

zapthink white paper

BUSINESS INFRASTRUCTURE SOFTWARE IN ACTION

LEVERAGING SOA FOR AGILE BUSINESS PROCESSES





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Abstract

Enterprises around the world are facing a momentous transformation, as they move away from traditional, inflexible approaches to leveraging information technology (IT) resources to a more agile way that helps to improve business process. This transition from an aggregation-centric view of technology that leads to brittle assemblages of heterogeneous assets to the composition-centric view that positions IT resources as flexible services that the business can compose together to support and manage flexible processes heralds a new era of value to organizations. Underpinning this transition is the move to Service-Oriented Architecture (SOA), which provides best practices for organizing IT resources to enable organizations to better leverage business change.

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I. The Composition Vision for IT

The twenty-first century business environment is tougher than ever before. Enterprises are facing pressure through competition, globalization, and consolidation. And yet, information technology (IT) has largely lagged behind in solving the ever-changing business problems such pressure creates. In the 1970s, IT focused on building core systems, and in the 1980s through 1990s, enterprise application vendors like SAP and Oracle offered standard software that required expensive, time-consuming customization to meet business needs. And yet, such applications were never more than part of the story; every enterprise required multiple systems and applications from multiple vendors, resulting in complex aggregations of technology.

Every time an organization aggregates technology, however, they end up with a heterogeneous IT environment that increases in complexity and brittleness as time goes on. Before long, the lion's share of the IT budget goes to keeping such aggregations working, and CIOs are able to devote less and less to new capabilities that lead to increased business value. Now that we're in the 2000s, many IT shops are reaching a critical point, where the business simply cannot afford to continue to support such increasingly inflexible IT organizations.

Fortunately, change is on the horizon—and for many of the world's most progressive enterprises, change is already here. Instead of aggregation of technology, IT organizations are supporting *composition* of IT capabilities and information, known as services. Furthermore, IT is empowering the business to handle the tasks of composition themselves, so that they can implement and manage business processes. Instead of supporting a grab bag of heterogeneous technology, therefore, IT is increasingly focusing on implementing such services and supporting the composition capabilities that businesses require.

It is critically important, however, for IT to take into account the interdependencies of services and various requirements for those services, because the business wants to be able to compose services to implement business processes without worrying about whether those services will behave as expected. To achieve this goal, IT must move to the new architectural paradigm of Service-Oriented Architecture (SOA) that pulls together governance and business process management (BPM) to support the composition of services as the business requires. By basing their BPM efforts on SOA, organizations seek to expand and enable dynamic changes in their business processes into the future.

This combination of architecture, governance, and BPM implements the paradigm of composition through business services, the policies attached to those services, and the ability to drive business process centrally. As a result, IT is producing agility in the enterprise, based on paradigm of composition, though the benefits of SOA governance, service reuse, and business process transparency.

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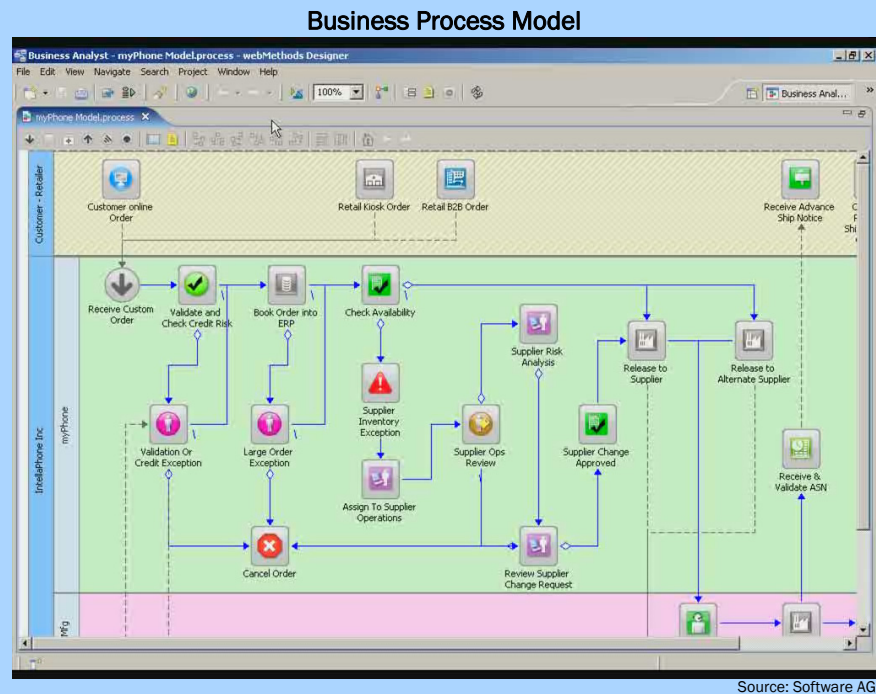
II. Dynamic Business Processes: The key to Resolving Process Issues Quickly

Defining business processes for Intellaphone

Intellaphone is a fictitious mobile phone company based upon many real organizations who realize their customers want choice, so they decided to provide for the customization of their own mobile phones. This customization would allow increased customer flexibility leading to greater satisfaction, as well as for custom branding options that affiliates or partners might use. To this end, Intellaphone build their Web site using webMethods Designer and its codeless composition environment.

To place an order on the Web site, users must first select their individual personalization criteria, including color, branding, service plan, and accessories. They then fill in their personal and order information. At that point, business rules fire that calculate taxes and discounts.

To support this business process, Intellaphone composed individual services within the webMethods environment, as shown in the business process model illustration below. This composite process enables them to receive orders through the Web site, validate and book the orders, check the availability of the individual parts, and then route each order to either the primary or alternative manufacturers.

