



Aligning IT to Business Processes: How BPM is Complementing ERP and Custom Applications

Implementing BPM now to ensure your ROI

May 2007

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Executive Summary

The need to support new, agile business processes is the top pressure driving enterprise organizations, according to the latest results from Aberdeen's [Business Process Management Benchmark](#). The overwhelming concern from line of business executives and top management surrounds the lack of ROI in their ERP investments. Over half of the respondents (51%) – mostly from small and mid-size organizations – say their companies' **ERP systems or best-of-breed supply chain solutions don't provide adequate functionality!** Some application software, particularly custom applications common in the supply chain, retail areas, and on shop floors are not designed to adapt or react to the rapid business process change and distributed enterprise models on which enterprises operate today.

An overwhelming majority of organizations represented in the survey feel constrained in their applications' ability to meet business requirements. Here's what they say about their current application portfolios:

- Only **15%** believe their **applications afford them the desired flexibility** they need today.
- Over **51%** say they **employ manual processes to get the job done**, driving up G&A costs, delaying decisions, and impacting productivity.
- Thirteen percent (**13%**) believe their **applications offer little or no flexibility in meeting individual customer service requirements**, and **21%**, say their **applications force them to limit service offerings**.

As a result, **more than 50% of those surveyed are turning to business process management (BPM) in 2007 to help get the process right at the line-of-business level.** This move serves to blend and extend the value of the IT investments already made (e.g. ERP). **SOA technology and web services is the glue that 67% indicate they will use to tie BPM to ERP and other enterprise applications."**

Key Business Value Findings

- There is a wider interest in BPM and business intelligence tools than in SOA middleware software, especially in larger companies.
- More than two-thirds of supply chain-intensive industries, such as manufacturing, say their ERP systems impede visibility since they require customized workarounds.
- When IT does not align with business applications, users resort to labor-consuming spreadsheets and manual processes, visibly raising the cost of goods sold and inherently lowering productivity due to non-strategic work.

"Replacing our green-screen applications with user-driven BPM front ends is something we should have done years ago. It really works well for the business and for IT."

~ Retail company executive



Implications & Analysis

- Large organizations are 50% more likely to have invested in BPM tools and strategies over small and mid-size enterprises.
- Mid-size organizations are more likely than small and large companies to cite organizational and technical impediments to progress.
- Most supply chain-intensive industries such as manufacturing, retail, and distribution/logistics say their ERP or best-of-breed supply chain solutions don't provide the functionality they want and need.
- Best in Class organizations are far ahead of Industry Average and Laggard companies in adaptability of applications and ROI from their SOA investments.

Required Actions

- **Best in Class** companies have the most experience with SOA and should rely on it to drive higher ROI from their investments in BPM, especially in process transformation projects that harness BPM, SOA, and other technologies (e.g., mobile devices) to capture and manage cost-critical processes unique to the business, and in driving lower application lifecycle costs.
- **Industry Average** organizations must focus on modernizing their application approaches to business process management, eschewing legacy mainframe applications (37% report still having mission critical apps on this platform) in favor of composite (e.g. ERP) or best-of-breed tools, with a special focus on PC- or browser-based user interfaces.
- **Laggard** companies must investigate means to improve their business processes. First, they must have the right ERP or custom application instead of wasting IT to make the wrong application work the way the business needs it to work. They need to investigate and deploy BPM technologies which enable process discovery. Get outside consulting expertise to discover the potential of SOA and manually mapping your business processes would be a good start of a long-term plan to integrate BPM with back-end applications.

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Chapter One: Benchmarking the Best in Class

Key Takeaways

- Companies are discovering how BPM, combined with SOA, is helping provide the flexibility and process control needed in business today.
- ERP systems don't provide adequate functionality and are driving companies to integrate costly workarounds to support business.
- An overwhelming majority of organizations surveyed feel constrained in their applications' ability to meet customers' individual business requirements.

