



Enterprise Service-Oriented Architecture

ENTERPRISE SERVICE- ORIENTED ARCHITECTURE FROM A BUSINESS PERSPECTIVE

Differentiate, Accelerate, and Simplify Your Business

THE BEST-RUN BUSINESSES RUN SAP™



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EXECUTIVE SUMMARY

Companies face incredible pressure in global markets. To survive in such an atmosphere, companies need to develop a competitive advantage and build a sustainable business by accelerating innovation, developing operational excellence, and empowering information workers. Business processes are the key to unlocking the potential of these strategies for competitive differentiation. Enterprise service-oriented architecture (enterprise SOA) allows you to quickly build and modify your business processes to adapt to rapidly changing markets. With enterprise SOA, you can link stand-alone processes to quickly compose new end-to-end processes, selectively redesign existing processes, and facilitate seamless process design and execution across company boundaries to take advantage of your business partners' expertise. Enterprise SOA unleashes the untapped potential of your existing business processes within and across company boundaries so you are better able to compete.

THE CEO CHALLENGE: ACHIEVE COMPETITIVE DIFFERENTIATION THROUGH EXECUTING BUSINESS STRATEGIES

Accelerating innovation, developing operational excellence, and empowering the information worker are powerful drivers of long-term growth and competitive advantage. The ability to execute these strategies better and faster than competitors is critical to your success.

Here's an example. A world leader in the mining industry recently launched a program to develop operational excellence across operations in over 40 countries to increase its competitive advantage. As part of this program, the company established a common set of business processes for employees and partners to ensure consistency, improve efficiency, and reduce costs.

Now, when one of the giant trucks at a mining site experiences a mechanical problem, maintenance workers sign on to the company's Web site to gain immediate access to service and repair information. Access to this information has helped to improve efficiency and reduce costs. And because the site is available worldwide, all employees and partners now follow the same business processes. As a result, the company can ensure compliance with strict safety and security rules across its worldwide operations – a competitive differentiator within the mining industry.

Companies all across the globe are following the example of this mining giant. They are innovating, improving operations, and empowering information workers to develop a competitive advantage.

Economic pressures – including high expectations and margin pressures – are forcing their hand. A number of structural shifts are transforming the global economy (see sidebar). As a result, businesses today operate in a very different environment than in previous economic eras.

Structural Shifts Transforming the Global Economy

Global markets are undergoing enormous changes:

- **The emergence of strong economies in developing countries**
With the emergence of affordable IT and communication infrastructures, developing countries can provide businesses with new markets, a global workforce, and new competitors.
- **The need to differentiate**
To compete effectively and to sustain a profitable business, companies are identifying their core competencies and defining clear strategies for differentiation.
- **The rising importance of providing services**
Businesses can no longer depend on their products alone to fuel growth. They must provide competitive services to compete.
- **Information overload**
Overwhelmed by the volume of data and the various ways of obtaining it, companies must provide efficient access to the right business information for strategic planning and decision making.
- **Increasing importance of intellectual property**
Intellectual property leads to rapid innovation cycles. Businesses need to continuously innovate to stay ahead in global markets.
- **Growing domestic and international regulatory compliance mandates**
Businesses need to ensure compliance with legal and regulatory mandates worldwide without increasing costs.
- **Increased business turbulence and risk**
Businesses need to develop risk mitigation strategies that are highly flexible, so they can execute them quickly in times of crisis.

The Untapped Potential for Enabling Business Process Change

Executing and deploying business strategies faster than the rest of the market is key for CEOs to satisfy their company shareholders and achieve their key performance goals.

To successfully execute business strategies that help capture new revenue, reduce costs, and improve efficiency, you must often modify existing business processes or add ones to your company's enterprise process portfolio (see Figure 1).

Traditionally, a company's enterprise process portfolio only included its internal business processes. These standard business processes typically support common operations, such as managing human resources, producing goods, and servicing and billing

customers. Based on business best practices, these business processes have been fairly stable, providing a highly effective and efficient way to implement core tasks within a company.

But these traditional, internal business processes may not be sufficient to compete in this new global economy. Tough challenges like mergers and acquisitions, rapid growth, and intense competitive pressures are overtaxing existing traditional business processes, slowing innovation and making it difficult for you to reach your business goals.

The time it takes to improve business processes or implement new strategies must not become a bottleneck in the successful execution of business strategies. To execute your strategy in changing markets, you need a more flexible IT environment.

