

Service-Oriented Enterprise: How To Make Your Business Fast, Flexible and Responsive

A Briefing for CxO-Level Executives

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1 Why Now is the Right Time for a Service-Oriented Enterprise

1.1 Business Faces Pressing Issues

Have you tried to introduce a multichannel strategy but discovered you didn't have the flexibility to make it happen? Would you like to establish an effective link between your enterprise portals and your back office so your online systems don't crash? Are you looking for a way to free up budget that can be devoted to driving innovation within your organisation?

If you answered 'yes' to these questions, it's time to turn your business into a Service-Oriented Enterprise (SOE).

Businesses today face a wide range of issues that impede growth and profitability. Chief among them is the need for greater flexibility, driven by factors such as multichannel strategies, pressure to improve time to market, and the impact of mergers and de-mergers. In particular, many businesses have failed to effectively integrate their web-based channels and connect them to their legacy systems. The result is that online systems frequently crash with high visibility to the public, clients and competitors.

At the same time, companies are striving for adaptive cross-functional processes that can connect the silos created by ERP systems, while reducing unsupportable dependencies and costs. Today many companies' systems are linked together with an increasing amount of 'spaghetti.' The result is that too much of their budget is devoted to maintaining existing capabilities and staffing to support legacy systems, leaving little room for innovation and investment in the future.

1.2 Times and Possibilities Are Changing

The tools are available today to help companies achieve greater adaptability, flexibility and collaboration. For one thing, open standards have become a reality. They are developing rapidly and have the support of the technology industry and users. In addition, open source has become mainstream as a method for sharing common software and is an element in software licence reform. Open source software ensures that everyone can understand what they are seeing, as well as make a contribution. As a result, services are accessible through the web with no restrictions on users or processors.

1.3 Technology Industry Momentum Builds

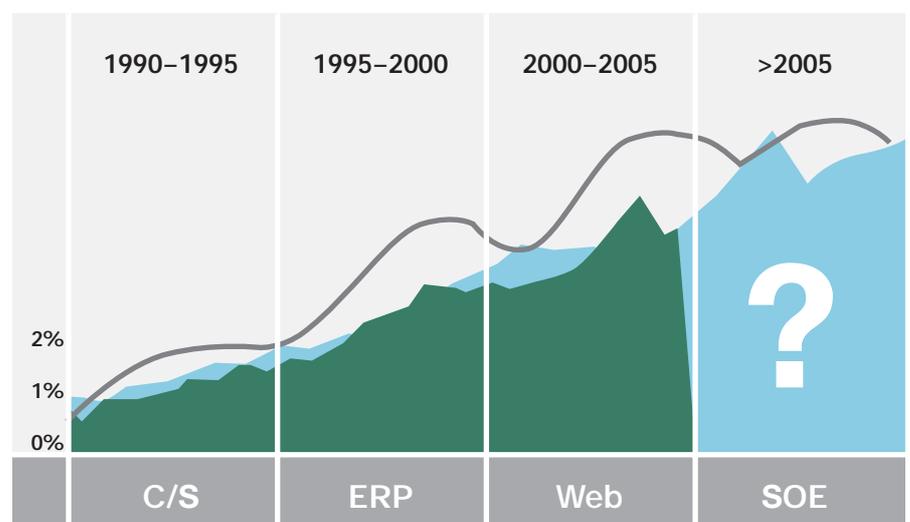
At the same time that companies have been struggling with the issues that plague them, the technology industry has been evolving and offering new solutions to address these challenges. The first Web Services (WS) technologies became available in 2000 but were wrought with interoperability problems. Extended Enterprise Projects followed, but they too faced difficulties with interoperability.

As these problems were worked out, integration projects began to move to WS while Enterprise Service Bus (ESB) technology vendors started appearing on the technology scene. By 2003, WS was exploding, even becoming mandated in some organisations. In the past two years, Business Process Execution Language (BPEL) for WS began making headway, resulting in Application Platform Suites that could offer end-to-end service development. This has led to widespread adoption of WS and standardisation on BPEL for processes. Finally, today many of the technology vendors have moved to a Service-Oriented Architecture (SOA) approach and standards have begun to deal with Service Management and Operations.

These developments underpin the move toward increased Internet and web use by providing the type of software and functionality that users require. In fact, as the Internet and the web rapidly move into business technology in the same way they now dominate home technology, they are essential to developing integrated end-to-end processes, which lie at the heart of a Service-Oriented Enterprise.

