

# The Analysis and Evaluation of Information System and Information Technology in the Parliament of Central Maluku Regency Using TOGAF ADM Method

Marchello Gefan

Faculty of Information Technology, Master of Information Systems, Satya Wacana Christian University, Salatiga, Indonesia

gefan@windowslive.com

## ABSTRACT

Indonesia is a vast archipelago with various infrastructure development and utilization of information technology. Internal issues of utilization of Information System (IS) / Information Technology (IT) in an organization is the lack of alignment between utilization and requirement planning. In order to minimize the issues, there is a need of intensive planning, analyzing, develop and utilizing of IS/IT. It is called enterprise architecture. The open group framework (TOGAF) Architecture Development Method (ADM) is a methodology in designing enterprise architecture that is widely used. In this research, an analysis and evaluation of the development and utilization of IS/IT in the Central Maluku Regency is conducted. The development and utilization of IS/IT is line with the vision and mission of the house of representative in Central Maluku Regency. This research produces a strategic design of SI/IT for the Central Maluku Regency. The design is evaluated by various related parties in the area. The evaluation reveals that the design is valid and reasonable to be implemented.

Keywords: *Strategic Planning, TOGAF ADM, Enterprise Architecture Score Card.*

## 1. INTRODUCTION

The Indonesian archipelago layout is one of many issues that rise in the development of regional infrastructure throughout its institutional. Locating far from the capital, the development of IS/IT in the eastern part of Indonesia is very slow. For example, the local government is still struggling in using the IT for budgeting and procurement. Another issues is in the utilization of IS/IT for assisting staff to maintain a harmony in the utilization of integrated information system with their needs. Often the information systems

and information technology that is occupied or developed not appropriate and became a waste investment. In order to minimize this issue, there is a need of planning, analysing, develop and utilizing IS/IT in a structured manner. There are several paradigm that are used in designing enterprise architecture, such as the open group framework (TOGAF) Architecture Development Method (ADM) and Zachman Framework. Building a strategic planning is a regular activity done by the government. The strategic planning will determine the direction of allocation of various resources in order to achieve the organization's objectives. A good strategic planning will also determine the successful implementation of various work programs

Parliament of Central Maluku Regency is the regional representative institution of the Central Maluku. The Parliament of Central Maluku in the period of 2014-2019 has the vision to actualize more qualified Central Maluku, prosperous, peaceful, and justified. In order to achieve this vision, the Parliament of Central Maluku is supported by the secretariat of the council which is organizationally under the parliament Chairman. The Central Maluku secretariat holds a vital role in the continuity of all operational activities of The Parliament. The Secretariat of the parliament is permanent, meanwhile, the members of parliament has duration of 5 years for each period. In the organizational governance, the Secretariat of the parliament holds an important role in the determination of utilization of Information System (IS)/Information Technology (IT) to support all activities in the parliament The vision of the parliament secretariat of Central Maluku regency, as the elements of auxiliary staff of the parliament, is "The creation of excellent administrative services to the parliament and the encouragement to the establishment of a conductive partnership between the executive and the parliament of the Central Maluku Regency". In order to achieve the vision, it is elaborated into some specific missions. Moreover, the mission implementation needs a robust



and good strategic planning to give a guarantee of the accomplished of the mission

The Secretariat of the parliament has set a strategic planning which has been declared to be conducted in the period of 2013-2017. In that strategic planning, there are many strategies and directions on how the vision and mission of the organization are reached. However, there is no discussion about a strategic planning related to the utilization of Information IS/IT. In the other hand, the vision related to that administrative service cannot be reached without the existence of IS/IT utilization. Administratively, the parliament secretariat is responsible directly to the regional secretariat of the Central Maluku regency. All policies related to the utilization of IS/IT will follow the referrals of the regional secretariat of the Central Maluku regency. Nevertheless, a suggestion and input from the parliament Secretariat will be considered.

In order to respond the central government policies that promoting the utilization of IS/IT in supporting the government operational activities, there is a needs of the IS/IT strategic planning in the secretariat of parliament. In the province of Maluku in general and in the Central Maluku regency in specific, the regional government generally only compose a general strategic planning. This is related to the lag of the utilization of IS/IT in the province. In this research, an analysis of the strategic planning of IS/IT in the parliament of Central Maluku Regency is conducted. The TOGAF ADM is used in the research. The TOGAD ADM is selected as has many advantageous for this research, such as flexible, open source, systematic characters, focus on the implementation cycle (ADM) and process, rich of architecture technique area and resource base which provides many reference materials.

In addition, according to Weisman (2012), developing an Enterprise Architecture using TOGAF is in principle the same with System Development Life Cycle (SDLC), therefore the existing systems can also be used as the based of the new development of the strategic planning of IS/IT

In this research, System Development Life Cycle (SDLC) will be combined to produce the strategic planning as well as the planning for the system will be. This development of strategic planning for IS/IT becomes an important issue in the Maluku Province to provide optimal. Planned, right on target and sustainable utilization of IS/IT in the area.

## 2. LITERARY STUDY

There are a lot of researches related to the development of enterprise architecture of information system and technology information using TOGAF ADM. In 2009,

Yunis & Krisdanto (2009) discuss briefly the planning of enterprise architecture for a university by utilizing TOGAF ADM method [1]. In the same year, Ivan & Charles (2011) analyze the business architecture as well as its IT component in the business to support Binus International to become a world-class knowledge institute. The measurement between the Computer School (STMIK) and the planning of Binus International show that both parties have supported and aimed to make it a digital campus. However, the gap analysis result shows that in the new admissions system, alumni system, and flow management analysis must be a part of the architecture of Binus International [2]. Hadi et.al. (2013) modelled the enterprise architecture for academic system using the TOGAF framework. Their research focus includes the TOGAF ADM, value chain, and Business System Planning (BSP) [3].

