

# A Case for Enterprise Data Management in Capital Markets

Many of today's challenges for capital markets firms can be addressed by a structured enterprise data management initiative



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# 1 Introduction

Data management has been pushed to the forefront today by the multi-pronged squeeze of compliance, risk management, cost efficiency of operations, effectiveness of 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, the 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 Regulatory & Industry Complexity: A Changing Landscape

As a result of the financial crisis, the asset management industry has seen major changes since 2007 in regulatory requirements, client demands and industry standards.

**Regulations, client demands and competitive pressures are changing the industry landscape rapidly.**

### 2.1. Regulatory Imperatives

Since weaker regulations for the trading of derivatives and exotic products was a strong factor in the financial crisis, regulations now limit activities in these markets. There has been a paradigm shift towards transparency as investors and regulators require more information to be publicly released for financial institutions. In particular, capital markets firms have been under fire for secrecy in operations and reporting procedures as there are no statutory obligations to publicly disclose information about investment strategies. In many countries, a thorough review process has begun to strengthen the regulatory framework around these buy-side firms.

#### **Algorithmic and high frequency trading**

The growing levels of high-frequency trading serve as an example of how an unregulated environment gave rise to systemic risks in the financial markets. It was the automated strategies of high-frequency trading which prompted copying among hedge funds. This was seen as a major factor in exacerbated market upheavals during the financial crisis of 2007. Algorithmic and high-frequency trading were again both implicated in the May 6, 2010 Flash Crash<sup>5</sup> on Wall Street, when high frequency liquidity providers were found to have withdrawn from the market, leading to the largest intra-day point loss in the history of Dow Jones Industrial Average index.

Buy-side firms are now subject to increasing compliance and reporting requirements. Managing compliance and risk management has therefore become a challenging task, especially for firms with global reach since regulations are often country-specific.

**Risk reporting, capital and liquidity**

While Global Investment Performance Standards (GIPS) remain the leading standards in performance reporting for investment management firms, regulations around risk reporting, liquidity and investments in derivatives are still a cause of concern for most buy-side firms. Often, technologies are siloed which adds complexity when assembling accurate, holistic risk reports to meet regulations. Future reviews are planned for regulations such as the Markets in Financial Instruments Directive (MiFID) that may continue to drive global standardization of trading procedures and systems.

International Financial Reporting Standards 8 (IFRS 8), Basel III, and Solvency II bring new compliance demands that will impact the business models of buy-side firms. IFRS 8 applies to both publicly traded funds such as mutual funds as well as private equity funds, and lays down disclosure requirements with respect to financial statements. Basel III and Solvency II will impose additional capital constraints on banks, insurers, and other financial service providers. Asset management firms may need to enhance capital productivity and raise necessary core Tier-1 capital through divestment and sale of minority stakes.

**Derivatives**

The over-the-counter derivatives market has gained back its momentum, recovering as the financial markets broadly improve. The Bank for International Settlements (BIS) reported that total notional amounts outstanding of over-the-counter derivatives touched \$601 trillion by the end of December 2010, a minor decline of 0.5% over December 2009 levels, and signaling a return to pre-crisis levels<sup>1</sup>.

Like other markets, derivatives is going through structural changes towards better transparency and more automated processing and monitoring, particularly because these contracts are complex, multi-party and at times, frequently traded. Buy-side firms must consider how to bring about the necessary regulatory, systemic and business changes, in order to gain back client trust and provide a better fit to client needs.

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<sup>1</sup> BIS (Bank for International Settlements)

## 2.2. Client Demands

New-age portfolio management systems<sup>2</sup> must meet demands from banks, brokers, hedge funds, asset managers, and insurance companies:

- Banks mainly deal with the risk control and risk transfer, such as interest rate risk, equity and commodity risk, and financial market risks.
- Asset managers need to boost client investment returns, hedge against portfolio devaluation, hedge currencies to client base currency, and invest short-term cash.
- Hedge funds must manage sufficient liquidity, hedge against portfolio devaluation, and mitigate financial market risks.
- Insurance companies need better risk management techniques and better portfolio management.