A constant trend in software development has been to 'isolate' logical layers for increased flexibility and enhanced productivity (for example, data access and network transactions). Today, this can be achieved at a 'services' level, which represents a step change in the industry based on the lessons of the web. Yet the technologies and standards supporting it have been 'cooking' for years.

Figure 1: The Internet and Web Move to Business Technology



SOE offers a way to turn expenditure on compliance from a cost drain to a means of delivering real business advantage.

In short, the key elements for an SOE transformation are in place right now:

- The business issues are pressing.
- Early adopters have shown the way.
- Mainstream technology vendors are coming into the market with products that build on and legitimise current investments.
- The community of user enterprises and individuals at all levels is building to allow real open business.
- And, as important as any other factor, SOE offers a way to turn expenditure on compliance from a cost drain to a means of delivering real business advantage.

What really differentiates an SOE from a traditional business model is its 'outside-in' approach.

2 Why Is SOE Compelling?

2.1 Creating Business Value Through an SOE

To understand the value created by a Service-Oriented Enterprise consider the business model of a traditional airline compared with that of a low-cost airline. Today's low-cost airlines offer consumers the ultimate in speed and flexibility. You can book when you choose, well ahead or at the last minute, at any time of day or night. Book early and the price will be low since demand is low; book late and demand may be high, so the price will be high. The converse may also be true: The airline has the flexibility to lower the price to sell off any oversupply of seats that remain.

It's all about dynamic pricing and a different kind of business model. That model is based on an integrated set of end-to-end processes that connect the customer's needs to the company's internal processes without centralised dependencies. It's also about an open business model that provides visibility to buyers and sellers of all crucial information that can affect the decisions of both parties. And it makes this information available through the open technology of the Internet. The result for a customer: choice, speed, flexibility, satisfaction.

In contrast, most traditional airlines still operate on a silo model, where specialised applications are used to automate manual processes with no end-to-end integration. Compared to the horizontal processes and open interactions and transactions of the low-cost airlines, traditional airlines rely on a sequential, disconnected series of vertical functional silos supporting applications. The result for a customer: limited options, logjams, frustration.

By redesigning and automating processes driven by organisational and customer requirements, low-cost airlines provide choice, flexibility and scalability. This market-driven, Service-Oriented Enterprise model has allowed the low-cost airlines to expand rapidly, taking share from existing airlines as well as creating a bigger overall market. In comparison, many traditional airlines face declining market share, loss of profits and in some cases bankruptcy filings.

Which business model would you prefer to base your company's future on?

2.2 Reorganising the Enterprise From the Outside

Success today and in the years ahead—for airlines and all businesses—demands that a company transform itself into a Service-Oriented Enterprise. What really differentiates an SOE from a traditional business model is its 'outside-in' approach. An SOE creates business-driven value by defining and exposing its core business processes to the external market through the use of standardised open technology in the form of services.

This reorganisation includes new business requirements, new operating zones and new licence structures, which will enable improved collaboration between organisations and their customers and suppliers. An SOE has the capability to organise its responses to market shifts due to the agility within its culture, processes and IT systems.

By building on its adaptive and agile investments internally, a company can take advantage of increasing external capabilities for interactive communication. This allows for improved collaboration with partners by using services to find the optimum decision in response to events.

2.3 SOE: Fast, Flexible, Collaborative

The value created from a Service-Oriented Enterprise is manifested in three key capability areas (see Figure 2):

Sense and Respond All customer-facing processes and people are engaged in a collaborative development process based on real-life situations. This capability allows companies to develop real-time marketing and dynamic pricing based on access to actual customer dialogues and transactions. The technology foundational layer enables this capability by synthesising the massive flow of data into instructions and shared best practices.

Plug and Play Open standards enable rapid adoption of best practices and integration with a company's alliance ecosystem. This results in scalability and flexibility through a services approach to customer needs. A company is thus able to adapt its response to the current situation. This capability is enabled through Service-Oriented Architecture and Service-Oriented Infrastructure.

Learn and Leverage New capabilities enable new business models in new markets, channels and geographies. Customer participation is incorporated into the offer development, marketing and delivery. This allows for rapid prototyping, which can then be ramped up or discarded as appropriate with SOA. The technology driving this includes interoperable technical, semantic and legal capabilities in the company's ecosystem.

