

# The Trusted Information Payoff: Productivity, Performance, and Profits

Building an information framework to ensure effective data management produces information that is true, has integrity, and can be trusted. This leads to a continuous improvement culture that can increase employee productivity, improve operational performance, and grow profitability.

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Large organizations, especially those that have grown through consolidation, mergers, and acquisitions, are often fraught with incompatible systems and data sources that are costly and difficult to manage. The systems usually do not avail efficient extraction, aggregation, and sharing of data within or across the boundaries of the business process.

To address this problem, organizations can turn to an information management framework that facilitates managing raw data to create useful information that can be shared across the organization.



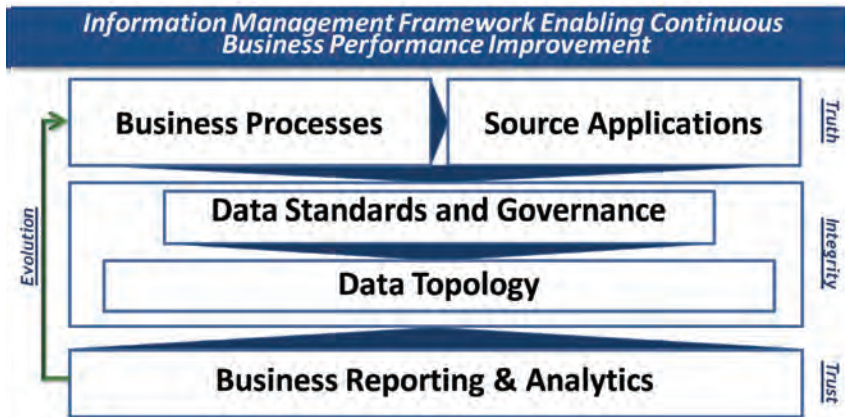


Figure 1: IM Framework for Continuous Business Performance Improvement

## The IM Framework

An effective IM framework treats data as an asset, applying the same methodologies as for any other intellectual asset. As shown in Figure 1, the IM framework needs to address the following elements of data:

- *Truth* – It must maintain the consistency of meaning and common understanding throughout the organization. In data management, this is about ensuring through business processes and IT applications that the data element’s meaning, consistency, and understanding do not change even though its format and storage topology may change to standardize and centralize the access.
- *Integrity* – The IM framework must enforce the truth through standards and governance.
- *Trust* – Trust is about consistency, reliability, and quality, which result from defined rules for standardization that are enforced through active governance.
- *Evolution* – The IM framework must have a process of continuous improvement to increase the value of the information.

These elements are described further below.

### Truth: Data Standards Required

The holy grail of data management is to identify the single version of the truth. This could be defined as it was in the 2008 Oracle Thought Leadership White Paper “The Myth of One Version of Truth” as “a single set of reports and definitions for all business terms, a way, in short, to make sure every manager has a common understanding of accurate corporate information.”

It is a great challenge for distributed systems in an IT architecture to find a common meaning and data type definition for common data elements. For example, as John Schmidt wrote in the June 12, 2012, *Informatica* blog “Perspectives,” “Multiple versions of the truth are often a result of the same information being captured and stored in slightly different ways by different systems.”

Because data type definitions determine how a database stores information, there will be problems if the date on one application is defined as an integer (e.g., 20130414) while on another application it is defined as a string of characters (e.g., 04/14/2013).

As another example, consider the problem that occurs if one system of record uses the entry date as the date of transaction and another system uses the posting date. Which is the correct transaction date?

Often, enterprise applications con-

sist of a mix of home-grown, function-specific applications and third-party systems built by disconnected teams without a shared reference for data definition. The solution – forethought and planning to create well-defined data standards – may appear obvious from an architectural perspective but may not be so easy to accomplish. The steps described below will help.

### Establish Processes, Rules, Policies

Identifying the “truth” first and foremost requires that business processes, rules, and policies be clearly defined, shared, and understood inside and outside the organization. Metrics and audit checkpoints must be established to monitor the processes for accuracy and consistency.

