Establishing an Organization’s Master Data Management Function: A Step-wise Approach

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Abstract
Master data management (MDM) provides an access to the consistent views of an organization’s master data. Yet the establishment of MDM function, i.e. a department that attempts to ensure master data consistency is not an easy task as several stakeholders have different interests and expectations, among many other reasons. This paper is based on a year-long MDM project, from which we identify the process for establishing MDM functions in an organization, and what are the different steps and interdependencies that should be taken into account. These steps and their dependencies, and other incidental issues help organizations when establishing MDM function, and complement the scarce MDM literature.

1. Introduction
Master data is data about the key business objects in a company. Those are also unambiguously defined and uniquely identified across the organization [25]. Master data includes the business objects, definitions, classification, and terminology that constitute business information [35]. According to Loser [18], master data forms the basis for business processes.

Master data management (MDM) tackles data issues by concentrating on the business processes, data quality, and the standardization and integration of information systems (IS) [33]. MDM defines the most trusted and unique version of important enterprise data (e.g., customer, product, employee, location) [13].

MDM is often seen as a technical term, even though the literature states the challenges are mostly concerned with people in the organization [1]. MDM follows an application-agnostic approach trying to define and maintain consistent definitions of master data, and to enable its sharing across the organization’s multiple IS [20].

Prior research has mainly observed MDM through the software implementation (e.g. [12]). Steps that should be taken before the implementation have received much less attention, even though some individual design areas, such as data governance [36] and data quality factors [15], have been studied. Even less attention has been devoted to the process of establishing a MDM function. Hence, there is a gap in understanding what should be done from the organization’s point of view if the benefits of MDM are wanted to be achieved.

In this study we aim at identifying the steps for establishing a MDM function into an organization. Particularly we try to identify the whole process and how these steps are interconnected to each other. The study is based on a year-long project (a case study) where the attempts to establish the MDM function were ethnographically observed.

The first part of the study identifies the areas of the process that the prior research has found. The second part is the case study where we present our research methods and the findings. Finally, this paper concludes with discussion and presents some recommendations for future research.

2. Literature review
High-quality master data is a central prerequisite for companies to be able to perform as desired [26]. Master data can be identified with a help of a certain criteria [39] whose common features are its reuse [4], stability [27] and complexity [17]. Master data per se provides very little value, but it needs to be consumed by other applications or systems within the organization [13].
Master data has also an effect on transaction data. Transaction data describes relevant events in a company, e.g. orders, invoices, payments, and deliveries. If the master data is not correct, the transactions do not fulfill their intended purpose, because transactions use master data [11]. Skewed data appears as duplicates, missing attribute values and data value conflicts [5]. Data errors and inconsistencies lead to monetary and qualitative losses [35]. Also, maintaining many different data sets, perhaps for each and every IS, is an enormous cost. Yet the indirect costs are far more important than direct costs [6].

The need for MDM has been recognized after the amount of data has rapidly grown [37]. Currently the data is often stored in multiple ISs and databases. Particularly problematic is the fact that organizations typically have multiple information systems that hold the same data, because data has been developed and evolved in silos over the past decades [16]. Often a common starting point for MDM project is the refrain of data quality [22].

Although there is lack of academic research on MDM, industry experts (e.g. Gartner Group) have contemplated the subject from many angles. Academic research, professional reports, and practice all emphasize that MDM should be treated both as an organizational issues and a technical issue [40]. From the technical point of view, the MDM implementation process is mainly about implementing a technical solution [38]. Yet implementing MDM requires the organization to acknowledge that data is an important business asset and must consequently be treated and managed accordingly [23].

Introducing and further implementing MDM into an organization is a complex process with numerous steps and viewpoints [17]. MDM projects are often initiated by IT departments or are taken on by them [10]. Also enterprise resource planning (ERP) development is often a starting point for MDM development [20, 31].

Only a few researchers have contemplated the subject comprehensively. Radcliffe [30] proposed a model, which involved seven different design areas (MDM vision, strategy, governance, organization, processes, technology infrastructure, and metrics) that should be considered in developing master data management. Cleven and Wortmann [19] presented a model for developing MDM. They included five different areas (master data structure, master data systems architecture, master data governance, master data processes, and master data quality). Otto and Hüner’s [26] model consists of three categories. Strategy category involves strategic aspects, for example, impacts on company goals, mandate, strategic scope and strategic action plan. Organization category includes controlling for master data (business case, metric systems), organization (accountabilities, roles, support) and processes and methods (master data lifecycle management, metadata management, standards and guidelines), while MDM systems category includes information architecture for master data (information object model, data distribution architecture) and application for master data.

