

Metadata Governance Implementation Literature Review and Propose Work on Telecommunication Industry

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Abstract

Current advancement of technology demanded better management and maintenance of data within an organization. It is crucial for an organization to adopt well-maintained metadata management across multiple systems and data sources within an organization to ensure, data quality, data integrity, ease of access and data value can be preserved. This study aims to lay out a comparative study on previous or existing works on metadata governance framework as part of main representation of data management through the implementation of data governance framework. Outcome from the review found that governing metadata especially in a robust environment requires control mechanism aspect to properly govern the data and its metadata to ensure business goals are aligned and achievable via proper governance. Telco industry, which deals with huge amount of customer, operations and network data, is chosen as a case study to voice out the importance of metadata governance framework implementation.

Keywords: *data quality, metadata governance, telecommunication, robust environment, business goals*

1. Introduction

The rapid technology advancement nowadays has created not only new opportunity for information exchange but also even more on towards the advancement of data transfer, data security, data integrity and the value each data able to bring. Organizations and institutions across the world has to react to these raising concerns in reflect to the circumstance. This chain reaction will ensure the dissemination of data are securely managed and governed in a proper framework whilst giving value to an organization. Having to manage huge amount of data, one of the aspect that needs to be taken into consideration of good Data Governance is metadata governance. Generally, metadata can be defined as “data about data” where it provides the underlying principle of every sets of data through its list of attributes.

Being an essential asset for an organization, data that is properly govern contains deep knowledge about the company or an organization. In reflect, it will be able to help companies to improve, innovate and achieve aligned strategic goals through secure and reliable data management. Taking a realization of how useful every sets of data within an organization, it will be a challenge if these vast amount of data does not help in the process of making well informed decision making for the organization.

2. Overview

- a. **A data quality framework applied to e-government metadata [1]:** In the context of e-government, data sources are segregated across multiple data systems. It will be a challenged to compile and to govern the data across departments when different data representation is used to represent the same underlying principle of data. The metadata management process can be divided into five-metadata strategy as understand, architecture definition, create and maintain, report and analyzing the data. These several process are governed by proper sets of planning, operation strategy and governance and control.
- b. **Information Governance and Metadata Strategies as a Basis for Cross-sector e-Services [2]:** It is a necessity for metadata to be handled in a structure and systematic way of handling these ideas need to be understood wholly by the top management within an organization. With better understanding from the top down approach, a control mechanism can be achieved through the measure of metadata governance be it in qualitative or in quantitatively. Metadata governance also defines as the purpose towards the identification and giving precise definition on the meaning of each data sets. This precision in understanding the metadata definition will further assist the cross system information exchanges across multiple systems and data sources within an organization.
- c. **Design Guidelines and Process of Metadata Management Based Data on Data Management Body of Knowledge [3]:** Once the definition of metadata governance has been understood, an organization could improve their metadata management process through define process describe in DAM-DMBOK principle that consist three parts of planning processes. Those are defining the metadata strategies, understand requirements sets of metadata and understand the underlying architecture of metadata.

3. Synthesis of Findings

Metadata management involves several processes across many application domain, these is well supported by the operational process as to create and maintain a proper and structure metadata governance framework. Findings from the review or existing or previous works is further defining three (3) sub section or sub processes in aiming to achieve good metadata governance.

1. Metadata Governance Strategy

- a. The process of implementing the metadata governance strategy, the process of identifying how to create, making an integration and the success of its implementation should be put in place. Metadata strategy is put in place to give a brief outline towards the propose goal that needs to be aligned with business setting and priorities within an organization.
- b. The definition of metadata will help an organization to have a clear understanding about the underlying principle of the data. These include the location, storage information, data source and destination. Intentionally, this definition will contribute towards better practices of metadata governance and implementation.

2. Metadata Governance Requirements

- a. To further understand the requirements of data, it is crucial understand the level of the data as it is known that the content of metadata is very diverse as it comes from various sources system across multiple department within an organization.
- b. Gathering of requirement will outline the expected outcome to be delivered upon the success of metadata governance framework initiatives. Requirement also able to provide clear understanding for the development of the data to suits between the demand and the generated outcome.

