

# Facilitating Regulatory Compliance by Adopting a Model-Driven Approach to Enterprise Architecture

Given the current legislative and regulatory environment that includes the Sarbanes-Oxley Act on financial practices and corporate governance, Basel II on banking laws and regulations, the Patriot Act on communications and financial transactions, and other laws that include provisions for financial and legal sanctions, becoming and remaining regulatory compliant has become a high-level organizational priority.

An enterprise architecture can facilitate compliance by:

- Documenting how an organization's practices and business processes follow regulations and by aligning practices to IT systems responsible in part for implementing them.
- Showing highly specific source and target information on transactions and document transformations.
- Enabling reports that graphically illustrate information flows, transaction histories, and processes that span business units.

As a result, organizations can have greater confidence that nothing has been forgotten when adhering to compliance regulations, and that there will be no unknown offenses that could provoke fines in case of an audit. If the organization is audited, auditors can find the information and answers they need quickly, with a minimum impact on business systems and business continuity.

To define an enterprise architecture, an organization must capture, manage, and integrate business and technical metadata and data about systems and technologies. Doing so can be difficult because metadata is often maintained in a disjointed manner. But by using a proven, model-driven approach, organizations can collect metadata from business, information and technology views of the organization and successfully define an enterprise architecture that facilitates regulatory compliance.

## **STEPS TO IMPLEMENTING AN ENTERPRISE ARCHITECTURE**

An enterprise architecture can align all aspects of an organization's information flow with the internal rules and external regulations that manage them. Doing so reduces the risk of failing elements of audits, while streamlining the audit process to minimize its impact on business continuity.

Creating an enterprise architecture requires a series of steps, the first of which is capturing metadata. The metadata can be information about the business, information about information, information about applications, or information about systems. Capturing metadata involves documenting accurate definitions and descriptions of the elements that make up the business, information and technology views of the organization.

The next step is managing metadata dependencies (where the real value of enterprise architecture lies). The goal is to not merely capture and categorize information, but to understand how it all relates and how it can best be organized to support corporate goals.

The final step is integrating the task of capturing metadata with the task of managing metadata and its dependencies. With an integrated environment for enterprise architecture, organizations can determine how business goals relate to implemented systems, how business rules affect the flow of information, and how technology changes impact the top line or bottom line. A key success factor is capturing and maintaining metadata in a timely, natural and accurate way; otherwise, this valuable knowledge base will age and become suspect. The most suitable user interface for this natural capture of metadata is modeling.

## **APPROACHES TO MODELING AND CAPTURING DATA**

Some organizations capture and manage metadata and document systems by using several modeling tools; others do it via non-modeling techniques such as Microsoft® Excel® spreadsheets, graphical drawing tools or plain text. But taking such a manual approach, not based on standards, produces siloed collections of non-integrated data, which prevents the organization from understanding how business processes use information from multiple systems and how systems are linked. Without that understanding, the organization has no insight into how IT and business processes must adapt to accommodate changes in the regulatory environment, or insight into how other changes may impact compliance.

In contrast, using tools that enable integrated and standardized modeling makes it possible for the organization to collect data in a cohesive way and automate dependency tracking. That in turn enables the kind of metadata repository essential to a successful enterprise architecture—one that supports regulatory compliance, impact analysis, change management, and the ability to create a roadmap for moving the organization's IT infrastructure from its "as is" state to a "to be" state providing better support for corporate goals and accelerates the timeline for complying with new regulations.

While individuals within many organizations are already doing some data modeling or business process modeling, these projects rarely span the enterprise, and the models they produce are typically not integrated with other models. For a successful enterprise architecture, the work of the business process modeler, for example, must be connected to the work of the data modeler, because documenting the sources of data for a business process is an essential aspect of ensuring compliance.

To be effective in creating an enterprise architecture, a modeling tool needs to integrate the models created by business analysts, data modelers, application architects and others to seamlessly enable modeling at the enterprise level.