Sasmito (2013) develops a blueprint of information system in the parliament secretariat of Central Java using TOGAF framework. His research integrates the annual work plan, fasten the process of the annual work plan reporting to be more effective and efficient [4]. Another similar research was conducted by Tenia (2014) who focuses on the development of enterprise architecture model for the sub business of assessment of lecturer performance. This research produces the enterprise architecture which includes four elements; business architecture, data architecture, application architecture, and technology architecture [5].

## 3. RESEARCH METHOD

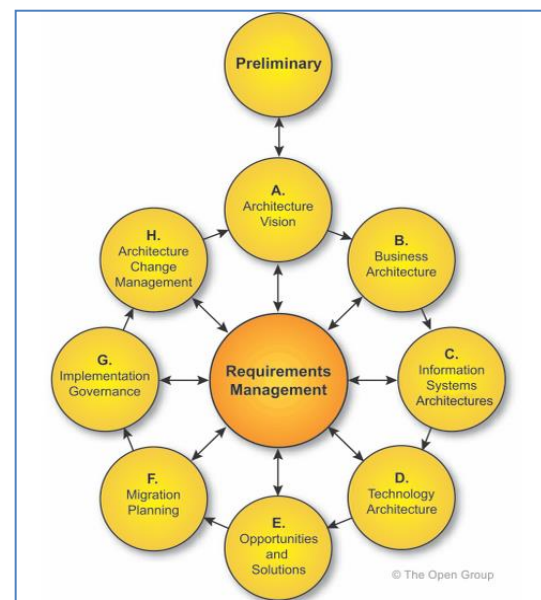


Fig. 1. Architectural development cycle [6]

The research method used in this research has the following stages:

1. The development of the principle of architecture  
In this phase it would be decided the enterprise (internal and external) and resources to develop strategic plan. Therefore it is need in a SWOT analyses the characteristics of enterprise, defining external constraint provide the use of the in the parliament secretariat at the moment as well as a description for the computer industry. The result of this phase is the principle of architecture will be developed.
2. Phase A: Architecture development vision  
Vision architecture is the representation about overall architecture terminology have meaning to the stakeholders. Vision architecture communicated and understood by the stakeholders so that they can check that systems would meet their needs for. In this phase it need to elaborated every stakeholder having an interest against system and their involvement. The output of this phase is value chain diagram and solution concept diagram.
3. Phase B: The development of business process architecture  
In this phase it steps taken is define the initial conditions architecture work process, make a business model or business activity desirable based on the pretext of business. In this phase it will be outlined about actor involved in system on each organizational unit. In this phase it produced catalog / actor organization, a matrix interaction business and functional decomposition diagram.
4. Phase C: The development of information system architecture  
This phase the consisting of two architecture, data architecture and architecture application that can be developed into a design or an information system design. On architecture data will be developed catalog entity data / component data, system / data matrix and a class diagram to illustrate the architecture. While in architecture application will be developed and application portfolio catalog / organization matrix system. To describe architecture application will also be developed some diagrams, the communication diagram are: Application communication diagram, Application & user location diagram and use case diagram.
5. Phase D: The development of the information technology architecture  
In phase architecture technology is done in the same manner the mapping of this application that defined into another set technology components, representing free software and hardware that is listed and configured into a platform system. In this

phase it will be produced technology portfolio catalog, there are no fat tables and physical components in the matrix system technology, services, there are no fat tables technology component and a component in technology physical system technology the matrix, the relationship between components of the application of technology on system technology the matrix and environment and location on a diagram.

6. Phase E: Identify opportunities and solutions  
In this phase it will be conducted the identification process gap a whole architecture will be developed, so that it can be became the basis for the stakeholders in choose architecture that will be implemented. To be able to identify opportunities and solutions an analysis is also given gap needs to be the great architectural vision, architecture of business process, information system architecture, information technology and architecture. This phase it will produce the target concept solution a diagram as well as benefit diagram.
7. Phase F: The Migration mapping  
The focus of this phase the implementation plan of is the establishment of and migration. The activity of conducted include assess dependencies, the costs and benefits of various projects migration. This phase it will produce the roadmap for stages of the implementation solution.

## 4. RESEARCH RESULT

### 4.1 The Profile of the Parliament of Central Maluku Regency

The vision of Parliament of the Central Maluku is “The creation of the more qualified, prosperous, peaceful, and justified Central Maluku”. In order to achieve the above vision, there are three missions that are carried by all the ranges of the Central Maluku regency Parliament, they are to:

- Encourage the achievement of the qualified law products.
- Increase the service quality of the Parliament secretariat to support a professional administrative management.
- Develop the harmonious relationship between the legislative and the executives to be more productive.

Figure 2 shows the organizational structure of the Central Maluku Parliament which is used today. This organizational structure is set forth in the Regional Regulation of Central Maluku Regency Number 24 the



Year of 2008 about the code of conduct of the Parliament of Central Maluku Regency [7].

