



Providing MDM for Pharma-Industries to Bolster Profitability and Reduce Operational Costs and Adhere to Regulatory Compliance

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Abstract— *Creating a central, shared repository of the ‘Best version of the truth’ is to resolve master data conflicts and, business applications and users can effectively use master data to dynamically generate unified views of all their interactions and activities with customers, products, and suppliers and synchronize data with operational and analytical systems. Companies can finally benefit from all their data assets within critical operational processes: marketing can attract new customers efficiently, sales can cross-sell or up-sell effectively, customer support can address issues in absence of full customer context, and supply chain operations can reduce the cycle time in moving goods through distribution channels. With the right MDM [Master Data Management] platform in place, organizations can achieve critical cross-functional business imperatives to bolster profitability, reduce operational costs and adhere to regulatory compliance.*

Keywords— *Master Data, Master Data Management, integration, Hub, Standardization.*

I. INTRODUCTION

Master data is a collection of common, core entities along with their attributes and their values that are considered critical to a company's business, and that are required for use in two or more systems or business processes.

Examples of master data include customer, product, employee, supplier, and location data.

Pharmaceutical companies are often among the largest and most complicated organizations in the private sector, and while their size is often a measure of their success, it can also cause them significant operational

Problem - Not least with their information management.

A large pharma firm can have tens or hundreds of thousands of employees in offices all around the globe; furthermore, there is the sheer variety of different departments and roles within the organization, encompassing chemists, pharmacists, biologists, patent attorneys, marketing, legal staff and many more.

These different departments all generate huge amounts of data, contained within reams of digital documentation. Indeed, one major European drug manufacturer recently admitted that its data volumes are doubling every 15 months. The problem facing pharmaceutical companies is that much of the data generated by different departments is needed across the organization; however, it is often extremely difficult, if not impossible to share this information between different people, premises and departments.

Nor is internal data sharing the only issue. The pharmaceutical industry is also unique within the private sector for the close scrutiny and complex regulation to which it is subject. While this level of bureaucracy is necessary for ensuring the highest standards of public health and safety, it can cause major headaches for pharma companies when they are required to provide information, such as clinical trial data or audit trails, to external authorities.

The problem stems from the multiplicity of different software and systems in use across all the different departments within a large pharma organization. Naturally, this goes far beyond the word processing, spreadsheet and presentation applications used by ordinary businesses.

For example, the chemists alone can use around 200 separate pieces of highly specialized software to design, refine and test drugs; including bimolecular modeling, semi-empirical, molecular mechanics and valence bonds programs, to name just four types.

Unsurprisingly, these software applications are not supported by off-the-shelf collaboration tools like Microsoft SharePoint.

All these different applications use different codes, languages and standards, and it is usually either extremely difficult or completely impossible to share and integrate content between them. Yet even if there were one single standard for content, pharma companies would still have to overcome the problems inherent in the complexity, size and geographic diversity of their operations. In large, complex organizations like these, valuable data and content are usually siloed in a plethora of different machines, desktops, servers, premises and, potentially, even in different countries and continents.

What follows are reasons why I think the industry has struggled managing data:

1) *There's a lot of it* – The sheer volume of sales data can tax the internal resources of even the largest pharmaceutical companies. For smaller companies, the cost of sales data management can be prohibitive. With the ability to cut data at a more granular level (e.g. payor/ plan) it's growing exponentially. What's more, the tabulation of such large amounts of sales data requires divergent, multi-disciplinary skills not easy to harness in a large company environment.

2) *Its complex* – The data is complex and not always user-friendly. Pharmaceutical sales data is typically reported at two levels: prescription (total, new, and refill from the prescribing physician), or outlet (i.e., hospital, retail pharmacy, etc.). The two data sets are very distinct. To be used effectively, an in-depth understanding of collection methodology, projection factors (if any), data gaps and limitations, etc. is required. Lastly, integrating varieties of this data across sources and channels increases the complexity equation.