As corporations face the pressures of global supply chains, shrinking profit margins, and the need to deliver tailored solutions and consistent service to customers, they need technology infrastructures that are more flexible and provide end-to-end process control. That's why these corporations are investing heavily in IT infrastructure middleware to link their fragmented infrastructures and applications of the past in order to improve the business processes they need to meet the pressures of the present.

Aberdeen research has found that **business process management (BPM)** and **service-oriented architecture (SOA)** 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.

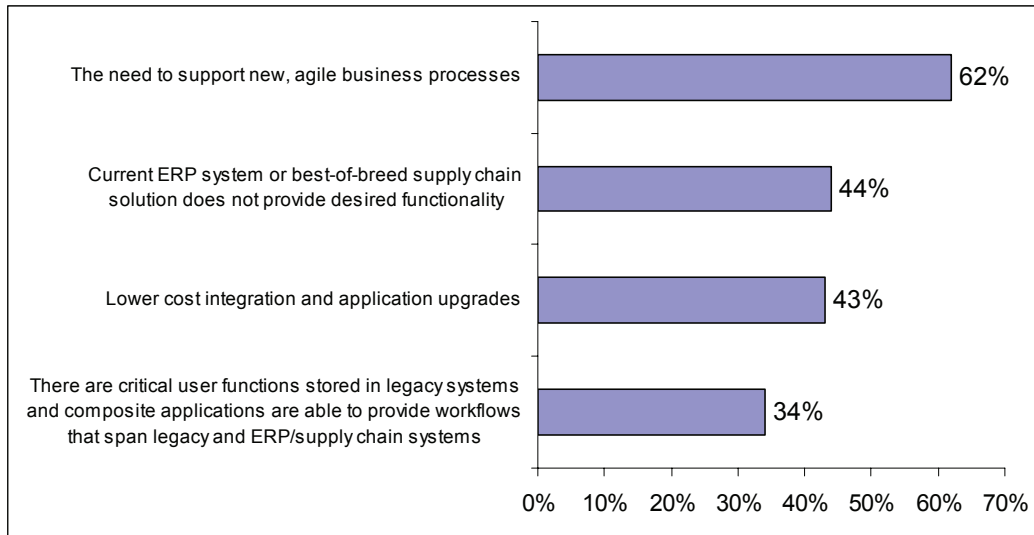
The following table reflects Aberdeen's classification of companies that are meeting the challenges head-on of supporting speed and agility through the use of technology enablers and process improvements (Table 1).

Table 1: Best in Class PACE Framework

Pressures	Actions	Capabilities	Enablers
<ul style="list-style-type: none"> • The need to support new, agile business processes 	<ul style="list-style-type: none"> • Improve line of business chain agility • Improve speed of IT implementations • Give line of business greater direct control over their IT 	<ul style="list-style-type: none"> • Providing one common view of data and information for enterprise users and partners • User capability to configure process workflows that meet unique requirements • Access to applications that offer a wider range of functions or features than we know have • Use applications that are more intuitive and easier to learn • Better integration with desktop applications 	<ul style="list-style-type: none"> • Standalone BPM suite plus SOA • BPM from SOA middleware vendor • BPM from ERP vendor • Realtime Business Process Monitoring • Business activity monitoring • Business Process Monitoring

The need to support new, agile business processes is the chief pressure driving organizations to start or implement an SOA-based system (Figure 1)

