



BUSINESS & IT... SHARING THE VISION

SAM MANCARELLA, Chief Technology Officer of Sparx Systems, discusses the importance of having a flexible and adaptable enterprise solution for the articulation and operation of end-to-end core processes.

Sam Mancarella, Chief Technical Officer of Sparx Systems, has had a 10-year career in consulting and development positions in software development, wireless communications and academia. Sam has an extensive technical background with exposure to a variety of technologies, languages and tools in software development, embedded systems design, microelectronics and project management. Joining Sparx Systems in 2003, Sam has been at the forefront in developing Enterprise Architect. Sam's principle interest is the in development of capabilities and technologies that provide real-world value to end-users.

What kind of challenges are organizations still facing in their attempts to manage business process strategies?

The creation and management of business process strategies poses a number of challenges for organizations today. In the typical corporate environment, we can identify three key domains – the business domain, the process (or quality) domain and the IT domain.

Each of these domains is focused on achieving the same goal: to satisfy the objectives of the enterprise. To achieve these objectives, the three domains perform a variety of tasks pertinent to the roles of the personnel within the domain. The business analysts in the business domain identify the business processes that are used to formulate the application requirements. Those requirements are consumed by the architects in the IT domain to design the actual application. The application's requirements and designs are both used by the project managers in the process domain to allocate developers, testers and other resources who produce the actual implementation.

If we consider the “interface medium” used to share information within and between each of these domains, we find that the same interface, used historically by organizations worldwide, continues to be used to this day – the document interface. A requirements-specification document is produced by the business domain for the architects and managers. A work breakdown structure document is produced by the project manager for the IT developer. Documents are created to specify designs, instruct personnel, share intelligence, control information distribution and to “snapshot” enterprise activities against key milestones.

The problem with these documents is that the information they contain is not interactive. The project manager needs to know whether the resources he or she is responsible for have been optimally utilized; the architect needs to know what the impact is on his or her design should a requirement change. To address the needs of these stakeholders, the document intended for them would need to be updated accordingly. With the current trends in today's business world – forcing greater agility from organizations to meet market demand more effectively – the challenge organizations face is to maximize their ability to share timely, vital information across the enterprise and to maximize productivity from personnel, ensuring that their time is spent in providing value – unhindered by unproductive overhead.

Where do business tools end and IT tools begin in this initiative?

There are three categories of software tools. The business tools include software applications that are responsible for resource planning, relationship management, lifecycle management and

requirements management. IT tools include Computer-Aided Software Engineering (CASE) tools, development environments, compilers, debuggers, fault trackers and testing tools. The third category – productivity tools – includes software applications used by both the business and IT personnel, such as Excel, Word, PowerPoint, Visio and Project.

When we consider the range of business, IT and productivity tools available, the tools we actually use depend on the task and the objectives that they fulfill; one can pick and choose different tools to collect and analyze intelligence, perform an implementation, or to communicate to managers, peers and other stakeholders. An enterprise-wide impact analysis invariably raises questions about the flow-on effects of a changed business process. Unless cross-references are made to correlate data across the business and IT tools, it is virtually impossible to complete such an analysis. In order to establish the required cross-references today, we would either need to create a separate document or appropriately tag the data within the tool.

Understanding the business from a bird's-eye view demands complete traceability across information within the entire enterprise. Presently this is very difficult to do manually. What is needed is a way to automate the traceability process so that all of the information in the business, IT and process domains can be coupled together to ensure enterprise-wide traceability, accountability and knowledge sharing.

The alignment of business and IT is an ongoing priority that companies are trying to achieve. How can organizations successfully bridge the gap between business and IT within a single application?

A single application is what is needed to bridge all of the different business and IT tools together in a single repository, acting as an “information backbone” for the entire organization. A tool that can effectively understand data from the business and IT domains and present that data to the end-user in a meaningful manner is vital to the success of an organization's ability to bridge both domains using software.

The success of such software in business today also depends on the following six critical factors:



■ **Agility:**

The tool has to be nimble and scalable. It should consistently maintain high performance, whether its data repository contains several hundred or over half a million artifacts.

■ **Flexibility:**

Users must be able to use the tool in a manner suited to their needs, using nomenclature, processes and features specific to their domain – whether the tool is used for enterprise-level business process modeling or low-level IT design.

■ **Accessibility:**

The tool has to have low cost of ownership to ensure all personnel across the enterprise are equipped with the right tools, not just a select few users.

■ **Compliance:**

The tool must adopt open industry standards that utilize notations, processes and practices with proven history and body of knowledge applicable across the business, IT and process domains.

■ **Governance:**

The tool must provide good governance, traceability and accountability features to ensure correctness, high quality and ultimately, success for the organization.

■ **Ease of Use:**

The tool must provide a rich and productive environment that is modern, high performing and easy to use to ensure productivity is maximized for all users across the enterprise.