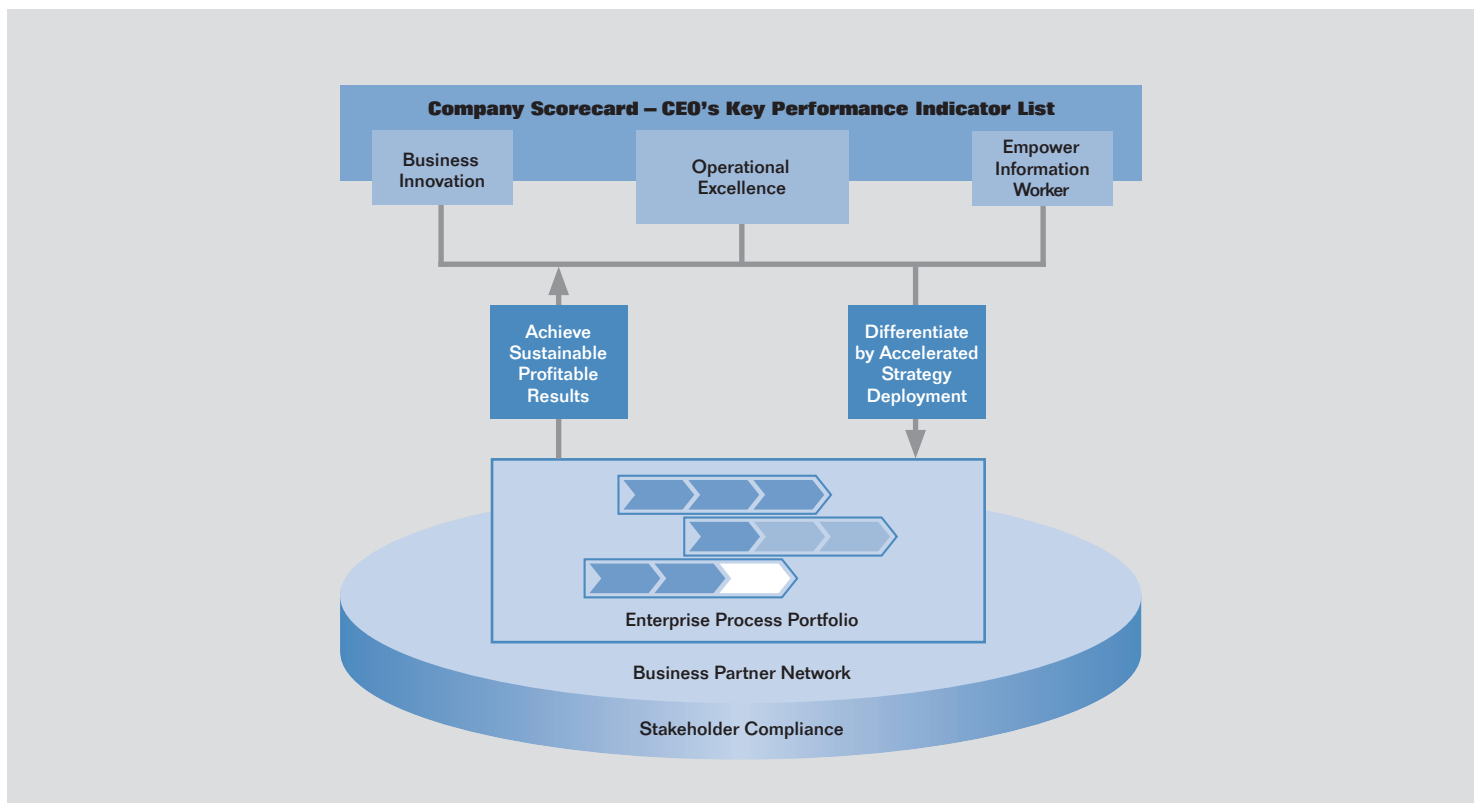


Figure 1: Modification of the Traditional Enterprise Process Portfolio to Achieve Results

Enterprise Service-Oriented Architecture: Empowering People and Process Redesign

By adopting an enterprise service-oriented architecture (enterprise SOA) – a new business-driven architecture – you can implement business process improvements more quickly, while still supporting existing business processes (see Figure 2).