3) *Its raw* – Most pharmaceutical sales data is made available in “raw,” unprocessed form and inconsistencies and differences in format, content and quality are the norm. Extensive understanding of these nuances and manipulation is often required to yield meaningful results that create accurate insights.

4) *Its confusing* – The definition of what constitutes a “customer” can have multiple meanings. A hospital may, for example, simultaneously belong to a Group Purchasing Organization (GPO), be owned by a hospital chain, and participate on a local level in an integrated (health care) delivery system.

As such, a hospital or similar account can appear on multiple membership/affiliates list, all of which may be important to different constituencies within a client organization.

5) *Who owns it?* – There are often multiple customers within the same company for the same data. Entities as dissimilar as sales operations, business analytics, finance, marketing, strategic customers, and managed care/national contracting often have a direct and vested need for sales information. Depending on the company, responsibility for sales data management can reside in one or more of these areas, or it can reside in an internal MIS or IT group.

6) *Time to data* – The pace at which the market and competition is changing is at an all-time high. The insights you derive from your data are only valuable if they can make an impact in real-time. Data that is late or inflexible doesn't have nearly the same impact if it is timely and on-point. This is often a disconnect between the data “owners” and the business drivers.

The difficulties involved in finding, obtaining and integrating data slows still further the long process of getting a new drug or device onto the market. And, like any delays, they are harming pharma firm's profitability. The information management needs of the industry require more specialized collaborative working systems that generic software used by other businesses.

The essence of data management is to provide the business with timely, accurate and insightful access to information – to turn complex data into easy-to-use tools. This can be a daunting challenge for even the most sophisticated companies. The challenge is to define the information that is most important and fundamental to the business objectives while simultaneously meeting the needs of multiple users in an ever-changing and dynamic environment.

Access to integrated insights is a must have for any competitive life sciences company. It's the lifeline to your field force and ultimately your customers, its core to the tactics being called from home office, and it's the means by which strategies are developed at the executive level.

II. OTHER SOLUTIONS:

Most of Pharma firms have specialized enterprise content management (ECM) technology, even systems specifically-designed for the pharma industry are rarely more than a suite of off-the-shelf components.

Several key challenges that traditional ECM software has so far been unable to solve. One of the issues raised was the management of regulated content - in other words, data collected and submitted to regulatory authorities or subject to legal, regulatory and ethical constraints, such as medical records. It's vital that access to regulated content is restricted to those with legitimate authority to view it; at the same time, this information must be structured and searchable to ensure that information can easily be found when it is requested by outside agencies - such as regulators, auditors, investigators or insurers.

Another concern highlighted is the issue of data integration. This needs to be done in a federated manner by introducing data exchange standards and introducing a semantic layer to facilitate navigation and data recall across the multitude of different systems and formats.

Closely related to this issue is the challenge of managing content itself, rather than just the documents in which that content resides. The inability to access or share data across an organization means that it is often very difficult to find, access and re-use the 'intelligence' within pharma companies' legacy documents. This slows down document workflow, as well as any associated auditing process, which ultimately slows down the time-to-market of the products involved.

These were only the standout issues raised, and there were many other problems raised. But if there was one theme that united many of the problems identified, it was the urgent necessity of semantic or 'sense-making' technologies that enable users to find relevant content quickly and easily, wherever it may reside in the organization.

As noted above, there is a number of different content management technologies specifically designed to meet the needs of the pharma industry. Yet the fact that the roundtable attendees were able to identify - and agree on - several significant content management difficulties speaks volumes about the failure of these systems to meet pharma firms' requirements.

While there is no single silver bullet, no overarching technology suite or process methodology available for solving these problems, doing nothing and sticking with the same old systems is merely a counsel of despair.

What, then, is the answer? Pharma companies cannot simply wait around for technology providers to come up with a panacea to all their problems. Content management vendors can produce systems for separate business functions, departments and processes; but in order to solve the wider issue of effective data sharing across the whole organization, a new, holistic approach is needed. This can only be achieved with the direct input of pharma firms themselves.

The industry therefore needs to engage actively in the development of new standards, processes and technologies. They can best do this by working closely with content management vendors to help identify the specific challenges they face in creating, managing, auditing and sharing the superabundance of invaluable data that they hold.