These three models have focused on identifying the design areas that should be taken into account when planning a MDM function. Joshi [12] took a process perspective which also identifies the order that the steps should be executed. Her process for implementing MDM involves eight steps that should be followed in order to execute MDM successfully:

1. Defining the master data flow. Data owners identify the source and target systems of the master data.
2. Identifying the sources and consumers of master data. Applications that produce the master data and that use or consume the master data are identified.
3. Collecting the business metadata. For the applications identified in the previous step, it is essential to capture the details about the core entities, their attributes, and the data types of the attributes, constraints, and dependencies.
4. Defining the master data model, i.e. how the master record will look and how to map the current data source to the target master data model.
5. Defining the functional and operational characteristics of the MDM tool according to the organization’s requirements for MDM.
6. Merging the source data to create a master data list or element. This is an iterative process where the source data passes through the set of business and transformation rules and matching algorithms. A lot of manual labor is needed from the data owners and business analysts to validate the mismatches.
7. Collecting and maintaining the metadata about technical and business rules. Master data testing should immediately follow master data generation to avoid any new errors in the generation process.
8. Publishing the master data or modifying the consuming/target applications. The actions taken in this step depend on the MDM approach the organization has chosen – either mapping or mastering. In the case of mapping, the master data has to be published to the consuming applications. If the organization has chosen to carry out this task using Service-oriented-architecture (SOA), Web services can be developed to publish the data, and all future updates and changes can be synchronized with the help of these Web services. In the case of mastering, consuming applications must be modified to look up the new master data.
The design areas might intersect, parallel, or fall in between the steps in Joshi’s [12] process model. Some are even prerequisites for Joshi’s steps. Particularly governance and technical architecture have been observed more closely in the previous research [2, 3].

MDM vision creates the goal for MDM in the long run while MDM strategy defines how to achieve these goals [30]. Vision describes what MDM will look like in the organization and why it needs to be created. The vision should clearly state how MDM supports the organization’s business vision with an explicit, sustainable, business benefit justification. MDM is affected by various business drivers, e.g., risk management, business process integration and standardization, and it must be considered as a company-wide endeavor [26]. It is essential to identify the business processes that need to be improved with master data [13]. MDM development should thus be designed like a business plan for a new company with a vision, mission, values and guiding principles [9].

Governance includes a formal process of roles and responsibilities that are commensurate with the levels of authority and accountability in the organization [30, 32]. Master data governance necessitates the definition of a clearly articulated prospects and the assembly of appropriate organizational structures. These include roles and stewardships, activities and decision areas, and responsibilities [19]. MDM governance sets the roles for every primary business owner for each master data being involved in the MDM initiative [34].

Organizations should also have well-understood and accepted processes for authoring, validating, enriching, publishing and consuming the master data [30]. These processes may differ depending on the type and complexity of master data. The main task for the master data processes is then to describe how the activities of creating, using, maintaining and archiving master data objects are executed [19]. These processes need also to be embedded into an organization’s daily business processes [26] as they outline how communication, support and training for MDM is supposed to be conducted [19].

Master data will only be as useful and trusted as the source data being used to derive it [13]. Master data quality improvements thus require that data is analyzed and cleaned up [5, 19]. This can be done through, e.g., migrations and harmonization. Also defining the quality metrics, that are monitored continually, ensures master data quality [13]. All in all, MDM initiative can show the business value by adapting the metrics to which business stakeholders pay the most attention, e.g., key performance indicators that relates to key business processes [30].

3. Research method

Subject for the case study is a municipality of 213 000 inhabitants. The organization has approximately 15 000 employees. It consists of central administration, purchasing group, welfare services, municipal corporations and several subsidiaries. The MDM project was mainly conducted in the central administration, in the IT unit.

Centralized IT-unit has been in operation since 2007. Before that, information systems were largely acquired individually by the units, with the exception of some organization wide systems (e.g. ERP). Because of this, the number of information systems and interfaces is enormous. The MDM project described here is the first attempt to control the organization’s master data in a centralized manner.

The year-long case study was executed in a MDM project that started in November 2010 and ended in October 2011. The project organization included three different groups: project group, steering group and expert group. Altogether, 32 persons were actively involved. They represented organizations’ different support functions such as IT, human resources, business administration, procurement and all the core processes. Two experts were from municipal corporations, while two vendors were involved as a consulting party.