With enterprise SOA, your organization can:

- Link stand-alone processes to quickly compose new end-to-end processes
- Selectively redesign existing processes to make changes faster
- Facilitate seamless process design and execution across company boundaries to leverage the core competencies and best practices of your business partners

Enterprise SOA helps you unleash the untapped potential of your existing business processes within and across company boundaries. It provides a new set of tools that you can use to quickly create innovative business processes that deliver significant business value. And that can transform the way your business operates.

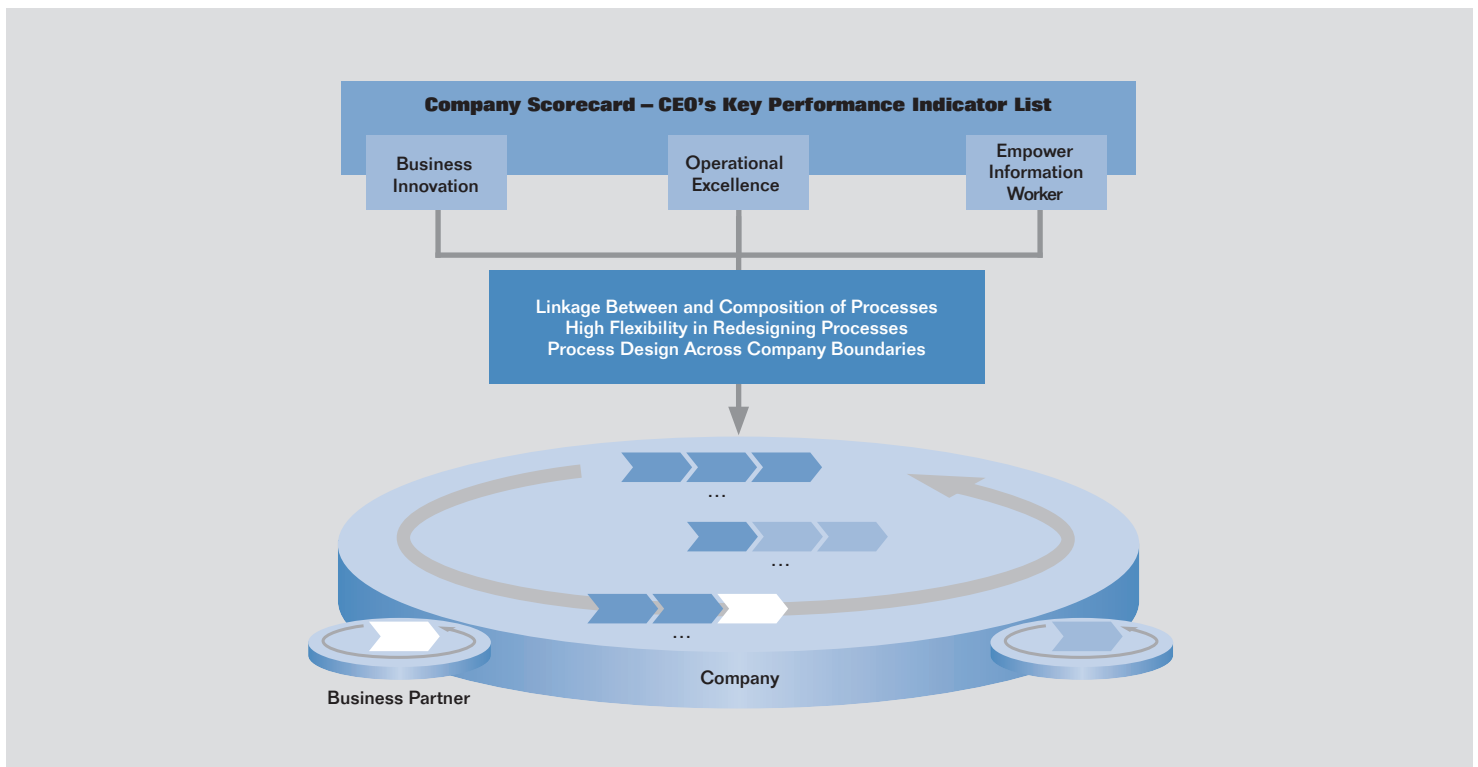


Figure 2: Tuning the Enterprise Process Portfolio Engine

Linking and Composing Business Processes

Enterprise SOA enables you to link stand-alone processes and to compose new business processes that provide competitive advantage, improve operations, and empower workers.