No content management vendor can truthfully claim to have the answer to the multitudinous issues surrounding information management in this industry. Nor will they, unless they begin reaching out to pharmaceutical companies; listening to their experience; and fully understanding their needs.

This will not be a quick win; and pharma firms should know they cannot expect a miracle cure to appear overnight. But the prize is one of real and lasting value: a holistic information management system that will transform data sharing across organizations, leading to more rigorous safeguards, faster time-to-market and increased profitability. It's imperative that the industry starts to take responsibility for coming up with effective data management systems; because the current dearth of such technology shows the un wisdom of inaction.

III. MDM AS A SOLUTION

MDM creates a central, shared repository of the 'best version of the truth'. Examples of master data include customer, product, employee, supplier, and location data. Complexity arises from the fact that master data is often strewn across many channels and applications within an organization, invariably containing duplicate and conflicting data.

Business applications and users can effectively use master data to dynamically generate unified views of all their interactions and activities with customers, products, and suppliers and synchronize data with operational and analytical systems.

Master Data Management (MDM) is the controlled process by which the master data is created and maintained as the system of record for the enterprise.

MDM is implemented in order to ensure that the master data is validated as correct, consistent, and complete. Optionally, MDM can be implemented to ensure that Master Data is circulated in context for consumption by internal or external business processes, applications, or users.

IV. APPROACHES TO DESIGN MDM

There are three Approaches for designing MDM those are

1) *Understand the current System complexity*

Successful MDM initiatives require the organization to understand the current state of its application environment dispassionately and pragmatically. An objective perspective enables the company to focus on the material it needs to know to complete the program effectively, while ignoring extraneous information.

The conceptual model provides the MDM project team a single source of knowledge and understanding about the business concepts that comprise the project's in-scope subject areas, and it expresses them clearly and unambiguously.

2) *Build approach and prioritize systems*

A good first step in building an approach for an MDM initiative is to create a "straw man" logical data model for the subject area(s) involved. Before executing detailed interviews, the straw model can provide context for detailed discussions.

As each system is reviewed, the logical model is updated with additional attributes and entities discovered, and the system is mapped to the logical model at an "attribute group" level. Be sure to leverage any existing data models while developing the logical data model.

3) *the definition does not say what master data is*

Determining what qualifies as master data can be problematic for many organizations. However, doing so is a fundamental step toward MDM success. Only when it is identified can it be used properly.

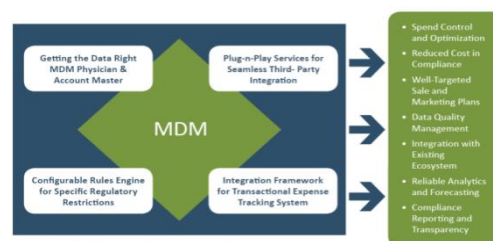


Fig-1 MDM Solution Framework for Pharma Companies

Benefits of Master Data Management

Clean, consolidated and accurate master data seamlessly propagated throughout the enterprise can save companies millions of dollars a year, dramatically increase supply chain and selling efficiencies, improve customer loyalty, and support sound corporate governance. Furthermore, this data feeds analytics that can in turn provide a true representation of how your business is running.

Clean, consistent data also enables you to:

1) Accurately report on products, customers, assets, and financials: Quality data enables efficient operation, trustworthy analytics, and cross-communication between disparate systems.

2) Manage governance, risk, and compliance: Application fragmentation negatively impacts governance and compliance processes by making data hard to reconcile and business process reporting difficult to extend across the company. MDM eliminates inconsistencies in core business data and enables strong process controls.

3) Accelerate application ROI: When new applications are deployed, they need only integrate with the MDM application for all data to be shared across the existing application landscape. This integration shortens the time it takes to achieve ROI on a given application investment.

Informatica MDM Hub is the best platform available today for deploying MDM solutions across the enterprise.

Core Capabilities: The following figure shows a functional overview of Informatica MDM Hub's core capabilities.