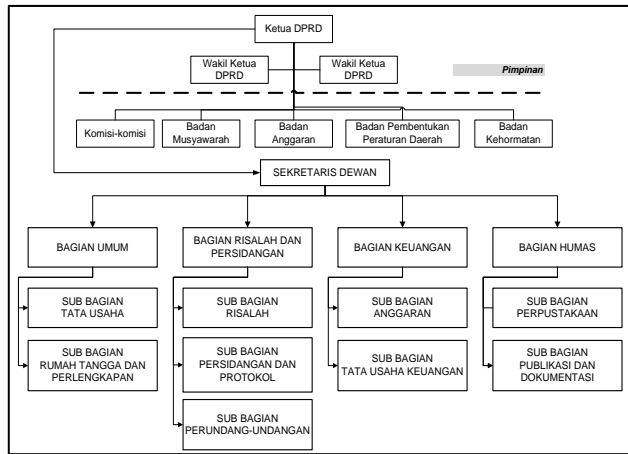


Fig. 2 The organizational structure of Central Maluku Parliament [7]

#### 4.2 The development of Architecture Principles

The enterprise scope and resources which are needed in the development of architecture principles for the strategic planning of IS/IT in the Parliament of Central Maluku province is as follow:

##### 1. Enterprise Scope

###### Internal

###### a) Board Fittings

The board fittings include Leaders, Commissions, Board of Deliberation, Budget Agency, and Regulatory Body.

###### b) Board Secretariat

The board secretariat plays a role to give an administrative service and technical support to the Central Maluku Parliament.

###### Eksternal

Regarding the administrative technique, the DPRD secretariat will get a coaching from the Regional Secretariat.

##### 2. Resources Needed

In developing a strategic plan of IS/IT in the Central Maluku Parliament, the resources needed are the vision and missions of the Parliament secretariat of Central Maluku, the strategic plans of Parliament secretariat of Central Maluku which are used today, and the profile of the Parliament and Parliament secretariat of Central Maluku.

The process of development of IS/IT strategic plans in the Central Maluku Parliament is affected by many factors. The factors are:

a. Vision, mission, and strategic plans of the Parliament secretariat of Central Maluku which are used today, the strategic plans of 2013-2017.

b. The enterprise characteristics

To know the enterprise characteristics, bellow is presented an analysis of Strengths, Weaknesses, Opportunities, and Threats (SWOT) towards the organizational business as well as its information technology on table 1.

Table 1: Matrix of SWOT

Strengths (S)	Weaknesses (W)
<ol style="list-style-type: none"> <li>1. Related to the utilization of IS/IT in order to support the main tasks and the function of Parliament secretariat, it gets the coaching from the Regional Secretariat.</li> <li>2. The paradigm of the local government of Maluku Province in general and the government of Central Maluku in particular in looking at IT as a need which can support the continuity of the main tasks and functions.</li> </ol>	<ol style="list-style-type: none"> <li>1. The lack of the human resources which are competent in the IT field.</li> <li>2. The information technology infrastructure which is not yet supported.</li> <li>3. The software or information system which is used is still partially in each part and not yet integrated.</li> <li>4. There are still many main tasks which can actually be helped by the existence of computer-based information system, however; nowadays it is still done manually using either a paper media or computer but limited to the data processing application.</li> </ol>
Opportunities (O)	
<ol style="list-style-type: none"> <li>1. There are opportunities for scholarship and partnership from various universities from within and abroad which give opportunities for the sons of the soil to continue their study in the IT field.</li> <li>2. There are many sons of the soil who study in the IT field who are hoped to be back again to build the region.</li> </ol>	
Strategy SO	Strategy WO
The strategic plans of IS/IT field are needed, so the plans of the utilization of IS/IT can be done well, measured and continues, so it can answer the needs of internal parties.	The utilization plans of IS/IT are needed with a priority scale for a short term and long term achievement plan.
Threats (T)	
<ol style="list-style-type: none"> <li>1. Viewing the geographic location of Central Maluku which is quite far from the Capital of the province, will cause an investment cost in the IT infrastructure to be relatively expensive.</li> <li>2. There are still many sons of the soil who study outside the region and are unwilling to work in their region.</li> </ol>	
Strategy ST	Strategy WT
1. With the IS strategic plans for the middle term and long term, the plans in the IS field can be conducted	The IS strategic plans can map many issues that occur and can be the base for solving various issues and including it

well. 2. On the other hand, the existence of the IS strategic plans can be a guideline in responding to changes in the current regulation.	into the work program.
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- c. External Border  
 With the existence of the strategic plans in the IS/IT field, it is hoped that the Parliament secretariat of Central Maluku can perform the main task and its functions in giving the administrative service and the optimal technical to the leaders of the Central Maluku DPRD.
- d. The current system  
 The IS utilization in the Central Maluku Parliament and the Parliament secretariat of Central Maluku at this point is only running the referrals which are given by the Regional Secretariat.
- e. The computer industry tendency  
 The development of hardware technology always changes fast. If we do not utilize the current technology maximally, then when the age is no longer feasible, the utilization will not be maximal. The outputs from this phase are:
  - a. The framework which will be used in the development of IS/IT strategic plans in the Parliament secretariat of Central Maluku is TOGAF by adapting ADM.
  - b. Based on the many factors mentioned above, further, the architecture principles are arranged which can be seen in figure 3.

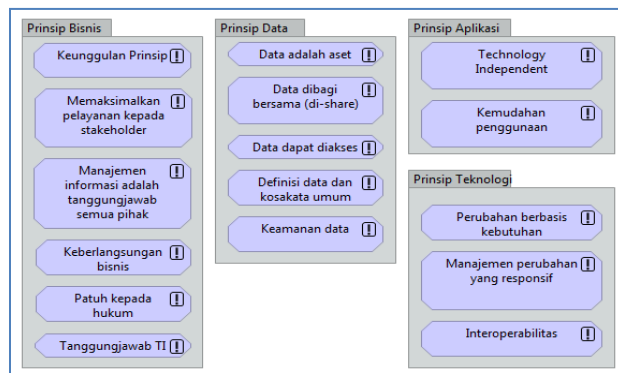


Fig. 3. The Architecture Principles

### 4.3 Phase A: The Vision Architecture Development

The needs to develop architecture vision are as follow:

- a. Stakeholder

The stakeholder matrix in table 2 presents the list of stakeholder, type and also the involvement in the enterprise architecture.