Figure 2: SOE Value Creation

The Service-Oriented Business				
		Sense & Respond	Plug & Play	Learn & Leverage
Business Functions	Value Innovation	Engaging all customer-facing processes and people in a collaborative development process based on real-life situations	Open standards enable rapid adoption of best practices and integration with alliance ecosystem	New capabilities enable new business models in new markets, channels and geographies
	Service Delivery	Price/revenue optimisation based on real-time information sharing	Optimisation through outsourcing and ecosystem integration	Extension of new offerings throughout the ecosystem; continuous value chain improvement
	Customer Interaction	Real-time marketing and dynamic pricing based on access to actual customer dialogues and transactions	Scalability and flexibility through 'services' approach to customer needs: response adapted to current situation	Customer participation in offer development, marketing and delivery, quickly prototyped, ramped up or discarded with SOA
Foundations	Talent & Organisation Architecture	Collaborative culture built on trust, with a knowledgeable frontline supported by technology	Resource pooling and shared services that can recombine as dictated by customer need	Leveraging the ecosystem for needed capabilities ("they don't all need to be employed by you")
	Information Technology	Massive data flow is synthesised into instructions and shared best practices	Service-Oriented Architecture and Infrastructure	Interoperable technical, semantic and legal capabilities in the ecosystem

An SOE is able to change its capability mix quickly and efficiently, and on a fine-grained scale, to continually optimise the business.

3 What Is an SOE?

3.1 What Does an SOE Look Like?

At its core, SOE is all about reorganising the enterprise to enable increased collaboration between the company and its customers, suppliers and other trading partners. From this collaboration will come greater efficiency, faster time-to-market, reduced costs, and improved flexibility and responsiveness—the hallmarks of a Service-Oriented Enterprise.

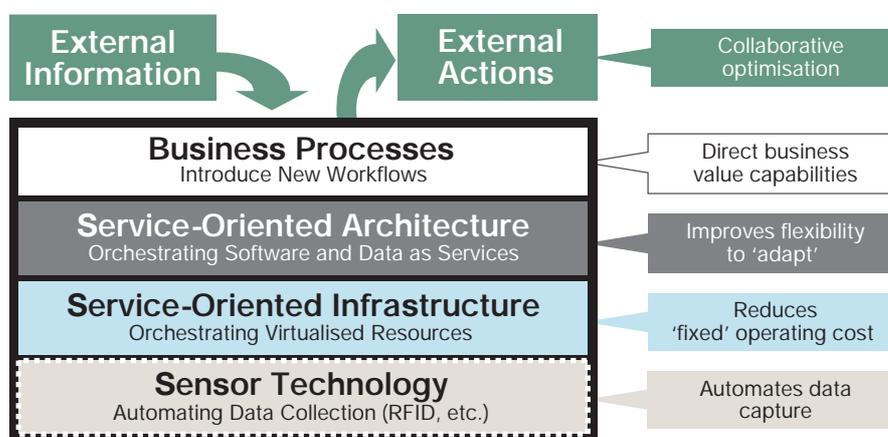
To accomplish this means changing from a silo capability model to a market capability model—a shift that has been under way for some years now. Non-core activities are being shed in the drive for true focus, but the disposals have mostly been in the form of slow, large-scale change (“maybe we should let someone else run our IT infrastructure and call centres”). They have not come in the form of fast, dynamic process adjustments in response to a specific market opportunity (“let’s launch this new line extension in Eastern Europe together with our German distributor using a third-party order management and delivery partner”).

An SOE is able to change its capability mix quickly and efficiently, and on a fine-grained scale, to continually optimise the business. It’s a cultural, managerial and IT issue in the same way that moving to more effective ‘matrix working’ was a natural result of the shift to PC networked employees.

3.2 Forming the Foundation of an SOE

Supporting an SOE are four fundamental elements: sensor technology, Service-Oriented Infrastructure, Service-Oriented Architecture and business processes (see Figure 3). These elements allow a business to build a process that leverages web services.

Figure 3: Key Terms and Definitions—SOE, SOA, SOI



Architecture is the key to bringing coherence to an organisation and building a Service-Oriented Enterprise.

3.3 Service-Oriented Architecture

Most businesses today operate with a project-based integration approach. This approach is characterised by the use of native application technology and embedded data and process management. It also assumes little or no change, makes limited use of common resources and focusses on 'big bang' application deployment projects.

