

International Journal of Computer Science and Mobile Computing



A Monthly Journal of Computer Science and Information Technology

ISSN 2320-088X

IMPACT FACTOR: 7.056

IJCSMC, Vol. 10, Issue. 10, October 2021, pg.47 – 49

Master Data Management Challenges

Ronak Pansara¹

13182 Vista Station Blvd, Draper, Utah-84020, USA

ronakpansara95@gmail.com

DOI: 10.47760/ijcsmc.2021.v10i10.008

Abstract— *Master data management involves creating a single master data record from multiple external and internal data sources within an organization. The data in this scenario depicts de-duplication, reconciliation, and enrichment, hence becoming a consistent, dependable source. Following the development of a single master record, the data performs a critical function, including accurate reporting promotion, data error reduction, and redundancy eradication. Creating a master data management system correlates with creating a reliable and dependable single data source for the different business departments. This paper identifies and examines different challenges in master data management. The results reveal challenges in master data management occurring in different dimensions, including data governance, data integration, data standards, and master model agility. The data integration process experiences data and meaning loss and possible errors. Data standard definition requires involving different departments to avoid misalignment.*

Keywords— *Data Standards, Data Governance, Master Data Management, Data Integration, Data Consolidation, MDM*

I. INTRODUCTION

Master Data Management entails developing and establishing one master record for each place, thing, or individual within an organization, from across external and internal information applications and data sources. The data in this scenario depicts de-duplication, reconciliation, and enrichment, hence becoming a consistent, dependable source. Following the development of a single master record, the data performs a critical function, including accurate reporting promotion, data error reduction, and redundancy eradication. Master Data Management allows an institution to integrate and consolidate multifaceted master information sources into one source. The primary objective of profound master data management correlates with enabling an organization to comprehend a reference from a master source. Notably, master data management possesses various benefits, including information error reduction, elimination of redundancy, and instituting accurate reporting through the single master source generated. The approach also experiences multiple challenges during implementation and consolidation. These challenges affect the functionality and efficacy of master data management. This paper explains various challenges in master data management.

II. DESIGN & METHODOLOGY

1. Model Agility

Notably, the master data model selected and integrated makes a vast difference within the organizational operations. As a result, model agility remains the primary factor of consideration [1]. The master data management software application integrated should reveal agility and adaptation to transformation in complex and vast systems. Inability to select and incorporate profound model master data management software application with adaptability and agility characteristics pose challenges in master data management

implementation and consolidation. An inactive and abstruse master data model fuels the existing problems within the organizational operations. Notably, the master data model depicts availability with various triplet layers, including meta-data, second tier, and first-tier master data. As a result, integrating these multifaceted master data model layers enhances the simplicity of master data making it understandable.

The model's failure to define these master data model layers instigates comprehensive challenges to existing organizational data problems [2]. To ensure model agility effective consideration, fundamental steps require prerequisite consideration. Notably, an organization should establish a profound data model, define organizational rules, define data validation controls, and illustrate responsibilities and security measures. Besides, determining centralization or decentralization maintenance during master data management implementation forms another notable challenge. This challenge correlates with whether to decentralize or centralize maintenance across the institution. Markedly, a centralized strategy depicts long-term effectiveness, especially when an intensive data security level forms the principal requirement. A decentralized scheme reveals easier management within a larger institution.

2. Data Governance

Another challenge experienced in master data management correlates with data governance. Despite selection, integration, and introduction of definite models and data standards, master data management can reveal conspicuous complications. Profound business rules and policies address master data complexity [3]. As a result, data governance forms the vital element in this operation. Notably, without data governance, getting and perceiving a clear overview of data operations will convey unequivocal impossibility. Markedly, data governance entails identifying, measuring, capturing, and rectifying data quality concerns within the master source system.

Unavailability of data governance incorporated within existing organizational processes permits inconsistencies to be instigated and integrated into application master data subsystems bypassing master fountain [4]. For instance, a business operation requiring looking up consumer records would require adjustment to guarantee that the data-entry workforce accurately searches matching records. This implication should occur even in data error presence and before developing new duplicative consumer records. Notably, data governance is entangled with the master data management systems. As a result, it forms the key consideration factor. This implication correlates with maintaining data integrity, establishing steadfast data, and maintaining data governance regulations and rules updated. These inclusions in data governance, especially maintaining profound data integrity and establishing reliable data, possess problematic projections.