3. Metadata Governance Architecture

- a. Along with the requirement of metadata governance framework, one thing to consider is the metadata architecture. Metadata architecture will help to support the design as to meet the earlier setup of goals in each of metadata governance initiative.
- b. The architecture will help the development of the design to suits the variation of metadata information and insights. It is expected to be able to support functionality of updating, new request and searches and also data lookup request from various users. Characteristic that needs to be taken into consideration are customized, scalable, open, integrated and robust in nature.

4. Proposed Work

Upon reviewing the implementation and the importance of metadata governance framework in managing and maintaining the value of data through metadata, it can be defined that through its value creation implementation on Telecommunication industry can be as follow, from the five aspects of metadata governance discussed earlier, we outline the implementation as below to suits the business requirement and what impact on business perspective.

a. Architecture

- i. In terms of architecture of metadata governance design, as the world of data has evolved towards cloud computing, the design architecture can be implemented via cloud application, which enable easier maintenance and synchronization of data across multiple data sources govern within an organization. Easy access will allow the definition of metadata on specific data information can be retrieved without having to go through the hassle of understanding each documentation of each data representation.
- ii. In terms of maintenance, as the architecture will be on cloud-based technology, maintenance could be at ease as cost-effective implementation is feasible. This will boost the effectiveness of business operation as focus on maintaining the metadata underlying principle can be shifted to suits other critical application or sections of metadata governance.

b. Metadata partitioning

- i. As sources of data can be one of major concerns towards the synchronization of data across multiple systems and multiple data sources. Through metadata partitioning, clustering the data structure according to its functions and definition could help to create better architecture with distributed information along with structured information for usage, retrieval and reporting.

c. Metadata access

- i. Access issue can be of headache in every implementation of not just metadata governance in every data related initiatives. This raising concern mainly regards to the accessibility of data that are distributed across multiple platforms within an organization. Direct impact will be upon those organizations that are having vast and huge amount of data sets sits within multiple location but carry the same definition on business perspective.
- ii. Having to meddle in between the definition and the requirement of providing reliable and integrated data, it will be of no use if the

accessibility of those data ceased to exist. Hence, critically the ease of access has to be put through which will influence mainly on transactional base of data usage.

- iii. Dealing with customer complaint to the service as an example will require prompt data retrieval either from customer data, network or even operation data in resolving the issue soonest possible accordingly upon SLA measurement.
- d. Metadata persistence
 - i. An easy access data has to be persistence as the data usage will directly affect whether in the decision making process by the top management down to operation level with customer or with network development and maintenance.
 - ii. Inter correlation between the decision made and on ground, implementation requires persistence data management through better and reliable metadata governance. This will ensure that every steps taken in improving the services will have aligned across the value chain internally within an organization
- e. Failure detection and handling
 - i. Secure, easy and reliable data sources will require a proper failure detection and handling. An organization is not able to cope with any misbehavior of any data inconsistency, as this will affect business decisions and indirectly to its reputation. Hence, failure detection has to be put in place to secure the value of each data that is properly govern under metadata governance framework. With the correct and precise personnel to look after the raising issue on data, an organization able to balance the data management ecosystem with a control mechanism as a method to preserve the importance of data and their metadata.

4.1. Conclusion

As a conclusion, metadata governance is a subset from the major implementation of data governance framework within an organization. The significant purpose of metadata is to assist and progress retrieval of information. It is crucial to be understood by the people in the organization the importance and the critically to properly managed and maintained metadata as part of a bigger picture in data governance. In fact, it can be concluded that metadata management can be of essential aspect to ensure the quality of data to be preserved. Quality of data within and organization able to product insight that is valuable to an organization

and contributes to better well informed decision in business perspective and in operation continuity. Hence, it is aimed that metadata management able to make data easy to identify, easy for selection, ease of access and manageable secure data sources.

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