A project-based integration approach:

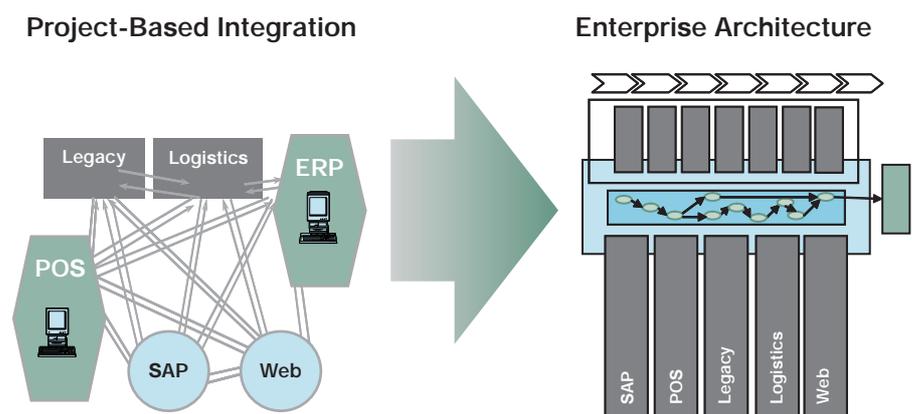
- Results in risk, cost and delays even for the first delivery
- Resists change
- Prevents a process-centric approach
- Precludes end-to-end process/information visibility

Is there a better way? We believe so. Architecture is the key to bringing coherence to an organisation and building a Service-Oriented Enterprise (see Figure 4). Enterprise architecture knocks down barriers and creates a more open system. It is characterised by an extensive reuse of common data and processes, a process-centric approach with supervisory process management, and an assumption of continuous change. The impact of this approach is significant.

Enterprise architecture:

- Creates flexibility and responsiveness
- Supports incremental, evolutionary change
- Minimises total cost of ownership (TCO)
- Maximises information and process velocity

Figure 4: Architecture Is the Key to Restoring Order



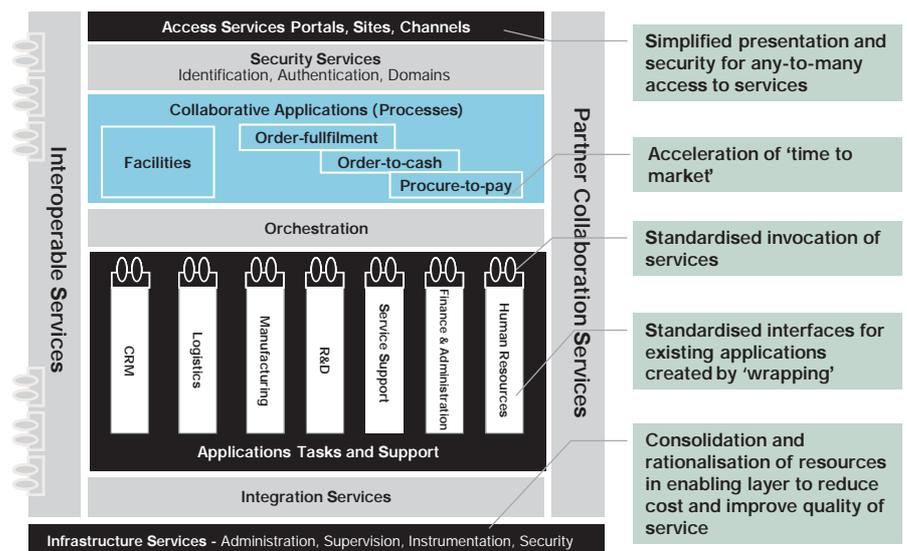
The term Service-Oriented Architecture is not new. Many companies are already using SOA and saving money as a result.

What is new, however, is the notion of applying SOA across the entire enterprise in a coherent fashion in order to realise the full business benefits of a Service-Oriented Enterprise. As one CEO recently told us, “We have a lot of projects going on now where people are using Service-Oriented Architecture. The problem is that I’m pretty sure all of those will turn out to be incompatible and potentially explode on us.”

In fact, he may be right. The danger lies in lack of coordination and direction. Consider what happened in the case of the rampant process re-engineering that took place in recent years. Enthusiastic and empowered department and business unit leaders achieved great improvements in individual processes, but the transformation programmes (and the enabling technologies) were usually not robust enough to create lasting change across the entire enterprise, not to mention between the enterprise and its customers and trading partners.

SOA is the interpretation of business definitions and the orchestration of the tasks and processes into actions using the Service-Oriented Infrastructure layer, which does the actual work. SOA contains the services, providing and supporting their orchestration into any number of specific business processes. Ultimately, SOA provides a simplified presentation and security for ‘any-to-many’ access to those services.

