

BEA White Paper

# Innovate over ERP with Service-Oriented Architecture, Business Process Management, and Enterprise Social Computing



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## Executive summary

Market-leading companies are adopting a new IT approach, regardless of which core competency—customer intimacy, operational excellence, or product leadership—they focus on to achieve competitiveness. Innovators are recognizing that their technology and information assets must be integrated, flexible, and conducive to collaboration.

Unfortunately, existing enterprise resource planning (ERP) deployments are rigid and stovepiped. Their legacy functionally aligned architecture makes integration and change difficult, slow, and expensive, and isolates key stakeholders with incomplete, myopic views of data, processes, and customers.

BEA Systems has pioneered the concept of the Liquid Enterprise™—a set of IT and operating principles that use Service-Oriented Architecture (SOA), Business Process Management (BPM), and Enterprise Social Computing (ESC) to change the economics of IT and the dynamics of employee, partner and customer interactions. Liquid enterprises:

- Shift IT spend from non-discretionary maintenance to strategic innovation by turning legacy application functionality and point-to-point integration into reusable services
- Constantly evolve and improve business processes that span organizations, functions, interaction channels, and even companies by modeling, automating, and managing business logic and workflow independently of the required data and application functionality
- Empower employees, partners, and customers with access to timely, consistent data and tools for real-time collaboration.

The BEA™ Enterprise 360° portfolio enables this vision. It provides IT departments that have been held back by legacy ERP deployments with the platform and tools to service-enable their mission-critical systems and data, and extend the life of (and return on) their past investments. One small project at a time, they can expose the power of their ERP system to innovate and become more agile. While application vendors struggle to get their proprietary products services-enabled, BEA has the proven technology, expertise and partner ecosystem in the BEA Enterprise 360° portfolio today to implement a business-driven IT approach across heterogeneous, multi-vendor environments.

By partnering with BEA to transform to a Liquid Enterprise, businesses can generate tangible benefits in every aspect of their business. The resulting unprecedented levels of integration, collaboration, and flexibility enable businesses to differentiate on the outside while simplifying on the inside—**TODAY!**

## Paths to market leadership

Every successful company must focus on at least one of three strategies for creating a sustainable leadership position:<sup>1</sup> intimacy, operational excellence, or product leadership. Though these imperatives are not new, the means of attaining them have changed dramatically over the last several years. Our understanding of how to manage business processes and leverage technology has shifted, giving birth to more holistic and farsighted approaches to enterprise IT.

**Table 1. Characteristics of top strategies for sustainable competitive advantage.**

Strategy	Customer Intimacy	Operational Excellence	Product Leadership
Core Strengths	<ul style="list-style-type: none"> <li>• Understand customers' needs</li> <li>• Offer comprehensive, innovative solutions</li> </ul>	<ul style="list-style-type: none"> <li>• Efficiency and consistency</li> <li>• Central visibility and control of dispersed operations</li> </ul>	<ul style="list-style-type: none"> <li>• Product and service innovation</li> <li>• Rapid time to market</li> <li>• Product life-cycle management</li> </ul>
Use Cases	<ul style="list-style-type: none"> <li>• Demand sensing and shaping</li> <li>• Personalized customer experience</li> <li>• Customer-centric fulfillment</li> <li>• Proactive service</li> </ul>	<ul style="list-style-type: none"> <li>• Lean/Six Sigma</li> <li>• Demand/Supply matching (sales and operations planning, available-to-promise)</li> <li>• Real-time tracking of physical events</li> <li>• Shared services/finance/HR excellence</li> </ul>	<ul style="list-style-type: none"> <li>• Innovation networks</li> <li>• Accelerated product launch</li> <li>• Product portfolio management</li> <li>• Market driven, brand excellence</li> </ul>
Business Practices	<ul style="list-style-type: none"> <li>• Flexible, responsive processes for client acquisition, retention, and solution creation</li> <li>• Proliferate customer visibility</li> </ul>	<ul style="list-style-type: none"> <li>• Consistent practices and standardized products</li> <li>• Collaborative teamwork</li> <li>• Business processes defined, measured, and managed effectively</li> </ul>	<ul style="list-style-type: none"> <li>• Hire the best talent</li> <li>• Creative, collaborative work environment</li> <li>• Ad-hoc, idea-oriented projects</li> </ul>
Metrics	<ul style="list-style-type: none"> <li>• Lifetime customer value</li> <li>• Customer retention</li> <li>• Share of wallet</li> <li>• Customer satisfaction</li> </ul>	<ul style="list-style-type: none"> <li>• Return on assets</li> <li>• Fixed costs optimization</li> <li>• Optimized profit on every transaction</li> </ul>	<ul style="list-style-type: none"> <li>• Time to market</li> <li>• Lifetime product profitability</li> </ul>
IT Needs	<ul style="list-style-type: none"> <li>• Dynamically link internal and external data to deliver a 360° view of the customer</li> <li>• Empower employees with a knowledge base built around expertise</li> <li>• Rapidly reconfigure applications to incorporate new processes and solutions</li> </ul>	<ul style="list-style-type: none"> <li>• Integrated, flexible, low-cost/high-performance transaction systems</li> <li>• Mobile and remote technologies to connect the global ecosystem</li> <li>• Track and manage process performance</li> <li>• Standards-based systems to maximize reuse and minimize complexity</li> </ul>	<ul style="list-style-type: none"> <li>• Person-to-person communications over multiple channels</li> <li>• Technologies enabling deep cooperation and knowledge management</li> <li>• Rapidly adaptable systems to incorporate new products and address new markets</li> </ul>