For example, in the retail industry, businesses are constantly seeking ways to optimize revenue. One business strategy used to achieve this goal is to undercut competitors' prices. Often, this requires retail companies to rely on store managers to assist with competitive research. Store managers are asked to perform a business process that consists of many manual steps:

- Determining which competitors and products to survey
- Sending employees to competitors' stores to gather data by hand
- Calculating a price that is lower than competitors' prices
- Submitting the assessment to a category manager for approval via phone or e-mail
- Receiving approval from a category manager via phone or e-mail
- Manually changing the price in the system

Enterprise Service-Oriented Architecture

Enterprise service-oriented architecture (enterprise SOA) is a business-driven software architecture that allows you to share and reuse services within your company and with strategic partners. With enterprise SOA:

- Business functionality is represented through reusable enterprise services.
With enterprise SOA, complex processes can be broken down into smaller process steps, which are represented in software as reusable enterprise services. This enables your IT organization to support business change with increased adaptability, flexibility, and cost efficiency.
- You can compose new business processes for business innovation.
Enterprise services – including those from strategic business partners – can be created, combined, and rearranged to compose new business processes to support innovative business strategies.
- You can quickly modify business processes to achieve operational excellence.
When change is required, you only need to modify the enterprise service for a particular process step, so the IT organization can respond more quickly and cost-effectively to changing business requirements.
- You can automate processes to empower information workers.
You can use enterprise services to automate many process steps that currently require human intervention. With automated processes information workers spend less time on routine tasks, freeing them to contribute to the strategic goals of your business.

This process is time-consuming, and it also collects information is not linked to a retailer's core operations. With enterprise SOA, retailers can link people-driven processes with their core operations to automate many of the process steps, as shown in Figure 3.

The total number of steps remains the same, but the people-driven process is now automated, and regional data is integrated into the retailer's core operations. As a result, the retailer can execute the new, end-to-end business process more quickly, providing the company with greater transparency and generating a greater competitive advantage. In addition, store managers are freed from low-level operational tasks, so they can focus on their customers. Finally, improved data collection provides the retailer with more detailed competitive information to improve decision making.

Selective Flexibility for Redesigning Processes

The ability to selectively modify specific steps within a larger process enables you to respond more quickly and cost-effectively to changing business requirements. For example, in the telecommunications industry, new technology innovations and improvements in existing technologies drive frequent product and service introductions. Many of the process steps for delivering new products to customers are the same, such as ordering, packaging, and billing. However, the provisioning step differs for many products. Without selective flexibility, telecommunications companies would have to define a new end-to-end process for every product to reflect the changes required in the provisioning step.