Figure 5: A Close-up Look at SOA



SOA allows a business to change its processes and radically improve its ability to service the market.

Service-Oriented Architecture focusses on the front office and the way that a company does business with the market. This allows a business to change its processes and radically improve its ability to service the market, thus providing competitive differentiation. Take the example of Dell. While its products and services may not be significantly different, its approach to integrated business—its outside-in view—is a competitive differentiator.

3.4 Service-Oriented Infrastructure

The SOA is enabled by Service-Oriented Infrastructure (SOI). SOI is the infrastructure operated by the IT Services department that provides a common and shared set of technologies that enable the business processes to be added and changed readily. SOI can also reduce the cost and complexity of operating these services and existing legacy applications. With SOI, design and management changes to meet dynamic business demand for flexibility, cost efficiency and quality of service.

A traditional infrastructure is application driven. Resources are dedicated to applications and there is a high degree of client-owned assets. Traditional infrastructure is generally unable to share spare capacity and its support costs are a burden on available capital. As a result, a business has difficulty reacting to change or demand, little scope for innovation or cost reduction, and a lack of process flexibility.

By comparison, a Service-Oriented Infrastructure is service driven. With SOI, virtualisation slashes support costs by pooling expensive processors and other infrastructure items. This also results in increased utilisation and reduced capital costs.

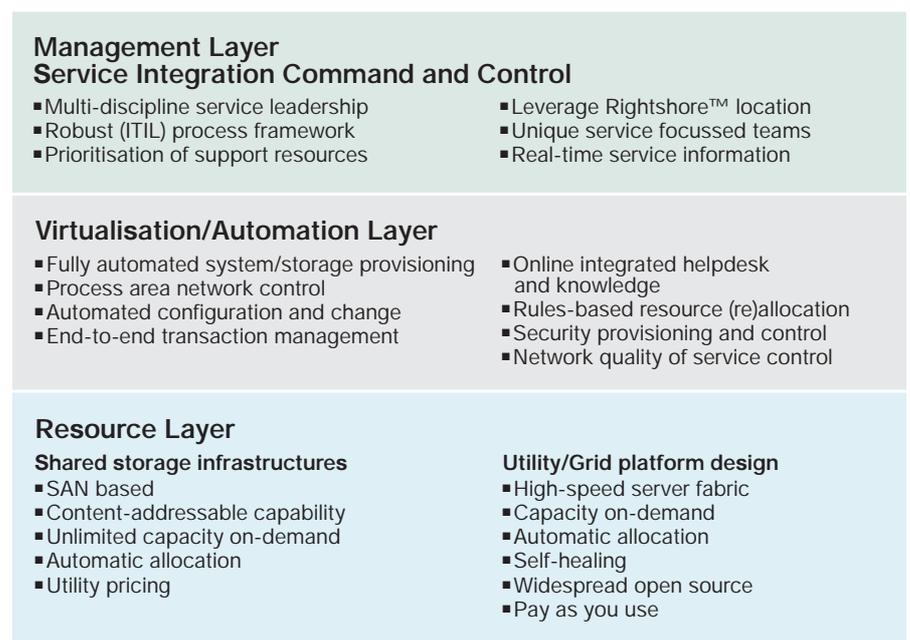
Additional characteristics of SOI include:

- Process area network, which meets demand peaks
- Auditable configuration for compliance
- Content-addressable storage
- Converged voice and data
- Deep packet analysis network intelligence
- Device and service interoperation

What is required today is a fundamental change in the attitudes and approach to provisioning and managing SOI. The introduction of an intelligent and standard communication layer enables the move from vertical, application-focussed infrastructures toward horizontal, service-focussed approaches. Virtualisation and distributed delivery become the keys to delivering access to processing and storage capabilities provided in the form of services. Coupled with radical improvements in automation technology, the short-term impact on infrastructure design and management is substantial, but so is the payoff in cost and performance.

A critical aspect of a Service-Oriented Enterprise is the effective deployment of these infrastructure technologies to enable technological change itself as well as cost savings to support the larger enterprise transformation. Winners and losers will be determined by their ability to design and manage increasingly open, virtualised and dynamic environments.

