

PERSPECTIVE



Boundaryless Information



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Companies in the world today compete on their ability to find new opportunities, create new game-changing phenomena, discover new possibilities, and ensure that these impact customers positively. The need for speed, accuracy, and efficiency has never been greater! In an era where 'always-on connectivity', Internet of Things, and unstructured data in the public domain are the new normal, companies' competitiveness and differentiation rests on their ability to leverage data and analytics. Today, winning companies are those that take advantage of the wealth of information available to create valuable insights and actionize them. We term these organizations as 'analytics-driven enterprises', and they deliver on the promise of data monetization using actionable insights.

Data monetization can be achieved in multiple areas by generating monetary value from insights:

- Revenue upside through customer intimacy
- Cost efficiencies through operational efficiency optimization and risk management
- New revenue streams through new products / models

### Impediments to deliver on Actionable Insights – Information Boundaries

However to deliver on actionable insights, it requires information to flow uninterrupted and untangled as compared to what we have been witnessing traditionally – but is difficult to achieve. The reason being, boundaries or silos, or the stovepipe effect; which organizations create in their data landscape. As a result, almost 75% of the effort in any data-related project (which is almost everything) is about integrating data. There are a number of boundaries that exist in bringing data together:

- **Infrastructure and deployment:** Every enterprise deploys its solutions to various data centers, cloud, etc. These are natural physical boundaries where data accumulates.

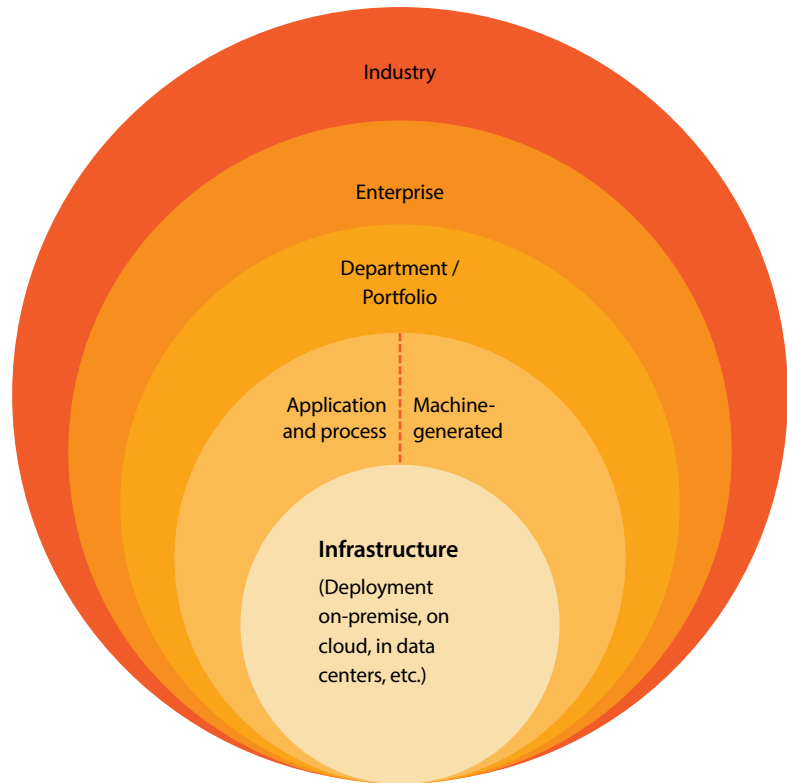


Figure 1: Data silos that hinder seamless information management

- **Application and process:** Most organizations are designed around a process-oriented paradigm. These processes that are encapsulated by applications must be executed using data and often create boundaries. If not designed, considering the enterprise information architecture, they can lead to stovepipes of data.
- **Machine-generated data:** This is a new category of data that has gained prominence. It is generated through the processing of large volumes and velocity of data. Click stream data, log data, etc., fall into this category. Large volumes of data from this category need to be integrated, for e.g., clickstream data that encapsulates customers' online behavior must be combined with data from other interaction channels to present a complete view of the customer to the enterprise.
- **Department / portfolio:** Data within departments and portfolios of an organization resemble separately governed states. They have their own language (semantics) and data collection

systems, but also need to trade with other states and so have the need to exchange data from other portfolios. It is at these boundaries that you see Operational Data Store (ODS) and sometimes Data Warehousing (DW) type of solutions show up, that standardizes the semantics between units.

- **Enterprise:** At the enterprise level, data must be structured to facilitate agility, easy access, and early indicators for change. The challenge, however, is that this data must be examined through different perspectives to gain valuable insights.
- **Industry:** At the industry level, information-sharing typically happens through marketplaces, e.g., Rosettanet, that enables transactions like Swift, etc. Consortiums or small, private marketplaces between a select set of partners, pioneer such information exchange. There is a new trend emerging within data monetization initiatives — where data of the rest of the industry is being offered by individual companies that other players can consume.