1. *The Discipline of Market Leaders*, Michael Treacy, Professor, Sloan School of Management, MIT

## Innovation, Optimization, Agility

Companies need three key capabilities to enable these strategies for sustainable advantage:

- 1) Business innovation—the ability to fundamentally change the business landscape to your advantage
- 2) Business optimization—increasing overall efficiency in delivering existing products and services, and the ability to execute more reliably and with high quality, even as operations scale
- 3) Business and IT agility—the ability to quickly recognize and react to both predicted and unforeseen market changes and make changes quickly.

All of these capabilities depend directly on the supporting technologies. If IT systems duplicate data and functions, creating inconsistencies and manual work-arounds, the company will find it nearly impossible to optimize operations. If applications have dictated the flow of business processes and now constrain their evolution, the systems cannot support the rapid change today's businesses demand. Finally, if a company has the same software infrastructure and the same capabilities and constraints as all of its competitors, it cannot hope to consistently differentiate itself, let alone introducing continuous innovation into the market.

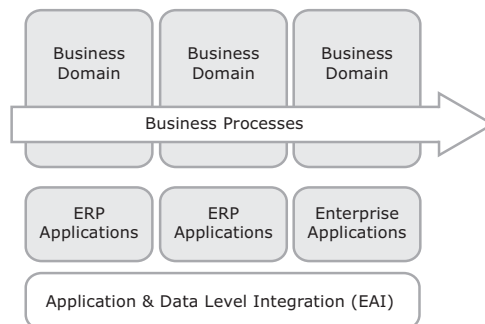
### The imperative to evolve

Over the past two decades, organizations have invested in ERP software to enjoy the efficiencies and cost savings associated with a single, integrated suite of business applications. ERP systems automate and manage processes common to every company, such as general ledger, accounting, and order management. These systems focus on automation, not on enabling the unique business processes that differentiate companies from one another. Today, most ERP capabilities are so widely adopted that they have become commoditized. ERP no longer offers the competitive edge it once did. In fact, the “accidental architectures” created by the deployment and evolution of ERP systems are now roadblocks to continued innovation and competitiveness.

The business optimization accomplished with ERP deployments came at the cost of agility and sustainable innovation. Siloed ERP environments are poor hosts to today's cross-functional, geographically dispersed, multichannel processes. The customization and hard-wired integration between these systems and the rest of the IT environment make every successive change more complex and expensive.

**Figure 1**

**ERP application silos impede process execution.**



Silos of ERP applications can lead to rigid and brittle processes.

In a recent Aberdeen Group survey, 62 percent of companies in supply-chain-intensive industries said that they feel the pressure to support new, agile business processes. Yet 49 percent said that their software applications offer little or no flexibility to meet individual customer-service requirements, and only 19 percent indicated that their current applications give them the rapid adaptability needed to meet customer needs.<sup>2</sup> Aberdeen also found that 80 percent of large companies have more than one ERP instance, and half of those have five instances or more.<sup>3</sup> Other surveys show that information in the back-office systems of most large enterprises is scattered across 50 or more databases.<sup>4</sup>

These companies face serious gaps between people, processes, and information across their organization and ecosystem. These gaps can directly impede competitiveness by creating strategic “innovation barriers”—obstacles to operational effectiveness, customer intimacy, and the ability to collaborate internally and with business partners.

## Business and IT gaps in traditional ERP deployments

### ERP Implementation Practices

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- Business processes re-engineered to fit the software
- Software customized to fit business processes
- ERP extended with custom-developed functionality
- Addition of complementary third-party applications
- Point-to-point connections created to allow data to follow well-defined but rigid process flows
- Mergers and acquisitions added new ERP instances and proliferated databases
- Autonomous divisions or regions followed divergent IT development roadmaps
- IT investments mirrored organizational structure, deploying applications in functional silos.

### IT Gaps

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- Information is fragmented across the business.
- IT integrations are rigid, complex, and costly.
- Key application parameters and rules are “hard-coded,” making even small changes difficult, slow, and expensive.
- Business process changes require manual workarounds, which linger for years.
- Limited ability to model, execute, and measure end-to-end business processes.
- Knowledge workers’ productivity hampered by overly complex systems.
- Scattered responsibility for mission-critical workflows and systems makes it easy to shirk ownership and play blame games.
- Limited ability to support internal and external collaboration.
- Fragmented, incomplete views of key business information.

### Business Gaps

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- Slow response to changes in market conditions to achieve competitive edge.
- Low customer satisfaction due to fragmented processes and discontinuities in relationship
- Lack of visibility into key business metrics and process performance
- Limited ability to transform transactional data into information that will improve business performance
- Lost productivity due to use of manual processes
- Slow time to market with new product, services, and business tactics
- Difficulty complying with industry or government regulations.