As regulatory oversight increases, portfolio and data management systems must address advanced risk analysis, over-the-counter derivatives handling and valuation modeling, prompting buy-side firms to install solutions to meet these client demands.

### Client reporting

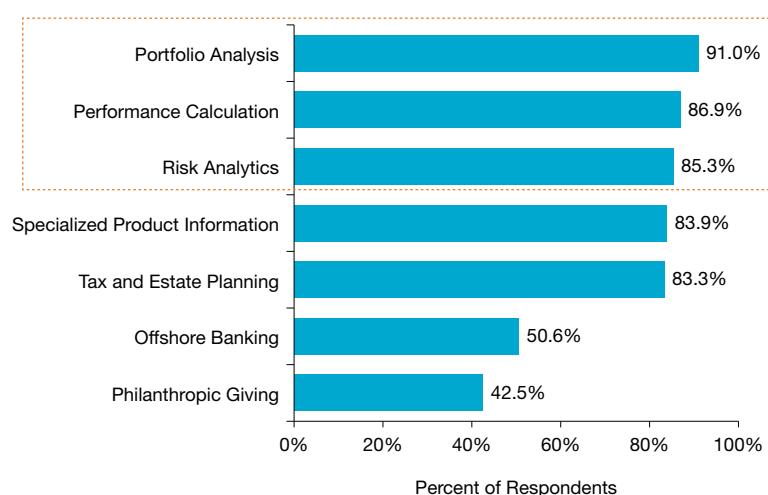
Regulators are not the only voice calling for increased transparency and reporting from financial institutions. Coming out of the financial crisis, clients are more demanding about functionality and granularity in their periodic reports. In our 2010 Financial Advisor Survey, Capgemini and Merrill Lynch uncovered key areas of operations where high net worth (HNW) clients demand increasing specialization. Portfolio analysis, performance calculation and risk analytics emerged as the three most important areas where portfolio managers need to invest to win back client confidence.

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<sup>2</sup> New-Age Portfolio Management Systems, Capgemini, 2011

Around 98% of high net worth clients are demanding effective portfolio management, while improved client reporting and specialized advice are also high-priorities.

**Exhibit 1: Areas of Specialization Demanded by HNW Clients**



Source: 2010 Capgemini Merrill Lynch Financial Advisor Survey

Around 98% of HNW clients are demanding effective portfolio management, while improved client reporting and specialized advice are also high-priorities<sup>3</sup>. Clients with improved technological sophistication are using the accessibility of electronic trading platforms to force service improvements. Ensuring proper risk reporting and improving the quality of services have become key priorities for buy-side firms.

### 2.3. Industry Trends<sup>4</sup>

With improvements in economic and market conditions, buy-side firms' assets under management increased from \$52.4 trillion in 2009 to \$56.4 trillion in 2010<sup>5</sup>. Operating margins of buy-side firms improved for the first time after recession as operating costs decreased in 2010. However, changing investor demands, increasing competition, stagnating demand in developed markets, and a toughening regulatory environment have posed a new set of challenges for buy-side firms.

<sup>3</sup> World Wealth Report 2010

<sup>4</sup> Trends in the Global Capital Markets Industry: Buy-Side Firms, Capgemini, 2011

<sup>5</sup> Global AUM recovered further in 2010, Business & Economy, 04/08/2011

**External and internal drivers pose a multitude of challenges on IT in terms of increased data volumes and complexity.**

Investor preferences have evolved (largely driven by extreme market volatility) and investors are sceptical about investing in certain asset classes such as mutual funds. The regulatory landscape has strengthened significantly, with government in many markets at various stages of implementing much more stringent rules—such as minimum capital requirements—putting pressure on firms to raise capital. In addition, the current environment of low mature market interest rates, high inflation levels, and increased global market volatility is expected to put extra pressure on the overall performance of buy-side firms.

These changes have led to the emergence of the following key trends for buy-side firms globally<sup>6</sup>:

- The landscape of investment products is evolving due to increasing pressure from shareholders and changing investor demands.
- Buy-side firms continue to focus on developing internal Enterprise Risk Management (ERM) systems.
- An increased focus on operational efficiencies is driving investments in automating trading platforms, reducing latency, and enhancing data analytics capabilities.
- Buy-side firms are expanding their operations in high-growth emerging markets.