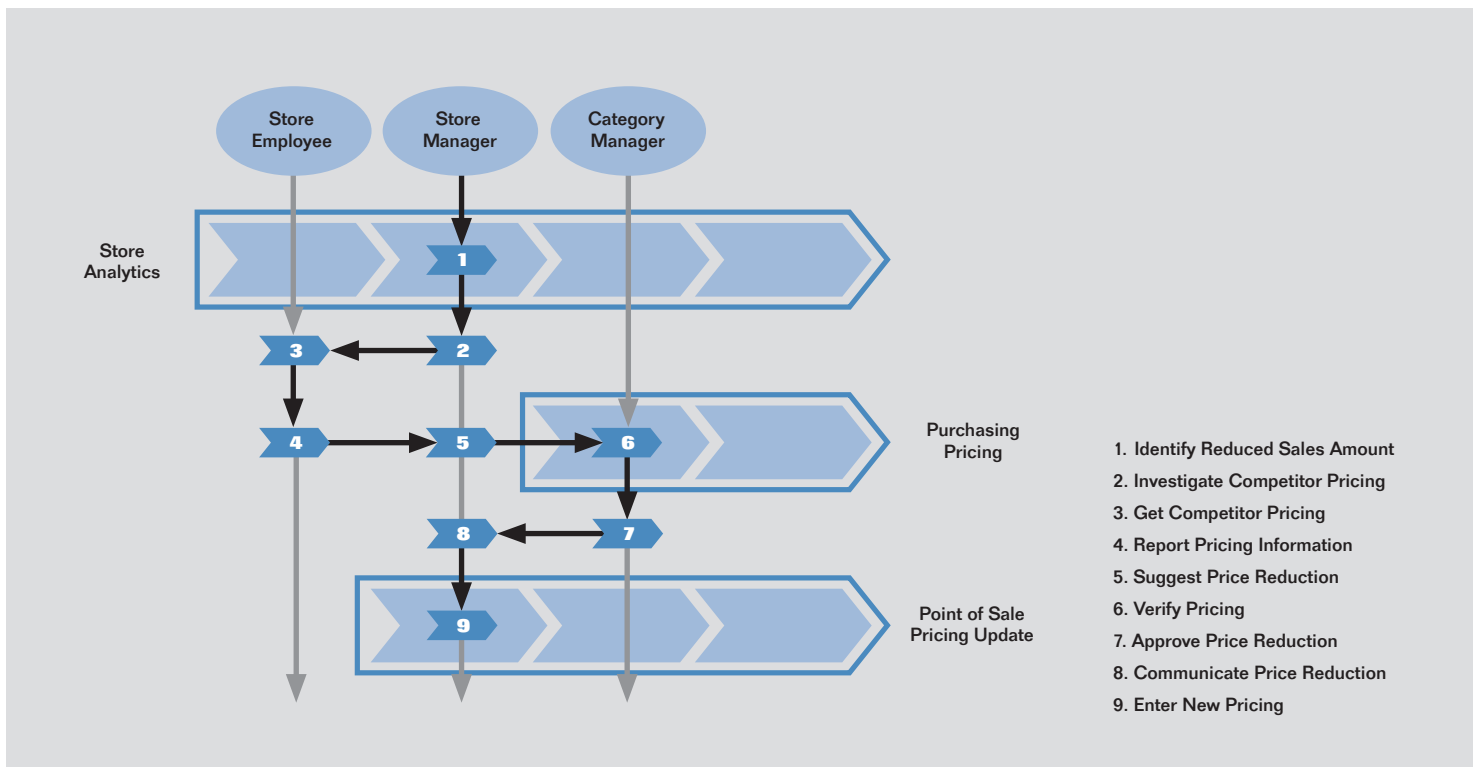


Figure 3: Collaboration Across Core Retail Processes

With enterprise SOA, you can break business processes into smaller process steps. With this approach, you can reuse stable process steps over and over again. When you need to make a change, you only have to modify the selected process step (see Figure 4).

As a result, a telecommunications company only needs to define one end-to-end process for new product introductions. The stable process steps (ordering, packaging, and billing) are reused for every product. Then during the provisioning step, a customized process is used for each product.

Selective flexibility provides a high degree of latitude when you design business processes. As a result, it lowers business process costs and enables you to react faster to changing market conditions.