Table 2: Matrix stakeholder

Stakeholder	Type	Involvement
The Board Secretary of Maluku Tengah DPRD	Internal	Planning, directing, coordinating, monitoring, evaluating and receiving reports from each section.
The General Affair	Internal	Planning, executing, monitoring, evaluating and reporting for public section.
The Section of Proceedings and Legislation	Internal	Planning, executing, monitoring, evaluating, and reporting to sections of treatises and legislation.
Financial Department	Internal	Planning, executing, monitoring, evaluating, and reporting to the financial department.
Public Relations Affair	Internal	Planning, executing, monitoring, evaluating, and reporting to public relations section
The leader of the Central Maluku Parliament	Internal	Briefing, coordinating and receiving reports from the Board Secretary of the Central Maluku Parliament.
The Regional Secretary of Central Maluku	Eksternal	Providing an administrative technical support in the implementation of the Parliament Secretarial task of Central Maluku.
The Completeness of Parliament	Internal	Receiving administrative and technical support from the Parliament Secretariat.

In figure 4 value chain diagram is presented to quickly show and align the stakeholders towards an initiative change so that all parties who are involved understand the function and context of the high level of the architecture involvement. Value chain diagram can be seen in figure 4.

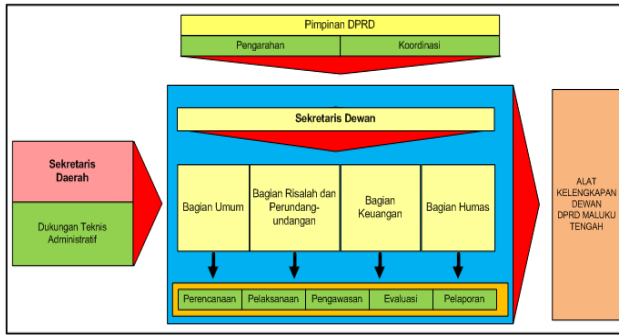


Fig. 4. Value chain diagram

Based on the value chain diagram in figure 4, then the description of business functions of enterprise architecture are as follow:

- 1) Main Activities: planning, executing, monitoring, evaluating and reporting.
- 2) Supporting Activities: The Board Secretary, the General Affair, the Section of Proceedings and Legislation, the Financial Department, and the Public Relations Affair.

b. The output from the previous phase

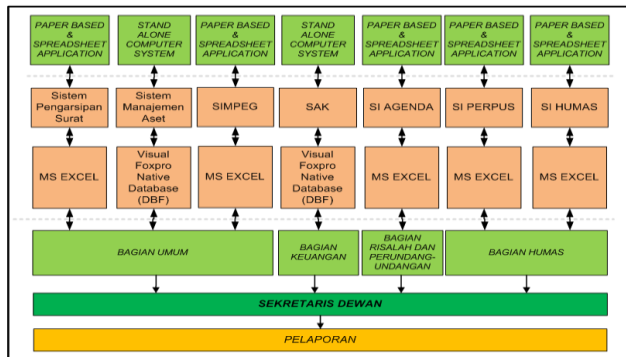


Fig. 5. Solution concept diagram

In addition to value chain diagram, this phase produced a solution concept diagram which can be seen in figure 5. Solution concept diagram is a sketch from the initial solution which is desired. This diagram can give an initial picture related to the main objective, requirements and also obstacles which are faced related to the development of enterprise architecture.

#### 4.4 Phase B : Development of Business Process

In developing business architecture, there are four points of view:

- a. Catalog

Table 3 shows about the organization/actor catalog. The objective of this organization/actor catalog is to catch the definitive list of all the elements which are related to IT.

Table 3: Catalog of Organization/Actor

Organizational Unit	Actor
The General Affair	IS Aset Administrator
	IS Aset Operator
	Simpeg Operator
	IS Mail Archiving Operator
The Section of Proceedings and Legislation	IS Agenda Administrator
	IS Agenda Operator
The Financial Department	SAK Administrator
	SAK Operator
The Public Relations Affair	IS Library Admin
	IS Public Relations Admin

- b. Matrix

Figure 6 shows about the business interaction matrix. The objective of this matrix is to picture the interaction relationship between the organizations and the business functions in the enterprise.

		I	II	III	IV
Providing Business Service	SI Pengarsipan Surat				
	Simpeg				
Consuming Business Service	SI Aset			Rekonsiliasi data	
	SI Agenda				
I	SI Pengarsipan Surat				
II	SI Agenda				
III	SAK				
IV	SI Perpus				
	SI Humas				

I : Bagian Umum, II : Bagian Risalah dan Perundang-undangan, III : Bagian Keuangan, IV : Bagian Humas

Fig. 6. the business Interaction Matrix

- c. Diagram

Figure 7 shows the functional decomposition diagram which is aimed at showing the capability and functions of every part of the enterprise and showing the functional perspective of every part or organizational unit which is related to the enterprise architecture.

