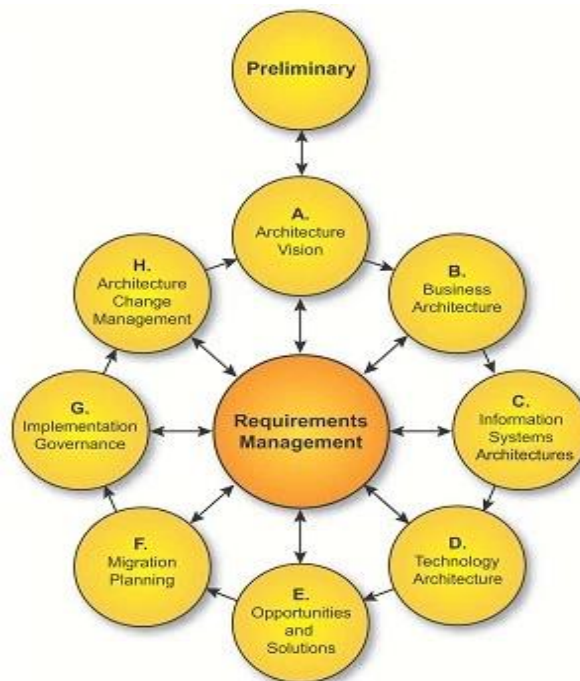


Figure 1. The phase of the TOGAF Framework ADM Architecture Development Method

Here are the sections and phases in TOGAF ADM [7, 8]:

1. Architecture Context
 - a. Preliminary Phase
 - b. Phase A: Architecture Vision
2. Architecture Development
 - a. Phase B: Business Architecture
 - b. Phase C: Information Systems Architecture
 - c. Phase D: Technology Architecture
3. Transition Plan
 - a. Phase E: Opportunities and Solutions
 - b. Phase F: Migration Planning
4. Architecture Governance
 - a. Phase G: Implementation Governance
 - b. Phase H: Architecture Change Management
5. Requirements Management

3. Results and Discussion

The results of research conducted on online media Regarding Pekalongan using the TOGAF ADM architecture stage with the Architectural Development Method (ADM) model as the development of business architecture work which includes 5 phases of activities such as the initial phase, architectural vision phase, business architecture phase, information system architecture phase, and the technological architecture phase. The following are the results of the phases that have been done:

3.1 Preliminary phase

The first phase is the preparation phase, where this phase will be committed and confident with an architectural design using TOGAF ADM with the Architecture Development Method (ADM) model to make the business development process better.

3.2 Architectural Vision Phase

In the second phase is the architectural vision phase, which is the phase where it is committed to the vision that will be used as a benchmark in architectural design. In this phase, all must comply with the vision that has been agreed upon both outside parties and parties in this design.

3.3 Business Architecture Phase

In the business architecture phase is an overview of existing business processes with those that will be designed to be in line with business processes in the media Seputar Pekalongan. The following business architecture on media Seputar Pekalongan can be seen in Table 1.

Table 1. Business Architecture

No	Problem	Current Architecture	Method	Architecture Expected
1	Media Development Access	Still using website platform.	Designing access media using mobile applications using the TOGAF ADM architecture framework with model ADM with the Architecture Development Method (ADM) model	Can be accessed using two platforms properly.
2	Aligning vision, a mission with business processes	Absence of rules in vision, mission and business process	Still using manual.	Can align the vision, mission and business processes according to the

stages of TOGAF ADM
with the Architecture
Development Method
model.

From Table 1, it can be concluded that there is a need to design using the TOGAF ADM framework with the Architecture Development Method (ADM) model to harmonize the vision, mission, and business processes in the future.

3.4 Phase of Information System Architecture

In the information system, the architecture phase is the information system architecture phase that will be developed by emphasizing aspects of application architecture and data architecture.

3.4.1 Application Architecture

In the information system architecture phase, application architecture is needed to support the design of online mobile news Seputar Pekalongan. In the application architecture, there are several menu components to interact with each other in the system/application so that the user/reader can easily access them so that the available menus can be accurate according to the information the user/reader gets.

3.4.2 Data Architecture

In the data architecture, it requires centralized data integration from the online mobile news media Seputar Pekalongan with a system that was previously available so that the data can be easily accessed so that real-time data can be updated in a fast time.

3.5 Technology Architecture Phase

In the technological architecture phase is a phase to see the feasibility of infrastructure both in terms of networks and devices used in the previous system. The following phase of the technology architecture can be seen in Tables 2, 3 and Figure 2.

Table 2. The software of Technology of Architecture

No	Type	Current Software	Expected Software
1	Server Operating System	Using Linux	Using Linux and the 4th generation
2	Framework	CodeIgniter	CodeIgniter and Flutter
3	DBMS	MySQL	MySQL and API <i>Mobile</i>

Based on Table 2, it can be concluded that software technology architecture will develop such as framework and DBMS to support the design of mobile news media online. While in terms of hardware are as follows:

Table 3. The hardware of Technology of Architecture

No	Type	Current Hardware	Expected Hardware
1	Server	Server Core i7	Third Party Data Center
2	Storage	Ram 8GB, Harddisc Unlimited	Ram 8GB, Harddisc Unlimited
3	Supporting Media	Personal Computer	Personal Computer and Handphone/Mobile

Based on Table 3, it can be concluded that the hardware technology architecture will develop such as servers and supporting media to support the design of mobile news media online. The

following is a network overview that will be designed to support the design of mobile news media online.