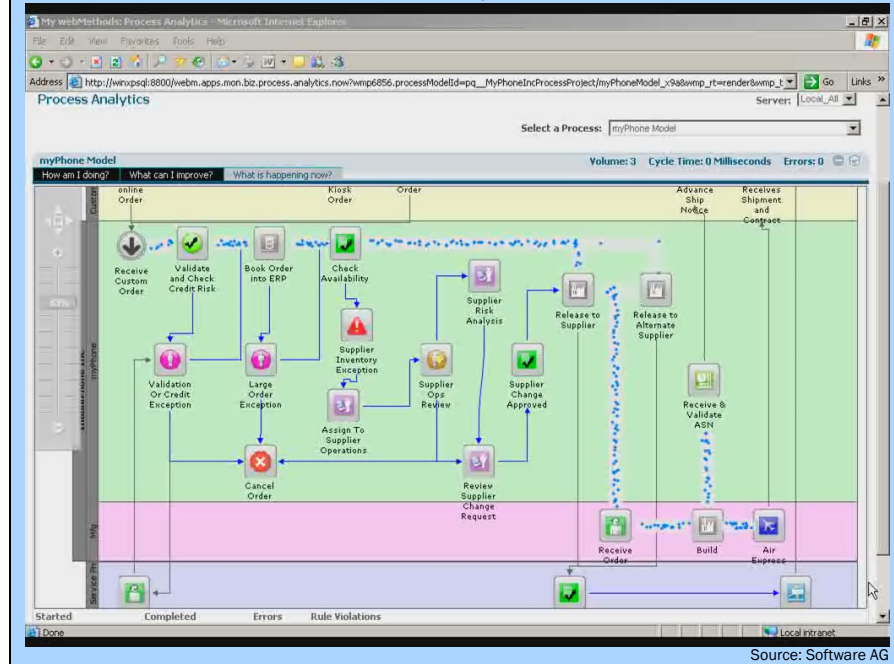


In fact, Intellaphone has built this business process to support change and rapid maintenance. In particular, Intellaphone required low-cost manufacturing from their primary supplier, plus alternative suppliers in China and Mexico. To meet this business need, they defined alternative processes in webMethods Designer, including people to manage exceptions

to the process. This composite process also supports the necessary trading networks to manage business-to-business (B2B) traffic.

Intellaphone also uses Software AG's CentraSite SOA Governance tool to govern how to manage primary and alternative suppliers. As shown in the process flow in webMethods Optimize below, Intellaphone is able to monitor orders in real time as they follow the predicted path: receiving, validating, managing, routing orders to primary suppliers, with the few orders that the primary supplier cannot handle routed to the alternate supplier.

Process in Operation



Source: Software AG

The Need for Dynamic Business Processes

The Intellaphone example above illustrates many of the advantages of composition-driven IT. Instead of implementing a business process in a rigid, technology driven manner, Intellaphone has leveraged SOA and composition and governance tooling to create an agile process that responds well to changes in the business environment. After all, although implementing well-defined, optimized processes is a sound business practice, organizations should be able to respond to change, and furthermore, leverage change for competitive advantage. Instituting rigidly formal processes can amount to cement overshoes for even the most ostensibly efficient organization.

Today, organizations require a way to separate the process layer from the underlying applications, so that the business can own and control their processes directly, providing the desired flexibility and reliability. As today's businesses move to achieve this agility goal, however, they struggle with a massive dilemma: formalize your business processes to the level where everything is well defined, and you end up with a rigid, uncompetitive corporation that's unresponsive to change, or don't formalize your processes and end up with an uncontrollable mess that wastes money and pleases customers only by accident, if at all. Clearly, we need to identify some way out of this dilemma in a way that's both controllable and flexible.

Organizations should be able to respond to change, and leverage change for competitive advantage.

The vision of composition-driven business processes that SOA enables must include collaboration, self-healing, and governance.

Furthermore, this new vision of composition-driven business processes that SOA enables must include collaboration, self-healing, and governance. People are a part of virtually every business process, and therefore the composition environment must support people the way they wish to work, in collaborative team environments. In addition, for people to be able to rely upon the composition of services, those services as well as the compositions must be able to adjust dynamically to any underlying technical issues—in essence, to be able to heal themselves.

And finally, organizations require governance to balance the otherwise competing needs of business empowerment and IT control. After all, IT is responsible for making sure everything operates as required, and yet this composition vision for business process provides unparalleled power into the hands of business users. Governance is the key to bringing these needs together.

The Evolution of Business Process Management

The history of BPM tells the story of transition from an aggregation-centric to a composition-centric approach to achieving business value with IT. This tale begins with the Business Process Re-engineering (BPR) push in the early 1990s. At that time, rigid systems and IT architectures built on aggregation hindered BPR and made it difficult for IT departments to keep up with the advances the business side wanted to make in improving their processes.

The process measurement tools and strategies that methodologies like Six Sigma provided didn't take into account tightly-coupled, hard-coded, monolithic IT systems that supported the processes. Making a change on a paper-based process map seemed simple, but implementing that change on the IT side might equate to thousands of person-hours and hundreds of thousands of dollars.

Today, BPM has a new opportunity to make a significant impact on the way organizations run. Technology advancements have improved the IT landscape, making it much more process innovation friendly. As a result, software vendors have introduced many process definition, execution and optimization tools that connect more completely with IT systems to align business and IT strategies, closing the gap between innovative process design and implementation.

Process modeling concepts like process maps have also been around for many years. Whether using a large wall with several slips of paper or a computer-based process modeling engine with templates and design palettes, a process model describes a process. Either way, a process map is a process modeling tool that illustrates how to get from point A to point B, the start and end of a process.

