Improving TOGAF ADM 9.1 Migration Planning Phase by ITIL V3 Service Transition

Nisa Hanum Harani¹, Arry Akhmad Arman², Rolly Maulana Awangga¹
¹Applied Bachelor Program of Informatics Engineering, Politeknik Pos Indonesia
²School of Electrical Engineering and Informatics, Bandung Institute of Technology

E-mails: nisahanum@poltekpos.ac.id, arman@stei.itb.ac.id, awangga@poltekpos.ac.id

Abstract. Modification planning of business transformation involving technological utilization required a system of transition and migration planning process. Planning of system migration activity is the most important. The migration process is including complex elements such as business re-engineering, transition scheme mapping, data transformation, application development, individual involvement by computer and trial interaction. TOGAF ADM is the framework and method of enterprise architecture implementation. TOGAF ADM provides a manual refer to the architecture and migration planning. The planning includes an implementation solution, in this case, IT solution, but when the solution becomes an IT operational planning, TOGAF could not handle it. This paper presents a new model framework detail transitions process of integration between TOGAF and ITIL. We evaluated our models in field study inside a private university.

1. Introduction
TOGAF is a framework with detail methodology and beneficial tools in sustain the development and increasing an infrastructure of IT[1]. TOGAF ADM (Architecture Development Method) [2] is a detailed method on how to develop and managing enterprise architecture and information system. In actual, it is designed to sustain the information system (TOGAF 1.0), however since developed it is capable to support business architecture, data, and application architecture.

The latest version of TOGAF is TOGAF 9; according to [3] besides including high detail level in architecture, there is reflection improvement of the utilization and management. It is becoming a disadvantage when TOGAF handling the specific design of domain, the expertise. In this phase, what could be reached by architecture design is being the most concern. By TOGAF 9, the architecture is not final destination or priority of the organization but the suitable strategic planning to the specification of the business demand[4].

The business transformation requirement is triggering comprehensive change and continue to the mainstream, business strategy, culture, and utilization of information technology. In order to adjust to the new business requirement, there is systemic change whether in partial or comprehensively. [5] The planning of system migration activity is the most important. The migration process, involving complex elements such as business re-engineering, transition scheme mapping, data transformation, application development, individual involvement by computer and trial interaction. The most important element in the migration process is human resource involvement. The entailed migration team must focus on the development of migration project as their priority. Therefore, it is required strategic planning to handle the process.
There are 9 phases in ADM, one of them is migration planning. This phase discusses how to make suitable implementation and migration planning according to the business requirement. The output of phase is migration projects planning that will be implemented by the organization. The migration planning involves value establishment, business analysis, budgeting of migration project and risk identification. However, [3] arguing that TOGAF only refer to the architecture and migration designs. The migration planning involves implementation project or solution, in this case, the IT solution, but when the solution being the operational design of IT, TOGAF does not handle it.

The Information Technology Infrastructure Library (ITIL) is the most preferred to the IT management in the world [6]. ITIL is a the de facto standard to IT Service Management in a collection of process oriented best practices, based on experience in data centres running big mainframes [7]. It facilitates the transmission of IT service with high quality and disperses the management procedures in sustain the business of IT operation. The latest version is ITIL V3 consisting of 5 volumes.

From the results of previous studies [8], the integration between TOGAF and ITIL make sense since both frameworks cover and related common subjects. The integration between two framework been demonstrated and validated in the âĂIJ Centro de Dados de DefesaâĂĲ CDD, the IT Departement oh the Portuguese Defence Ministry (MDN). This study discusses the adoption of ITIL into IT service and respective support, difficulties found when each technical area contributed to identified the elements they managed and that area were identified with different levels of granularity, with only a small part of the area were identified. After analyzing the causes of failure, the first improvements were made by applying a TOGAF-based approach for EA development assisted together with ITIL as main concepts in the IT service orientation. All information stored in the EA repository will be modeled with ArchiMates as the language that allows modeling systematically alongside different EA layer [9].

This research is more focused on the process of system migration in the Maranatha Christian University using the concept of TOGAF and ITIL framework integration refers to the migration method [10].

2. Methods

2.1. TOGAF (The Open Group Architecture Framework)

TOGAF is a framework and method of enterprise architecture providing a methodology in the analysis of business architecture comprehensively [11]. It is used to the banking, manufacture industry, and education. There are detail method and tools to implementation process; it is differentiated to the other EA framework. The advantages of TOGAF are flexibility and open source. In general, TOGAF is EA of industrial standard. It is the framework with detail methodology and sustaining tools to develop and increasing IT infrastructure for business. TOGAF provides an approach to planning, design, implementation, and regulation for business. It could be defined as framework focused on whole business in the world under the Open Group. A method used in the framework is design, plan, implementation, and management of information and IT architecture for a business that in concrete the framework of TOGAF splits EA into four categories: Business architecture, application architecture, data architecture, and technical architecture [11]. The advantage of TOGAF as follows:

