

A Case for Enterprise Data Management in Banking

Many of today's challenges for banking institutions can be addressed by a structured enterprise data management initiative



People matter, results count.

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1 Introduction

Data management has been pushed to the forefront today by the multi-pronged squeeze of compliance, risk management, operating efficiencies, effective client relationships and marketing. All of these functions rely on the accuracy of data for effective decision making. Multiple business groups like risk, operations, trading and compliance view the same information differently. This can lead to material disputes about data quality, definitions, information storage, and control.

An enterprise data management (EDM) program brings all of these data related aspects under one umbrella, holding responsibility to establish standards of conformity, integrity and reliability thereby increasing efficiency and throughput. To be successful, an EDM team requires a deep understanding of the drivers for an EDM strategy, the building blocks of an effective EDM implementation and various design considerations.

This white paper provides an overview of EDM capabilities and strategies. It also touches on architectural considerations and implementation aspects of an EDM program. Lastly, it summarizes the benefits accrued by an EDM implementation.

2 A Changing Landscape

Regulations and industry trends are imposing additional demands on data management systems.

As a result of the financial crisis, the banking industry has seen major changes in regulatory requirements and industry standards, which impose additional demands on data management, analysis and reporting systems.

2.1. Regulatory Imperatives

The 2007 financial crisis has put a spotlight on banks who have been under fire for providing excessively risky loans. These loans along with weak regulations were the perpetrators of the financial crisis. Since then, there has been a paradigm shift towards transparency as investors and regulators require more information to be released publicly. This has resulted in an increased sense of urgency to comply with various regulations in order to maintain the confidence of various stakeholder groups.

Lending

The subprime crisis and subsequent bank failures have clearly demonstrated how risky loans can cripple worldwide financial markets. The crisis served a wake-up call to banks, prompting them to screen borrowers more carefully. This led to sharp decline in the loans to corporate borrowers. Studies reveal that new lending in 2008 was far below new lending in 2007, even before the peak of financial crisis from August to October 2008.¹

Post-crisis, banking institutions are subject to increasing compliance and reporting requirements. Various loans sanctioned by banks are scrutinized to ensure that they comply with statutory requirements. Managing compliance has therefore become a challenging task, especially for firms with global reach since regulations are often country-specific.

Risk reporting, capital and liquidity

A host of new regulations have surfaced to address many of the flaws with respect to risk management and capital adequacy that became visible during the financial crisis. International Financial Reporting Standards 8 (IFRS 8) and Basel III bring new compliance demands that will impact the business models of banking institutions. IFRS 8 lays down disclosure requirements with respect to financial statements. Basel III will impose additional capital constraints on banks and other financial service providers. Basel III focuses on capital and funding by specifying new capital target ratios and setting out standards for short term funding. These regulations are expected to have a substantial impact on the banking industry.

The underlying ideology behind these regulations is to increase liquidity while simultaneously making the global banking system more safe and secure. The banking industry faces stiff challenges to merely to achieve the technical compliance with the regulations. Silo technologies add another layer of complexity when assembling accurate, holistic risk reports to meet regulations.

¹ *Bank Lending During the Financial Crisis of 2008*, White Paper, Victoria Ivashina and David Scharfstein, Nov 2008, [online] available from http://www.people.hbs.edu/dscharfstein/Lending_During_the_Crisis.pdf

Transparency and accountability

Post-crisis, new regulations have been created to enforce transparency and accountability in the financial system while implementing rules for consumer protection. The Dodd-Frank Wall Street Reform and Consumer Protection Act is a significant and massive step in this direction. This act touches all aspects of financial system. It aims to create an advance warning system to end bailouts for ‘too big to fail’ institutions and also recommends a strong consumer financial protection watchdog. These regulations also mandate enhanced regulatory reporting capabilities.

In order to comply with such sweeping regulatory changes, technology will have to play a major role.

2.2. Industry Trends

The ongoing global financial crisis, with its historic dimensions, will have a lasting impact on the global banking industry and the world economy. Banks are looking for growth opportunities², but their success is very much dependant on their ability to build critical mass and successful operations in these economic times.