MDM Project

Motivation for starting the MDM project was seen in 2008 when evident dispersion and data quality problems with the data, considered of being organization’s important core data were observed. At first, the most obvious problems were data duplicates and maintaining the data access.

Master data management was considered a solution that would deal with these problems comprehensively. It was assumed that the problems origin from both processes and applications.

The goal for the project was to study several issues: identify the organization’s master data and issues that have an impact on the subsequent MDM development, and also how the development should proceed. The acquisition of a technical solution was excluded from the project.

Data collection

The study was conducted as an ethnographic research. Ethnography attempts to understand how the practices are taken and comprehended “in the field”. It also enables more systematic theorizing [14]. As Patton has pointed out [28], it is easier to understand
and capture the context within which the people interact through observations and “living with the natives”. Consequently the data for the study was collected in a MDM implementation project by participating in project group meetings, steering group meetings, kick-off and closing seminars, and other project-related meetings and informal discussions. The first author was actively involved in the project as member of the steering group and as a member of the expert group. This offered unique opportunities to observe and understand the project while also participating in it.

This can also be characterized as complete participation, where the researcher is a member of the group under observation [24]. The observer may see things that might routinely escape awareness among the people in the setting and has less need to rely on prior conceptualizations [28].

The researcher recorded her observations to a dairy at least weekly, and whenever she encountered issues that were related to MDM or its implementation. In addition, also project documentation were used in thus study. This included procurement documentation, project plan, monthly status reports, and different memos (working group, steering group, project portfolio group, stakeholder groups, kick-off and closing seminars).

The data analysis was conducted by adopting the principles of grounded theory. First the researcher familiarized herself with the data. The goal was to gain an impression of the material. The goal was to explicitly look at the process and its aspects and key factors. Due to this, grounded theory seemed as an appropriate analysis tool. Organizational context was wanted to be embraced for understanding the organizational aspects of MDM. According to Martin and Turner [21] achieving useful results requires that the complexities of the organizational context have to be incorporated into an understanding of the phenomenon, rather than being ignored or simplified. From this viewpoint, objective project documentation was analyzed through the subjective diary entries, and vise verse, subjective reflections were backed up by objective entries. All this provided a basis for being able to step back and critically construct a generalizable step-by-step model – still without losing the contextual understanding.

4. Findings

Before going to our step-by-step approach, at first general issues, having an impact on each and every step of MDM development, are presented. These were data security and privacy, linked development projects, and enterprise architecture.

Several concurrent development projects were in progress. Both ICT-projects and business development projects were observed from the MDM perspective. The goal was to take the needs from the projects into account and to apply MDM ideology to them.

Earlier research has recognized neither dependencies between the issues, nor any incidental issues. For example, security and privacy aspects have not been explicitly considered earlier as being a part of the MDM development process. Still, in our case they were considered important, because even legislation can place requirements for handling the data (e.g. patient data). They were seen as critical issues that must be emphasized in MDM development throughout the process of establishing a MDM function. Dreibelbis et al. [8] argument about their importance from the application point of view is thus too narrow – at least in the context of public organizations.

Also, it was identified already in the early stages of the project that MDM is linked with the enterprise architecture. This suggests that the design areas from the literature need to be taken into account. Due to this, MDM was conceptualized through four subsets of the organization’s EA: conceptual level business architecture, including strategy, process map, processes, stakeholders and roles; information architecture from the logical level including modeling the master data; technology architecture, and applications architecture from the physical level, including integrations and MDM applications. Also governance was seen as a factor of the overall EA – and MDM respectively.

The identification of the steps was dynamic. Some were defined earlier in the project plan, such as identifying organization’s core data, defining governance and forming a road-map for development, while some emerged retrospectively when analyzing the research data as what should have been done differently. Yet the following steps were identified crucial in establishing a MDM function.

Step 1: Identifying the need and objectives

The attempt to establish a MDM function started by mapping the MDM needs. These needs formed the basis for MDM development and also for the project. The interest was in understanding the changes that MDM could make in the business, and how to achieve this change. The emphasis was more in qualitative benefit than cost savings (Diary 10/2010).

The business objectives for MDM were identified first time in 2008. These were (Diary 10/2010):
More effective work: streamlining work processes and the organization. For the MDM project, this means that the decisions on the data ownership should prevent the maintenance from more than one location.

Improved reporting: Improving the accuracy, timeliness, and quality of the data. These properties are obtained by appropriate processes, roles and ownerships.

