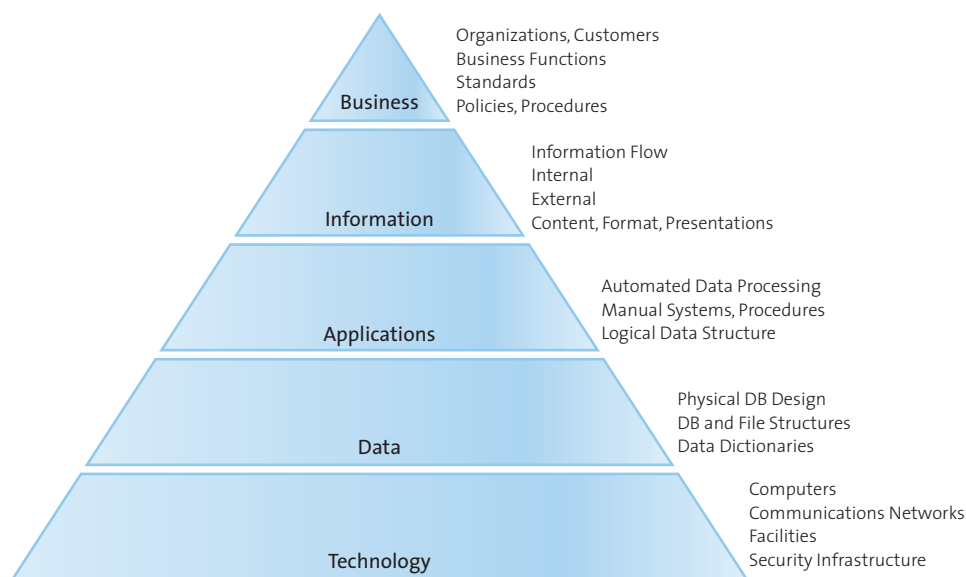


# What's in YOUR Architecture?

## WHAT'S IN YOUR ARCHITECTURE?

Probably not enough if you're using just data modeling to integrate all the components of your enterprise, especially your information. To lay the foundation of this paper, let's start from the same level of understanding: the need for a common approach to managing all the aspects of information to enable rapid business performance in the 21st century economy.

Competition in the marketplace is always fierce. To stay abreast, organizations must constantly analyze their customer needs and expectations, enhance or innovate their business processes, and deliver products and services that create exceptional customer value. Organizations also need to be customer-centric to forge long-term relationships with clients and consumers. Only organizations that are agile enough to respond to volatile market conditions with innovation, expedited time-to-market processes, and reduced costs can differentiate themselves from the competition. Such agility occurs when a company's IT operations are closely aligned with its business operations. IT needs to understand business to implement technologies and applications that support the current and future business goals.



Information is one of the main domains of enterprise architecture as shown in this diagram. Does YOUR enterprise architecture match this diagram? If not, why not?

The components of Information Architecture include:

- **Information architecture** – a holistic view on the flow of information in an enterprise, including the effects of the processes that act upon the data
- **Data Architecture** – describes the way data will be processed, stored, how the data flows and is used by the project teams, including the data models (conceptual, logical, physical, dimensional)
- **Master Data Management** – commonly used data such as reference data or other data that is used across the organization (product, customer, vendor) that should be captured once and used by many applications
- **Metadata Management** – data that describes an enterprise's data elements (context of the data, definitions and calculations, formats)
- **Business Intelligence Analytics and Reporting** – broad category of applications and technologies for gathering, storing, analyzing, and providing access to data that assist the organization's users make better business decisions. These include the activities of decision support systems, data warehousing, query and reporting, dashboards, scorecards, statistical analysis, forecasting, and data mining.
- **Data Quality** – processes to identify, analyze, improve, and measure the validity, integrity, completeness of data and develop improvement efforts for data quality
- **Data Governance Management** – processes used to govern how to create, classify, update, use, distribute, archive, and retire data and information

This remainder of this paper will focus on the components of information architecture to show how Sybase allows an enterprise to integrate all the aspects of information into an holistic information architecture. This capability to incorporate all the IA components enables Sybase® PowerDesigner® to substantiate its claim to be the first true integrated information architecture tool.