Figure 1: Top Pressures Driving Service-Oriented Architectures



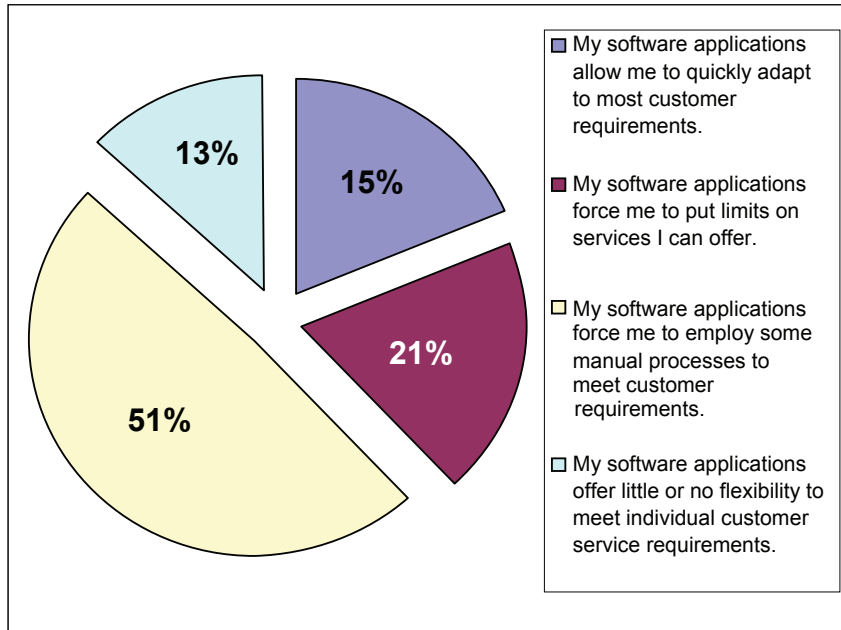
Source: Aberdeen Group, May 2007

The second pressure from nearly half of the respondents - mostly small and mid-size organizations - say their companies' **ERP systems or best-of-breed supply chain solutions don't provide adequate functionality**. Some application software, particularly custom applications common in the supply chain, retail areas, and on the manufacturing shop floor are not designed to handle the rapid business process change and distributed enterprise models on which businesses operate today. **This inability of large expensive IT investments, such as ERP, to get real-time visibility down into the factory floor is handicapping enterprises from being able to move as the market shifts and demand changes.**

The Constraints of Older Applications

An overwhelming majority of organizations represented in the Aberdeen survey feel constrained in their applications' ability to meet customers' individual business requirements (Figure 2).

Figure 2: Ability of Software Applications to Meet Business Requirements



Based on the Maturity Class Framework, Aberdeen established Best-in-Class characteristics in four key categories: (1) process; (2) organization; (3) performance management; and (4) technology.

Table 2: Competitive Framework

	Characteristics	Best in class	Industry average	Laggard
Process	Ability to integrate into any system possessing critical data or information	70%	69%	51%
Organization	IT organization has or will be using SOA or web services to improve business processes	67%	54%	55%
Performance Measurement	Satisfaction of BPM tools	17%	6%	3%
Technology	SOA projects underway	54%	33%	32%
	Standalone BPM suite with no SOA	66%	25%	50%
	BPM suite with SOA (plan to use)	67%	25%	50%

The Year of BPM and SOA Technology Marriage

Aberdeen's prior research indicated that 41% of all companies were to at least have **SOA** strategies in place by the end of 2006, if they had not implemented them already. The main factors driving the implementations were:

- A desire for new capabilities like cross-application process integration;
- Re-use of applications via web services; and
- Better management of IT complexity.

The 51% of companies whose applications force them to resort to manual processes to meet customer requirements would be best served looking for vendors to provide **composite applications** that tie together point solutions to enable a flexible industry- or company-specific business process (One example: an integrated business planning solution that can enable the balancing of supply and demand to maximize profit by bridging sales and operations forecasting tools, constraint-based supply chain applications, and financial systems) or in the case of small-to-medium size businesses (SMB) to utilize vendors who can **extend their existing core investments in office tools, communication and document management systems**.

Leading companies are looking to leverage BPM tools to build out front-end applications that should be:

- Flexible from an end-user perspective;
- Equipped with a rich user interface that promotes productivity;
- Able to map well to line-of-business process requirements;
- Capable of integrating with their investments in back-end ERP and best-of-breed business process solutions.

Over an application's lifecycle, BPM can deliver dramatically lower software maintenance costs due to the ease with which business units can change the process and key process parameters without massive IT reprogramming and testing.