Process maps have many forms, and process modeling has many frameworks, but they all have process definition as the goal. Business users and process owners can use such process modeling tools in a collaborative environment to document and disseminate process descriptions.

While the resulting process maps are well-suited for communicating the desired process, they do little to drive the process and ensure that the organization executes it according to plan. Hence, tying the process map to the workflow or process engine is essential. In IT terms, a workflow system executes transactions or events as people define them. A workflow engine ideally automates standard tasks to save time and money. Workflow engines have evolved into full-service process engines that address long-running processes with human intervention, for example, by processing an application by linking process models to process execution.

Without SOA, BPM yields inflexible processes that constrain the business.

Even these BPM engines, however, have their limitations. In many cases they implement static versions of a process, or dictate to the business how they should run their processes, rather than vice versa. In other cases, there are many versions of a single process: one in the BPM engine, another in the documentation, and still a third in how the process actually works. Another equally challenging drawback is that BPM engines do not provide sufficient information for the business to feed back changes into the process, in order to improve it. It is essential, therefore, for BPM engines to include Business Activity Monitoring (BAM) capabilities like webMethods to provide sufficient business visibility into the workings of the process.

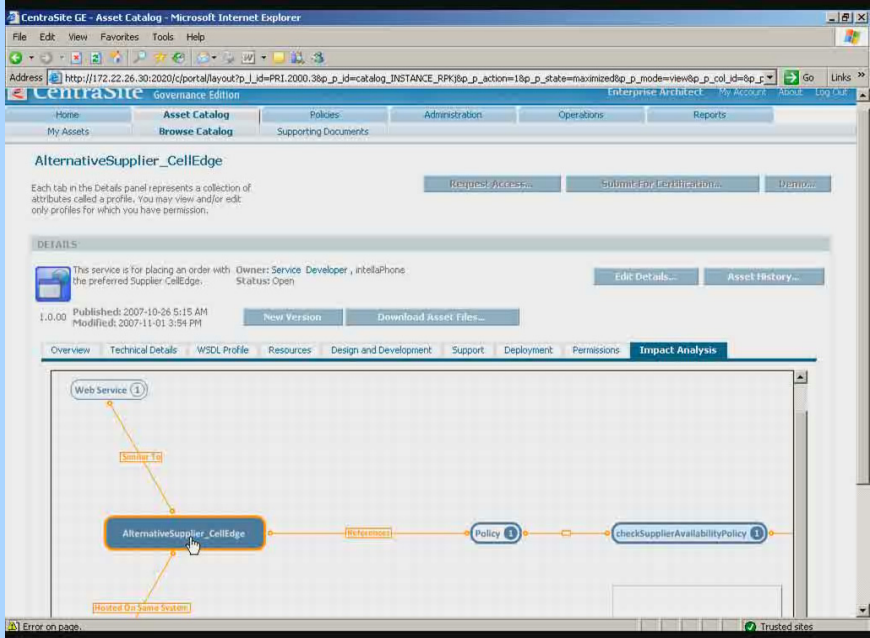
But the most significant missing link with many of these BPM engines is that enterprises implement them without SOA—that is, without an architecture that provides for business agility in the face of heterogeneous IT environments. Without SOA, BPM yields inflexible processes that constrain the business, preventing it from responding efficiently to changes in the business environment. In fact, it is because of the need for flexible business processes that business agility is the primary benefit of SOA for most organizations.

III. Business Agility: The Primary Benefit of SOA

Monitoring and routing orders for Intellaphone

As illustrated earlier, Intellaphone wants to route certain orders to backup suppliers, and monitor this routing in real time without requiring further human interaction using webMethods Optimize. In addition, they are leveraging Software AG CentraSite to manage and enforce the policies that determine the routing rule that if orders exceed primary supplier’s limit, they need to route additional orders to alternative suppliers. Fortunately, the system will automatically handle this problem, based on the policies they established in the CentraSite SOA policy management and governance tool, as shown in the illustration below.

Applying Policies in CentraSite

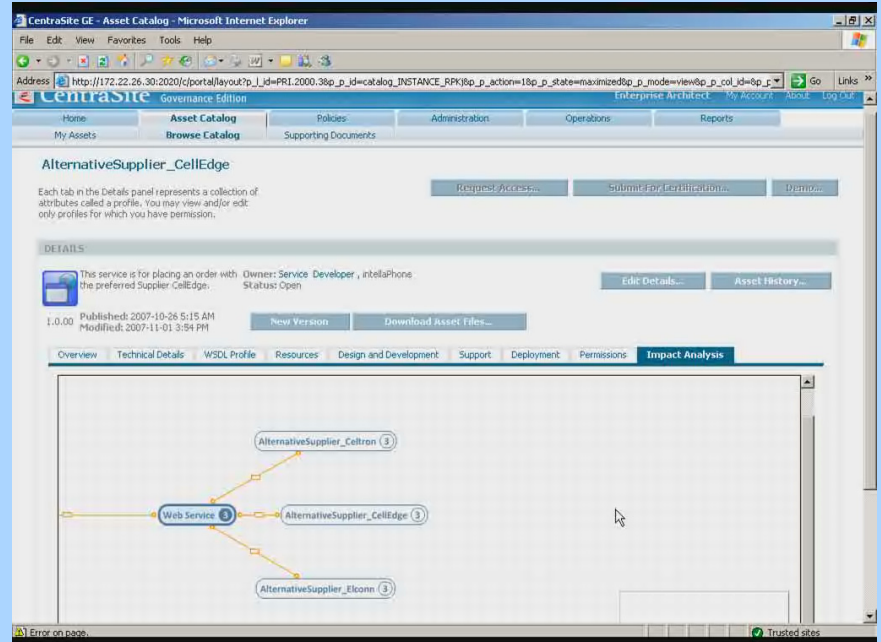


The screenshot shows the CentraSite Governance Edition interface. The main content area displays details for the service 'AlternativeSupplier_CellEdge'. Below the details, there is an 'Impact Analysis' tab which contains a diagram. The diagram illustrates the service's dependencies and the policies that govern it. It shows a 'Web Service' connected to a 'Supplier', which in turn connects to the 'AlternativeSupplier_CellEdge' service. This service is then governed by a 'Policy' and a 'checkSupplierAvailabilityPolicy'.