Figure 6: SOI—Convergence of Service-Oriented Principles and Emerging Technologies



4 What the Transformation Opportunity Looks Like

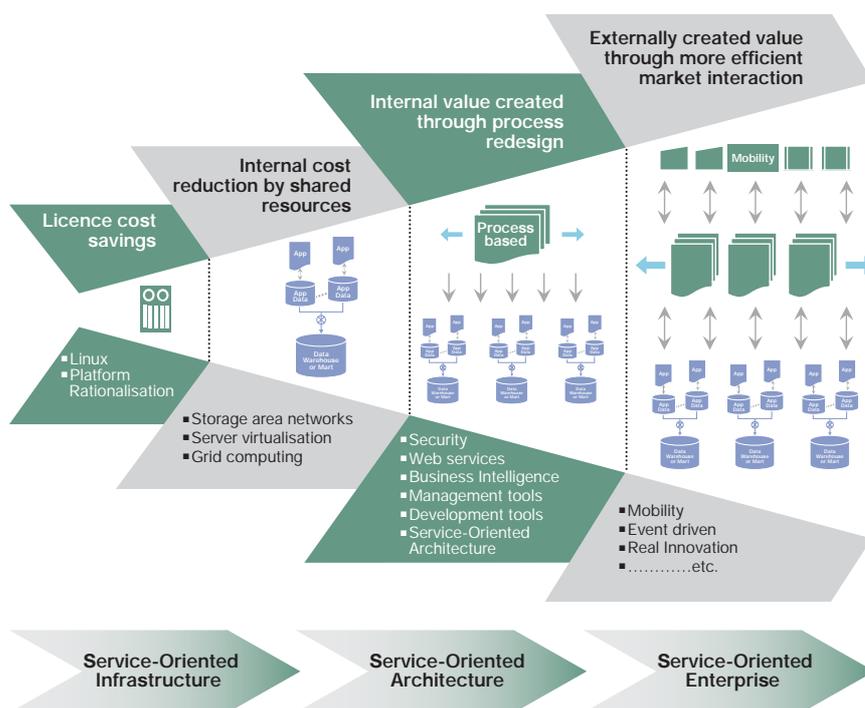
4.1 How You Can Benefit By Turning Your Business Into an SOE

Moving from SOE theory to reality requires that a company set enterprise goals and direction and link existing investments around Service-Oriented Infrastructure and Service-Oriented Architecture into a drive to achieve a Service-Oriented Enterprise (see Figure 7). The strong external element involved in this will demand an external focus and education to achieve this.

Where do you start? The simple answer is to find the key processes that can differentiate you on both the buying and selling side. For example, you might focus on how you can buy more efficiently or on how you can design and sell your product more effectively.

Take a look at the edge of your enterprise, where the characteristics of regular change in support of a key process occur. An alternative is to start by identifying process domains that are clearly dysfunctional or uncompetitive—typically in comparison to new market entrants who have been able to start from scratch. Use the capabilities embedded in an SOA to rapidly build these new capabilities into your processes, systems and people. This can help you set new goals for business definitions and technology delivery, together with measurable metrics for new definitions of success.

Figure 7: The SOI/SOA/SOE Value Path



The cost savings from using SOI and SOA create the headroom for innovation and investment, critical factors for future growth.

4.2 Creating the Funding for Transformation

The outside-in approach of a Service-Oriented Enterprise allows a business to view itself from the perspective of its customers, suppliers and other trading partners. The business value derived from this approach includes cost savings, flexibility and the ability to respond more quickly to marketplace changes. Equally important are the longer-term benefits that stem from the new cost structure inherent in a service-based environment. The cost savings from using SOI and SOA create the headroom for innovation and investment, critical factors for future growth.

4.3 Case Study: French Ministry of Finance

The full implementation of Service-Oriented Architecture at the French Ministry of Finance—carried out by Capgemini and technology vendor Copernic—demonstrates the value that can be realised through an SOA/SOE transformation.

The ministry launched a major modernisation and transformation plan designed to improve its public financial management, modernise the agents' working environment, and improve services for citizens and tax payers. The project incorporated the following elements:

- Service-Oriented Architecture (SOA)
- Iterative SOA analysis, design, build and integrate methodology
- Open source and low-cost servers
- Scalability model based on clustering and grid computing
- Eclipse as development platform
- SOA governance: services version and portfolio management

The project involved 120,000 ministry users/agents and created fiscal files for all 34 million French tax payers. As part of the project, several types of taxes were integrated. The ministry is now able to offer multichannel services for the tax payers, including online consultation and online tax declaration/tax payment, as well as call centres and physical offices.