## **THE KEY ROLE OF THE REPOSITORY**

Since enterprise architecture spans multiple disciplines and involves multiple perspectives, many different types of models are needed to complete the entire picture. A model-driven approach, therefore, must support both non-graphical and graphical modeling paradigms. Typically, non-graphical models are used to capture business information, such as goals, strategies, risk and requirements. Graphical models capture business processes, data flows, an application's structure and behavior, and the information architecture from both structured and unstructured data sources.

However, simply having an integrated modeling toolset that can capture and maintain multiple separate and distinct models with their related dependencies is not enough; this metadata must be managed within a non-proprietary, robust and integrated repository—resulting in an integrated modeling environment.

The repository should provide three essential services: centralization, security, and consistency.

- *Centralization* allows all users to work together harmoniously, thereby maximizing efficiency while resolving conflict.
- *Security* ensures that only those with the right “credentials” have the ability to access potentially sensitive information, to make changes to specified parts, and to administer a project or domain.
- *Consistency* ensures control over the ability to share, re-use, and resolve dependencies with metadata across the enterprise architecture.

Empowering each user with an integrated modeling environment allows them to not only model their view, but also document where their view intersects others. At the same time, it allows those with different expertise to model different views, and ensures a greater level of consistency, communication and collaboration—key attributes of a successful enterprise architecture, and key to ensuring coverage of regulatory requirements and consistent documentation of compliance.

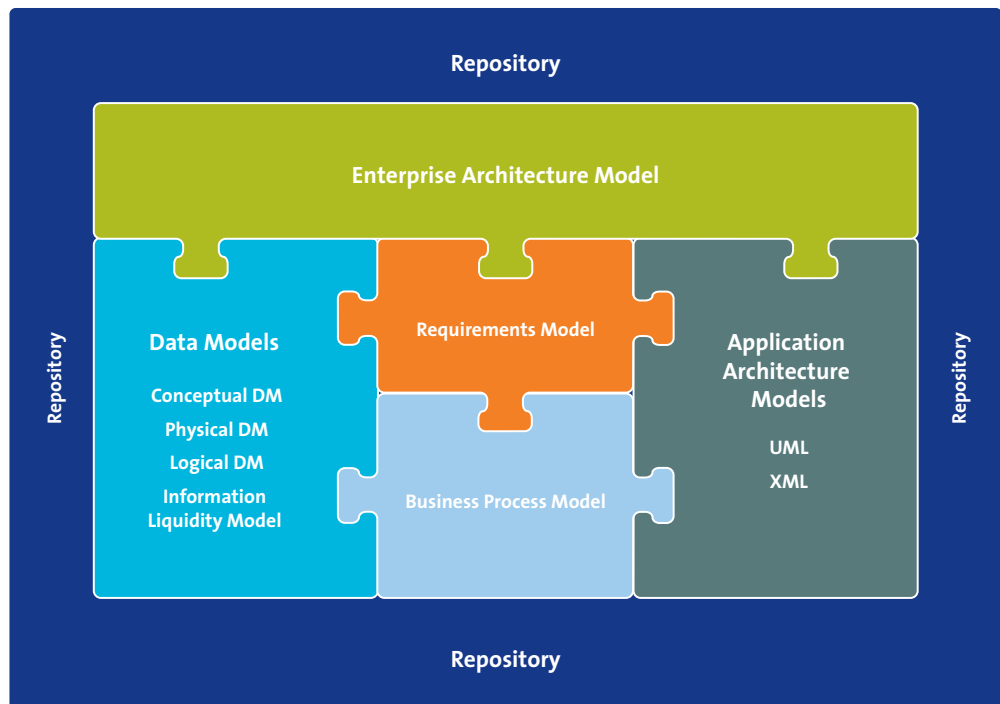
### **MODELING AND METADATA MANAGEMENT WITH SYBASE POWERDESIGNER®**

Graphical tools, plain text, and data modeling or drawing tools all have shortcomings that handicap them as tools for creating an enterprise architecture. To deliver a comprehensive modeling environment, Sybase has incorporated modeling and metadata management best practices into PowerDesigner to assist organizations in enterprise architecture projects that facilitate regulatory compliance.