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2. Aberdeen Group, *Matching IT to Business Processes: How BPM Is Complementing ERP and Custom Applications*, January 2007

3. Aberdeen Group, *The ERP in Manufacturing Benchmark Report*, August 2006

4. MIT Sloan Management Review, *“The Trouble with Enterprise Software,”* August 8, 2007

These gaps hamper companies' ability to execute mission-critical processes effectively. One example is **order management**, especially when rush orders and other exceptions are common. Deciding whether to accept a rush order based on production capacity, transportation availability, and the value or strategic importance of the customer requires the integration of multiple software packages, access to multiple data sources, and the ability to accept and update order status for the customer—often across multiple interaction channels. Some of this can be accomplished with automated systems, but many steps require human intervention, making rush-order management a costly process that is highly prone to errors. Even worse, the performance of this process may decline over time due to growing complexity and a company's inability to adapt. The siloed nature of most ERP implementations, the presence of multiple ERP instances and the rigidity of data and system integration all slow the evolution required to support new interaction channels, products, and suppliers.

**Available-to-promise (ATP)** is another process often hampered by gaps in existing ERP-based operations. The ability to assign an exact delivery date to an order relies on the integration of a broad set of systems and data, and frequent human intervention. Human workflows are often treated completely outside the process, increasing error rates and lowering productivity. The systems and data source involved are unique for each business, and as a result ATP processes have usually been handled through custom development and integration efforts. This has created obstacles to improving commit accuracy through process innovations and to adapting to support new offerings, such as SKUs that contain partner products.

Most ERP implementations are also ill-suited to supporting **globalization**. Historically, ERP has worked well when there is uniformity of physical measures, currency, transportation modes and costs, locations, and other key business parameters. Companies with internal operations, supply or partner networks, or customers scattered around the globe are likely to have data housed in more than one place and on different systems. They are also likely to have different applications from different vendors to perform similar tasks. This heterogeneity leads either to costly integration efforts, or to an attempt to operate distributed sites autonomously, which inserts human intervention to compensate for a lack of connectivity. Companies need to give business units, remote locations, and even partners autonomy in business issues, while at the same time providing and maintaining a single, centralized ERP system that manages the operation of the overall supply-chain network.

To optimize and innovate in these and myriad other core processes, companies are looking far beyond their ERP deployments. Where they once saw monolithic, functionally aligned applications as a panacea for corporate productivity, today companies are looking for a more integrated, flexible, and open approach for their mission-critical enterprise systems.

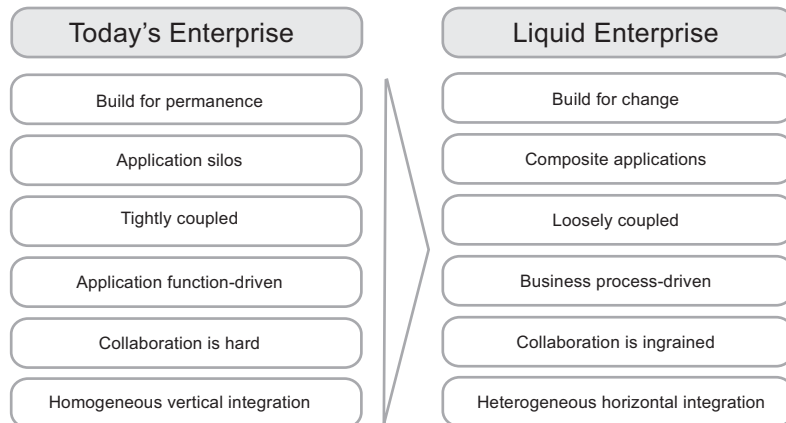
## The Liquid Enterprise: unlocking the value of ERP

This new approach involves a transformation away from functionally aligned systems and toward a process-driven view of business operations and IT. Organizations must rid themselves of rigid, functionally siloed connections that link information, applications, and business processes, and connect systems, people, and processes dynamically whenever and wherever needed.

Companies that want to take full advantage of their ERP investment and other enterprise applications to maximize innovation, agility, and optimization can accomplish this transformation through a process-centric approach with Liquid Enterprise. The Liquid Enterprise is a vision and methodology that contain not one, but a spectrum of capabilities for flexibility, speed, and collaboration, all firmly rooted in the business needs of a modern public or private organization. This contrasts with today's "traditional enterprise" that is characterized by rigid, costly systems that are stovepiped in design and application. Embracing heterogeneity is key to a Liquid Enterprise approach; large businesses need to use the diverse IT assets they have, and should not be locked in to a single vendor or technology for future innovation.

**Figure 2**

***The Liquid Enterprise transforms from an application-centric to a process-centric approach.***



The Liquid Enterprise bridges the gaps that exist between legacy systems and organizations, and adopts the powerful, collaborative Web 2.0 capabilities that have transformed the consumer world for the enterprise, while ensuring security and manageability for all. By using existing capabilities and information and extending them into new uses and business processes based on a process-centric paradigm, companies can:

- Drive greater transparency and efficiency of distributed, cross-functional processes
- Increase agility and responsiveness to evolving business and customer needs
- Increase worker effectiveness and productivity by fostering collaboration.