An Information Architecture (IA) is concerned with the data and the processes that use the data. It provides an organization with ways to show how data is captured, used, stored, defined and managed — and the processes that enable all those actions. Many of those activities are modeled, and much of information architecture is based on the models of data architecture.

Data Architecture (DA) is a component of Information Architecture, and is concerned with the design and use of data in structured formats such as databases and file systems. A data architect models the data in stages (conceptual, logical and physical) and must relate the data to each process that consumes (uses) that data.

As Gartner noted in a recent study (G00210222): 1.) Most data models are designed and managed in a vacuum, which can lead to increased costs for data integration and difficulties with data quality improvement efforts; 2.) Poorly planned data architecture affects the ability of organizations to create appropriate representations of their business processes and information needs in their data models; 3.) Fragmented and siloed “enterprise” data models lead to redundant, inconsistent and partially overlapping models.

These main issues of traditionally practiced data architecture show the limitations of non-integrated data modeling tools, and demonstrate a lack of understanding of the need for an integrated approach to information architecture. Sybase PowerDesigner 16, the first true integrated information architecture tool, is able to address all of these issues and more. Manuel Crespo Rodriguez, director of architecture for BBVA, chose PowerDesigner to design, integrate and manage system data models consistently to accelerate new development efforts. “We had a complex environment of existing documentation with different tools and a set of already established changes to our databases,” Rodriguez says. “We needed a new data modeling tool that could integrate with our existing tools and systems without affecting their performance and roles.” “PowerDesigner can also be easily integrated with other tools involved in database changes and task automation, which helps us establish a centralized data model for information governance.”

Through its Link and Sync technology, Sybase PowerDesigner automatically captures intersections between all architectural layers and perspectives in data and process for each model object. The Link and Sync technology integrates the data models with business level viewpoints found in the conceptual data model and business process model, to ensure the data standards that data architects set are independent of any project, system or business use case. PowerDesigner also enforces traceability through complex data movement environments and provides an integrated visualization that maps these stages and steps independent of any vendor’s systems.

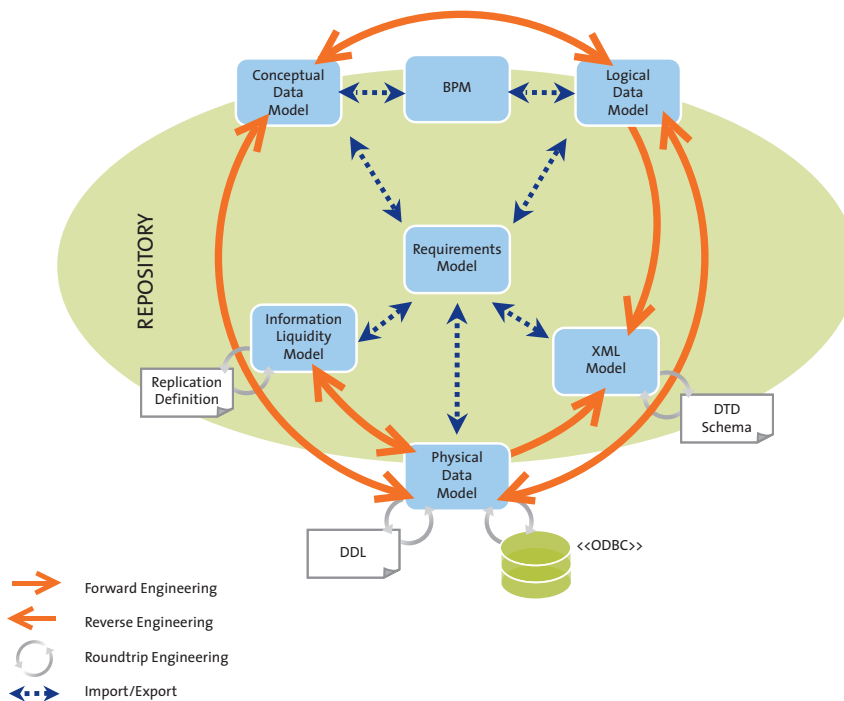
Process architecture is considered to be a component of both Information Architecture (AI) and Application Architecture (AA). Since this component spans two domains of Enterprise Architecture, linking the contents of process architecture to applications and information via a single tool has been extremely difficult, if not impossible, making the job of a data architect or an application architect a challenging one. Traditionally, no single tool has integrated the data and application aspects of information architecture. This lack of integration has created the “silos” where each application uses its own processes and data despite the existence of the same data and processes in other silos. This lack of integration has also given rise to the two roles of application architect and data architect, and has caused the bifurcation of the architecture function to be instantiated in the responsibilities of each role.