Source: Software AG

In fact, Intellaphone uses CentraSite to store all reusable assets, including alternative supplier contracts. This contract has two policies that apply to all vendors: both their primary supplier as well as backup suppliers must comply with WS-Security and must state service-level agreements. CentraSite enforces both of these policies, dynamically changing the process and routing order traffic to appropriate alternative supplier accordingly, as shown in the illustration below.

Routing Web Services Traffic as per Policy



Source: Software AG

As a result, not only does the process conform to flexible policies, in essence it is a self-healing process, in that the combination of Optimize and CentraSite's BAM and SOA governance provide a feedback loop for Intellaphone that prevents exceptions to the process from occurring, even as Intellaphone grows their business dynamically.

Business Agility: Key Business Driver

As companies like Intellaphone look to remain competitive, reduce costs, and basically build whatever they're selling better, faster, and cheaper, they face a broad range of problems. Solving those problems leads to success, while succumbing to any one of them can lead to dramatic failure. There is one business problem, however, that fundamentally covers all the rest. That one problem is inflexibility.

Inflexibility is the underlying problem of business today, because basically, if companies (and government organizations) were flexible enough, they could solve all of their other problems, since no problem is beyond the reach of the flexible company. If only companies were flexible enough, they could adjust their offerings to changes in customer demand, build new products and services quickly and efficiently, and leverage the talent of their people in an optimal manner to maximize productivity. And if only companies were flexible enough, their strategies would always provide the best possible direction for the future. Fundamentally, flexibility is the key to every organization's profitability, longevity, and success.

How can businesses aim to survive, even in environments of unpredictable change? The answer is *business agility*. We define business agility as the ability to respond quickly and efficiently to changes in the business environment and to leverage those changes for competitive advantage. Companies that can make effective use of a changing environment are better able to compete and thrive in any business climate.

The most important aspect of this definition is the fact that it comes in two parts: the reactive, tactical part, and the proactive, strategic part. The ability to respond to change is the reactive, tactical aspect of business agility. Clearly, the faster and more efficiently companies can respond to changes, the more agile they are. Achieving rapid, efficient response is akin to driving costs out of the business: It's always a good thing, but has diminishing returns over time as responses get about as fast and efficient as possible. Needless to say, the competition is also trying to improve their responses to changes in the market, so it's only a matter of time till they catch up with you (or you catch up with them, as the case may be).

The second, proactive half of the business agility equation—leveraging change for competitive advantage—is by far the most interesting and powerful part of the story. Companies that not only respond to changes but actually see them as a way to improve their business often move ahead of the competition as they leverage change for strategic advantage, and the distinction between composition and aggregation. This proactive notion of agility is the core lesson of the Intellaphone example. And strategic advantages—those that distinguish one company's value proposition from another's—can be far more durable than tactical advantages.

Service-Oriented Business Applications: Applying SOA to Business Processes

Fundamental to this distinction between composition and aggregation—or between a process-centric and technology-centric view of IT value—is the separation between the business requirements and logic, defined in the form of business processes and rules, and the technology, consisting of the infrastructure that underlies the services that the organization seeks to compose. In a properly architected SOA, companies must build business services that represent the data available to the business and the core functionality of the underlying systems—in other words, they must build the *right* services. Business people then must be able to compose those services into composite applications that implement agile business processes, configure those applications based upon the applicable business rules, and then expose them as services that can be composed into other processes—the essence of using services properly within a SOA implementation. Because of the business focus of such composite applications, we call them *Service-Oriented Business Applications*, or SOBAs.

The important point to understand is that in a fully developed SOA, the SOBAs contain all of the new business logic in the enterprise, while existing legacy applications typically become a vital part of the SOA implementation. Certain

Business people must be able to compose Services into composite applications that implement agile business processes.

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Service-Oriented
Business Applications
require governance.

programming logic remains in the software infrastructure that supports the business services available to the enterprise, and the business puts most new business logic at the process layer. Business users will create, configure, and compose service-oriented processes without traditional programming languages, but instead use tools appropriate for those users.

What makes a service useful is not simply its machine-processable interfaces, but also interfaces that humans can use. Furthermore, services must be composable not only in theory, but in practice. Clearly, it doesn't matter how useful a SOBA appears to be if the software that consumes the SOBAs prevent users from taking advantage of the flexibility that service-orienting the application promised in the first place. No enterprise, however, would risk allowing any of its employees to assemble and reassemble business processes with no controls in place to ensure that the resulting SOBAs followed corporate policies. In other words, SOBAs require *governance*.

SOBAs, therefore, provide a new type of business application. Rather than simply connecting directly to the back-end systems and providing visual islands of information, a new generation of such applications is poised to provide a process-driven approach to assembling logical flows of information from disparate data and information sources and provide a role-based, personalized presentation layer on top of those flows. In this way, SOBAs close the loop on business process challenges by providing powerful tools to the lines-of-business. No longer is IT getting in the way of business process; instead, IT serves as a critical enabler of business agility.

From SOBAs to Mashups

Many organizations are now approaching a tipping point with their SOA initiatives, where the focus on services is shifting from providers to consumers of services. After the tipping point, enterprises will care just as much about how they use services in a business context as they do about creating and exposing services for consumption. SOBAs, and the services that make them up, must provide this business context.