## Liquid Enterprise components

Three complementary capabilities enable the transformation to a Liquid Enterprise, each supported by an innovative IT methodology. An organization can adopt these methodologies independently, but it is in their combined use that companies can find the greatest value.

**Table 2. Key capabilities and technologies of the Liquid Enterprise.**

	<b>Capability</b>	<b>Supporting Technology</b>
	<b>Agility and responsiveness</b>	<b>Service-Oriented Architecture (SOA)</b>
1	Flexibly bridge the gaps that exist between legacy systems and among organizations	Transforms business tasks into reusable, loosely coupled services
	<b>Transparency, efficiency, and closed-loop control</b>	<b>Business process management (BPM)</b>
2	Adopt a business-process driven approach to design and management of IT systems	Provides real-time visibility and control of dynamic business processes
	<b>Effectiveness and productivity through collaboration</b>	<b>Enterprise social computing (ESC)</b>
3	Deploy collaborative Web 2.0 approaches in an organization while preserving security and manageability	Puts the knowledge worker at the center

## Gaining agility and responsiveness with Service-Oriented Architecture

The Service-Oriented Architecture (SOA) approach aims to manage the complexity of IT assets—systems, applications, and databases—making them easier to reuse, integrate, and evolve without disrupting the business solutions that rely on them. The fundamental SOA building block is a service—a unit of software functionality with well-defined, standards-based interfaces. Services are built to be shared and reused in a variety of composite applications and business processes, both within and between organizations. While the services remain stable over time, they are “loosely coupled,” meaning the organization can quickly change how they are aggregated and used.

*SOA has moved from a buzzword of the moment to a concept that has absorbed the attention of CIOs at enterprises large and small (but mainly large). According to CIO’s 2007 “State of the CIO” survey ([www.cio.com/state/stateofcio.pdf](http://www.cio.com/state/stateofcio.pdf)), 25% of respondents were already working on their SOA, 12 percent were planning to start this year and 21% defined it as a long-term goal.<sup>5</sup>—CIO Magazine*

Taking a service orientation to IT architecture provides a way to gradually transform legacy systems into a more dynamic and integrated environment, and to make these systems’ functionality available for new uses. Service orientation does not necessarily require rewriting functionality from the ground up. Instead, existing IT assets

5. CIO Magazine, **How to Get the Best from SOA**, September 2007, Christopher Koch

such as ERP can be wrapped into modular services that are then usable within any business process. This way, IT groups can:

- Layer business process management, collaborative workflows, and reporting on top of existing deployments to make better use of these assets
- Extract more value from their ERP systems by reusing their functionality in completely new ways and within cross-functional business processes
- Extend and evolve ERP systems by using them in applications for which they were not designed and which did not exist during the initial deployment.

SOA reduces the complexity of the development process while reducing the chances of incompatible processes. It allows automated control of service usage and deployment in large organizations, and reduces the chances that changes by one group will affect another. SOA also simplifies business processes' complexity by allowing the creation and management of more granular services.

## Transformation, efficiency and closed-loop control with Business Process Management

Business Process Management (BPM) is a strategy for managing and improving the performance of a business through continuous optimization and innovation of business processes in a closed-loop cycle of modeling, execution, and measurement.

Once functionality is available as a set of services, a BPM system links the services together into customized processes. BPM can support process variation across the organization, using the ERP deployment but not complicating it further. The interaction among the pieces of functionality involved in a business process is abstracted away from the ERP system, avoiding additional customization and complex configurations. This also allows the business process to draw on any service from any application, both within and outside the ERP suite. In addition, the BPM workflow function can reduce the number of manual workarounds by incorporating manual steps into the process. Lastly, the BPM system can span multiple ERP instances, making them appear unified to the user.

*“Enterprises that aggressively begin their organizational and cultural transformation for BPM in 2007 will double their chances of becoming industry leaders by 2010.”<sup>6</sup>—Gartner*

An organization with business processes implemented on a loosely coupled, service-based infrastructure is much more open to change than one constrained by underlying monolithic applications that require weeks to implement the smallest change. A complete BPM solution combines business process modeling, workflow, integration, monitoring and optimization. It facilitates the design, creation, monitoring, and evolution of complex, end-to-end business processes, thus giving businesses the ability to innovate in their operations and monitor how such innovations affect them.

*“The value of SOA will be found in business process management (BPM), which promises to allow companies to create unique and differentiating business processes on top of the same software many of their competitors use.”<sup>7</sup>—AMR Research*

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6. Gartner, **Predicts 2007: Align BPM and SOA Initiatives Now to Increase Chances of Becoming a Leader by 2010**, November 2006  
7. AMR Research, **SOA and BPM for Enterprise Applications: A Dose of Reality**, May 2007

## Effectiveness and productivity through collaboration with Enterprise Social Computing

Cross-functional, intra-company, and inter-company processes require a new level of connectivity and collaboration among every participant in the supply chain, from internal groups to partners and the customers themselves. While SOA facilitates access to information, for a consistent view across the enterprise, workers, partners and customers must collaborate to turn this information into real intelligence. Companies are turning to Enterprise Social Computing (ESC), encompassing portals, information management, collaboration, and Web 2.0 technologies, to harness the power of collaboration that has already revolutionized consumer communications and B2C commerce.