SOA interoperability: MDM supports this by enabling service interfaces that the master data can be used with. MDM simplifies data retrieval, maintenance, and enables and implements the use of the terms and conditions.

Also some more generic objectives were set: to provide processes for data collection, integration, consolidation, quality assurance, and distribution to ensure data integrity, maintenance, and the application of information usage control mechanisms (Diary 10/2010).

Because the real state of the data and its quality were unknown until the step 2 had been taken, the exact need for MDM was not evident. This points out that this step needs to be done in parallel with step 2 as they seem to be enablers to each other – this was learned later. Even data issues had been recognized as a starting point for the development, national level development initiatives put pressures on the municipalities to quickly advance with the cultivation of MDM. Hence the original objectives and needs did not touch the data quality issues.

Step 2: Identifying the organization’s core data and processes that use it

At first, there was a need to understand what master data is and how it differs, for example, from the transaction data. It was agreed that master data refers to the organization's shared data that often passes through different processes and units (Project group memo 17.5.2011).

Next, some general criteria for identifying master data were created, after which the data sets were classified against the criteria. The goal was to set criteria for master data to discover how many master data sets there are in the organization. The criterion was constructed by the general master data descriptions found from the previous literature.

In order to pick out the master data sets, all information systems and their data were analyzed (Diary 4.4.2011). This also gave an opportunity to map the number of applications that hold the same data. Also the organization’s core processes were observed and divided into more precise ensembles to identify the information they used (Project group memo 17.5.2011). The processes and services being associated with the data were also observed. After all this background work, possible master data sets were compared against earlier created criteria. As a result, six different master data sets were identified.

Surely some challenges emerged. Several definitions of the MDM terms were missing. For example, the definition for the term “customer” was nonexistent. This resulted that it was very difficult to unambiguously identify the master data sets.

Evidently this leg work revealed that the organization had multiple master data sets that were duplicates. This also led to the first prioritization of MDM development as the data sets were divided into critical common master data sets and process-specific master data sets. It was decided that the MDM project first focuses on the former data set – common corporate master data (Steering group memo 24.5.2011).

Step 3: Defining the governance

Governance was defined in three levels: organizational level, support function level and data set level. Governance includes regulations, practices, procedures, data and concept ownerships, responsibilities and roles, and the descriptions of the roles.

This step aimed to identify the roles and responsibilities related to MDM. At first, different roles were identified. Naming them was not straightforward as it took several rounds of discussions about what kind of roles and responsibilities are needed. On the organizational level, a need for a MDM concept owner, who would take the lead in developing master data management, was evident. Yet it was more difficult to identify the organizational level and the unit where the role should be named and whether the role would be considered more as a sponsor or as a responsible party (Diary 19.5.2011). The organization considered that a responsible party is needed. This resulted that the role was associated with the CIO (Diary 5.7.2011). Also an operative role, leading the development and implementation of MDM was identified. This was also appointed to the IT-unit.

Data set ownerships were identified as essential. They would guarantee that the business units are involved in the MDM development, pointing towards the roles being associated with them. Common support functions identified were privacy and security, data quality control, information systems and integrations. Other roles were mainly seen as data set specific ones. These were, for example, roles responsible for the maintenance and the actual maintenance roles.
Step 4: Defining the maintenance processes

MDM processes refer to the processes that are needed for administrating and maintaining master data. This includes the responsibilities, methods and tools for collecting data (e.g. forms), defining workflows and guidelines for reviewing data in the workflows, and appropriate instructions for users and administrators. Also common operational models (e.g. service level agreements) between responsible unites had to be created. In the project, it was clear that well defined, documented, and approved maintenance processes are necessary.

This step was accentuated because current maintenance processes were dispersed (Diary 15.5.2011). In many organizations, the data maintenance is a costly and inefficient manual process that is done, e.g., by email, spreadsheets or phone requests [7]. This was also the case in our organization, where data quality issues, e.g., duplicates and errors in several master data sets were evident. This was also seen an area where wide qualitative and quantitative improvements could easily be made (Diary 5.7.2011).

Step 5: Defining data standards

Data standards define both the content and the model of a master data set on an attribute level. The data model was perceived as an enabler for making changes in the business environment. Consequently it contained the applications that, one way or the other, could utilize the data, and the reports that are produced by the applications. In particular, the problems with inconsistent and inaccurate reports were thought to be resolvable with better data structures. Earlier the data maintenance had been separated from the data and data structures. This resulted poor reporting. Information was simply not commensurate enough to the reporting purposes (Steering group 20.9.2011).