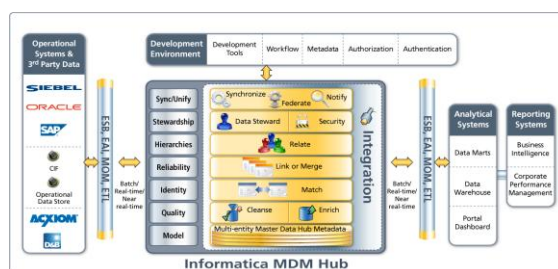


Fig. 2. Core Capabilities of Informatica MDM Hub.

As data arrives at the hub, it is often not standardized. This standardization includes name corrections (for Example, Mike to Michael), address standardizations (for example, 123 Elm St., NY to 123 Elm Street, New York), as well as data transformations (one data model to another).

The data can be enriched or augmented with data from third-party data providers such as D&B and Acxiom. Informatica MDM Hub provides out-of-the-box integration with major third-party data providers within its user interface.

After data standardization and enrichment, common records are identified by rapidly matching against each other. Once common records are identified, you can either link them as a registry style or merge the best attributes from the matched records to create the Best Version of the Truth.

This reconciliation process, achieved within the Informatica Trust Framework and governed by configured business rules, provides the best attributes from contributing systems.

Relating people and organizations is a key requirement for many organizations. Informatica MDM Hub's Hierarchy Management capabilities let user's group people into households and companies into corporate hierarchies.

Informatica MDM Hub also provides GUI-based functionality, enabling users to define and configure business rules that affect how data is cleansed, matched, and merged. This data management workflow presents the exceptions or non-automated matches to the data steward for resolution.

All data in the Informatica MDM Hub is available based on the entitlement rules that are put in place, ensuring that only authorized users can view or modify the data and, if necessary, mask important data (such as tax ID numbers). One common goal of sharing the data in Informatica MDM Hub is to synchronize it with contributing source systems as well as downstream systems. Informatica MDM Hub can be configured to handle these synchronizations in real time, near-real time, or batch mode.

If in real time or near-real time mode, Informatica MDM Hub is smart enough to avoid loop backs with the system that initiated the change in the first place.

Informatica MDM Hub also has the ability to dynamically aggregate transaction and activity data into a central record, leveraging federated query technology built into the hub. This allows organizations to store only the reference data in the hub while providing access to all the transaction data in real time.

With the complete view of the client and their transactions, users can configure notification events that are triggered when data changes and can kick off a workflow process, an email, or invoke a web service. This allows organizations to respond to changes as they happen.

Finally, MDM Hub can be configured to share data using pre-configured web services, or organizations can assemble higher-level functions by orchestrating multiple services.

V. CONCLUSION

The ability to implement an effective MDM initiative is becoming a critical capability for many organizations. The pressure to grow quickly and seamlessly is a very real element of every business, and MDM enables integrated, strategic expansion without unnecessary rework.

As a result, organizations become more competitive and profitable. Of course, like most important projects, an MDM effort requires commitment from the entire organization. Additionally, that commitment must be lasting. While MDM will provide numerous quick-hit benefits, those derived over the long term are most substantial.

If dedication wanes and attention to detail becomes lax after a little while, or if resources are pulled away when other issues arise, the effectiveness of the MDM initiative will be curtailed, if not eliminated. Such a gradual decline can be avoided with exceptional governance. By clearly indicating who is responsible, and by empowering those people to do their jobs, the likelihood of success increases dramatically.

VI. FUTURE ENHANCEMENT

MDM provides better solution to the pharma industry and in order to made this solution available to mobile devices and Tablet's and other hand-held Devices by integration facility provided by Salesforce CRM and the data which is generated by MDM can be made widely available and with the facility of internet able to get this data at any time. With Social Media Integration any information about the new product launch and promotional offers and Product growth in recent times will be automatically reflects into their pages in official Social media sites like Twitter and Facebook, Linkidin can be automatically published and news alerts will be automatically forwarded to all Categories in an effectives Manner.

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