Web 2.0 technologies allow employees to create business networks that cut across organizational, geographic, and functional titles. Employees can then share information, manage and track projects, and work collaboratively and interactively via multiple channels. ESC also gives enterprises a way to secure the information they would otherwise need to share across unsecured, public social-networking and collaboration tools. Finally, ESC improves the user experience and accelerates adoption of new processes by providing user interfaces that are optimized for each role.

## Benefits of the Liquid Enterprise

The Liquid Enterprise enables companies to differentiate on the outside through innovative offerings and business models, and simplify on the inside by leveraging existing physical and intellectual assets around the notion of common processes and systems on an enterprise basis. The Liquid Enterprise moves IT away from the inflexible limitations of having to choose between one application or another, one service or another, and one vendor or another. The resulting benefits fall into three categories:

- Economics of IT
- Customer intimacy
- Business value creation.

**Economics of IT:** Internally, CIOs can extract greater value from existing IT investments and assets, and reduce the cost of sustaining existing capabilities, which typically accounts for 70 percent of IT spend. Recent surveys suggest that simplified systems and enhanced flexibility can free up to 15 percent of non-discretionary spend for strategic new projects. In addition, making ERP system functionality available to new dynamic business applications and usable in additional business processes reinvigorates old investments and adds to their ROI. The funds freed for new development and improvement can also be spent more efficiently, because changes and additions are easier and faster. The deployment of new applications or functionality no longer requires costly new integration, so IT can bring competitive capabilities to market faster and at lower cost.

**Customer intimacy:** Another advantage that a Liquid Enterprise enjoys is a new level of customer intimacy. The process orientation of a Liquid Enterprise leads to a universal focus on overall process performance and customer satisfaction, and shared intelligence provides customers with a consistent, seamless experience across organizational, functional, and geographic boundaries. All employees and automated systems that customers encounter in their interactions with the company, regardless of interaction channel, are working from the same, unified view of that customer.

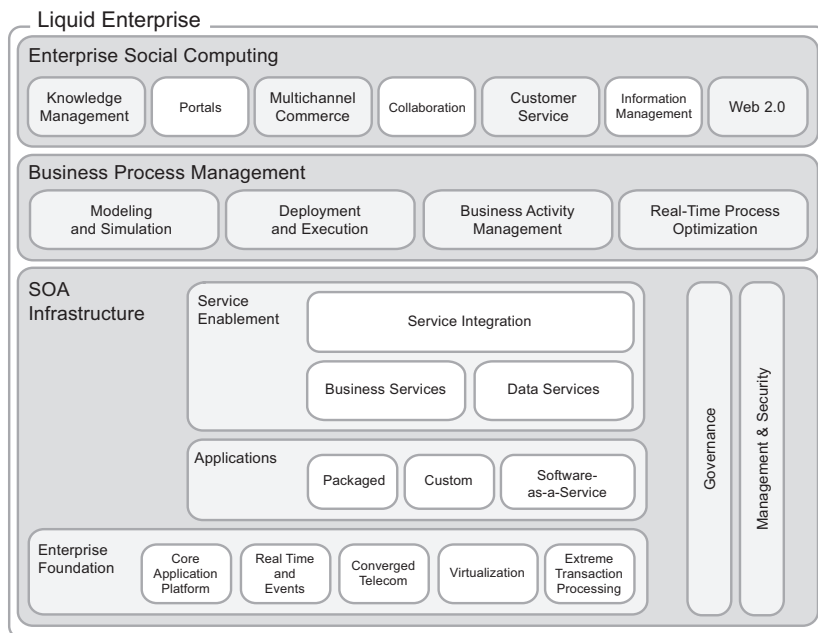
**Business value creation:** Ultimately, a Liquid Enterprise is able to create greater value in every area of its operation, from finance and HR to manufacturing and the contact center. They can rapidly adopt both incremental improvements and large-scale changes, and empower employees, partners, and customers with greater transparency and access to relevant processes and information.

## BEA makes the Liquid Enterprise a reality

BEA has applied forward-thinking IT methodologies to dynamically connect an organization’s data infrastructure, applications, and processes with SOA, its closed-loop business processes with BPM, and its people with ESC. BEA Enterprise 360° provides a unified approach for modeling, integrating, and managing data, connectivity, services, and business processes. It enables IT to use legacy ERP and other enterprise IT assets within a more flexible and integrated architecture.

BEA Enterprise 360° enables IT to become the enterprise’s Innovation Space™. An IT department’s innovation space describes the area(s) where the company’s own IT organization applies its industry-specific knowledge and expertise to create sustainable, differentiable competitive advantage. The ability to innovate to address visible and unforeseen business opportunities is key to any company’s success in the marketplace. BEA takes a unique approach to enterprise software: by enabling companies to innovate from within, so that they build their own core competence around business innovation. BEA believes fundamentally that the capacity to create business innovation cannot and should not be outsourced. BEA Enterprise 360° empowers businesses to innovate without holding them hostage to any one set of products or service offerings, and provides an integrated and easy-to-use set of capabilities for different roles (e.g. business owner, business analyst, service architect, service developer, and operations).