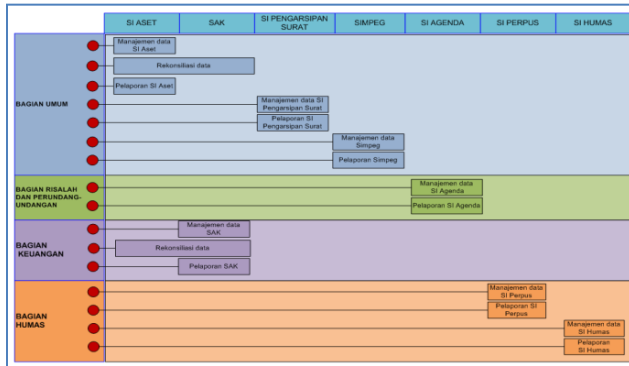


Fig. 7. Functional decomposition diagram

d. The Extension Diagram

One of the extension diagrams which are developed is the organizational decompositional diagram which is aimed at picturing the relationship among actors, their roles, and their locations in an organization. This diagram can be seen in figure 2.

4.5 Phase C: The development of Information System Architecture

This is the development which is done for the data architecture and the application architecture:

a. Data Architecture

There are three points of view:

1) Catalog

The catalog which is developed for the data architecture is the catalog of data entity/data components which is aimed to identify and register the data which are related to the information system in the Central Maluku Parliament.

2) Matrix

Table 5 shows the system/Matrix data which is aimed to picture the relationship between the system and the data entity which is accessed and updated by that system.

Table 5: System/ data matrix

Data Entity	Module						
	SI/ASSET	SAK	SI Pengarsipan Surat	SI Agenda	SI Perpus	SI Humas	
Dokumen kontrak	CRUD	CRUD					
Data pendukung SI Aset	R	R					
Data pendukung SAK	R	R					
Data pegawai			CRUD				
SK kenaikan pangkat pegawai			CRUD				
SK mutasi pegawai			CRUD				
Data cuti pegawai			CRUD				
Data pendukung Simpeg			CRUD				
Data surat masuk				CRUD			
Data disposisi surat				CRUD			
Data surat keluar				CRUD			
Data pendukung SI Pengarsipan Surat				R			
Data rencana rapat					CDRU		
Data rencana kunjungan					CRUD		
Data Riisalah rapat					CRUD		
Data hasil kunjungan					CRUD		
Data Riisalah rapat					CRUD		
Data hasil kunjungan					CRUD		
Data pendukung SI Agenda				R			
Data koleksi						CRUD	
Data transaksi peminjaman						CRUD	
Data transaksi pengembalian						CRUD	
Data pendukung SI Perpus					R		
Data even							CRUD
Data produk DPRD							CRUD
Data publikasi even dan produk DPRD							CRUD
Data pendukung SI Humas							R

3) Diagram

Diagram used to picture the data architecture is the class diagram. Figure 8 shows the class diagram for IS Asset and SAK.

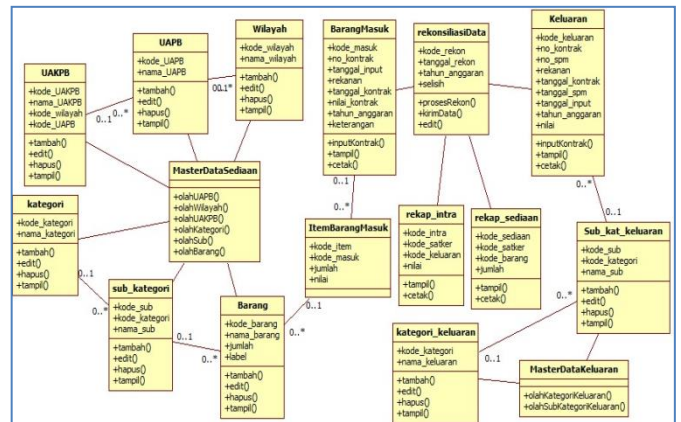


Fig. 8. Class diagram for Asset IS and SAK

b. Application Architecture

There are three points of view to picture the application architecture:

1) Catalog

Table 6 shows the catalog of application portfolio which is aimed to identify and preserve the entire applications list.

Table 6: Application portfolio catalog

Information System Service	Logical Component Application	Physical Component Application
IS-Asset Report	IS-Asset Application	IS-Asset Reporting System
SAK Report	SAK Application	SAK Reporting System
Simpeg Report	Simpeg IS	Simpeg Reporting System
IS Mail Archiving Report	IS-Mail Archiving	IS Mail Archiving Reporting System
IS Agenda Report	IS-Agenda	IS Agenda Reporting System
IS Library Report	IS-Library	IS Library Reporting System
Is Public Relations Report	IS-Public Relations	IS Public Relations Reporting System

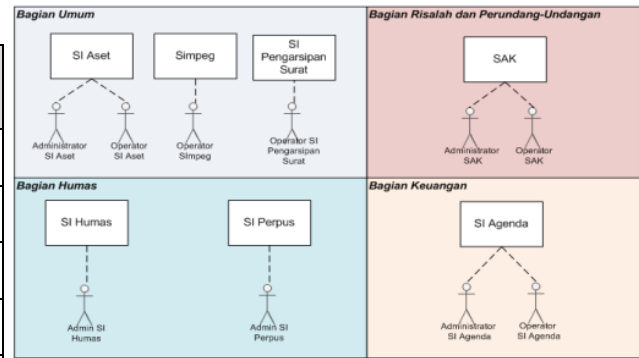


Fig. 10. Application & user location diagram

2) Matrix  
 Table 7 shows the System/ Organizational Matrix which is aimed to picture between the systems with the organizational unit in the Parliament Secretariat of Central Maluku.