The regulatory landscape has strengthened significantly, with governments in many markets implementing much more stringent rules—such as minimum capital requirements—putting pressure on firms to raise capital.

This financial pressure has increased focus on operational efficiencies and is driving investments in automating credit underwriting platforms with scorecards and models, fraud and collection analytics, and enhancing data and risk analytics capabilities. Some banks are progressing from using qualitative or analytical models to the deployment of predictive models for risk and customer analytics.

Amid the increased requirements on capital adequacy and optimal utilization of capital, economic capital management and risk adjusted return on capital (RAROC) have become a top priority for banks. Loss forecasting and stress testing have gained increased importance in the current economic scenario and are the norm today.

Basel III—which is currently being debated by regulators and institutions—will require banks to hold additional capital of specific types. It introduces a minimum leverage ratio and capital requirements against liquidity risk. It also includes mandatory capital buffers for capital conservation and a discretionary countercyclical buffer, which allows national regulators to require additional capital during periods of high credit growth.

² *Bruised but not broken: The Global banking growth agenda*, KPMG Report, 2011, [online] available from: <http://www.kpmg.com/Ca/en/IssuesAndInsights/ArticlesPublications/Documents/bruised-not-broken-banking-survey.pdf>

Other important trends in the global banking industry are:

- **Business intelligence** practices are being integrated with customer relation management (CRM) and there is a stronger focus on predictive and behavioral modeling tools. This combination is fast becoming the central cog for cross selling, customer lifetime value management, risk management and recovery management.
- Banks have started to realize the potential of **social media analytics and content tracking** and are aligning their CRM tools with Twitter and Facebook.
- With the growth of fraudsters and hackers, **security threats** for all firms but especially banks have mushroomed. Among the big drivers of payments security are new encryption initiatives and efforts to bring interoperability to point-to-point transaction encryption.³
- With the emergence of **mobile banking**, banks have to restructure their business model and increase collaboration with firms in cards, payments and telecom domains.
- Banks will be ramping up their **personal finance management** (PFMs) offerings to help customers realize their financial goals and to avoid disintermediation.

2.3. Data Management, Analysis and Reporting

Emerging from the Great Recession, banks are faced with the overwhelming task of effectively running their and also meeting the requirements of present and future regulations.

Specifically, some of their important enterprise data management needs are:

Regulatory compliance and risk management

Regulatory compliance and risk management demands often lead to large IT outlay. These requirements include complying with the requirements of Dodd Frank Act, BASEL II/III, Sarbanes-Oxley Act, IFRS, Equal Credit Opportunity Act, Durbin Amendment, RESPA and meeting the other risk and compliance related needs of the organization. Regulation will drive up the cost of business for many large financial institutions.⁴

³ 11 Bank IT Trends for 2011, Article, 2011, [online] available from: http://www.americanbanker.com/btn/24_1/11-trends-for-2011-1030508-1.html

⁴ Growth solutions in a changing world: Global Industry Outlook, Deloitte Report, [online] available from: http://www.deloitte.com/assets/Dcom-Albania/Local%20Assets/Documents/al_fsi_banking_260606.pdf

Customer relationship management

CRM initiatives drive to effectively manage customer interactions, and in the process improve customer retention, customer loyalty and revenue per customer. Related to these CRM initiatives is the building of data marts and data warehouses and achieving the “single customer view” to better utilize customer information. Banks are moving from a product-centric approach to a client-centric approach with a 360-degree understanding of their clients to better manage and maintain client relationships.

Profitability and performance management

Performance management is now seen as a mechanism spanning across finance, operations, IT and the customer, and the focus is on building and improving a host of useful metrics and performance gauges. This information is then used for better assessment of business performance and efficiency in the system and for using performance metrics to incentives and compensation.

Given these requirements, the main challenge banks face are identifying and evaluating their existing processes and data flows in a complex network of disparate legacy systems.

3 EDM Capabilities and Strategy

Enterprise Data management is the development, execution and supervision of plans, policies, programs and practices that control, protect, deliver and enhance the value of enterprise data and information assets.

Given the industry trends and IT challenges highlighted in the previous section, one of the top considerations for banking institutions is to review their data management capabilities, identify deficiencies and formulate a roadmap to address the gaps.