**Figure 3**  
**BEA Enterprise 360° – technology portfolio.**



*“BEA has a good single-model approach for collaborating on process improvement. It has enormous depth in its services development capabilities, including a specific product for creating data services. BEA’s capabilities for managing complex, heterogeneous SOA developments is impressive, especially its repository product, which included graphical tools for navigating and understanding dependencies between services and applications.”*<sup>8</sup>

—AMR Research

BEA Enterprise 360° provides enterprises with the infrastructure, people, and best practices for designing, developing, deploying, managing, and optimizing SOA-based solutions that enable innovation:

- **Embraces heterogeneity:** BEA Enterprise 360° embraces true heterogeneity in an organization’s current and future IT infrastructure. BEA Enterprise 360° avoids vendor lock-in, ensuring choice and investment protection both today and tomorrow.
- **Takes a business-driven approach:** BEA Enterprise 360° enables stronger business/IT alignment and collaboration, enabling true business agility and innovation.
- **Reliable, trusted, proven:** BEA Enterprise 360° delivers the most trusted, reliable, adaptive, and proven platform in the industry.

For ERP users, BEA Enterprise 360° offers a complete solution to leverage the power of SOA, BPM, and ESC *today*, to:

- Better align IT to business needs
- Develop, deploy, and manage dynamic business applications to react quickly and cost-effectively to change
- Move from an application-centric enterprise to a services-based, process-centric organization
- Model, execute, and measure end-to-end business processes spanning multiple organizations and systems and requiring human intervention
- Transform transactional data into information to improve business performance
- Support enhanced internal and external collaboration
- Ensure consistent governance policies: auditing, security, and compliance.

BEA is an acknowledged SOA, BPM, and ESC leader and significantly ahead of ERP in driving innovations using these capabilities—*today*.

In a new SOA research study, BEA has emerged as the No. 1 SOA thought leader and vendor for the second year in a row.<sup>9</sup>—IDG Research Services

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8. AMR Research, **SOA and BPM for Enterprise** Applications: A Dose of Reality, May 2007

9. IDG Research Services, April 2007

## Business integration—a good place to start innovating over ERP

A company may start at virtually any area (SOA, BPM, or ESC) as the first step toward a Liquid Enterprise. For some, this first step will be the deployment of a well-run portal to address a fragmented, insufficient internal and/or external web presence or collaboration environment. For others, it will involve addressing a fundamental issue of fragmented data access through a data service bus, which may be the most pressing need at the time.

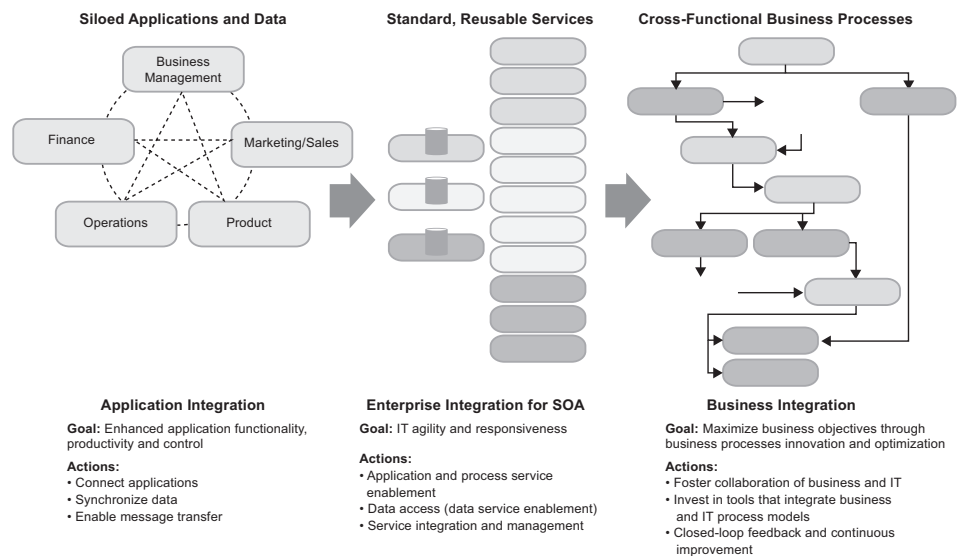
*“Having a process architecture (part of a business architecture) and aligning BPM initiatives with service-oriented architecture (SOA) initiatives are key activities to undertake in 2007.”<sup>10</sup>—Gartner*

Many businesses begin their SOA and BPM projects with business integration. Business integration connects data and applications, accelerates IT response, and reduces non-discretionary spend. According to AMR Research, 70 percent of large enterprise IT groups view these three issues as their biggest challenges.

There are typically three stages towards comprehensive SOA-based business integration as seen in Figure 4: Application integration, Enterprise integration for SOA, and Business integration using BPM. Projects in all three areas are likely to take place simultaneously within an enterprise. As long as the organization takes a unified infrastructure approach to all of them, they will contribute to the enterprise transformation and enhanced agility, innovation, and process optimization.