## Challenges to accomplish a Boundaryless Information Platform

Every organization clearly needs to bring all data together, physically or semantically. The process of bringing all data that an enterprise needs into one physical area is unrealistic. At the same time, the issues with information boundaries are further aggravated due to the following challenges:

- Changing customer behaviors are demanding better experiences anytime and anywhere
- Understanding the voice of the customer from all-inclusive (traditional / non-traditional) channels
- Driving integrated / proactive decision-making that is the new business paradigm
- Bringing cost efficiencies by increasing operational efficiency and risk management
- Complying with regulatory changes that demand greater transparency in data submissions and faster response to queries
- Pressure to monetize the accumulated data and derive more business value
- Exponential rise in data volumes inside and outside Corporate Information Systems
- Growing distrust among the business community due to data quality issues
- Technology and market changes are not able to cope with demand



## Trends towards creating a Boundaryless Information Platform

There are a number of trends in the industry that are driving the need for boundaryless information and can only be realized through this approach.

- **Self-service analytics:** Self-service, by its very definition, requires users to have boundaryless access to all data and analytics.
- **Data governance:** It is now becoming an enabler for analytics by providing good quality, curated data that is a prerequisite for pervasive analytics in the organization

- **Data democratization:** It is the direction that enables every employee in the enterprise to make data-driven decisions. Evolving security solutions will make it possible to share data in a seamless manner. Visualization will take center stage and be the language of communicating insights.
- **Data science:** It will no longer remain the hallowed domain of experts. The rise of the citizen data scientists who are the analysts enabled by a common data platform and tools creating insights

that will drive the decisions in the enterprise.

- **Increasing adoption of cloud as a platform for BI:** This mandates detailed fragmentation of data, which means that organizations must develop a platform-based approach to access this data seamlessly.





## Realizing the Boundaryless Information Platform

Realizing the boundaryless vision will require breaking down of these physical, organizational, and process-related boundaries. It can be achieved by building the right foundations for data and analytics fabricated with appropriate information structures and processes using the following:

- **Data lake:** The data lake will house raw, transformed, enriched, and analytics data across the enterprise. Raw data could be stored as structured and unstructured data; namely, structured master /

transactional enterprise data, social data, public data available from government agencies, and industrial data from connected enterprises. It will be further transformed and stored in an enriched zone to meet various business demands. The analytics zone of the data lake will provide raw / enriched data to build analytical models and their results will be stored back in the data lake.

- **Data grid:** Breaking physical boundaries will require an enterprise grid that works across cloud and on-premise

environments in order to provide seamless and secure access to all data sets. It entails:

- **Integration services**

The grid needs to be metadata-driven and employ integration and virtualization techniques to make all data available and accessible. It must be flexible and agile to accommodate the dynamic nature of the enterprise and the changing provider and vendor landscapes.

o **Data access / democratization services**

The grid offers data democratization services to make all data assets seamlessly discoverable and usable using a guided experience, enabling the easy assembly of data products. This is made possible through capabilities such as enterprise data catalog, information marketplace, and business lens.

- **Master data management** – It will create a comprehensive and integrated view of key data domains like customer, product, supplier, account, etc., to create a golden copy of the data for consumption. At the same time, the MDM will ensure that the golden copy of the data is referenced for all business transactions to eliminate data inconsistencies within the enterprise. Last but not the least, the MDM will ensure the usage of right business taxonomies for important elements of data domains.
- **Real-time processing:** It will capture all kinds of data that is generated in real time across various channels. This data – clickstream data, machine-generated data, and streaming data – will be acquired / accessible through the data grid and stored in the data lake for business users to create real-time insights.

- **Platform and DNA on cloud:** As cloud starts powering new deployment and business models, boundaryless information will include both seamless integration of cloud and in-house assets for seamless accessibility to business users.

Organizations need to adopt apt organizational design practices to build a boundaryless information platform using:

- **Data and analytics strategy** – A very well-defined data and analytics strategy will align the platform with organizational objectives, present a clear view of the current and target states, and provide the right approach to arrive at the target state. It will consider the evolving culture within the organization to progress towards an analytics-driven enterprise. The operating model between business, IT, customer, and external partners will include key touchpoints and bring in change management to deliver on this culture.  
The strategy will also bring in optimization in delivery and commercial models through optimal use of resources, processes, and tools.
- **Simplification and modernization** – It will simplify the current landscape to bring in agility, speed, and accuracy in decision-making. It will consolidate the interfaces, improve performance with scalable

and flexible infrastructure, and optimize the supporting development and deployment of processes. Automation of repeatable and non-core-processes will play a crucial role in simplification and modernization.

- **Architecture and engineering** – The right understanding of requirements will help in selecting the fit-for-purpose and cost-effective technologies to serve users and improve performance. It will make data and analytics easy for business users to build and consume the data. The users will be enabled to complete data engineering activities on their own with secured access to the required data. As a result, organizations can optimize workload, address compute-to-data and data-to-compute paradigms, and minimize data movement.
- **Data governance** – It will increase the accuracy of data by continuously improving quality, security, and accessibility with the right definition of information. As a result, data governance will drive the democratization of a decision-making culture in the organization.

Thus, the boundaryless information paradigm allows us to understand trends in data and technology environment, address the demand for data and analytics by internal users and clients, and fulfill the need for governance of organizations to be analytically driven.





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