Table 7: System/ organization matrix

Physical Component Application	Bagian Umum	Bagian Risalah dan Perundang-Undangan	Bagian Keuangan	Bagian Humas
Sistem pelaporan SI-Asat	x			
Sistem pelaporan SAK			x	
Sistem pelaporan Simpeg	x			
Sistem pelaporan SI Pengarsipan Surat	x			
Sistem pelaporan SI Agenda		x		
Sistem pelaporan SI Perpus				x
Sistem pelaporan SI Humas				x

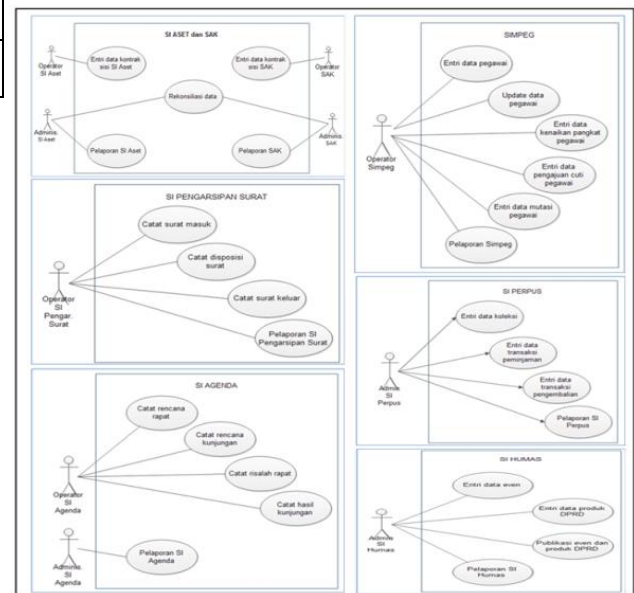


Fig.11. Use case diagram system

3) Diagram  
 Figure 9 shows the communication application diagram which is aimed to picture all of the models and maps related to the communication among applications. Meanwhile, figure 10 shows an application & user location diagram for the applications owned by the Parliament Secretariat of Central Maluku. In addition to it, there is also a diagram use case system which is presented in figure 11.

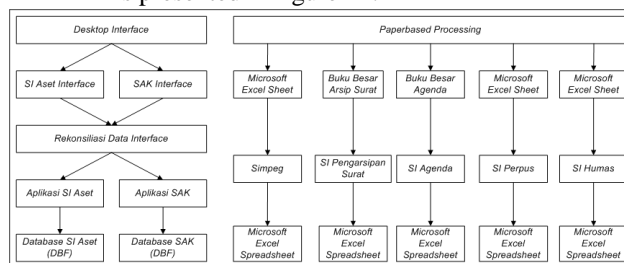


Fig. 9. Application communication diagram

#### 4.6 Phase D: The Development of the Information Technology Architecture

In the development of the information technology architecture, there are three points of view, they are:

##### a. Catalog

Table 8 shows the technology portfolio catalog which are aimed to identify and set all of the technologies in the enterprise including the hardware, infrastructure, software, and software application. A technology portfolio supports the life cycle management of technology products and becomes the basis of technological standards.



Table 8: Technology portfolio catalog

Platform Service	Logical Data Component	Physical Data Component
IS Asset & SAK	Desktop-based system	DBMS
Simpeg, IS Mail Archiving, IS Agenda, IS Library, IS Public Relations	Spreadsheet Application	Microsoft Excel & paper-based

b. Matrix

There is one matrix; it is the system technology matrix which is aimed to insert the business system into the technology platform. There are three tables which picture the relations, they are:

- 1) The logical and physical Component  
 Logical dan physical component is shown in by table 9.

Table 9: Logical and physical Component in the system technology matrix

Logical application component	Physical technology component
IS Asset	Desktop application (Standalone)
SAK	DBMS
Simpeg	Paper-based Spreadsheet application

- 2) Services, the logical technology component, and the physical technology component  
 Services, the logical technology component, and the physical technology component can be seen in table 10.

Table 10: Services, the logical technology component and the physical technology component in the technology matrix system

Technology Function	Hardware Logical	Hardware Physical	Software Logical	Software Physical
Desktop Application (SI Asset & SAK)	Microsoft Windows 7	Personal Computer	Desktop Application	Microsoft Visual FoxPro 9.
Spreadsheet Application (Simpeg, IS Mail Archiving, IS Agenda, IS Library, IS Agenda)	Microsoft Windows 7	Personal Computer	Microsoft Spreadsheet	Microsoft Excel 2007

- 3) The relationship between the application components with the technology components

The relationship between the application components with the technology components can be seen in table 11.

Table 11: the relationship between the application components with the technology component in system technology matrix

Application Component	Deployment Unit	Technology Component
Desktop application	Database	Microsoft Visual FoxPro 9
	Form	
	Report	
	Classes	
Program		
Spreadsheet Application	Microsoft Excel Sheet	Microsoft Excel 2007

c. Diagram

Figure 12 shows the environment and location diagram which picture the location where the application is implemented and identify the technology and application at the place of business interaction.