**Figure 4**

**The journey to business integration.**



10. Gartner, Gartner Predicts 2007: *Align BPM and SOA Initiatives Now to Increase Chances of Becoming a Leader by 2010*, November 2006

**Application integration** connects applications to provide high performance and fine-grained control of the processes that rely on them. It focuses on the applications themselves and how they interact to share data, exchange messages, and trigger actions. According to a Big Five consulting firm, typical ERP-related application integration projects involve:

- Integrating the flow of information between ERP instances (often the ERP softwares being integrated are from different vendors)
- Consolidating ERP instances in order to provide a consistent, unified business process or to move toward shared services
- Upgrading ERP software with a goal of minimizing customizations.

To make application integration a part of the transformation to an SOA-based Liquid Enterprise, BEA provides a powerful, standards-based integration environment with BEA WebLogic Integration, which connects applications for data synchronization and process integration while enabling rapid service development. Integrations created in this environment can be exposed quickly and easily as services, making them available for use within future composite applications.

**Enterprise integration for SOA** is part of a larger strategic initiative to foster service reusability and flexibility within a company. It gives IT the tools to create an integration framework to simplify and accelerate development and integration efforts and connect people, processes, applications, and data inside and outside the company. Enterprise integration provides data access, service-enabled applications and processes, and service integration.

In current enterprise architectures, custom-developed and packaged applications like ERP share data with each other and databases using point-to-point connections. Moving these connections into a common data services layer via BEA AquaLogic Data Services Platform creates a standard method for data exchange. Data services provide simple, rapid access to data for the creation of new, composite applications and during changes to existing business processes.

Enterprise integration increases accessibility not only to data, but also to existing applications and processes. To provide on-demand integration and flexibility, SOA creates loosely coupled IT assets out of previously monolithic ERP applications, and exposes these application capabilities as services to any business process. To make full use of existing ERP and other legacy software resources, businesses must package discrete application functions as services, and aggregate service-enabled functionality into new composite applications and business processes. Only a vendor-neutral approach will allow a company to accomplish this across all the applications in its IT environment. BEA provides BEA WebLogic Server® and BEA AquaLogic Service Registry to allow a unified transition to SOA across multiple IT assets.

Once functionality and data are available as services, service integration connects, mediates, and manages these and other newly created services in a constantly changing environment. BEA AquaLogic Service Bus is an enterprise-class service bus that enables service integration across the entire life cycle of service delivery—from connecting heterogeneous services, to coordinating messaging among services to execute a business process, to managing and monitoring service interactions to ensure target Quality of Service and comply with service level agreements. It is by using service integration that IT can maximize service utilization and reuse, and attain expected cost reductions and responsiveness to business needs.

*“Service-Oriented architecture and business process management are key infrastructure areas that can improve business processes by allowing a company to become more agile, decentralize critical decision-making, boost management visibility, and reduce costs.”*<sup>12</sup>—Aberdeen Group

**Business integration** focuses on iterative refinements in business processes through IT and line-of-business owners’ collaboration to streamline processes and improve business results. To gain visibility and control of business processes, companies need tools to orchestrate and assemble services into composite applications, and to gather information that can drive future innovation. To accelerate and simplify this ongoing improvement process, companies can leverage the following tools:

- **Business Process Management:** BPM abstracts business process logic away from applications and provides a unified business-level environment for modeling business processes and workflows. A truly forward-looking BPM solution must also enable the automation and monitoring of business processes.
- **BPM-to-implementation tools:** Once processes and workflows are defined, IT must transform them into active application resources and data. To support continuous, iterative improvement, businesses need the tools to seamlessly translate business process models into technology resources.
- **Business activity monitoring:** Business processes are never defined just once, and the true strength of the Liquid Enterprise is in its ability to quickly and inexpensively innovate both business processes and the systems that support them. Business activity monitoring provides runtime feedback to the business analyst so that they can identify improvement opportunities.

The BEA AquaLogic Business Process Management toolset provides the above capabilities, and shares a process model and full life-cycle integration with the BEA enterprise integration for SOA toolset.

*“There is a strong link between SOA and BPM. A recent panel survey conducted by Forrester showed that 92% of respondents who were implementing SOA also felt that BPM was important for their organization’s future.”*<sup>13</sup>—Forrester

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12. Aberdeen Group, *Matching IT to Business Processes: How BPM Is Complementing ERP and Custom Applications*, January 2007

13. Forrester, The Forrester Wave™: *Integration-Centric Business Process Management Suites*, Q4 2006, December 2006, Ken Vollmer and Henry Peyret.”

## Getting down to business

Innovation that builds on existing ERP capabilities can enhance a wide variety of mission-critical processes by creating a new level of integration, innovation, and control. Internal processes improve in efficiency and effectiveness when every participant (whether human or for electronic) can access consistent information and participate in a cohesive, measurable process flow. Similarly, for ever-more critical customer-facing processes, employees can provide a seamless experience that leads to higher revenue and retention. Table 3 shows how the move to an integrated, flexible, and collaborative Liquid Enterprise leads to tangible business impact in several use cases.

