Enterprise Architecture Information System Planning in Pt. Technomotor Indonesia using TOGAF Framework

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Abstract: The development process of Mr. Montir requires support from many departments and require much time in flow of information between departments, and have to be better. Otherwise, Mr. Montie prior business is service, to control of each outlet services from head office is highly needed. So that customers can always be satisfied by Mr. Montir services. TOGAF (The Open Group Architecture Framework) with ADM (Architecture Development Method), used for modeling the Information Systems Architecture of Mr. Montir Outlet Development in PT Techno Motor Indonesia (TMI). This study was focused at the business process of Mr. Montir Outlet Development with referring to policies that run in PT Techno Motor Indonesia. The output of this research is a design of information systems architecture model of Mr. Montir Outlet Development, that would support the improvement of overall company's information system service performance and resolved the partial applications problems.

Keywords: Business Architecture, Data Architecture, Application Architecture, Information Systems Architecture, Technology Architecture, General Repair Motorcycles Shop Franchise, TOGAF ADM, Mr. Montir Outlet Development

1. Introduction

Currently TMI is still in the system development stage, TMI want to develop an effective and efficient information system application which integrating all functional area. In addition, the company also wants to make a company information system that can be integrated with each other between departments, between development projects and between outlets, and between branches later. Meanwhile the existing applications are still independent and not integrated between each other.

2. Research Methodology

The Architecture Development Method (ADM) forms the core of TOGAF and is a method for deriving organization-specific enterprise architecture[1].

3. Current Condition

Based on direct observation, identified all work procedures (business processes) on TMI, starting from data processing of prospective partners, business plan reviews, until the outlet operated.

Figure 2: Mr. Montir Outlet Development Business Process

To do this, the majority of IS / IT currently used by TMI is still independent per department and has not been integrated with each other. Almost all applications that is used were developed by the TMI IT Development Team.

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implementing the technology that will perform those processes, and finally, to the business people who will manage and monitor those processes [3].

The main and supporting business functions are then described according to Requirements, Acquisition, Stewardship and Retirement.

After grouping the business process, a detailed process analysis is carried out by making a BPMN for processes. This stage is done to clarify the detailed flow of each activity, then become a reference for the next architectural planning stage.

Grouping of business processes with functional area must be done to find out the responsibilities of each functional area, then the architecture will be planned in accordance with the needs of the organization. In degree of involvement matrix, every entities marked, to know the degrees of involvement between process and unit entities.

4.4 Information System Architecture Modeling

At this stage, gap analysis applied to analyze the existing information system architecture, so that the results of information system modeling can meet the expected target. The result of gap analysis is to identifies what needs to be changed and to what extent [4].

4.4.1 Data Architecture Modeling

In this stage, the target data architecture is determined, starting from identifying data classes, analyzing the relationship between existing business functions and data classes, and modeling the relationships between data classes with class diagrams. Nowadays, the class diagrams of UML form a crucial element in object-oriented analysis and design [5].

Table 1: The applications currently used by TMI

<table>
<thead>
<tr>
<th>Application</th>
<th>Developer</th>
<th>Platform</th>
<th>Database</th>
<th>Functional</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales Act</td>
<td>TMI</td>
<td>Windows</td>
<td>SQL Server</td>
<td>Marketing, Sales</td>
</tr>
<tr>
<td>Business Plan Calculation</td>
<td>TMI</td>
<td>Windows</td>
<td>Ms. Server</td>
<td>Development</td>
</tr>
<tr>
<td>Human Resource Information System</td>
<td>TMI</td>
<td>Windows</td>
<td>Ms. Access</td>
<td>HRD</td>
</tr>
<tr>
<td>Poin of Sales</td>
<td>TMI</td>
<td>Windows</td>
<td>SQL Server</td>
<td>Outlet</td>
</tr>
<tr>
<td>Vendor Sales Report</td>
<td>TMI</td>
<td>Web</td>
<td>My SQL</td>
<td>Operation</td>
</tr>
<tr>
<td>Accurate Accounting Software</td>
<td>CPS Soft</td>
<td>Windows</td>
<td>Firebird</td>
<td>Finance, TMPA, Purchasing</td>
</tr>
<tr>
<td>Warehouse Management System</td>
<td>TMI</td>
<td>Windows</td>
<td>SQL Server</td>
<td>TMPA, Outlet</td>
</tr>
<tr>
<td>Care Center Tickets</td>
<td>TMI</td>
<td>Windows</td>
<td>Excel</td>
<td>Care Center</td>
</tr>
<tr>
<td>Goals &amp; Tasks Management System</td>
<td>TMI</td>
<td>Web</td>
<td>My SQL</td>
<td>All Dept.</td>
</tr>
<tr>
<td>Business Control System</td>
<td>TMI</td>
<td>Web</td>
<td>My SQL</td>
<td>Operation</td>
</tr>
</tbody>
</table>

4. Architecture Development

4.1 Modeling

The main methodology used in modeling this architecture is the The Open Group Architecture Framework (TOGAF) with the Architecture Development Method (ADM). Also uses other additional tools in modeling, such as Value Chain Analysis, Four Stages Analysis and Entity Relationship Diagrams.