Fortunately, there is a larger trend today that is bringing together the world of SOBAs and the new generation of collaborative Web-based technologies loosely referred to as Web 2.0. In fact, the largely separate worlds of SOA and Web 2.0 are beginning to converge, now that SOA is maturing. Organizations that have been implementing SOA are increasingly focusing on how to empower users by giving them greater control over SOBAs.

Bringing Rich Internet Application technologies like Ajax, along with the collaborative nature of other Web 2.0 technologies to SOBAs are enabling a new form of composite application known as an *enterprise mashup*, which is a governed composition of loosely-coupled business services in a rich Internet-based environment. Such enterprise mashups provide direction to architects who are seeking to provide agility and user empowerment to the business users in their organizations. IT is now realizing that it is their role to provide the architecture, infrastructure, and governance framework to support business users as they create, maintain, evolve and share such enterprise mashups.

From the business perspective, mashups represent a new class of user-centric capabilities that enable a broad range of new uses for software. In fact, the shift of focus of enterprise architects implementing SOA from providing services to consuming them is leading to the growth of a diverse set of business-centric approaches to building, evolving, governing, and maintaining enterprise mashups. One of the reasons why enterprise mashups are so compelling is

Mashups that meet business needs will require SOA, and the SOA infrastructure necessary to guarantee loose coupling.

because enabling business users to assemble services, and thus create new applications, in flexible, innovative ways has broad, untapped business value.

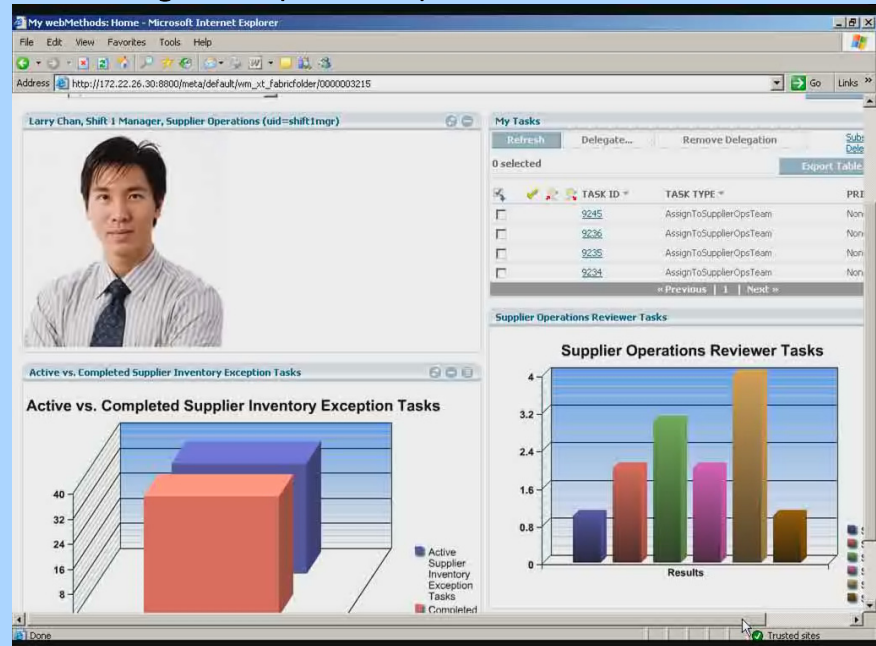
For a mashup to truly be an enterprise mashup, however, requires governance. Clearly, no business would risk allowing any of its employees to assemble and reassemble business processes willy nilly, with no controls in place to ensure that the resulting mashups followed corporate policies. Governance is also about educating people on what is possible with available services as well as providing inspiration in their use, not just about control. Furthermore, if a mashup is an *enterprise* mashup in that its creator intended it to solve a particular business problem, then tight coupling between provider and consumer software would be a serious concern. The last thing a business wants is to leverage mashups for a core business purpose, only to find that they fail capriciously depending upon the whims of the creators of the underlying services. For this reason mashups that meet business needs, therefore, will require SOA, and the SOA infrastructure necessary to guarantee loose coupling. Without that loose coupling, mashups are little more than toys from the enterprise perspective.

IV. Business Empowerment: The Big Picture of SOA Business Value

People making process changes at Intellaphone

Let's see what happens when we involve people in Intellaphone's business processes. The illustration below shows a view of Larry Chan, who is a manager at Intellaphone. Larry's interface uses business intelligence, which provides real-time embedded graphics to the enterprise mashup he's accessing. By accessing that interface, Larry is able to ask somebody on his team to find additional alternative suppliers. He completes the appropriate tasks, checks the availability of his staff, and makes the assignment.

Manager's Enterprise Mashup Interface to a Business Process



The screenshot shows a web browser window with the following components:

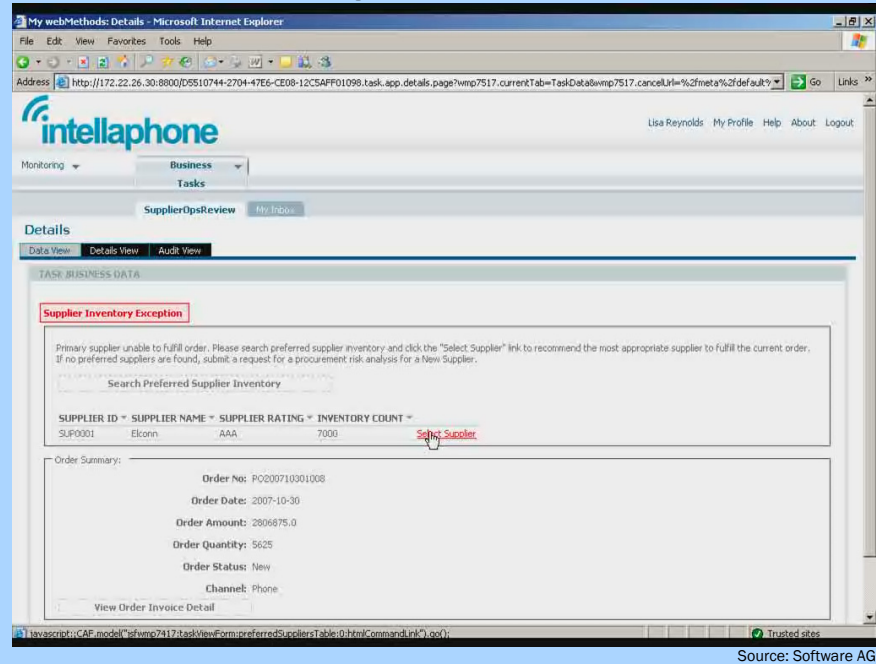
- Browser Address Bar:** http://172.22.26.30:8800/meta/default/vm_xt_fabricfolder/0000003215
- User Profile:** Larry Chan, Shift 1 Manager, Supplier Operations (uid=shift1mgr)
- My Tasks Table:**

TASK ID	TASK TYPE	PRI
9245	AssignToSupplierOpsTeam	Non
9236	AssignToSupplierOpsTeam	Non
9235	AssignToSupplierOpsTeam	Non
9234	AssignToSupplierOpsTeam	Non
- Supplier Operations Reviewer Tasks:** A bar chart showing results for various tasks. The y-axis ranges from 0 to 4. The bars represent different task categories with values approximately 1.0, 2.2, 3.0, 2.5, 4.0, and 1.0.
- Active vs. Completed Supplier Inventory Exception Tasks:** A 3D bar chart comparing active and completed tasks. The y-axis ranges from 0 to 40. The active tasks bar is significantly higher than the completed tasks bar.

Based on the information the mashup provides, he assigns this task to Lisa, who sees a customized, rule-based application. She clicks supplier inventory

and finds a viable alternative supplier, as shown in the illustration below. As a result, the mashup routes certain orders to the alternative supplier, with most of the volume going to primary supplier.

Selecting an Alternative Supplier



The screenshot shows a web browser window displaying the Intellaphone application. The page title is 'My webMethods: Details - Microsoft Internet Explorer'. The address bar shows a URL starting with 'http://172.22.26.30:8800/DS10744-2704-47E6-CE08-12C5AFF01096.task.app.details.page?vmp7517...'. The Intellaphone logo is visible at the top left, and the user name 'Lisa Reynolds' is at the top right. The main content area is titled 'Details' and contains a section for 'TASE BUSINESS DATA'. A red box highlights a 'Supplier Inventory Exception' message: 'Primary supplier unable to fulfill order. Please search preferred supplier inventory and click the "Select Supplier" link to recommend the most appropriate supplier to fulfill the current order. If no preferred suppliers are found, submit a request for a procurement risk analysis for a New Supplier.' Below this message is a 'Search Preferred Supplier Inventory' section with a table of results:

SUPPLIER ID	SUPPLIER NAME	SUPPLIER RATING	INVENTORY COUNT	
SLF0001	Elconn	AAA	7000	Select Supplier

Below the table is an 'Order Summary' section with the following details:

- Order No: PO200710301008
- Order Date: 2007-10-30
- Order Amount: 2806875.0
- Order Quantity: 5625
- Order Status: New
- Channel: Phone

At the bottom of the screenshot, the source is identified as 'Source: Software AG'.

The key takeaway from this scenario is to note that the business process involves people, as well as a variety of services. It also illustrates an enterprise mashup, which is a service-oriented composition built to support the growth of Intellaphone, closing the loop to insure their growing business will meet demand as the business environment evolves.

SOA Governance: From User Empowerment to Business Empowerment

This vision of the enterprise mashup requires a business user like Larry Chan: a knowledge worker who is adept at leveraging the power of SOBAs to meet ever-changing business needs. What makes Larry Chan special is not any unique skills; rather, the right access to useful information has empowered him. Indeed, while some knowledge workers have the technical capabilities necessary to construct today's mashups, the true promise of SOBAs depends upon user interfaces sophisticated enough for a broader business audience to use. Once the organization has such an interface in place, the users of that interface have unprecedented power to compose services and configure the resulting business processes.

In fact, such composition and configuration is how the business updates a SOBA, once the services that feed the SOBA are in place. SOBA configuration includes any change the business user would like to make, from the simplest adjustment of parameters to the most complex reorganization of business-critical processes. The user interface this knowledge worker uses, therefore, must leverage the combination of the process definition, SOA and a comprehensive governance framework that guarantees that nobody will make changes to SOBAs that violate corporate policies.

Governance frameworks provide an infrastructure for creating, communicating, and enforcing corporate policies across the organization. IT governance in

SOA governance in part focuses on the creation, communication, and enforcement of service policies to monitor their impact on business processes.

particular is a hotbed of activity today, not only because it's vitally important for companies to govern their IT operations, but also because the business calls upon IT to provide governance tools to the business at large. As companies implement SOA, it's no surprise that service-oriented approaches to IT governance increasingly receive the focus of attention. In fact, the concept of governance is drawing substantial attention in corporate boardrooms and technical meetings alike, as companies struggle with complex regulatory compliance pressures, increasing globalization, enhanced competition, and the maturation of their markets. As a natural consequence, the concept of SOA governance is in the center of the spotlight today.