### Map Data Flows

The next step is to map the data flow from the source applications to define the required flow from one process step to the next so the organization’s data needs are well understood.

The single version of truth can then define a common understanding of the data, one that’s accepted across operational boundaries.

### Use ETL Tools

Having a documented definition for the information – that is, a data standard – then enables the enterprise to properly integrate third-party and legacy applications into the organizational IT infrastructure using appropriate Extract Transform and Load (ETL) tools. These tools extract data from a source system, transform the data to change its format, and load this transformed data into a different database.

ETL tools are used for many functions, such as automating the cleaning of data to improve its quality, performing validation, and integrating data from multiple source systems into a single database to increase the depth of the information.

## Integrity: Collaboration with IT Required

Data without integrity – that is not complete, accurate, and consistent – is not very useful. Standards and governance rules provide a disciplined approach to managing business processes and source applications, reinforcing the “truth” and enabling the seamless sharing of data.

Developing a standards and governance infrastructure requires a partnership between business and technology subject matter experts (SMEs). The SMEs must be empowered to develop an understanding of the organization’s *data topology* – which describes the hierarchy of the storage architecture from primary data sources to data warehouses – and its tactical and strategic information needs. (See Figure 2.)

### Developing Data Models

Standards enable the development of *entity relationship models* (ERMs), which are business models that abstract the data definition from the database system’s design. ERMs build consistency in data meaning and optimize data structures for storage, retrieval, and exchange.

The attributes that form the basis of a data model for any business application are the processes, the people working those processes, and the products or services that are acted upon to create a customer experience.

Consider this example of a customer relationship management application. The ERM defines the business needs to capture specific information, such as the customer’s name, the company’s name, and the customer’s address, phone number, e-mail address, and purchase history. This data is independent of how it may be collected and stored in a database.

A data model for a particular platform and database then defines how an application would be implemented and the format in which the above information would be stored.

Implementing data standards and governance leads to good data quality, as shown in Figure 3. **Data standards**, which encapsulate the collective knowledge of the SME team, are used to create business and **technical application data models** for the information framework. These models meet the business needs and provide criteria for a minimum level of data availability and inter-system compatibility, as well as storage, retrieval, and exchange needs.

With a documented data standard, new application development teams have a reference source that influences the data model for the software applications being designed.

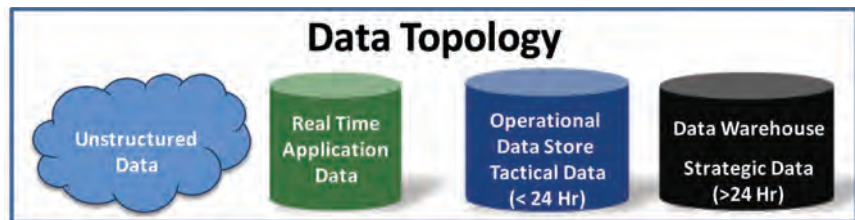


Figure 2: Data Topology



Figure 3: How Data Standards and Governance Lead to Data Quality

**Governance rules** establish audit checkpoints to ensure ongoing conformance. They also assign IT the responsibility to enforce data format rules and the organization to enforce the meaning and timing of the data.

The governance rules should also include managing and enforcing **data quality**, a fundamental challenge in many source systems. Data quality should be managed using a combination of manual and automated systemic audit procedures and corrective actions.

### Using Data Repositories

Understanding the data topology is an essential part of the information

framework. As shown in Figure 2, there are four types of data repositories in the information framework that are necessary to perform specific value-added functions:

- The *unstructured data* repository facilitates the storage of unstructured data, such as open-ended comments on social media and other internal and external sources. This component can also address the transformation, validation, and corroboration functions that may be needed to make the unstructured information “trusted.”