These external and internal drivers pose a multitude of challenges that Operations and IT organizations of asset management firms have to deal with in their data and application management programs. Some key drivers include:

- Increasing trade volumes
- Increasing number of asset classes
- Wide range of services and features
- Geographic diversification of assets
- Large number of vendors and product commoditization

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<sup>6</sup> Trends shown are not necessarily comprehensive, but have been highlighted due to their relevance and potential impact on the industry



## 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 asset management firms 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.”<sup>7</sup> 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.

<sup>7</sup> [http://en.wikipedia.org/wiki/Data\\_management](http://en.wikipedia.org/wiki/Data_management)

### EDM capabilities

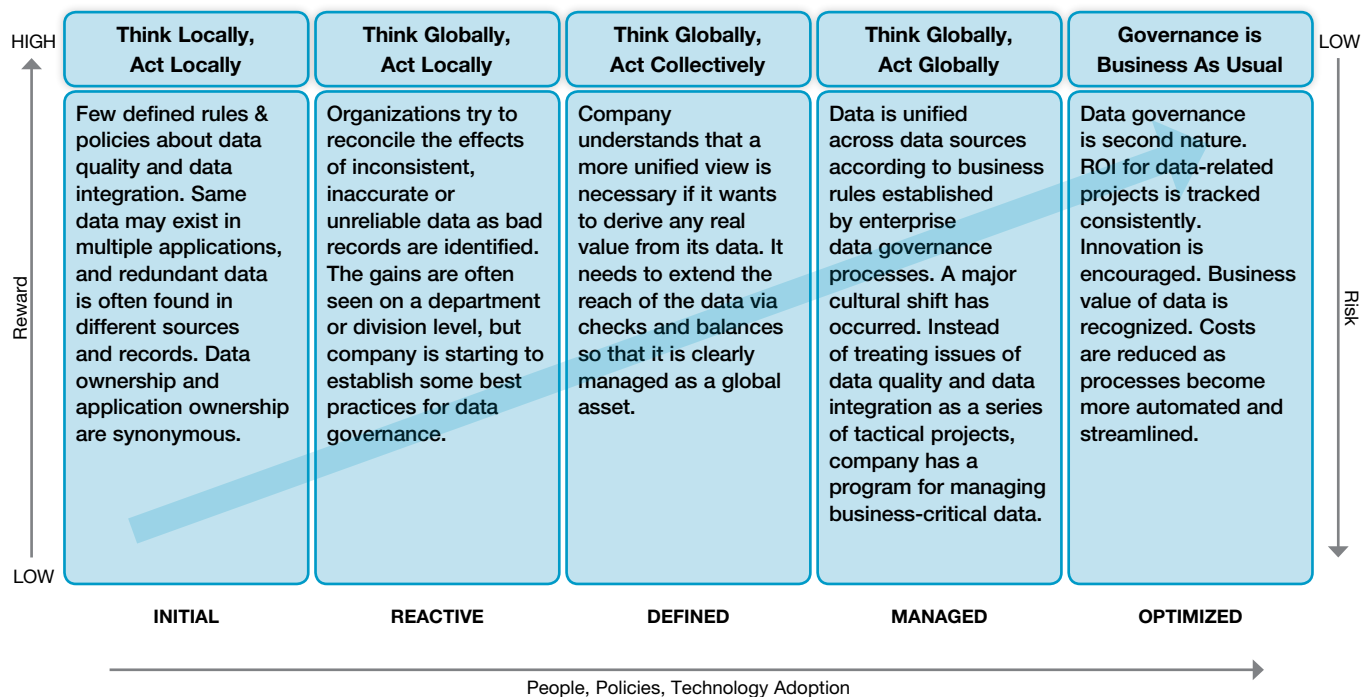
- **Critical Data Inventory** – Critical Data consists of those data elements (and their business definitions) that the business deems as important for decision making and compliance. This inventory should be made in consultation with business users. The Critical Data Inventory helps prioritize or contain 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 security master which contains the list of all securities 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 2: Data Management Maturity Model**