4.4 Case Study: A Successful Service-Oriented Insurance Company Transformation

In this example, an underperforming insurance company selling through a 1,200-agent network needed two IT systems to co-exist. The enterprise needed to link its back office and deploy through agent networks on a client/server architecture. To achieve this objective, Capgemini helped the company build an adaptive architecture and front-office portal without losing former back-office investments.

The front-office portal gives agents access to the company's back-office applications through a third architecture. This was enabled through the use of Internet standards such as XML and the definition of two services levels (orchestrated and business).

The business results were significant. Agents can now directly access company applications, which results in greater responsiveness and effectiveness. This transformation initiative contributed to a business increase of more than 41% over four years and a 3.7% drop in overhead.

With this new aligned and enabling architecture and multichannel front office, the company can quickly integrate new distributors, provide new offers and services and grow its agent network.

4.5 The Dynamics of the Business Transformation

All companies can benefit from becoming a Service-Oriented Enterprise. However, the way in which different businesses engage the market and the benefits they derive will vary depending on the maturity of the enterprise and the industry (see Figure 8).

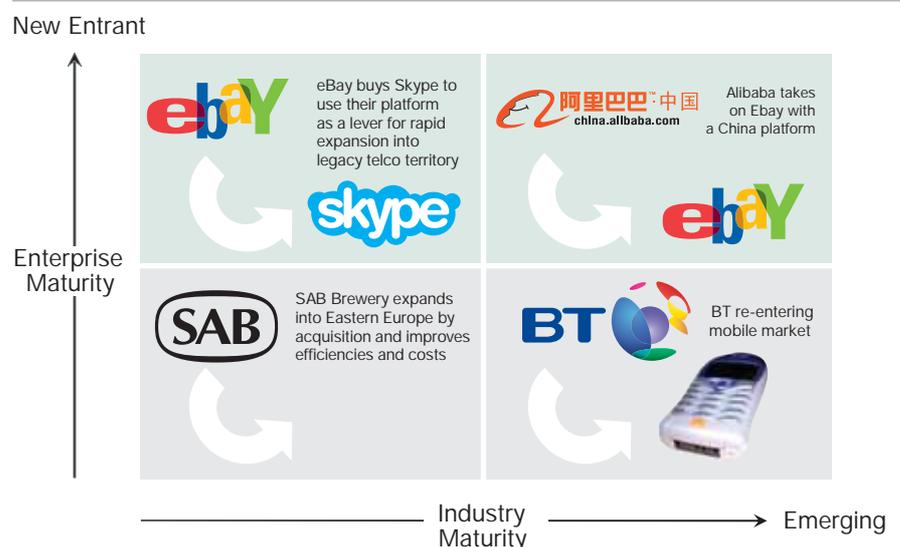
In the case of a new player in a mature industry (top left quadrant, Figure 8), the SOE approach allows a business to do what it does, but cheaper and more effectively. By building an SOE platform from scratch, and leveraging alliances and 'virtuality' via the web, these types of companies can break through the existing process paradigms of their industry.

In contrast, an established player in a mature industry (bottom left quadrant) can take a more evolutionary SOE approach—gradually replacing processes to achieve a cost and scale advantage. In this case, a business would select sub-processes in specific lines of business and geographies for SOE migration, and extend and integrate those on a 'proof-of-return' basis.

For a new player in an emerging industry (top right quadrant) SOE offers the potential to innovate faster than the competition. An SOE helps the company stay closer to its customers in order to change as they change, based on a fully service-oriented process, people and IT platform. In other words, the business becomes totally adaptive.

And in the case of an established player entering an emerging industry (bottom right quadrant) SOE provides the ability to release the 'new' from the legacies of the 'old.' A company can configure new lines of business for massive start-up on 'pure' SOE platforms, interface with legacy systems and push change toward the center.

Figure 8: The Dynamics of the SOE Business Transformation



As with so many transformational changes, making the shift to an SOE will only succeed with leadership that can transcend the time-tested silo models.

4.6 Critical Success Factors for an SOE

As with all technology-enabled business change, a critical success factor in the transformation of your business to a Service-Oriented Enterprise will be the ability to train, motivate and incentivise people to respond to challenges beyond their own narrow band of responsibility. Going back to our earlier airline example, consider that pilots at many of the low-cost airlines also supervise—and sometimes even help with—loading and unloading baggage. In our experience, most people react positively to the opportunity to broaden their participation in the enterprise's value chain, but only if they can see the alignment of the enterprise objectives with their own personal growth and success.