Also both a method for modeling master data and instructions how the data standard should be defined with every data set were considered. The instructions attempted to set standardized organizational level, process level and system level boundaries for master data. Hence the definition of the data set, its fields and attributes (e.g. a list of allowed values with explanations) were defined.

The step resulted as a template for future development.

Step 6: Metrics for MDM

Data quality describes how well the data serves the organization’s demands. As this was one of the original goals of MDM, it was seen important to ensure that the methods and means for developing and monitoring data quality are identified.

First the data quality definitions were formed and some generic policies for developing data quality for master data sets as well as some specific data sets were identified. This provided a basis both for setting the data cleansing and migration strategies and for monitoring and measuring practices. Also some non-recurring measures, such as data cleansing and removing the duplicates, and some manual steps, such as data harmonization and data quality assessment, were identified.

The passion towards master data quality increased during the project. At the beginning, the interest was more on metrics. When the project proceeded, it came more evident that data quality issues should be approached more broadly. Similarly to data standard definition step (Step 5), also here the focus was on the future improvements and plans rather than setting tangible metrics for current data quality.

Step 7: Planning a MDM architecture

MDM is about both organizational issues and technologies. The MDM architecture was the first step in defining the technical part. The architecture was seen as an entity comprising processes and information systems for governing MDM. MDM architecture contains information about the applications involved, data flows between them, systems and data administration practices and points (centralized vs. decentralized), potential new acquisitions, and data security and data privacy issues.

After setting the principles for MDM architectural model, alternatives for the technology architecture for MDM were compared. Three models; repository approach, registry approach and hybrid approach (see [29]) were studied more closely. It soon turned out to be insufficient to use just one model, but all three models were needed, as their views complement each other (Diary 4.10.2011).

It was seen essential that all previous steps need to be studied first before proceeding with the technical issues (Diary 1.6.2011). They form a basis for policies how to employ and integrate the MDM applications into the organization. For example, the initial MDM compatibility requirement with SOA was needed to be considered in all applications and systems. This made it as a general level policy – even though more detailed requirements must be defined separately for every master data set.
Step 8: Planning the training and communication

Communications with all stakeholders was considered to be an important factor in the successful MDM adaptation. This enforced communications and training plans where items such as what, when and for whom the development of master data should be communicated.

As a result, the plan provided instructions how to communicate with the key stakeholders. This included the scheduling for particular events and meetings, and a plan how to organize training. Motivation, objectives, master data criteria and the common data sets were recognized as being the most important issues which need to be communicated. Also governance, objects and the key roles were seen important.

Formalized communication aimed at providing unified understanding of the master data throughout the organizations, promote the importance of data quality to appropriate stakeholders, and to support MDM development in the future (steering group 2.11.2011).

Step 9: Forming a road-map for MDM development

Some initial MDM (mainly project related) goals were set at the beginning of the project. However, during the project some primary sustainable goals, related particularly MDM and not just its development project, were set. These emerged as explicit problematic issues experienced by the business people. Also the organization’s strategy was considered as a factor influencing MDM development. All these issues were categories into development areas, which were used as a basis for prioritizing the development and for forming a long-term road-map. This road-map can also be seen as a MDM strategy.

Step 10: Defining MDM applications’ functional and operation characteristics

The MDM applications are connected with the MDM architecture (defined in Step 7). Yet the MDM applications were considered individually with every master data set as their requirements differ – despite the fact that coordination between the applications and data sets is eventually essential. The analysis resulted that different components for the MDM applications were identified. These included user interface, workflow, MDM functionalities, such as data creation, editing, removal and reconciliation, data quality functions, database, and integrations to other applications.

In technical specifications, the data properties were defined in relation to standards and appropriate technologies. This also enabled the evaluation of whether to manage master data in a centralized or decentralized manner, making it possible to make the decision independently for every data set.

5. Discussion

Previous research has identified the process for establishing MDM function in an organization on a general level. Also several main design areas were identified (e.g. [30]). However, we took the MDM establishment process further, and focused more closely on the content of the process; different steps, their activities, and relationships. We aimed at describing the process in more details by providing a step-by-step description that organizations could use a basis for establishing their own MDM functions. Our step-by-step process also indicates the order of the steps, in other words, how they influences each other. Some steps were identified as prerequisites for the others while some were seen as being parallel to each other. Next we will discuss each step in relation to prior research.