1. IT operation of the business will be more efficient. It is referred to the fact that there is low charge in development, support, and maintenance of software as TOGAF free in used by all framework.
2. The risk of future investment lower as the infrastructure of IT is simple.
3. The decision in correlation with infrastructure supply does not complex relatively as the information framework obtained easily.
2.2. ITIL (The Information Technology Library)

ITIL is the most familiar IT service management method in the world. It is a cluster of best practice of IT management service inconsistent and comprehensively to preserve the qualified service approach to attaining the effectiveness and efficiency in business of information system use. Moreover, ITIL is a framework that could be developed and adapted to the system development [6]. It provides the sets of best practice from the public and private sector internationally. It is sustained by comprehensive qualification scheme, accredited training, and implementation assessment. ITIL facilitates the transmission of IT service in high quality. It is described in comprehensive series of management procedure to sustain the business to achieve the quality and value of financial and operation of IT. ITIL is the best practices document providing a manual on development and implementation of the process the present and future technological challenges. The advantages of implementing ITIL as follows:

- Improving customer satisfaction (by service transmission)
- Increase the productivity
- IT service based on process (service level management)
- Containing useful skills and standard experiences as the reference.

The latest version of ITIL is ITIL 3. The principal change is in the viewpoint of IT management; the version 2 provide the services as a cluster of the process and temporary function, while in the latest version the management service as the lifecycle (figure 2).

3. Experiment and Results

3.1. Analysis of weakness of TOGAF ADM Migration Planning
The Phase Migration Planning in the framework of TOGAF ADM had the capability to design of migration (figure 3) process architecture. The phase consists of instruction cluster in the design of migration activity and implementation. There is a figure of migration planning process in TOGAF ADM in below.

![Migration Planning TOGAF ADM](image)

**Figure 3.** Migration Planning TOGAF ADM[12].

The focus of phase is how to design, create the migration design and implementation, cooperation with a portfolio of project manager. The activity involves dependence, cost, and benefit of any migration projects in correlation with migration demand that must suitable to the business demand. According to [5] the process design of migration must involve a key process to the customer (in this case, the party will experiences a benefit of migration result), the insurance of project migration and control process does not discuss in the framework of TOGAF with Migration Planning phase. A successful transmission of migration project to the ideal situation as was agreed and designed by many interests of business must be identifiable. The control process migration is also being a starting point that must be designed structurally. The migration process oriented to the customer will handle the process control problem in migration phase and could give the guarantee insignificant to the project successful. The migration process oriented to the customer will change the migration design concept to migration service process.

### 3.2. Mapping TOGAF and ITIL

Synchronization of business and IT is being a challenge and main priority to the CIO continuously. The synchronization occurred there is an ineffective collaboration. The collaborative setting assured that business demand is understandable by business and IT. Synchronization of business/IT (Figure 4) by effective collaboration required conforming to the three principles (had a neutral facilitator to establish the transparency and integrity), communication (assure that all party is understanding on involved terminology), context (preserve and presenting correlation between a component in the project)[6].

![Enterprise Architecture and Service Lifecycle](image)

**Figure 4.** Enterprise Architecture and Service Lifecycle [13].

TOGAF version 9 and ITIL version 3 provides an effective method to transmit the integrated service for all business and IT synchronization[14]. TOGAF and ITIL had focused on IT service integration and business process.

Both of TOGAF and ITIL are frameworks, but handling the problem differentially. ITIL focus on preserving the IT service, while TOGAF is methodology and instrument to develop the enterprise
architecture (Figure 5). TOGAF must be considered over the ITIL as it involves the lifecycle concept of product and ITIL being the product management method for the user and customer [15].

![Figure 5. Correlation of TOGAF and ITIL][16].

ITIL defined of service as “value transmission to the customer by facilitating the required result by the customer”. The model of architecture enterprise of TOGAF focused on optimizing.
Table 1. Mapping of TOGAF ADM and ITIL Service Lifecycle [5].

| No. | TOGAF                        | ITIL                                  |
|-----|------------------------------|---------------------------------------|
| 1.  | Business architecture        | ITIL service strategy-business strategy and IT strategy |
| 2.  | Information system architecture | ITIL service design-design coordination |
| 3.  | Technology architecture      | ITIL service design-design coordination |
| 4.  | Migration planning           | ITIL service transition-change management |
| 5.  | Implementation governent     | ITIL service strategy-governance       |
| 6.  | Architecture change management | ITIL service transition-change management |

The migration methodology that will be used as a reference in making model mapping based on [10]. The approach written in this book has several important points that must be met in the success of the system migration activities. Following the mapping of the TOGAF ADM phase of the Migration Planning and ITIL Service Transition.