- *Real-time application data* comes from applications supporting a business process. This current-state information on business processing may provide inputs for real-time dashboards or aid real-time decision making.
- *Tactical data* is information that is not more than 24 hours old. This is processing information that is used for intraday operational reporting and supporting tactical decision making. It should be stored in an operational data store that aggregates multi-system real-time data to provide a richer

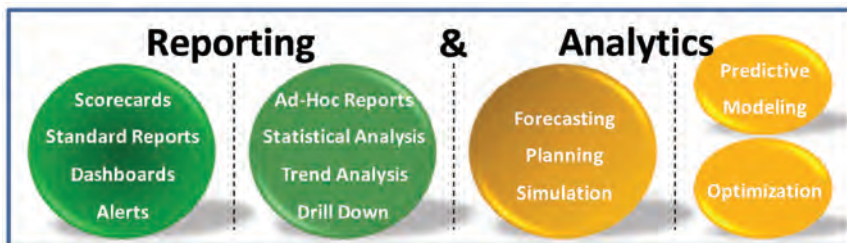


Figure 4: Reporting and Analytics

information base for improved tactical management.

- *Strategic data* is historical – from 24 hours up to several years old. It is stored in a *data warehouse* and used to study trends in revenue, production, and human resources and to improve business processing. It can provide significant information to aid strategic decision making, be a valuable source to simulate “what if” scenarios, and be used to identify and rate performance improvement opportunities by effort and value. Strategic data can also provide insight into structural issues that may affect competitiveness and sustainability. ETL tools can address the issue of standardizing legacy systems’ data and integrating third-party systems into the enterprise architecture, thereby creating a seamless data exchange across business functions and process boundaries.

### Trust: Standards, Governance Foundation Required

Trust in the data comes with its consistency, reliability, and accuracy, especially when built upon a foundation of data standards and governance for known business processes and application sources that enable “trusted” analytics to provide ongoing value-based information.

As shown in Figure 4, the right IM framework will not only provide the flexibility of generating standard operational reports, such as scorecards

and dashboards, it can also support *ad hoc* reports, planning, forecasting, and a wide spectrum of analytics with varying degrees of complexity.

### Evolution: Ongoing Investment Required

Effective and sustained data management is an evolutionary process requiring the organization to make regular structured investments in improvements to the infrastructure to enhance the quality and value of the information that is derived.

Once “truth,” “integrity,” and “trust,” have been established, a continuous improvement culture can expand the ecosystem to improve the quality of business reporting and analytics. This advance can be leveraged to improve business processes, execution, and decision making and to gain efficiencies through process optimization and cost reduction. Further, the output of the reports and analytics can also evolve and improve the IM framework, which would lead to additional improvements in business performance management.

Organizational leadership must understand that a good IM strategy requires significant initial investment and may not deliver short-term benefits. It should be viewed as a long-term initiative and nurtured through the levels of maturity to deliver sustainable results. Performance improvements should be tracked through such metrics as costs, benefits, and efficiencies to ensure that investments in the data infrastructure are delivering the desired results.

A common point of failure in many organizations is the intention of im-

plementing an IM strategy but then falling short on the required follow-through due to changes in business conditions, leadership, or organizational priorities. Building this framework will require a well-planned and enduring commitment to investment in the right people, processes, and technologies.

### Sound Fundamentals Lead to Strong Results

Effective data management does not require a “Mercedes” solution in the first attempt. Instead, it is better to build a framework with strong fundamentals and a standards-driven approach to governance that can be sustained through regular reviews. The framework must be able to leverage the available tools and software to continuously improve the systems and processes.

The payoff to an effective data management strategy is the value of the trusted information. This information can provide advantageous competitive insight, enable sophisticated business performance management, increase employee productivity and satisfaction, and deliver a superior customer experience.

The ultimate benefit will be visible in revenue growth, improved operational efficiency, increased customer and employee retention, and increased profitability. **END**

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*See their bios on page 47.*