Our process started from the contemplation of the needs for a MDM function. This was considered as the first step as the initiative for the MDM development had come from the IT-unit. Before continuing, the business had to be engaged with the development. We argue that this step is crucial for the success of the MDM. Its ignorance will result ambiguity as the understanding of the MDM, what it is and what it is not, and what are it needs, are left unclear and undefined. Prior research implicates that the first step is MDM strategy and vision creation (e.g. [26]) while we see it as a successor of understanding the meaning of MDM for that particular organization.

Similarly, the second step of identifying organization’s master data was acknowledged in the prior research (e.g. [12]). Yet the approach has been more technical. In our study, this step includes also the organizations processes in addition to technologies and information systems. Furthermore, we found out that before focusing on the processes and technologies, some kind of criteria for identifying the master data is needed. Very rarely all potential master data sets should be considered in the development. This emphasizes some commonly agreed criteria. In large organizations, as in our case, such criterion can be formed by studying whether the data is shared between the business processes.

The study also underlines the need for forming some basic definitions for MDM. This step should be executed at the very beginning of the MDM development.
development in order to form understanding about what exactly the master data is for an organization and, what the current situation there is.

Prior research has identified governance as one of the most important factors in MDM success. Yet the phenomenon is not that straightforward. In our study, the governance is about governing the situation in three different levels: organizational level, support function level and data set level.

Also defining data standards was observed as an important step in the MDM development. Data standards define the content of master data on an attribute level. Data models were seen as enablers both for the business environment changes and for comprehensive reporting. It has thus a consequential role.

A road map was important for future development. Also defining the architectural design was a phase that earlier literature has identified.

There is a shared view of the step for defining the functional and operational characteristics of the MDM tool. We argue that the needs of the organization towards MDM form the basis for technology. The characteristics origin not only from the technologies – even though they set some requirements – but also from the interplay between organizational needs, data sets and technologies.

We argue that MDM development is an organizational challenge more than technological challenge. This emphasizes the need for systematic training and communication. Those have to be planned in details, considering the whole MDM lifecycle. This means that their planning cannot be distributed to individual steps or else the coordination of the communication would be lost.

The comparison of our Step-wise approach to Joshi’s [12] process model shows that the similarities are scarce (see Figure 1). Joshi’s [12] process is very technically oriented, while we see the process for establishing MDM more as an organizational amendment process – which precedes the technical development. Our process involves roughly Joshi [12] phases even though they are mostly incorporated in the steps that deal with data standards, architecture models...
and technical solutions. Also Joshi’s [12] process involved maintenance steps for the applications, whereas our process ends in defining the characteristics for the application. In our case maintenance was not considered as a part of the MDM development process. The steps, other issues and comparison to Joshi’s process model are presented in Figure 1.

MDM development is not only about technologies or data. Also the organization, its objectives and strategies should be taken into account more widely, for example, by observing how the MDM should be aligned with ICT and business development in a form of projects and enterprise architecture. These issues, other dependencies and incidental issues have not been studied extensively. They are thus subjects for further research.

Even though the research was conducted in a municipality, the process does not indicate that the steps differ from the ones that the prior research has presented. Also, there were no language or culture/nationality specific issues identified. We thus argue that the steps are applicable and generalizable to public and private organizations, and different countries and regions.

6. Conclusions

The paper sheds light on the process for establishing a MDM function in an organization by providing not only a step-by-step approach but deciphering the steps more closely and observing the links between them.

Earlier some of the phases and relevant factors in MDM development have gone unnoticed. Although MDM has been a subject of interest, the process for establishing the MDM function has been studied only marginally and from a technical perspective – even though MDM itself has been identified to be more than just technologies. Our process identifies the process, its steps and their order: some steps are taken in parallel while the others in a consequent order.

Common interdependencies that need to be acknowledged throughout the project were also identified. These were data security and privacy, connections to other development projects, and enterprise architecture. These were considered as issues that help to align the MDM development with the organization and its other goals.

Our study contributes to the academic debate by presenting a step-wise approach for establishing an MDM function into an organization. The details in each step also help us to understand the MDM phenomena little bit more as the literature is still scarce. Even the step-wise approach has evidently both practical and academic value MDM still needs to be studied much more. We hope our study is a (small) step to understand MDM phenomena better. By developing MDM in organizations we believe we can increase their data quality and how it is exploited there. By so doing the organizations would get more value from their information systems.

7. References