According to the Data Management Association (DAMA): “Data management is the development, execution and supervision of plans, policies, programs and practices that control, protect, deliver and enhance the value of data and information assets.”⁵ This definition applied to enterprise wide data is Enterprise Data Management (EDM).

3.1. EDM Components and Capabilities

A comprehensive EDM program comprises of a host of capabilities. In order to enable these capabilities, there are a few components that first need to be in place. The pre-requisite components and key capabilities are listed below.

Pre-requisite components

- **Data Management Vision** – an organization needs to describe the vision and principles or core values around which its enterprise data management program is based.
- **Data Management Goals** – goals of an EDM program need to be related to strategic business goals, objectives and priorities. These, furthermore, need to be adopted by and communicated to key stakeholders.
- **Governance Model** – An EDM program needs to adopt an enterprise-wide mechanism by which the program is managed, funded and implemented.
- **Issues Management and Resolution** – the organization has the ability to identify, triage, track, and update status for all data and integration issues identified during “business as usual” (BAU) activities or ongoing data management initiatives.
- **Monitoring and Control** – Collective capabilities for measuring and reporting on the quality and effectiveness of the data management program as it operates as part of the BAU environment.

⁵ http://en.wikipedia.org/wiki/Data_management

EDM capabilities

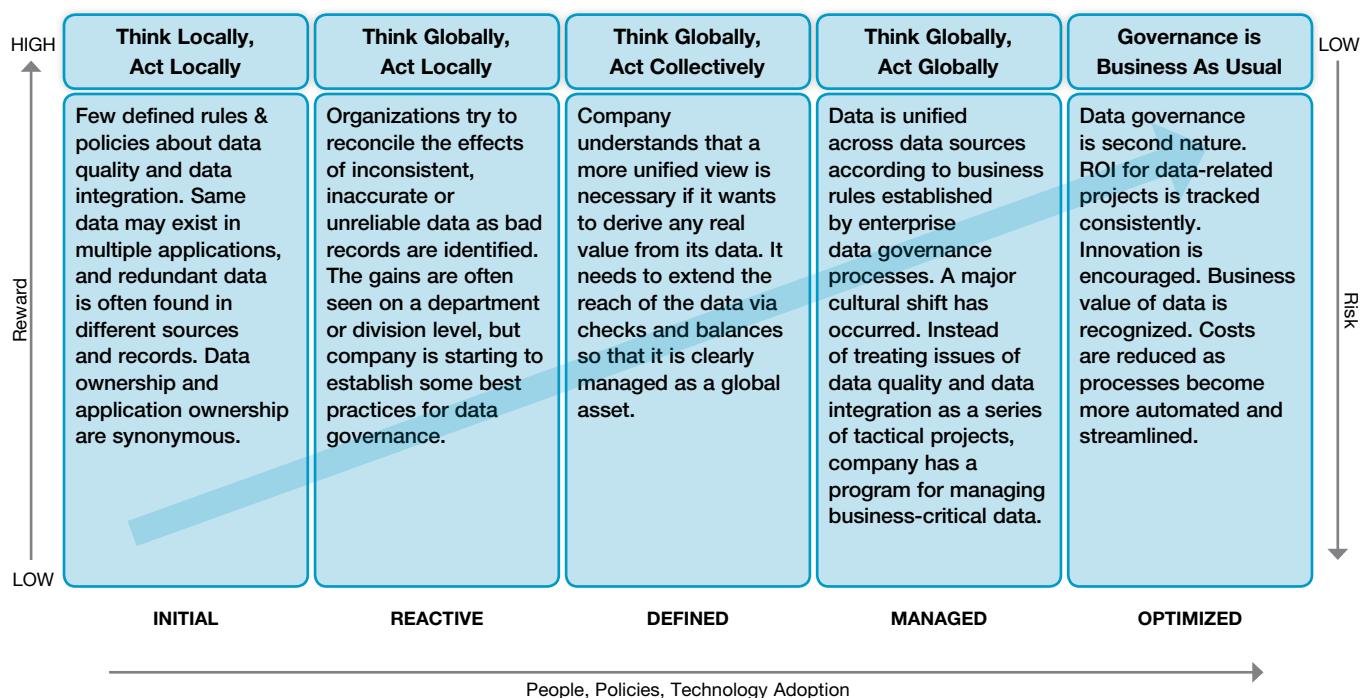
- **Critical Data Inventory** – Critical Data consists of those data elements (and their business definitions) that the business deems as important for decision making and compliance. This inventory should be made in consultation with business users. The Critical Data Inventory helps prioritize or contain the scope of an EDM program.
- **Data Integration** – This covers the processes and tools for acquisition, composition and enrichment of data from different sources into a single unified store or view. Data integration typically is done by building an enterprise data warehouse, from which data is sourced directly into analytical engines, or into data marts that feed the analytical engines. Data integration also addresses the control processes that are used to monitor data integrity as data flows from data producers to data consumers.