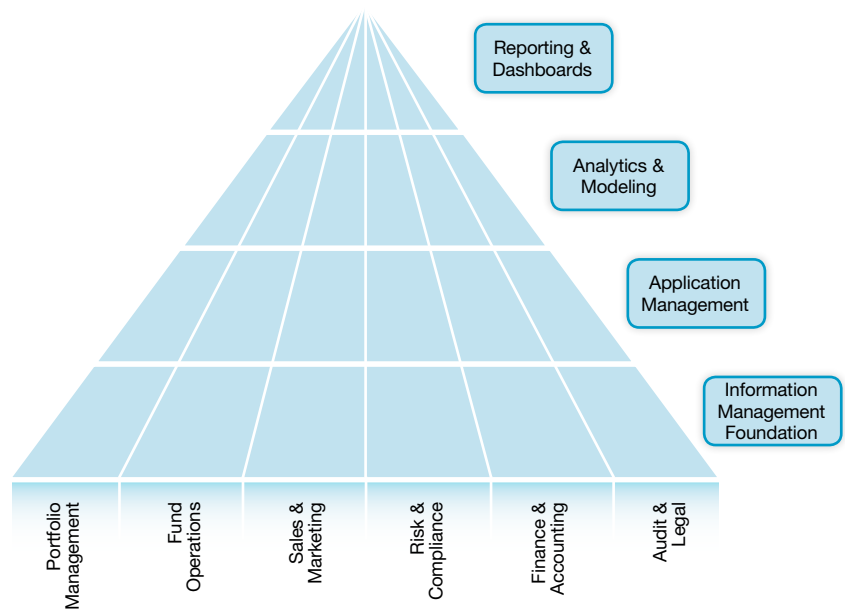
A top-down strategic approach to EDM aligns business priorities to specific EDM components and capabilities.

### 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, a layered approach, where each horizontal (technology) function / capability is managed separately as a shared service across the vertical (business) function / capability is recommended.

**Exhibit 3: Layered Architecture & Shared Services Approach**



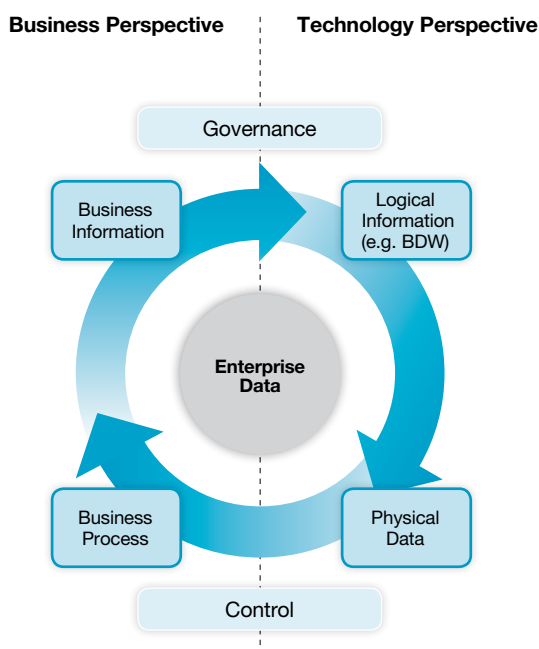
**Technology priorities should be driven by business priorities, and supported by a strong governance and control model.**

### 3.4. EDM Governance and Control

In the layered architecture shown above, the business functions 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 4: EDM Governance and Control**



## 4 Benefits of an EDM Program

The benefits of an EDM program to an asset management firm is 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 **portfolio management and operations**, a centralized reference data management system will offer great advantages in providing accurate, timely and consistent data across systems. This results in a huge reduction in reconciliation activities, elimination of internal arbitrage scenarios and failed trades, and provides visibility into the true price of a security.
- 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 firm 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 – i.e. they are not an end in itself.
- 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/capitalmarkets](http://www.capgemini.com/capitalmarkets) or e-mail [capitalmarkets@capgemini.com](mailto:capitalmarkets@capgemini.com).



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