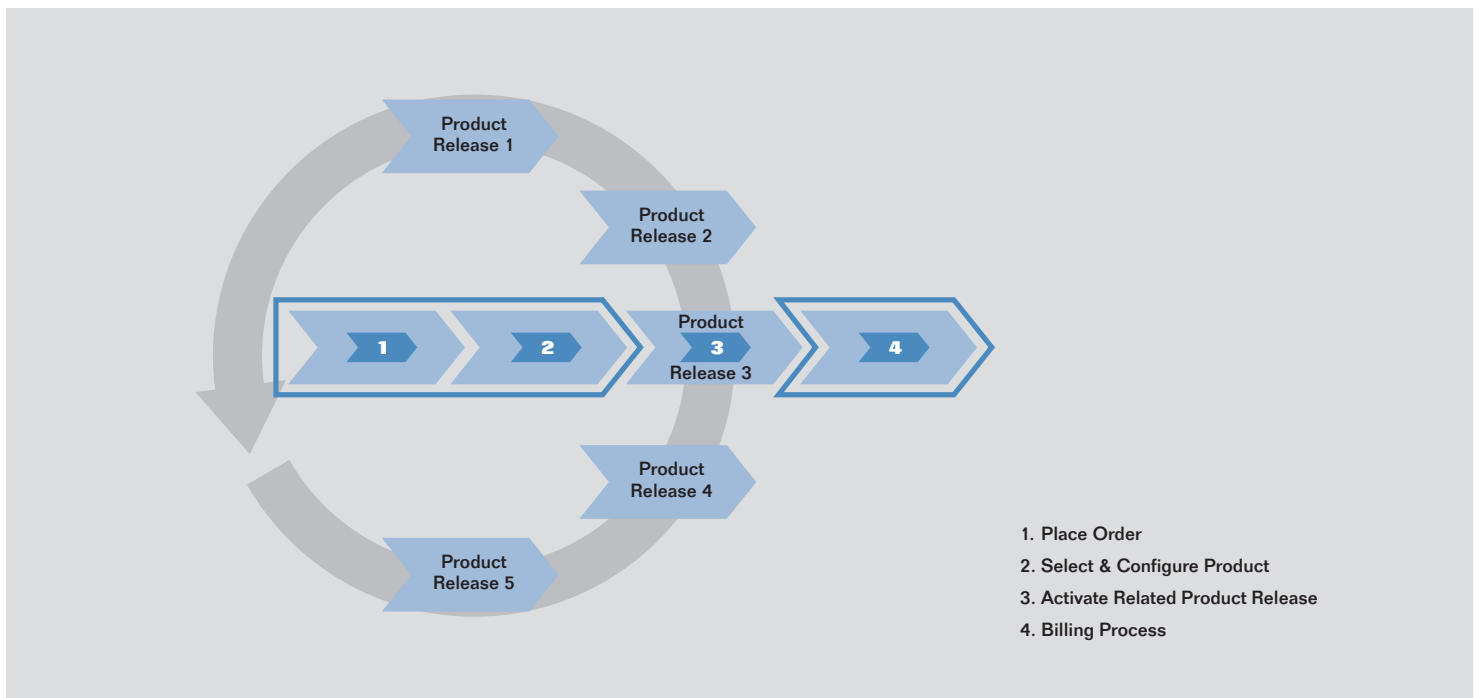


Figure 4: Accelerate New Product Launches Within the Telecommunications Order-to-Billing Process

Process Design and Execution Across Company Boundaries

Enterprise SOA enables you to build processes across company boundaries to leverage the core competencies and best practices of your strategic business partners. For example, tax agencies can improve citizen and constituent services significantly by defining end-to-end process across organizational boundaries (see Figure 5).

Using enterprise SOA, a tax agency can create an end-to-end process that links taxpayers, business partners, and tax agency processes. This seamless process delivers the following improvements:

- Taxpayers submit forms electronically with greater ease.
- Business partners automate forms processing for greater accuracy and faster response.
- Tax agencies focus on more complicated submissions and handle exceptions.

Tax agencies can also ensure rapid revenue collection, respond more quickly to taxpayers, and reduce manual labor costs.

Realizing the Value of Enterprise SOA

An enterprise process portfolio – enabled by enterprise SOA – is no longer just a vision for the future. The question is how to start to adopt the architecture and benefit from it. As the following success story illustrates, organizations around the world are beginning to leverage enterprise SOA to accelerate innovation, achieve operational excellence, and empower their information workers – the primary strategies used by CEOs to improve their businesses.

Empowering Information Workers in the High-Tech Industry

Traditionally, information workers have received little support in driving best-practice business strategies across multiple lines of business – strategies required for new product introductions, for example. Isolated silos of information, trapped within different business applications, prevent true information transparency and require increased human intervention to extrapolate and leverage. This leaves information workers – those employees charged with driving the product innovation process – at a distinct disadvantage. Innovation fails not because of poorly conceived

