Developments in data management shaped by tougher user requirements and greater complexity

Pascal Martino
Directeur
Advisory & Consulting
Deloitte

Julie Chaidron
Manager
Advisory & Consulting
Deloitte

Elias Pankert
Analyst
Advisory & Consulting
Deloitte

There are two major trends that drive change in enterprise data—the growing requirements of data users and the rapid accumulation of ever more complex data.

Enterprise data management is impacted by growing data volumes, greater complexity and faster processes

In the current fast-paced environment, regulatory requirements for higher standards of transparency are becoming more stringent across all industries, while product differentiation and customisation create additional complexity. Process and system controls must be equal to the new regulatory requirements and the increasing complexity of products. Consequently, ever more data has to be collected to satisfy the requirements of external and internal clients (cf. figure below).

Enterprise data management system
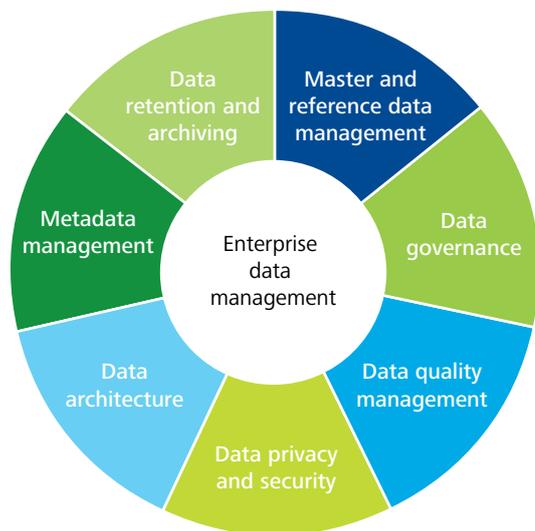
Challenges

Increasing reporting and risk requirements
- Increasing requirements or reporting to regulators, local authorities, clients and business partners
- Increasing risk management requirements

Growing volume of data
- Sharp increase in data volume through systematic accumulation of data
- The constant effot to develop new products for new or existing markets is a key driver of rising data volumes

Controls
- Dealing with the growing complexity of controls arising from new regulation constraints (for example: regulatory capital requirements, etc.)

Higher complexity
- Newly developed products become increasingly complex and differentiated from existing products – to the extent of structuring projects specifically for a particular client
- This differentiation is a key driver of complexity as it becomes ever more difficult to distinguish these products

Internal and external clients have high and increasing expectations

Data users are aware of the pace of technological advancement and raise their expectations accordingly. This results, inter alia, in the need to obtain ever more detailed information on business activities, clients, suppliers, and to ensure that this data is readily available. As of today, the main expectations from internal and external customers with regard to reference data are:

- **Quality of data and transparency:** ensuring a high quality of data from external and internal providers, traceability of data, data consolidation, shared data definition, controls, common standards for effective communication both within and between firms, the capacity to make realistic impact analyses, etc.

- **Customisation of data and reporting:** offering different indicators of risk, performance, performance attribution, liquidity, graphics according to clients and business team requests, dashboards etc.

- **Independence:** being independent from IT functions to allow more flexibility and agility in terms of customisation and development

- **Quick data production through automated processes:** allowing for an almost completely automated 'data production' value chain of (1) external data imported from different market data providers whose input needs to be controlled at the point of insertion and (2) internal data from various sources that need sound Master Data Management (MDM) built on an architecture that ensures consistency of data. These database systems can be a centralised 'hub' which is linked to users. Alternatively, a service-oriented architecture (SOA) that avoids the replication of hub-user links can be set up. SOA is essentially a set of applications/ functions linked by an 'application service layer'. If correctly designed and implemented, automated data production results in a decrease in operational risk-related errors, reduces human resources-related costs and effort, while contributing to the quality and transparency of underlying data that is retrieved-

Data is becoming increasingly complex, it is recorded with an increasing frequency and needs to be free of errors in order to be useful for decision making. As a consequence, data volumes are accumulating at a very rapid pace.

Over the long term, the increasing complexity and volume of data will drive the complexity of data management systems and processes and the related work effort required to maintain and control systems and processes, and guarantee the desired quality, which will inflate costs. However, better availability and more detailed data could create substantial opportunities in the field of analytics, thus improving the understanding of internal business processes, products and stakeholders (clients, key business partners), as well as trends in the external environment that shape the company's competitive environment.

Companies have to be able to address such expectations in a cost-efficient manner, while keeping up with ever-evolving market, client and regulatory requirements.

Recent trends lead to series of potential issues and risks

In relation to the trends originating from product complexity and client requirements, the following potential consequences have been identified:

- **Lack of knowledge and data control:**
  - Data documentation not available or non-existent
  - Multiple sources, external and internal data flows giving rise to "data confusion" and difficulties in monitoring/tracking the underlying process flows
  - Ability to trace data and observe its progression throughout the entire life cycle
  - No data ownership or multiple owners of the same data
- **Lack of an overall concept:**
  - No data consolidation, silo approach: lack of a centralised data management system ensuring the completeness, integrity and quality of data
  - No unique data definition: the same type of data could be recorded under different nomenclatures/terminologies, e.g. due to different departments' needs, giving rise to data confusion and duplication, and related management and maintenance costs. Internally, firms should set up data formats, codes and definitions that are harmonised across departments. Best practice examples for such standards are the proposed Legal Entity Identifier (LEI)[1] program, which is designed to create and apply a single, universal standard identifier to any organisation or firm involved in a financial transaction, or the SWIFT codes for communication of information between financial institutions
  - Multiplicity of systems and departments: different systems within different departments handle the same type of data with different parameters/needs giving rise, once again, to data duplication and related management and maintenance costs

- **Lack of data certification and follow-up:**
  - Data traceability is not always automated (crucial for regulations such as Solvency or Basel)
  - Lack of accuracy and exhaustiveness
  - No categorisation or standards

These potential issues could have an impact on quality risk, commercial risk, reputational risk or compliance risk:

- Risk in relation to clients in reporting the wrong data
- Risk in relation to regulatory authorities reporting the wrong data
- Risk in relation to management, control and risk management making decisions based on the wrong data
- Risk in relation to management of the company and its activities
- Risk in relation to partners and service providers

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1 Financial Stability Board