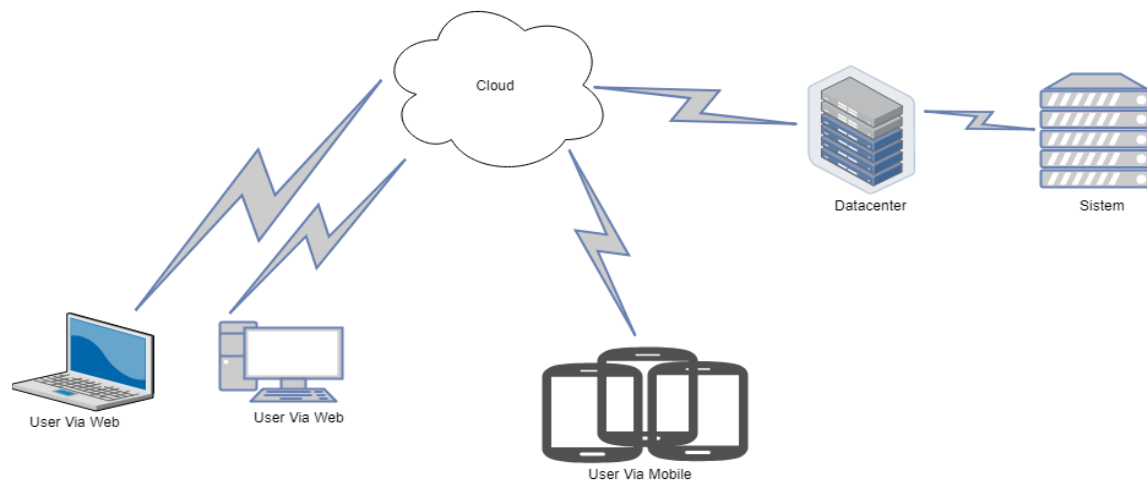


Figure 2. The phase of Network Technology Architecture

Research with a similar theme [9], uses the TOGAF enterprise architecture framework to find out how an organization designs a system to support business and technology needs in realizing the expected vision and mission. The rest of the study compares with other frameworks, but for the TOGAF framework, it can be said to be a complete framework because it presents a detailed and comprehensive framework. In addition, another study conducted by [10], where this study uses the TOGAF ADM framework for tertiary institutions, understanding the business process of higher education is very important, because college business processes have different complexity and characteristics compared to other service organization business processes so as to create harmony between business and information technology for organizational needs is very much needed to implement enterprise architecture.

Therefore, this research can produce a blueprint for aligning the organization's vision and mission to produce better business processes and better infrastructure development than before. This research requires the role of all parties, both internal and external organizations because to achieve targets in accordance with the vision and mission of the organization in developing better business processes.

4. Conclusions

The conclusion of this study is that the platforms used in business development are website-based and mobile applications, using enterprise planning architecture in the TOGAF ADM framework with the Architecture Development Method (ADM) model that can provide blueprint guidance for subsequent development and development of more business processes good from previous development.

Acknowledgments

The authors would like to thank Mr. Assoc. Prof. Dr. Ir. Eddy Soeryanto Soegoto, MT as Chancellor of the Universitas Komputer Indonesia (UNIKOM), and Mr. Dr. Yeffry Handoko Putra, ST., M.T. as Head of the Master of Information Systems. And special thanks were given to Irfan Dwiguna Sumitra, M. Kom., Ph.D. who have provided full support and guidance so that this paper can be realized.

References

- [1] Ke Lu, H., Chun Lin, P., "A Study of Competency of Enterprise Architects in Higher Education", International Conference on Computer Science and Automation Engineering, 2012.
- [2] Povey, Barry, "The Development of a best practice business process improvement methodology", Benchmarking for Quality Management and Technology, **5**(1), pp. 27-44, 1998.

- [3] Kustiyahningsih Yeni, "Perencanaan Arsitektur Enterprise Menggunakan Metode Togaf Adm (Studi Kasus: Rsud Dr.Soegiri Lamongan)", ISBN: 978-602-97491-7-5, Prosiding Seminar Nasional Manajemen Teknologi XVIII Program Studi MMT-ITS, Surabaya 27 Juli 2013.
- [4] Miftahuddin Yusup, Ichwan Muhammad, and Musrini Mira, "Penerapan Metode Eap (Enterprise Architecture Planning) Pada Pembuatan Blueprint Sistem Akademik", *4*(1), January – April 2013 ISSN: 2087-5266.
- [5] B. H. Cameron and E. McMillan, "Analyzing the Current Trends in Enterprise Architecture Frameworks," *Journal of Enterprise Architecture*, 2013.
- [6] The Open Group. Version 9.1: an Open Group Standard, 2019. <http://pubs.opengroup.org/architecture/togaf9-doc/arch/index.html>
- [7] H Quratuaini, "Designing enterprise architecture based on TOGAF 9.1 framework", 2017.
- [8] The Open Group, TOGAF Version 9.1, The Open Group, 2011.
- [9] Safitri Nadya, Pramudita Rully, "Pengembangan Kerangka Kerja Arsitektur Enterprise", *BINA INSANI ICT JOURNAL*, *4*(1), Juni 2017, 73 - 82 ISSN: 2355-3421 (Print) ISSN: 2527-9777 (Online).
- [10] Yunis Roni, Surendro Kridanto, "Perancangan Model Enterprise Architecture Dengan Togaf Architecture Development Method", *Seminar Nasional Aplikasi Teknologi Informasi 2009 (SNATI 2009)*, ISSN: 1907-5022, Yogyakarta, 20 Juni 2009.