- **Data Profiling** – Data profiling is the examination of data to collect statistics and characteristics about the structure of available data. It is used to assist in critical data assessment, data classification, data integration and impact analysis.
- **Data Quality** – Data quality measures whether data is ‘fit for intended use’. Data quality is typically measured along the dimensions of accuracy, completeness, conformity, consistency, duplication and integrity, with each dimension carrying different weight based on the intended use of the data. End-to-end data quality allows for comparison of data quality across the data flow at a point in time as well as across time (trends).
- **Metadata Management** – Metadata is information about the data itself. Metadata captures attributes of data like the type, length, timestamp, source, owner etc., as well as relationships in data (semantics), and helps with data traceability and lineage. Use of uniform methods and tools for defining, collecting, and managing information metadata ensures that data is identified consistently across the enterprise.
- **Master Data Management** – Master data or Master file is the single, authoritative and agreed upon source of data that is critical for business operation. It typically includes persistent non-transactional data like customer, product, employee etc. Master data management ensures that there is a single consistent version of critical data used across the enterprise.
- **Reference Data Management** – Reference data is used to classify or categorize data. An example is the product master which contains the list of all products along with their attributes. As with metadata and master data, reference data management also plays an important role in data integrity and consistency.
- **Data Privacy (Anonymization)** – This includes processes, algorithms and technology platforms which are required to ensure that the contents of any information object (data set) fully comply with information privacy and protection laws and regulations.