3. Data Standards

Creating and setting data standards aligns with the most problematic and challenging activities in master data management implementation and consolidation [5]. Notably, the data standard selected and enacted for master data should be in alignment and agreement with various data types within an organization. The data standard should depict adaptability to information from the different organizational departments. The issue of ensuring agreement across organizational departments for data harmonization reveals an intensive challenge. With a larger organization or program, developing master data management is challenging. All business units and departments require to approve the proposed data standards [6].

During the alignment process with different organizational departments, misalignment occurs. The commonly experienced misalignment correlates with enterprise data initiatives. Like other data management activities, including data governance and data quality management, master data management is an enterprise initiative. As a result, coordination of master data management forms a critical factor towards driving the system to its synergy [7]. Data integrity and profound governance depend on data standards. The complexity of aligning and developing agreement among different organizational departments reveal conspicuous problems. Data standards should comprehend adaptation capacity. Data derived from different business units should align with the defined data standards. Notably, the process of planning for data standardization and alignment should happen in advance to avoid cumbersomeness.

4. Data Integration

Data integration forms another challenge in master data management. Integrating master data management with other data applications depicts cumbersomeness. Notably, data transfer and dissemination from one application to another application results in notable errors and time intensification [8]. Besides, during the integration process, substandard departments may transfer data continuously with others transferring in batches, which poses a challenge to master data management. Besides, the possibility of data and meaning loss form another underlying challenge in master data management. The lossy nature of algorithms applied for survivorship, merging, and linkage to integrate multiple records into a single master data source poses a conspicuous challenge. Survivorship reveals that some data particulars depict an apparent usage while other data

sets are being discarded. This implication may be based on arbitrary regulations set by information technology personnel. In some utilization scenarios, the data loss affects the downstream organizational operations negatively [9]. Following merging and integrating multiple records into the single master record, the context transformation eradicates any particular meaning implied by the primordial records. As a result, the implication insinuates conflicts with concept semantics within primordial data sources. Notably, fundamental approaches towards data integration effectiveness include data integration policies' definition and ensuring management of integration process with external and internal applications.

III. CONCLUSIONS

Master data management involves establishing a single master data record from multiple data sources within an organization. This system's primary objective correlates with creating a single source of dependable and valuable data used by different departments and units across the organization. Master data encompasses data on personnel, suppliers, and customers. Master data management offers different benefits to the organization, including information error reduction, elimination of redundancy, and instituting accurate reporting through the single master source generated. However, this system's implementation and consolidation depict association with various challenges. These challenges occur during data governance, data integration, data standard development, and defining model agility.

REFERENCES

- [1]. P. Mark, and S. Latham. "Enabling operational excellence through the effective management of master data." *The APPEA Journal* 56.2 (2016): 575-575.
- [2]. V. Heikkinen, Riikka and S. Pekkola. "Master data management and its organizational implementation: An ethnographical study within the public sector." *Journal of Enterprise Information Management* (2017).
- [3]. S. Ganesan, and R. Blake. "From content to context: The evolution and growth of data quality research." *Journal of Data and Information Quality (JDIQ)* 8.2 (2017): 1-28.
- [4]. H. Faizura, A. Azmi, and N. KAMA. "Co-dependence relationship between master data management and data quality: A REVIEW." *Journal of Theoretical & Applied Information Technology* 95.22 (2017).
- [5]. G. Sonia, and L. Metzger. "Vendor Master Data Cleaning—a Project for Accounting ClassVendor Data Cleaning Project." *Journal of Emerging Technologies in Accounting*.
- [6]. R. Frederick J. and B. K. Klamm. "Data governance case at Krause McMahon LLP in an era of self-service BI and Big Data." *Journal of Accounting Education* 38 (2017): 23-36.
- [7]. W. Chen., L. Heng., H. Yap Jeffrey. & E. Khalid, Azrul. (2019). A systemic approach for constraint-free computer maintenance management system in oil and gas engineering. *Journal of Management in Engineering*, 35(3), 04019007.
- [8]. H. Heikki, H. Haapasalo, and R. Silvola. "Managing data flows in infrastructure projects-The lifecycle process model." *Journal of Information Technology in Construction (ITcon)* 25.12 (2020): 193-211.