SOA governance in part focuses on the creation, communication, and enforcement of service policies to monitor their impact on business processes. Service policies are metadata that consist of a set of constraints and capabilities that govern how services and their consumers interact. Simple policies typically include rules describing who can access a service and what credentials they need, how messages should be routed to the service, and what service-level agreements (SLAs) apply to the service. SOA governance applies to all of the artifacts of SOA, including process models and the components that underlie the services.

SOA governance requires that organizations take business policies, typically in written form, and transform them into rules that can help automate the process of validating and enforcing compliance with those policies in both design time and runtime environments. Companies must then manage policies through their entire lifecycle. In general, policy lifecycle management within SOA focuses on ensuring the quality, performance and applicability of available services, enabling service consumers to discover and reuse services as well as other artifacts, managing service versions, handling the security of services and other SOA artifacts, and assessing and managing the impact of change across all service consumers. Managing policies also includes providing visibility into whether people are following policies, as well as handling policy infractions. Such policy management tasks are also an inherent aspect of IT governance, as well.

The approach companies should take to prevent their employees from wreaking havoc with their SOBAs, therefore, is to implement a governance framework. Just as no business would risk allowing any of its employees to assemble and reassemble business processes with no controls in place, they want to ensure that the resulting SOBAs followed corporate policies. Only through governance can the composition vision of enterprise mashups and SOBAs lead to business empowerment, where the lines-of-business themselves have greater power over their business processes. Each individual within that line-of-business will have only those capabilities they are entitled to as per the policies in place. Policies, then, determine the level of empowerment, and SOA governance is the key to managing those policies over time.

Building and Running SOBAs

The first step to implementing business process in an enterprise is to create a representation of a business process that human and/or machine-based systems can execute. However, historically there has been little way to connect these meaningful diagrams into true composite applications. With the advent of SOBAs, users can actually execute their abstract business process representations. Since business-oriented users will rarely become programmers, these users are expecting the very same visual representations to be the primary way in which they can build SOBAs that will implement their process flow desires.

The true vision of the composition-driven nature of SOA is business empowerment through governance, architecture, and composition.

Software AG's product portfolio includes solutions for managing data, enabling SOA and improving business processes.

The second step to building SOBAs is to identify the services that are available to the enterprise. Once the organization has a visual representation of their business processes and clear definitions of the services available, what remains is to tie the business requirements to the functionality of the architecture in an agile way. The technology work is done at this point—all that remains is the human side: issues of governance, change management, and responsiveness to customer needs.

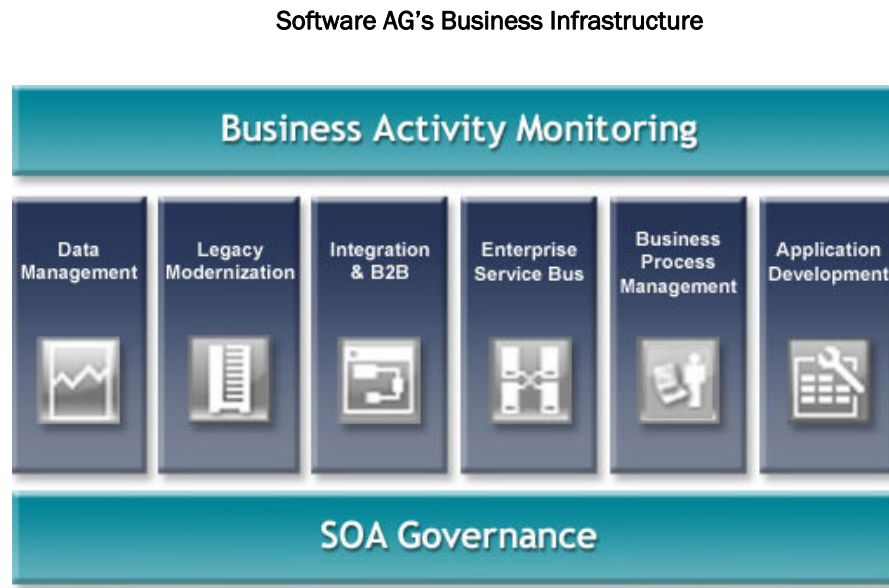
The real work of building and running SOBAs, then, rests in the hands of the business. As the Intellaphone scenarios illustrate, the business is in charge of dynamic business processes, while IT takes a supporting role, hidden behind the scenes as enablers of the services and SOBAs that make the enterprise mashups work. This is the true vision of the composition-driven nature of SOA: business empowerment through governance, architecture, and composition.

V. Business Infrastructure Software from Software AG

Now that it has fully integrated its webMethods acquisition, Software AG provides all the ingredients to achieve the vision of SOA that this paper discusses. The core of this *Business Infrastructure* offering is the webMethods Suite, which includes the Enterprise Service Bus (ESB), the mission-critical piece of the infrastructure. Around the ESB, Software AG provides the critical ingredients to enable composition, including the following:

- Application modernization – providing the ability to open up business process without rip and replace
- B2B and enterprise integration – enabling the integration of suppliers, virtually extending SOBAs to other organizations
- Application composition paired with BPM – for modeling and simulation of processes, as well as delivery of automated processes and processes that include third parties
- Embedded business activity monitoring across whole stack – for checking performance from the database up to the user interface, providing the essential feedback loop on processes
- SOA Governance – offering embedded metadata management across the full lifecycle of service creation and deployment and SOBA composition and configuration

The result of this combination of capabilities is one of the world's largest providers of Business Infrastructure Software. Software AG's product portfolio includes solutions for managing data, enabling SOA and improving business processes. Their Business Infrastructure suite is shown in the figure below.