A top-down strategic approach to EDM aligns business priorities to specific EDM components and capabilities.

3.2. EDM Strategy

A top-down strategic approach to EDM aligns business priorities to specific EDM components and capabilities. The approach should also evaluate current state of each relevant capability against the desired future state. An assessment based on a data management maturity model is a good starting point for an EDM strategy and roadmap definition initiative. A data management maturity model assesses the above-mentioned capabilities with respect to the readiness of the firm from a people, policies, technology and adoption perspective. This helps the firm identify gaps and prioritize initiatives along a well designed road-map to achieve the future state.

Exhibit 1: Data Management Maturity Model



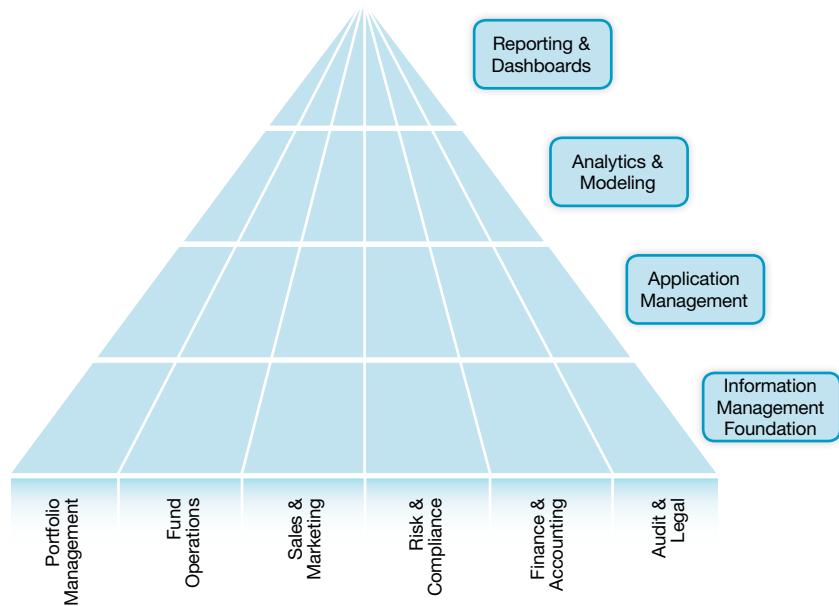
3.3. Architectural Considerations

While creating a roadmap for developing or enhancing EDM capabilities, there is often a tendency to build in end-to-end functionality in each system in a siloed fashion. Such tactical approaches typically lead to even bigger challenges in terms of inconsistent, duplicated and sometimes unreliable data, processes, reports and decisions.

To avoid this issue, Capgemini recommends a layered approach where each horizontal function or capability (technology) is managed separately as a shared service across the vertical function or capability (business).

Exhibit 2: Layered Architecture & Shared Services Approach

A layered architecture allows for implementing technology capabilities as shared services.

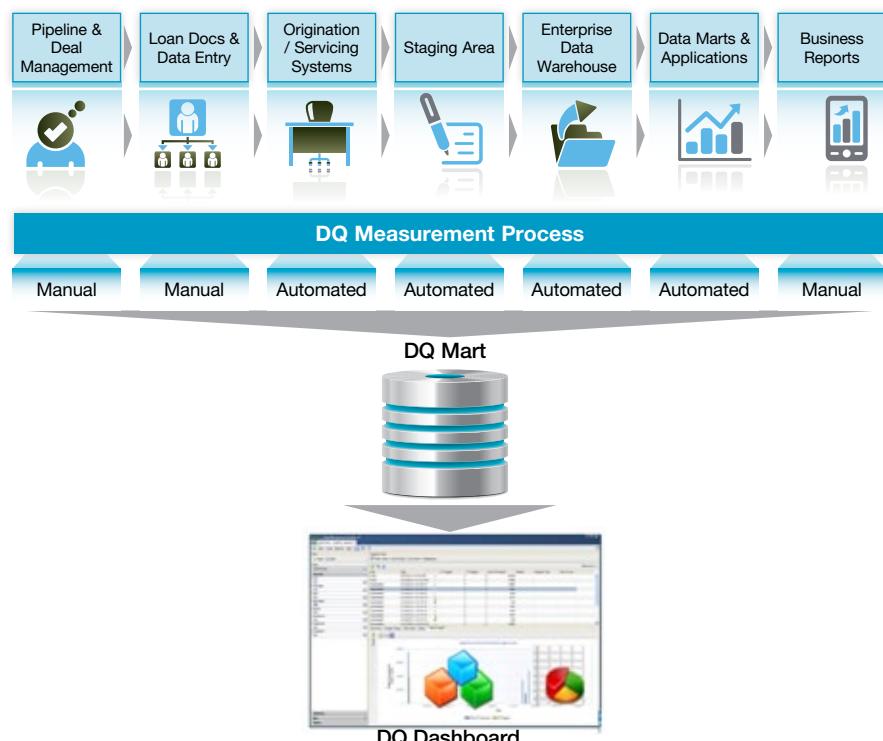


3.4. End-to-end Data Quality Assurance

While designing a data quality program, most banks focus only on data in a warehouse. This approach is flawed because it does not identify all sources or causes of poor quality data, and more importantly it does not confirm that data ultimately used for analysis and reporting is of good quality.

The recommended approach to ensure end-to-end data quality is to design a program that considers the entire data from source systems to final reports, as shown below.

Exhibit 3: Data Quality and Business Processes



In this approach, data quality is measured at multiple touch points as data flows through the business process. Metrics from each measurement is stored in a centralized data quality mart, which feeds into a centralized data quality dashboard.

Specific solution considerations and requirements are outlined in the table below.