And—as with so many transformational changes—making the shift to an SOE will only succeed with leadership that can transcend the time-tested silo models. It is this traditional functional or departmental focus that is so often the root cause of the dysfunctional friction that keeps large legacy organisations from responding swiftly to new market situations.

For an enterprise to become an SOE requires a transformational journey, which must be configured, planned and navigated with intense participation and careful synchronisation by the senior leaders. It will not be a quick fix. But with appropriate methodologies there will be significant short-term and long-term benefits from a Service-Oriented Enterprise to mitigate the necessary investments in people, processes and technologies.

“...for over one year, Capgemini has been providing facilitation and moderation resources in support of the SAP Global Leadership Program, a C-level executive thought leadership community that meets a number of times throughout the year to discuss how IT can drive action around the promise of Service-Oriented Architecture, to provide innovation in business processes...”

Scott Feldman
Global Director,
SAP Global Leadership Program

5 How Capgemini Delivers SOE...Collaboratively

5.1 From Big to Small: The Technology Vendors' Ecosystem

Rather than the typical 'big bang' programme where the entire division or enterprise is scrutinised and laboriously changed over a period of months or years (often to find that the business realities have changed when the transformation is finished), SOE takes a far more 'surgical' approach. The existing investments in IT stay in place; rather it's about how a company uses them better to support market-driven business processes. SOE allows a business to target with surgical precision how and where to make a difference without disturbing every other part of the enterprise.

Capgemini is working with an ecosystem of technology vendors to shape the industry direction on SOE in order to help business make this shift from 'big to small.' Collaboration is the key to meeting the SOE challenge and to developing a changed understanding, culture and approach that redefines the enterprise as truly being 'Open for Business.' A successful SOE knows how to run its business collaboratively in order to get the right knowledge and input from all parties, resulting in the optimum output in any situation. At Capgemini we are working together with market movers—including SAP, Intel, HP, Cisco Systems, Microsoft, Sun Microsystems, Oracle, Siebel and IBM—as well as innovative niche players like Dexterra, Agentis, Cordys and Business Objects to develop and implement SOE and SOA solutions.

Taking a collaborative approach may not be typical for many businesses, but it is an essential aspect of building an SOE. Collaboration should serve as the framework of common aim and direction that drives an SOE.

5.2 Capgemini's SOE Approach

Capgemini is respected for technology thought leadership and pioneering activities in areas such as Collaborative Working and Adaptive Enterprise, critical elements of a Service-Oriented Enterprise. Our world-class consulting practice specialises in designing and navigating the transformational journey.

We understand the importance of using standards to conduct business. Imagine where the web would be if web servers and browsers didn't follow the standards. Our commitment to open standards is demonstrated through various activities. We have been a significant contributor to open source and work with standards organisations such as the Open Group to develop implementation standards for SOA and SOI. The Open Group is a vendor-neutral and technology-neutral consortium, whose vision of Boundaryless Information Flow™ will enable access to integrated information, within and among enterprises, based on open standards and global interoperability.

“Oracle’s strategy of an SOA platform is well aligned with Capgemini’s strategy and the platform described in the paper in the sections on ‘Client – Services’ and ‘Managing Standards.’”

Vijay Tella,
Chief Strategy Officer,
Oracle Application Server

In addition, we align our IAF methodology with the global TOGAF architecture standard. IAF (Integrated Architecture Framework) is Capgemini’s architecture framework that links low-level project implementation to high-level business strategy. TOGAF, The Open Group Architecture Framework, is an industry standard architecture framework that may be used freely by any organisation wishing to develop an information systems architecture for use within that organisation.

5.3 Capgemini’s SOE Implementation

Our leadership in architecture stems from 11 years of developing and enriching IAF, and our architects are cross-certified to the ITACs global standard. Our community of certified architects, engineers and delivery managers numbers more than 12,300 who are trained in architecture implementation.



About Capgemini and the Collaborative Business Experience

Capgemini, one of the world's foremost providers of Consulting, Technology and Outsourcing services, has a unique way of working with its clients, called the Collaborative Business Experience.

Backed by over three decades of industry and service experience, the Collaborative Business Experience is designed to help our clients achieve better, faster, more sustainable results through seamless access to our network of world-leading technology partners and

collaboration-focused methods and tools. Through commitment to mutual success and the achievement of tangible value, we help businesses implement growth strategies, leverage technology, and thrive through the power of collaboration.

Capgemini employs approximately 60,000 people worldwide and reported 2004 global revenues of 6.3 billion euros.

More information about our services, offices and research is available at www.capgemini.com

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