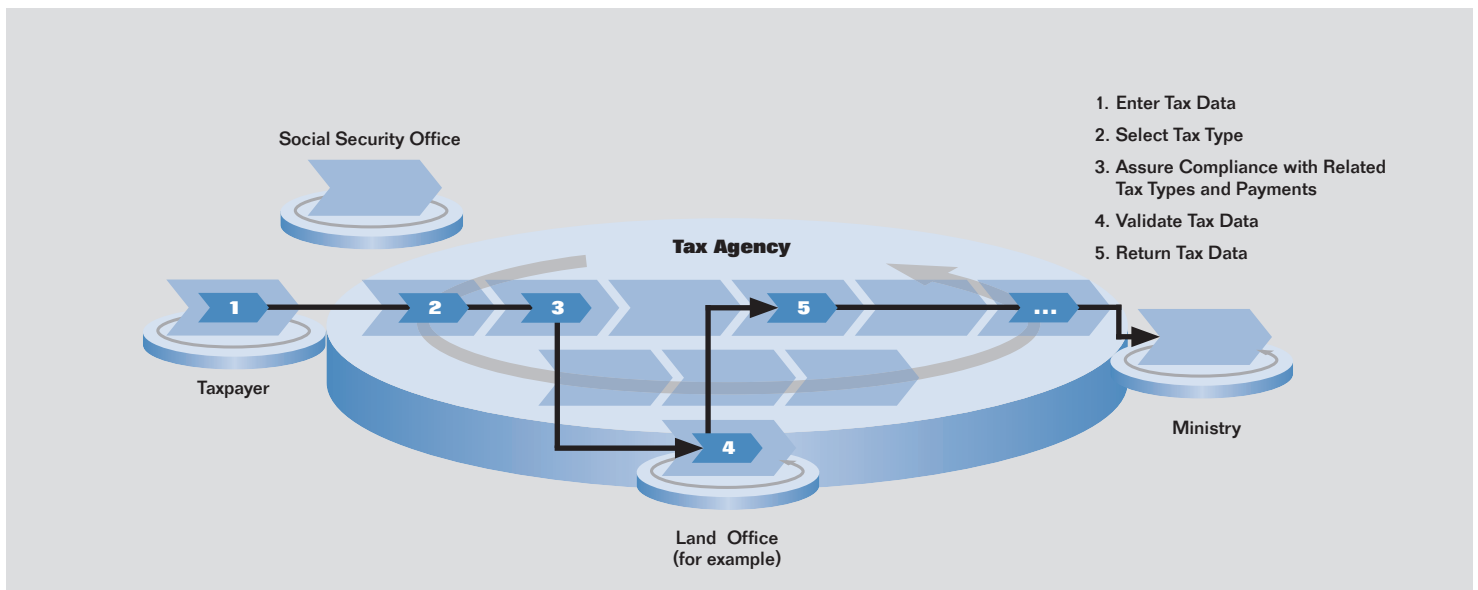


Figure 5: Connect Taxpayers and Allow Closer Collaboration Across Constituencies

ideas, but because a lack of data transparency and manual process steps slow the process so much that it is not agile or cost-effective enough – and therefore not competitive.

Enterprise SOA can effectively build bridges among isolated silos of information, enabling easier access to relevant data and increasing your company's ability to execute on the information. Many high-tech companies have used enterprise SOA to improve the product innovation cycle. Here's one example.

Molex is a global high-tech manufacturer of electrical connectors with US\$2.5 billion in sales, more than 25,000 employees, and 100,000 products. It is focusing its initial steps toward an enterprise SOA approach by beginning with a pilot implementation of an SAP® xApp™ composite application. SAP xApps™ composite applications enable continuous business innovation – the promise of enterprise SOA. Molex will phase in the SAP xApp Resource and Portfolio Management (SAP xRPM) composite application around the world to leverage Molex's global development process.

Molex wants to leverage best-practice business processes established in its automotive division and the ADEPT Group's Spiral Up methodology, requiring improvement in collaboration across product development groups and better project selection to direct resources to more profitable initiatives.

With SAP xRPM, cross-functional design and development teams have one set of project data visible across the entire innovation process and accessible via role-specific dashboards. SAP xRPM also enables the company to update and monitor project data (resource forecasts, deliverables, and other metrics) in real time, creating a living portfolio that will drive planning and forecasting. The plan is to deliver that information to all participants and stakeholders through a single, user-friendly interface.

Hubert Burda Media: Increasing Flexibility with Enterprise SOA

The print media industry is facing new challenges in the area of sales and distribution. For example, with new media venues available through the Internet, the sales of print magazines have decreased. As competition gets tougher, it is becoming necessary to operate more efficiently, to reduce cost, and to create additional revenue.

With enterprise SOA, media companies can improve their processes to gain efficiency, flexibility, and transparency for information workers. They can also leverage best practices to business partners as a service offering, which is the basis for new revenue streams.

Hubert Burda Media is a print media publisher with more than 7,500 employees and 239 magazines sold mostly in Europe with revenue of approximately US\$2.6 billion. To compete in a challenging media market, the company wanted to streamline distributed tasks and responsibilities across its existing processes. This approach would reduce manual tasks, which eat up employees' valuable time.

Hubert Burda Media decided to adopt an enterprise SOA approach to drive a new, innovative business model to the market. With enterprise SOA, the company aimed to increase the flexibility of its business models, such as outsourcing the sales and distribution of magazines, as well as deploying a customer self-service model for future growth.

The company identified two goals as part of this change: aligning business and IT goals by deploying a new governance model and gaining operational excellence in its business processes by cutting cost by approximately 20%.

Achieving Sustainable Business Success by Redefining Priorities

What do these economic shifts mean for your business? To satisfy shareholders and compete in a global market, CEOs must strive to achieve sustainable, successful businesses. To do so, they should focus on three main levers: accelerating innovation, enhancing operational excellence, and unlocking the potential of information workers.