Exhibit 4: End-to-end Data Quality Solution

Considerations	Requirements
Integration of results from various data quality processed (manual and automated) into Data Quality Mart	Rules need to be aggregated and aligned to data quality dimensions. Scorecards and weights also need to be designed
Integration of results from feeds (Excel, SAS, IDQ)	Data Quality Mart should accommodate manual and automated feeds
Traceability and aggregation of results	Data Quality Mart design should accommodate traceability of elements by sources
Executive level dashboard with drill down capabilities	The dashboard and reporting tool design should be in sync with the drill down levels and hierarchies

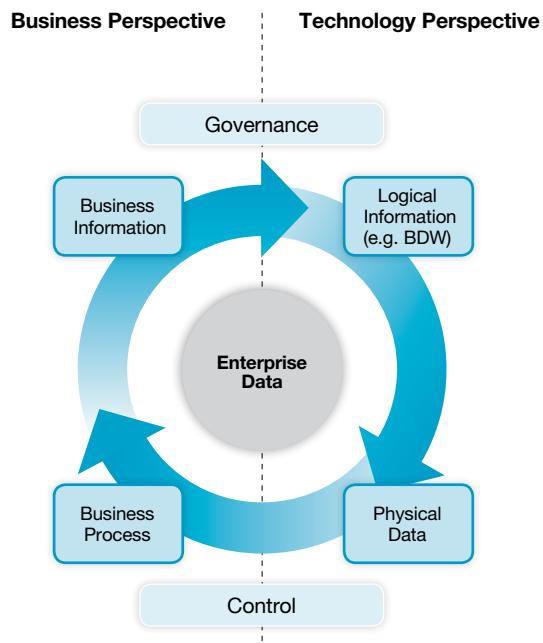
Technology priorities should be driven by business priorities, and supported by a strong governance and control model.

3.5. EDM Governance and Control

In the layered architecture and end-to-end data quality program design, it can be seen that business functions, processes and capabilities are supported by the technology functions and capabilities as shared services. In this approach, the business priorities are the primary determinants of technology focus areas; and it is crucial that the EDM initiative is launched as a joint effort between business and technology groups.

These perspectives need to be supplemented by a strong governance and control model wherein the management sets the policies and guidelines, and provides the controls and funding to ensure effective implementation and operations of EDM capabilities. It is the governance and control model that provides the organizational architecture, and defines the roles and responsibilities (people and processes) required to operationalize the EDM strategy.

Exhibit 5: EDM Governance and Control



4 Benefits of an EDM Program

The benefits of an EDM program to banking institutions are best analysed from the lenses of the business capabilities that it supports and enables. Each business function potentially has its own unique needs around data and hence the benefits correspond to those unique perspectives. A few illustrative benefits are mentioned below.

- For **operations**, a centralized reference data management system will offer great advantages in providing accurate, timely and consistent data across systems. This will result in a huge reduction in reconciliation activities and will increase the efficiency and effectiveness of various teams.
- For **risk management**, EDM offers among other things the ability to correctly identify counterparty risk. Accurate measurement and management of enterprise wide risk measurement and management would be virtually impossible without accurate, reliable and consistent data provided by an effective EDM.
- Benefits to **finance and accounting** from EDM are obvious considering the performance analysis and management reports they produce that are viewed by external stakeholders (regulatory and market) and internal consumers (board, senior management and decision makers). EDM can allow these reports to be certified with a greater degree of confidence.
- Data integrity and consistency, which allow for greater confidence in the management reports and decisions, are of great importance from an **audit, legal** and **compliance** perspective as well.
- **Sales and marketing operations** are immensely benefited from an EDM through the ability to have a single view of customer that enables effective cross-selling and up-selling.

5 Conclusion

EDM has become more important than ever before. A bank or financial institution embarking on an initiative to launch or revitalize its EDM program needs to keep in mind the following important aspects:

- An efficient EDM program should be designed to be in tune with the organization's own specific and unique business needs.
- It is necessary to design a program that brings together stakeholders from both business and technology sides.
- Technology solutions should be viewed as enablers of business capabilities and should be driven by business needs.
- To develop, sustain and mature an EDM program, a comprehensive framework including governance and control elements is needed.
- It is important to maintain a balance between strategic long-term objectives and tactical quick wins.
- A successful EDM program is one which builds strong foundations, and at the same time allows for continuous evolution as business grows or transforms.

For more information on Capgemini's approach to enterprise data management, please visit www.capgemini.com/banking or e-mail banking@capgemini.com.



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