Sybase PowerDesigner is a robust enterprise modeling tool that manages business, technical, and information metadata. For enterprises that need to build or re-engineer business applications quickly, cost-effectively and consistently, it serves as an all-in-one modeling and design solution. Supporting more than 60 databases and leading development environments including Sybase Workspace, Sybase PowerBuilder®, Java™, the Eclipse open source development environment, and Microsoft® Visual Studio®, PowerDesigner combines requirements and business process modeling with unified modeling language (UML) and data modeling to make possible open, cross-platform information architectures that securely deliver information anytime, anywhere.

PowerDesigner benefits include:

- Offering high customizability to enforce standards and regulatory compliance
- Aligning business and IT to improve productivity
- Facilitating enterprise architecture by documenting existing systems
- Providing open support for heterogeneous environments of all kinds
- Increasing business agility with Link and Synch technology for true impact analysis
- An enterprise repository to better manage data
- Incorporating unique technology that connects metadata and enabling organizations to analyze the impact of change
- Providing a platform for managing metadata needed for governance, risk and compliance (GRC) business objectives



**Figure 1.** Sybase PowerDesigner Architecture. PowerDesigner follows the principles of a model-driven approach to help organizations define an enterprise architecture.

#### **ADVANTAGES OF SYBASE POWERDESIGNER**

Modeling with PowerDesigner makes it possible for organizations to realize the full value of enterprise architecture. Many enterprise architecture tools offer metadata management capabilities but fall short in modeling capabilities. As a result, they can gather metadata from many sources, but cannot align those sources as PowerDesigner does with its link and synch technology. In addition, many tools lack capabilities for information documentation and visualization, which means they deliver only a piece of the enterprise architecture puzzle.

PowerDesigner is architected to integrate multiple modeling techniques, and to integrate high-level conceptual models with low-level implementation. That ability is key for a successful enterprise architecture. PowerDesigner also includes the ability to link all the columns and rows in a Zachman framework effectively, and includes the diagrams and charts to provide the work deliverables to fill framework spaces.

## **POWERDESIGNER AT WORK: A FINANCIAL SERVICES REGULATORY COMPLIANCE EXAMPLE**

An international bank with operations in the U.S. that processes financial transactions in multiple currencies must comply with Basel II and Sarbanes-Oxley regulations. The bank has a data warehouse for financial data and another data warehouse for data on operations.

The bank uses PowerDesigner to model both warehouses, and uses the operations warehouse to verify the quality of the data flowing into the financial warehouse. PowerDesigner helps build the reports generated from the financial warehouse that are used for regulatory compliance. In addition, PowerDesigner helps the bank document data lineage—the sequence of steps in transforming one currency into the base currency the bank uses for reports. PowerDesigner uses data modeling and maps processes to document this data lineage so that the bank can, for example, show an auditor which processes generated a specific value on a report.

To comply with Sarbanes-Oxley, the bank must also be able to prove that a specific transaction did in fact take place and was completed on a specific date. PowerDesigner enables the bank to correlate metadata with operational data to provide the necessary proof.

PowerDesigner helps the bank perform risk assessments by analyzing the potential impact on operations of changes in regulations and business processes. By placing all the descriptive information for compliance in one context, PowerDesigner greatly reduces the work necessary to assess the impact of changes.

PowerDesigner is a single, cohesive, modeling tool that simplifies and speeds compliance by modeling information flows, documenting compliance, establishing data lineage, quickly assessing the impact of proposed changes, and helping the bank efficiently execute those changes.

## **ENTERPRISE ARCHITECTURE BENEFITS GO BEYOND REGULATORY COMPLIANCE**

Enterprise architecture brings together visualization of an organization's goals, strategies, processes, information and technology; documentation of systems and data sources; integration of models and processes; and collaboration or information-sharing across corporate entities at the enterprise level. With Sybase PowerDesigner, organizations can adopt a model-driven approach to enterprise architecture that speeds time-to-value, integrates sources and targets for information, and produces the documentation that enables companies to demonstrate quickly and on-demand that they are in compliance with regulations governing their industry and its business practices.

## **FOR MORE INFORMATION**

Visit [www.sybase.com/powerdesigner](http://www.sybase.com/powerdesigner) or contact Sybase at 1-800-8SYBASE.