4.2 Visions of Information System Architecture

A vision must not be completely unrealizable [2]. The vision in architectural modeling at TMI are:

1) Designing an integrated system model from existing systems by creating a master plan for the enterprise architecture planning to optimize information flow between functional areas.

2) Providing conveniences and supports to functional areas in managing and controlling a real time information that occurs.

3) Sharing & analyzing database between functional areas for real time decisions maker.

4.3 Business Architecture Modeling

Value Chain tool used to modeling an architectural of all business processes that are directly related to the construction of new outlets. Value Chain describes all activities based on its business functions, then mapped using the Business Process Mapping (BPM) method using Business Process Process Mapping (BPMN) to provide a notation that is readily understandable by all business users, from the business analysts that create the initial drafts of the processes, to the technical developers responsible for
4.4.2 Application Architecture Modeling

Starting with defining the main applications needed to manage data to accommodate functional areas in TMI. The modeling is done using Use Case Diagrams which aims to provide an overview of the processes that occur in the process business and to take a snapshot of aspects of the system[6].

4.5 Information Technology Architecture Modeling

In addition to building an information system architecture, it is also necessary to develop the desired technological architecture and that will be used in assisting reliable information systems.

The development that will be carried out on this architecture are: backbone uses fiber optic, which used to use ordinary network cables; wireless access networks (Wi-Fi) for clients behind a firewall using the IEEE 802.11g standard that is secured with WPA-PSK and MAC address filtering; some additional hardware security features that support technology infrastructure architectures which not exist in the previous architecture.

4.6 Opportunities and Implementation

To support the implementation process, several strategies are needed to minimize the risk of failure. These strategies include consideration of implementation costs; HR development needed during and after implementation; preparation of a mature implementation plan with project-based management.
In this article, concluded as below:

changes is handled by the Audit
TMI there is a section that handles every system change,
impact on the applied information technology. Currently at
change, for example if there is a change in work procedures,
every change that occurs in the system will be changed
architecture of information systems development
architecture that has been built
Architectural management is determined to ensure that the
organisation, remains aligned with business
dynamics and requirements, and prioritizes the necessary
projects in the right sequence based on the delivered
value[4].

4.7 Migration Planning

Migration Planning addresses the formulation of a set of
detailed sequence of Transition Architectures with a
supporting Implementation and Migration Plan [1]. In
implementing the information system architecture model
developed, there are several applications that have been
developed before. Through the migration planning phase it
must be planned in how the migration will be done from the
old system to the new system, because this is very important
to keep existing data and still be used in the new system.

The steps to be taken at this stage include: identification of
high/low risk applications; database identification; data
types identification; and the migrations itself.

4.8 Architecture Management Implementation

Through this stage, the formulation of governance
recommendations includes organizational governance,
information technology governance and architectural
governance must be reviewed. Mapping can be integrated
using the COBIT framework (Control Objectives for
Information And Related Technology) from the IT
Governance Institute (ITGI). At present TMI has not used
any framework to carry out information technology
governance. By implementing this newly developed
information system architecture model, the need for the right
information technology governance is needed. COBIT
framework recommended as a guide to governance, because:
provide a basic model with clear rules and good practices in
controlling TMI information in achieving its objectives;
helping to meet various management needs for information
by bridging the gap between business risk, control and
technical issues; recommended in the TOGAF document as
a tool for implementing IT Governance. From the COBIT
perspective, IT Governance is considered a framework to
govern IT assets over their lifecycle [4].

4.9 Architectural Change Management

Architectural management is determined to ensure that the
architecture that has been built can be maintained. On the
architecture of information systems development in TMI,
every change that occurs in the system will be changed
management in accordance with the circumstances of the
change, for example if there is a change in work procedures,
changes in policies and changes that will have a direct
impact on the applied information technology. Currently at
TMI there is a section that handles every system change,
procedures, processes and others. The handling of these
changes is handled by the Audit & System Control
Department.

5. Conclusions

In this article, concluded as below:

1) TOGAF ADM methodology can be applied to Mr.
Montir Development at TMI. The result is in line with
the company's vision and mission.
2) The database design that will be used to accommodate
the needs of each department in TMI, all functional areas
can meet the data needs by providing comprehensive and
mutually integrated data services, so the problems
regarding partial information systems can be solved,
obtained quickly, precisely and accurately.
3) To accommodate the needs of the new information
system architecture, several technological developments
are needed in the future, in order to support the smooth
running of the company's business.

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