Source: Software AG

Software AG's Business Infrastructure product suite features:

- *Data Management* – Adabas 2006 enables the management of mission-critical data, with virtually limitless data storage, real-time data access, and support across mainframe, Linux, UNIX and Windows platforms.
- *Application Modernization* – webMethods Legacy Modernization transforms core systems into modern, flexible business applications.
- *Enterprise Service Bus* – The webMethods ESB Platform provides application developers a single standards-based platform to develop new applications while maximizing existing investments. It combines application integration capabilities, high-speed messaging, support for B2B, legacy applications and event-driven technologies.
- *Business Process Management* – Enables the automation, management, and improvement of business processes. The webMethods Business Process Management Suite (BPMS) is an integrated process platform that supports human-centric, system-centric and document-centric processes. The BPMS also offers simulation capabilities, monitoring, and analytics.
- *Composite Application Development* – The Natural business application development and deployment environment combined with webMethods BPMS offer integrated capabilities to build and deploy rich, Web 2.0-based SOBAs from within an Eclipse-based environment.
- *SOA Governance* – CentraSite establishes and enforces business policies and provides controls and enforcement mechanisms organizations need for successful SOA adoption. CentraSite connects service consumers and providers across the service lifecycle, including external stakeholders such as customers, suppliers and partners, giving greater importance to governance to meet SLAs, contracts, and customer satisfaction goals.
- *Business Activity Monitoring* – Supports monitoring of business operations in real-time. webMethods Optimize for Process, Optimize for

Infrastructure, Optimize for B2B and Optimize for SAP gives both the business and IT insight to identify where the existing errors are occurring so they can address them immediately. More importantly, real-time process analytics provide insight into the best areas to improve. Optimize for Process in particular provides insight into how business processes are performing, what's working well, where there may be bottlenecks, and what organizations can improve.

Software AG's integrated offering supports dynamic change that growing and evolving businesses require.

Software AG's integrated offering supports dynamic change that growing and evolving businesses require. Intellaphone may be a fictitious company, but many real organizations are leveraging Software AG's Business Infrastructure software to implement and maintain more agile business processes, and to empower companies to take control of those processes as an essential part of running an effective business.

VI. The ZapThink Take

There is a sea change taking place in the enterprise today, as organizations are rethinking how best to leverage IT resources to meet changing business needs. The days of aggregating technologies, piling one atop the other as new requirements come over the fence, are gone. Today, the focus is on business enablement—enabling organizations to take control of their business processes to better meet the needs of customers efficiently and cost-effectively.

Executives are now thinking of IT as a critical resource that is leading the business as a key profit center.

There are many facets to this change. Leading the charge is the move to service-Oriented Architecture, as IT shops rethink how best to organize IT resources in more flexible, business-focused ways. But in many ways SOA is only the tip of the iceberg. The larger change is in how the business thinks about IT. Instead of a complex cost center that executives consider as a necessary evil, top executives are now thinking of IT as a critical resource that is leading the business as a key profit center, essentially as a source of valuable products to the organization. Information is the lifeblood of most industries today, after all, and people are finally getting wise that Information Technology is really more about the information than the technology. Just so with Software AG's Business Infrastructure—it's about the business much more so than the infrastructure.

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About ZapThink, LLC

ZapThink is an Enterprise Architecture (EA) strategy advisory firm. As a recognized authority and master of Service-Oriented Architecture (SOA) and EA, ZapThink provides its audience of IT practitioners, consultants, and technology vendors with practical advice, guidance, education, and mentorship solutions that assist companies in leveraging SOA to meet their business needs and presenting viable SOA solutions to the market. We provide this audience a clear roadmap for standards-based, loosely coupled distributed computing – a vision of IT meeting the needs of the agile business.

ZapThink provides IT practitioners strategic insight and practical guidance for addressing critical agility and change management issues leveraging the latest EA and SOA best practices. ZapThink helps these customers put EA and SOA into practice in a rational, well-paced, and best practices-driven manner and helps to validate or recover architecture initiatives that may be heading down an unknown or incorrect path. ZapThink assists with solution vendor, technology, and consultant selection based on in-depth, objective evaluation of the capabilities, strengths, and applicability of the solutions to meet customer needs as they relate to EA initiatives and as they map against emerging best practices. ZapThink enhances its customer's skills by providing education, credentialing, and training to EAs to develop their skills as architects.

ZapThink helps to augment consulting firms' EA offerings and intellectual property by providing guidance on emerging best practices and access to information that supports those practices. ZapThink provides frameworks for product-based consulting based on ZapThink insight and research, such as SOA Implementation Roadmap guidance, Governance Framework development, and SOA Assessments, and provides a means to endorse and validate consulting firm offerings. ZapThink also accelerates consulting firms' efforts to attract, retain, and enhance the skills of EA and SOA talent by providing education and skills development.

For solutions vendors, ZapThink provides retained advisory for guidance on product strategy, as well as marketing, visibility, and third-party endorsement benefits through its marketing activities, lead generation activities, and subscription services. ZapThink enables vendors to leverage ZapThink knowledge to transform their offerings in a cost-effective manner.

ZapThink's Managing Partners are widely regarded as the "go to advisors" and leading experts on SOA, EA, and Enterprise Web 2.0 by vendors, end-users, and the press. Respected for their candid, insightful opinions, they are in great demand as speakers, and have presented at conferences and industry events around the world. They are among the most quoted experts in the IT industry.

ZapThink was founded in October 2000 and is headquartered in Baltimore, Maryland. Its customers include Global 1000 firms and government organizations, as well as many emerging businesses. Its Managing Partners have worked at such firms as IDC, Saga Software, Mercator Software, marchFIRST, and ChannelWave, and have sat on the working group committees for standards bodies such as RosettaNet, UDDI, and ebXML.

Call, email, or visit the ZapThink Web site to learn more about how ZapThink can help you to better understand how SOA will impact your business or organization.

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