How can Sparx Systems help organizations overcome these struggles?

IT through the modeling solutions offered across our product portfolio, including Enterprise Architect (EA) – our flagship design tool – and the extension products offered under the Model-Driven Generation (MDG) brand. Our global partner network provides sales distribution, training and consulting services to organizations in over 60 countries worldwide. Finally, our global user base also contributes to the Sparx Systems user community, sharing their knowledge in EA, unified modeling language (UML) and best practices through the Sparx Systems Forums on our Web site (www.sparxsystems.com).

Please explain UML and the evolution of this concept. What kind of UML tools/solutions does Sparx Systems offer?

Historically, the Unified Modeling Language 1.0 (UML 1.0, UML 1.4) was a graphical notation that facilitated the software development lifecycle in IT. Its inception was the result of the “unification” of several other notations – object-oriented analysis and design (OOAD) languages like Booch, object-modeling technique (OMT) and object-oriented software engineering (OOSE) – and other modeling notations such as Petri-nets, data flow diagrams and flowcharts. The end result was seen as a “one-size-fits-all” modeling language.

UML 2 (including UML 2.0 and UML 2.1) extends the language further to such applications as systems engineering and business process design. But one of the key enhancements incorporated into UML 2 is its in-built extensibility. UML 2 has mechanisms in place to allow users, tool vendors and standards bodies to specify their own domain-specific modeling languages based on UML 2.

EA utilizes the extensibility of UML 2 to provide other graphical modeling languages such as business process modeling notation (BPMN) and Mind Maps. EA also allows organizations to maximize consistency, quality and reusability by making it easy for them to extend UML 2 and implement their own standards for modeling, code design and document generation.

How have Sparx Systems’ products evolved to become effective and competitive vehicles for business modeling and corporate planning?

Sparx Systems’ EA has a solid history of support for business modeling and corporate planning since version 1.0. The integration of requirements and project management features not only provided the traceability needed to ensure full coverage of projects, but it also tied model artifacts directly into the development process, achieving full lifecycle modeling in the one tool. EA also provided support for analytical and business modeling *prior* to UML 2 by implementing the Eriksson-Penker UML Profile for Business Modeling.

Today, EA 7.0 incorporates some exceptional productivity enhancements and continues to sustain its competitive advantage in business modeling and corporate planning. EA 7.0 also enhances support for the corporate environment, providing a configurable auditing system that can track the change history for artifacts, maximizing accountability at all stages of modeling and development.

How does Sparx Systems’ EA compare to the rest of the solutions out there in the market? Ideally, what kind of organization would be most beneficial from implementing EA?

Sparx Systems has adopted an “inclusive” strategy for EA since the very first public release. We deliberately kept its price low to provide all team members of the organization with access to UML – not just a privileged few. This maximizes the applicability of UML modeling across the enterprise – from business to IT.

But enterprise modeling isn’t just about UML either; although UML is a detailed language that covers a broad range of IT concepts, it doesn’t fully address the needs of the business domain. To address this shortcoming, we implemented UML profiles, extending the base language to support business modeling (the Eriksson-Penker profile for business process modeling mentioned earlier, for example), requirements management and analysis modeling. We also provided enhanced traceability support through the relationship matrix utility.

Over the years, we have grown beyond this initial offering and now provide many tools and model profiles to enhance the business, quality and IT modeling domains. We’ve also provided full model auditing, better versioning and traceability tools, and new ways of working in models. Despite this, we have remained loyal to our primary vision: to provide a seamless, low-cost, end-to-end modeling environment that unites all team members to provide a shared, detailed view of the enterprise.

To further support this vision, we have built a number of integration products for platforms such as Eclipse, DOORS and Microsoft Visual Studio. These products help to bind business and IT teams even closer together, keeping everybody directly in touch with the evolving business and IT vision.

Our customers include over 100,000 users in organizations of various sizes ranging from one-person small and medium enterprises (SMEs) to large corporations with teams of over 1,000 personnel working on large projects containing millions of artifacts. They operate in industries ranging from aerospace and automotive engineering to finance, defense, government, entertainment and telecommunications.

At Sparx Systems, we believe that the power of modeling should be available across the enterprise. Our solution provides the highest project visibility, accountability and traceability ensuring that organizations keep on track and share *their* vision.



Integrating the Enterprise

Delivering the vision

Deliver the vision with Sparx Systems' integrated modeling toolset, Enterprise Architect 7.0. With advanced traceability, requirements management, searching, documentation, auditing, code engineering, visualization, MDA, pluggable technologies and full-lifecycle tools - all powered by industry standard UML 2.1.



A high performance, high-end toolset with excellent scalability and low cost of ownership - Enterprise Architect has the flexibility and coverage to integrate stakeholders and deliver the shared vision.