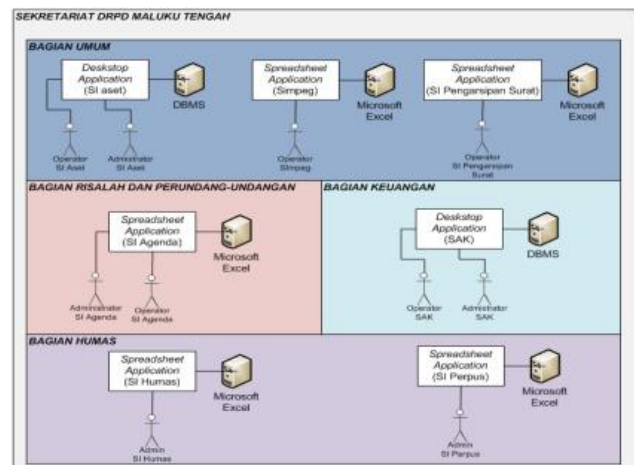


Fig.12. Environment and location diagram

4.7 Phase E: The Identification of Opportunities and Solutions

In this phase, there will be an identification of gaps in the overall architecture which has been developed to then determine the alternative solution which can be developed into various opportunities which makes it possible to apply. Here is the identification process which is done by architectures that have been developed:

a. Vision Architecture

Looking at the concept solution diagram in figure 5 then researcher concludes that the utilization of IT in the Parliament of Central Maluku, in this case, the software used in helping the operational tasks

for each part or organizational unit is categorized into two groups. The first is the application group with a desktop-based and information system which combine a process of paper-based and spreadsheet application. With the model of IT utilization which is still running today, besides not able to answer the needs of each organizational unit, it also brings influence to the overall organizational performance. Therefore, on this vision architecture, an IT utilization scheme is proposed which is contained in the target of the concept solution diagram as shown in figure 13.

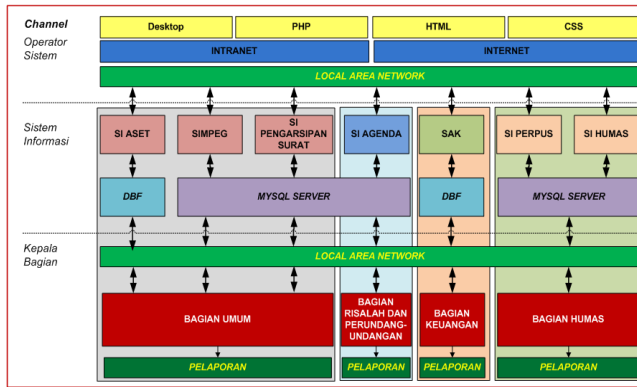


Fig. 13. Target concept solution diagram

b. The Business Process Architecture  
 From the business side which has been running, it is clear that every organizational unit/part in Parliament of Central Maluku runs a different business function. Until today, there is no alignment among units or parts in performing its functions. To highlight the various impacts of this difference, further, a gap analysis is conducted which can be seen in table 12.

Table 12: A gap analysis of a business process architecture

Today's Business Architecture	Analysis	Business Architecture Target
The IT utilization has not yet spread in every organizational unit/part. There is still a routine operational activity which is fully supported by IS with computer-based.	A plan is needed for the IS development with computer-based to support the routine operational activity for every part/organizational unit.	The routine operational activity or the routine business process which is done by every part/organizational unit utilizes the computer-based IS.
The activities of IS/IT are still partial or only	The activities of IS/IT will be more optimal if they	The IS/IT activities which are integrated into

answering the needs per unit.	develop an integrated application for various business processes which right now have not been done using the help of computer-based IS.	all the organizational units which utilizing IS/IT to run its function.
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c. The Information System Architecture  
 Table 13 presents the gap analysis for the Information system architecture based on the solution concept diagram for the today's condition compared to the solution concept diagram which is proposed. Table 14 presents the application candidate to overcome the gap happening on the information system as explained on the result of the gap analysis in table 13.

Table 13: The gap analysis of information system architecture

Today's Information Systems Architecture	Analysis	Information Systems Architecture Target
There are still some systems which are run by combining paper-based processing with the spreadsheet processing.	These systems should be best developed into a computer-based IS.	The development of computer-based information system for the system which has not yet been running fully using computer-based IS.
The information system in every organizational unit in secretariat of Central Maluku is the information system which stands alone and has not been integrated.	An integration between information systems is needed so that data exchange and processing becomes a more effective and efficient information.	The development of computer-based IS which is integrated by utilizing the computer network which runs well locally or on the internet network.

Table 14: Application Candidate

Application	Model	Platform	Component
Simpeg	Web-based application	PHP Framework	Main Component: 1) Web Server 2) Database Server Supporting Component: PHP, HTML, CSS, Pdf
Mail Archiving IS			
Agenda IS			
Library IS			
Public Relations IS			
SAK			

d. Information Technology Architecture

The gap analysis for the information technology architecture for the today's condition referring to the target concept solution diagram in figure 12 can be seen in table 15.

Table 15: The gap analysis of information technology architecture

Today's Information Technology Architecture	Analysis	Information Technology Architecture Target
Information Technology which is used is still limited to the utilization of personal computer with some additional devices such as printer and scanner. The computer-based information system still stands alone.	A computer network needs to be developed which can connect among organizational units/parts and also connect to the Parliament of Secretariat of Central Maluku with the internet network.	There is a development of the computer network infrastructure both for the connection locally and globally to the internet network.

Based on the gap analysis result for the vision architecture, business process architecture, information system architecture, and technology information architecture, a solution candidate is proposed which can be implemented as the description of the gap analysis in the architecture. To map the proposed solution, in this phase there is a point of view which is by using a diagram. Figure 14 shows a benefit diagram. From this picture, it can be seen that the development of some features which is planned as what has been proposed in the previous phase, brings various positive effects.