Table 2. Mapping Migration Planning Service according to the Migration Methodology[10].

| No. | Migration Integration                                      | Migration Methodology                                      |
|-----|-----------------------------------------------------------|-----------------------------------------------------------|
| 1.  | Planning Migration with transition management and policy frameworks | Identify the stakeholders and Pre-assessment               |
| 2.  | Determine business value and asset management on each migration project | Define success criteria                                    |
| 3.  | Resource Estimation along with management Configuration   | Finalize the new environmental Configuration               |
| 4.  | Migration planning and implementation with transition policy | Proof of Concept                                           |
| 5.  | Prioritize migration projects along with risk identification and stakeholder decision making | Decision to migrate                                        |
| 6.  | Resource Estimation along with management configuration  | Resource estimation                                        |
| 7.  | Stages of transitional architecture by coordinating activities on the migration process | Actual migration                                           |
| 8.  | Roadmap implementation by providing support for the transition team | Actual migration                                           |

3.3. Integrated Model Design of TOGAF ADM Phase Migration Planning With ITIL Service Transition

The business demand is developing rapidly triggering strategic design involving a technological requirement to accomplish mutually. However, the implementation design of system does not suitable to the business requirement and result in suffering for business financial. Therefore, the system change process from previous to the latest one should pass through the documented procedure. In this research, TOGAF will provide the method to design and strategic planning of organization business to obtain and documenting a vision, mission, a strategy of the business. Moreover, TOGAF will document the artifacts of business supporter such as application architecture, data, technology, and process. Also, TOGAF will provide the potential strategy to present and being a roadmap to the targeted setting.
After design, the organization business strategy, carried out an identification of change and solution of architecture, that this phase will begin in implementation planning and identification of architecture realization as was defined previously. The phase will be the planning base of architecture migration phase. The transition processes are including the main design of organization, investigation controlling process, organization design process, and lifecycle methodology of the information system.

Perceiving the problem of system change as business change, the framework of TOGAF will bring a recommendation of system change according to the organization strategic design and ITIL will bring the comprehensive manual in transition process involves a process of transition services exist in ITIL Service Transition Manual. The analysis phase of enterprise design of architecture according to the TOGAF ADM as Figure 6.

![Figure 6. Integration model analysis.](image)

Subsequent to find the architecture target design of TOGAF framework, the migration process will begin. The migration project phase will be synchronized with the demand and organization competence (Figure 7). ITIL will provide the direction to implement the transition service process by IT service oriented.

![Figure 7. Mapping TOGAF ADM phase migration planning with ITIL Service Transition (Transition Planning and Support).](image)

The phase of Migration Planning in TOGAF involves assessment and order the priority to be the base of the implementation plan. Moreover, the phase involves modeling of assessment matrix and the decision of main demand and sustaining of the organization to the implementation of the information system. By implement ITIL, implementation planning will be sustained by understanding on utility and service insurance to the transition process. ITIL will build the formal policy to implement whole required change and assure that all of them suitable for the organization demand.

Planning and transmission support of ITIL will bring knowledge, decision, and assure the process, system and another element in the transition process. The concept of transition service in ITIL will ensure the availability of knowledge of prior process and can be the direction to the similar situation in future. Migration planning integrity with the migration service could anticipate and manage the restored channel in proactive and could determine of maintenance precondition when the elements of information system service must be synchronized to the specific situation.
4. Conclusion
In this paper suggested planning method of migration process model by using of TOGAF ADM 9.1 Migration Planning and ITIL Service Transition frameworks. It is expected that the model could be used by the organization in carrying out the migration process of the information system. Addition implementation of ITIL Service Transition can assure the precondition and transition process applied logically and documented comprehensively. The result of integration model will bring a complete migration process by operational phase in the standard of migration policy according to the method of IT service.

References
[1] Taleb M and Cherkaoui O 2012 Designing Enterprise Architecture Frameworks 99
[2] Blevins T J, Spencer J and Waskiewicz F 2004 The Open Group and OMG
[3] Radhakrishnan R 2008 The Open Group
[4] Lankhorst Metal. 2009 Enterprise architecture at work vol 352 (Springer)
[5] Aghalatifi O, Tavoosain P and Farahmand M 2011 Computer Research and Development (ICCRD), 2011 3rd International Conference on vol 4 (IEEE) pp 395–399
[6] Sanatdoust A N, Hosseiniun P and Rostam G G 2011 2011 International Conference on Management and Artificial Intelligence IPEDR vol. 6 (2011)
[7] Hochstein A, Zarnekow R and Brenner W 2005 e-Technology, e-Commerce and e-Service, 2005. EEE’05. Proceedings. The 2005 IEEE International Conference on (IEEE) pp 704–710
[8] Gama N, Sousa P and da Silva M M
[9] Gama N, Sousa P and da Silva M M 2013 Building Sustainable Information Systems (Springer) pp 153–165
[10] White B, Fries W, Jorna D, Kordmann H, Nesbitt J, Packheiser F and Palacio E 2008 IBM System z connectivity handbook (Citeseer)
[11] Raynard B 2008 TOGAF The Open Group Architecture framework 100 success secrets-100 most asked questions: the missing TOGAF guide on how to achieve and then sustain superior enterprise architecture execution (Emereo Pty Ltd)
[12] GROUP O et al. 2009 Togaf version 9. the open group architecture framework
[13] Ali S M, Soomro T R and Brohi M N 2013 Journal of Computer Science 9 1190
[14] Sante T and Ermers J 2009 Getronics Consulting, OGC
[15] van Sante T, Eermers J and Solutions K 2013 White paper, August
[16] Salle M 2004 Hewlett-Packard Company 8–17

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