Accelerating Innovation

Successful organizations recognize that innovation can occur in many forms, including:

- Product and service innovations, which drive top-line growth through increased volume or prices
- Process innovations, which help lower costs to raise the bottom line
- Technology innovations, which help IT respond more quickly to changing business requirements

In addition, successful organizations work with their strategic business partners to develop innovative products and services. By leveraging the business knowledge, core competencies, and best practices of your strategic partners, you can deliver end-to-end solutions to customers more quickly.

Enhancing Operational Excellence

According to a February 2005 survey by the Economist Intelligence Unit (*Business 2010: Embracing the Challenge of Change*) the number one management challenge for creating long-term value is operational resilience or excellence.

To become more resilient, successful companies are implementing business processes that are reliable, support rapid business and organizational change, deliver predictable results with high quality, and conform to an ever-growing number of domestic and international regulatory mandates. As a result, when they execute business strategies, executives can be confident that people and operations are more efficient.

Empowering the Information Worker

Organizations that enable their information workers to focus on differentiating tasks – such as supporting customers, handling exceptions, or resolving problems not covered by standard business processes – gain efficiency, drive innovation, and ensure competitive advantage.

Successful organizations are empowering their information workers in many ways:

- Automating common processes related to specific business roles
- Providing collaborative work environments for improved communication
- Improving access to business information
- Supporting the mobile workforce

As a result, information workers can complete essential business tasks more quickly and efficiently.

With the new governance model, Hubert Burda Media defined business processes with clear roles and responsibilities. The first part of the operational model was delivered within 6 months, and, step-by-step over the next 12 months, the company redesigned all its existing business processes. Stable and consequent change management during the whole project was key to success.

To achieve its operational excellence goals, Hubert Burda Media decided to automate people-driven processes, reducing the elapsed time from editing and printing to distribution of a magazine. This is a major competitive advantage in print media industry. In addition, the company increased data consistency and freed up user resources for additional activities. Information workers now use a single, easy-to-use working environment instead of several different systems.

As a result of this project, Hubert Burda Media has gained new external customers for its new service offering. And it has decided to implement four follow-up projects that will take advantage of the flexibility and innovation provided by enterprise SOA.

Supporting a Collaborative Model Between Business and IT

Becoming a more agile business doesn't happen overnight. It requires a corporate commitment to change, a clear articulation of your company's business strategies and priorities, and a road map for achieving these goals.

So it's no surprise that CEOs are turning to their IT departments for support. As a result, IT departments are collaborating with business units in new ways:

- **Prioritizing all IT projects based on business cases that closely align business and IT**

Organizations often operate with an implied understanding of current business processes. By working together to analyze and question existing business processes, business units and the IT department can clearly identify and prioritize areas of improvement and growth and place them in the order of priority along a road map.

- **Adopting enterprise SOA for greater business agility**

With enterprise services, IT organizations can create or update business processes in small, incremental steps. This allows the IT group to respond quickly when market, competitive, or customer requirements change.

- **Providing business – not just technical – support through new roles**

As IT becomes more strategic, new business roles are required to support business innovation (see the following sidebar). These roles include enterprise architects and business process experts.

Evolving IT Roles

IT professionals are taking on new roles as enterprise service-oriented architecture (enterprise SOA) finds a place in companies:

- **Enterprise architects** implement enterprise SOA, enabling business flexibility. They have a broad organizational perspective that involves technical activities and other responsibilities that are more strategic and more like those of a consultant. Enterprise architects map the current enterprise IT landscape, plan the target architecture, and manage the transition from the current architecture to target architecture in a way that is tied to business goals and objectives.
- **Business process experts** compose, adapt, and deploy business processes. Business process experts proactively drive real-time process innovation by adapting, composing, and executing end-to-end business processes using composition software tools and enterprise services. They are a new breed of professionals that evolved from the roles of business analysts, process consultants, application consultants, and business process architects. They increase collaboration between business and IT and derive increasing value from composing flexible processes on top of an enterprise SOA foundation.

REDEFINING A COMPETITIVE ADVANTAGE WITH ENTERPRISE SOA

With enterprise SOA, you can quickly implement business strategies by rapidly composing business processes, increase flexibility for redesign, and improve business processes across organizational boundaries. The payoff is greater flexibility to innovate new business process, improve operations, and enable information workers for long-term growth and ongoing competitive advantage.

For more information about how you can improve business agility by implementing enterprise SOA, visit our Web site at www.sap.com/platform/esa/index.epx.

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