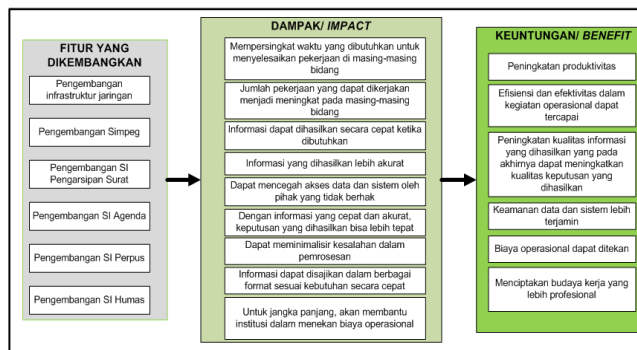


Fig. 14. Benefit diagram

4.8 Phase F: Migration Plan

The migration plan which will be done as the implementation of the recommended solution in this

research can be seen in figure 15. Here is the explanation of figure 15:

a. The year of 2018

In the year of 2018 an activity plan and budgeting will be made for the development of information technology infrastructure and human resource development in the IT field which later will role in the operational activity which is related to the IS/IT utilization.

b. The year of 2019

In accordance with the activity and the budgeting which have been planned previously, then in 2019, the development of information technology infrastructure and human resource development process in the IT field will be conducted. This process of human resource development can be obtained by joining a course or an express education. In addition to it, in 2019 an activity will be planned and a budgeting will be arranged for the development of information system, including Staffing IS (SIMPEG), Asset IS, the Accounting and Financial IS, Mail Archiving IS, Library IS, Public Relation IS, and Agenda IS.

c. The year of 2020

Based on the activity plan and budgeting for the information system development, then in 2020, the information system will be developed. In this activity implementation, in addition to the installation process, a socialization process will also be conducted with the system users. Furthermore, in 2020, there will be a maintenance activity of information technology infrastructure which has been built in the years before.

d. The year of 2021

In 2021, there will be a maintenance activity of information technology infrastructure and information systems that have been installed.

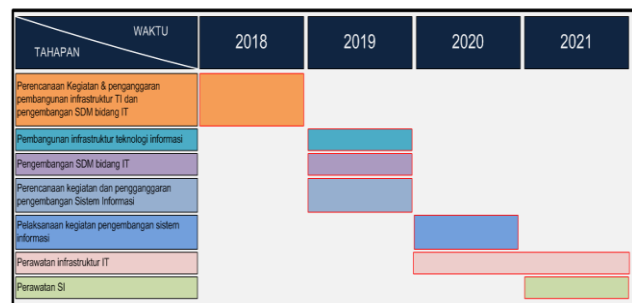


Fig. 15. Roadmap of solution implementation stages

4.9 The Evaluation of IS/IT Strategic Plans Result

The result of the IS/IT strategic plan which is developed is further evaluated with Enterprise Architecture Score

Card using the input data which is gained through questioner. However, the respondents for this questioner are the heads of departments in DPRD of Central Maluku regency. This is the result of the evaluation which is done in each area:

- a. The business area: 75.71%
  - b. The data Area: 77.14%
  - c. The application area: 75.71%
  - d. The technology area: 70%
- The average: 74.64%

Based on the result above, it can be concluded that the IT/IS strategic plan in DPRD of Central Maluku is valid and can be implemented because the average is above 65.

## 5. DISCUSSION

TOGAF is a framework, which can be used not only to develop the IS/IT strategic plan or enterprise architecture but also to be combined with the System Development Life Cycle (SDLC). In the stage of architecture principles development, the organization will be described in details, both in the internal scope and external one.

The stage of the vision architecture development and the business process architecture development is similar to the analysis stage in SDLC, where at this stage will be identified who are the parties who interact and have an interest in the system.

In the stage of the information system architecture, a plan from the information system in the organization will be produced. In the development of data architecture, a class diagram will be developed which pictures the system from the data point of view. Meanwhile, in the development of the information system architecture, some diagrams will be developed. One of the diagrams which will be developed is the use case system diagram that gives many pictures of actors in every system and how the interaction of that every actor is in the system.

The stage of information technology architecture describes the technology, either in the software technology, hardware technology, or the software applications. Furthermore, in the stage of identifying the opportunities and solution, every development opportunity and the recommended solution will be identified which are accompanied by the gap analysis between the today's architecture and the target architecture. Hereinafter, in the stage of the migration plan, an implementation roadmap stage of the recommended solution is described in details.

## 6. CONCLUSION

After passing several stages in this research, the researcher draws a conclusion as follow:

- a. The utilization of IT in Parliament of Central Maluku is still very minimal. There is no computer network infrastructure which is used for the data and information traffic. However, the computer information system which is used is only running the referrals from the Regional Secretary.
- b. Based on the gap analysis which is done in the vision architecture, the business process architecture, the information system architecture, and the information technology architecture, then a solution is proposed by building a computer network infrastructure which can be connected to the local computer in the Parliament office of Central Maluku and to the internet network.
- c. In the information system aspect, it is proposed to do a development of computer-based information system for some information systems which are used routinely, they are the staffing IS (Simpeg), Mail Archiving IS, Agenda IS, Library IS, and public relation IS.
- d. To make sure that the given solution runs optimally, it is necessary to consider for the development of human resources that will be responsible for the operation and maintenance of IT products which will be developed.
- e. In this research, in addition to the result of IS/IT strategic plan in Parliament Central Maluku, it is also produced a few plans of information systems in Parliament of Central Maluku.
- f. Based on the evaluation result of the strategic plans which are done using the Enterprise Architecture Score Card, the score gained is 74.64%. This condition means that the IS/IT plan which is developed is valid and can be implemented.

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