**Table 3.**

<b>Business Area</b>	<b>Liquid Enterprise Capabilities</b>	<b>Business Impact</b>
Finance: Accounts Payable	Invoices and statements shared through intranet and extranet with employees and partners	<ul style="list-style-type: none"> <li>• Fewer inquiry calls</li> <li>• Faster collections</li> <li>• Higher AP productivity</li> </ul>
Operations: Sales & Operations Planning	Information management across multiple back-end systems to provide real-time demand updates	<ul style="list-style-type: none"> <li>• Improved demand forecast accuracy</li> <li>• Perfect order performance</li> </ul>
Human Resources: New Hire On-Boarding	Process management and collaboration across multiple organization functions and systems	<ul style="list-style-type: none"> <li>• Expedited employee and contractor on-boarding</li> <li>• Lower cost of hiring</li> </ul>
Manufacturing: Operations Dashboard	Integrated view of work-in-process (WIP), planned manufacture, and real-time scheduling changes	<ul style="list-style-type: none"> <li>• Faster production lead times</li> <li>• Reduction in WIP inventory</li> </ul>
Contact Center: Agent Desktop	Aggregate a complete, real-time view of customers, products, and promotions, and leverage ERP and other enterprise applications for accurate service and support	<ul style="list-style-type: none"> <li>• Higher first-call resolution</li> <li>• Reduced call-backs</li> <li>• Improved customer satisfaction</li> </ul>

Another common use case for innovating over and above a legacy ERP deployment is the integration of one or more **mergers and acquisitions**. Unless the merged companies intend to stay autonomous in their operations, products, and customers for the long term (an unlikely scenario given typical shareholder expectations of value derived from synergies in these areas), merging companies must look seriously at unifying their financial and IT infrastructures.

One approach is to phase out some ERP instances and replace them with a broader ERP deployment. The cost and complexity of this kind of changeover can be extremely high. Business processes tuned to one system may need to change to fit another, and dispersed data sources must be realigned, often resulting in data loss. Worse, simply exchanging one ERP instance for another fails to lay the groundwork for continued changes and improvements. Such improvements will inevitably arise as the merged companies rationalize products or physical locations, and attempt to create more consistent customer experiences, more efficient operations, and more complete and integrated product offerings.

Instead, this paper describes a path that creates a platform for continued ability and innovation: to service-enable existing ERP and other application resources and build new composite applications and business processes, taking advantage of software functionality and data from throughout the combined enterprise. Businesses may do this in conjunction with the rationalization of certain software components, and still enjoy a gradual transition to a more unified *and* flexible IT infrastructure that minimizes short-term impact and maximizes long-term competitiveness.

## Taking the first step

*“Laggards will find that one morning their competitors who use the exact same ERP software are suddenly zooming ahead, shortening lead times, introducing new products faster, and reacting faster to changing market conditions. IT groups that hope to respond to the business faster need to start making decisions, setting a strategy, and building the skills to apply SOA and BPM as a competitive weapon.”<sup>11</sup>—AMR Research*

The greatest risk is to do nothing, and companies must evolve their ERP systems and processes to stay competitive. Easier, more flexible integration of data, applications, and processes, as well as collaboration among employees, are critical if businesses are to free budget funds for strategic innovation and develop more seamless and intimate customer relationships.

BEA, the acknowledged leader in SOA, BPM, and ESC, offers a comprehensive portfolio today to help companies transition to business-process oriented, flexible, and efficient operational models. BEA provides the BEA Enterprise 360° portfolio for creating, using, and monitoring services and business processes through SOA and BPM, all within a unified and consistent model. BEA also provides the platform for ESC that helps business-process participants connect, collaborate, and deliver results.

BEA has created tools and resources you can use today to benchmark how your company compares with thousands of other leading enterprises adopting SOA, BPM and ESC. You can get a sense of where you stack up and where you are on the maturity curve. In addition, you may determine where you can get the most return on investment from your first Liquid Enterprise project.

Take the free, confidential SOA or BPM assessments available on [www.bea.com](http://www.bea.com):

- BEA SOA Readiness Assessment  
[http://contact2.beasys.com/bea/www/soa\\_benchmark/login.jsp?TRK=1&LNG=AME](http://contact2.beasys.com/bea/www/soa_benchmark/login.jsp?TRK=1&LNG=AME)
- BPM Life Cycle Assessment  
<http://208.109.108.167/bpmready/login.jsp>

You can also participate in a one-day discovery workshop that starts off by looking at your needs, where your systemic gaps are, and how you might address them. Many customers who have participated in these workshops were surprised at the number of quick wins they could identify simply by looking for gaps within their systems.

Whether your goal is to automate a labor-intensive process or provide a unified customer experience across interaction channels, BEA has the breadth and depth of experience to provide the solutions you need—*today*.

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11. AMR Research, **SOA and BPM for Enterprise Applications: A Dose of Reality**, May 2007

## About BEA

BEA Systems, Inc. (NASDAQ: BEAS) is a world leader in enterprise infrastructure software. BEA® Enterprise 360®, the industry's most advanced SOA-based offering, is a comprehensive approach to delivering business results that includes technology, professional services, best practices, and world-class partners. Information about how BEA helps customers build a Liquid Enterprise™ that transforms their business can be found at [bea.com](http://bea.com).

## Join the BEA community

At BEA, we understand that developers need different kinds of resources than IT managers. And that architects face different challenges than executives. That's why we've created four unique communities that give you exclusive access to a formidable group of your peers, to a world of shared thinking, and to the kind of meaningful information that can make you more effective and more competitive. To join one or more of the BEA communities, simply register online at [bea.com/register](http://bea.com/register).



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