To illustrate the issues involved in the traditional approach to process architecture, MedStar Health’s Vice President of Information Systems, Paul Shapin recounted, “Each time we were apprised of a new merger or acquisition, application managers had to go through a complex process, deciding how to integrate the incoming IT systems with our existing systems.” “Application managers would have to decide how to develop the interfaces on their own, and it would take a lot of time for us to create a complete application and data inventory for the application managers to work with. Although these inventories were created from time to time, they were not maintained.” The process was long, and it interrupted normal business, but it had to be done to complete the merger or acquisition in a timely manner.

To meet this challenge, MedStar Health used PowerDesigner to audit and integrate all its applications, and now it can identify the primary source of data to provide data-source consistency across all applications. As a result, the company responds to enterprise-wide IT audit requests in 20 minutes or less. The auditors can view enterprise data storage and flow, and can see the application inventory graphically, without any assistance from the information systems department. Today, MedStar also has a better understanding of the complexity of its enterprise infrastructure applications through the creation of a detailed enterprise architecture map, making it easier for everyone to identify data sources and for the information systems department to integrate new applications into the enterprise. Again, this substantiates Sybase’s claim to be the first true integrated information architecture tool, since MedStar Health was able to combine both data and process aspects of information architecture seamlessly for both technologists and business users.

MedStar Health is an example of one of Gartner’s recommendations from the report cited earlier: to show clear connections between data architecture and timely delivery in meeting business requirements — for example, demonstrating shorter time to delivery for business-critical projects.

The requirements model, the conceptual, logical and physical data models, the xml and data movement models and their instantiations in DDL and schemas are all managed through the use of the Link and Sync technology, overseen by the powerful Sybase repository. BBVA realized the existence of a common view and access to a single repository with a consistent data information model for analysts and developers would lead to an increase in their productivity, “since the efficiency of the analysts and developers depends on the access they have to stored information,” said Rodriguez.



This creates a model-driven approach to empower and align business and IT to establish a unified vision for key information assets across the enterprise, which is a key enabler of a successful enterprise architecture. The information architecture is driven by the business architecture since information architects leverage business knowledge and value analysis to identify the information that an organization must have to meet its obligations and achieve competitive advantage. The BBVA data architecture team now relies on PowerDesigner to centrally govern all data models. The team can validate model modifications quickly because of the automation capabilities provided by PowerDesigner. “We can easily compare new versions with the previous versions to detect the changes,” Rodriquez said. “This makes the process much easier for the data architecture team, which reviews design quality and guarantees correct integration with the corporate model.”

The enterprise architects can use Link and Sync technology to support business goals through implementation to remove silos, increase alignment and improve business agility, since the integration of data and process across the organization should result in more agile use of data and streamlined processes for operations and decision making. The need to communicate accurately and quickly across business units and between business and IT drives the need for an agile Enterprise Architecture, making the need for a robust Information Architecture essential in a rapidly changing environment. “The simple task of recovering reliable data-model documentation to find solutions used to take much longer,” Rodriquez said. “PowerDesigner has made it possible to eliminate unproductive project planning tasks with its repository, which we integrated with the most recent corporate data model.”

With the information contained in the PowerDesigner models and the Sybase repository of metadata, architects across the enterprise can collaborate to design and implement robust and scalable enterprise architecture that can meet changing needs of an organization in the 21st century. With the enhanced graphical user interface optimized for business users, Sybase PowerDesigner can foster the collaboration between business and IT through enterprise architecture to advance the implementation agile response to information needs.