According to the [2007 Aberdeen Benchmark Report](#) results, 2007 is shaping up to be the year of BPM.

Chapter Two: Key Business Value Findings

Key Takeaways

- When IT does not align with business applications, users resort to labor-consuming spreadsheets and manual processes, invisibly raising the cost of goods sold.
- There is a wider interest in BPM and business intelligence tools than in SOA middleware software, Enterprise Application Integration (EAI) and Master Data Management (MDM).
- More than two-thirds of supply chain-intensive industries, such as manufacturing, say their ERP systems impede better visibility since they require customized workarounds.

After seeing several years of a recession-fueled lockdown in technology investment, Aberdeen is witnessing a renaissance in IT spending around core infrastructure middleware. From our 2006 and 2007 research, the key drivers for these investments - especially SOA and BPM - are that the underlying technologies must deliver prompt and demonstrable business value, can be developed in controllable projects, and will incrementally lower long-term maintenance costs.

That's why we're witnessing the following, taken from our research for this report:

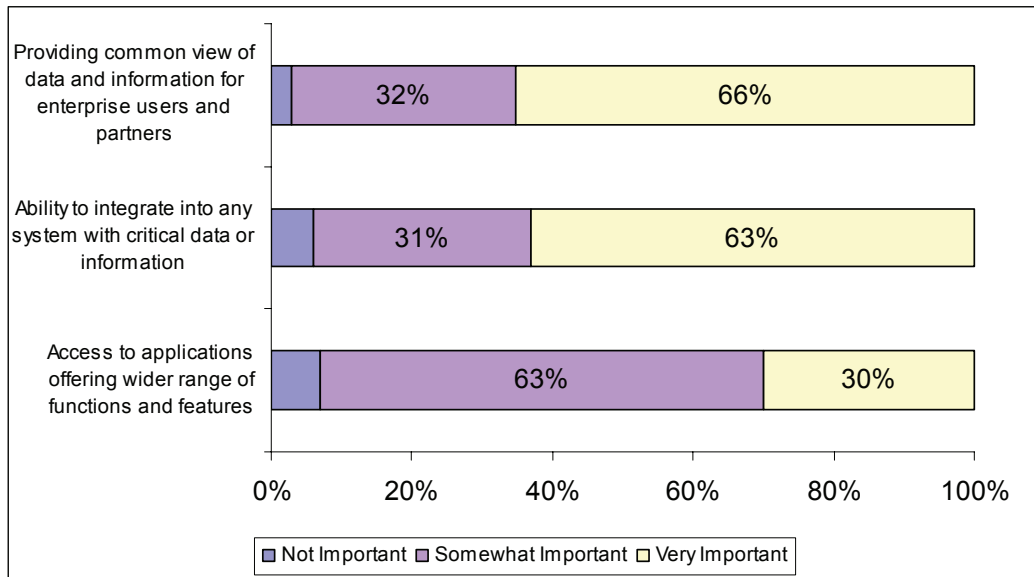
- 38% of companies surveyed have current SOA projects, another 29% say their IT organizations are planning to start at least one project within the next 12 months.
- 41% have SOA-based solutions already in place, with another 27% budgeted to start building them within the next 12 months.
- 63% believe it's very important that their technologies, such as BPM, be able to integrate into any system that provides critical data or information, which is what an SOA can deliver (Figure 3).

But our survey also found that change comes slowly. Some 63% of surveyed companies use spreadsheets and 37% use legacy mainframe applications to manage critical business process functions. This is a clear reflection of the half of the companies in the survey whose software applications force them to employ manual processes to meet customer requirements.

However, 54% of Best in Class companies Aberdeen surveyed recognize this and are investing in technologies that can improve nimble processes.

Change comes slowly. Two-thirds of surveyed companies use spreadsheets and 37% use legacy mainframe applications to manage critical business process functions.

Figure 3: Importance of IT Capabilities in Critical Business Process Performance

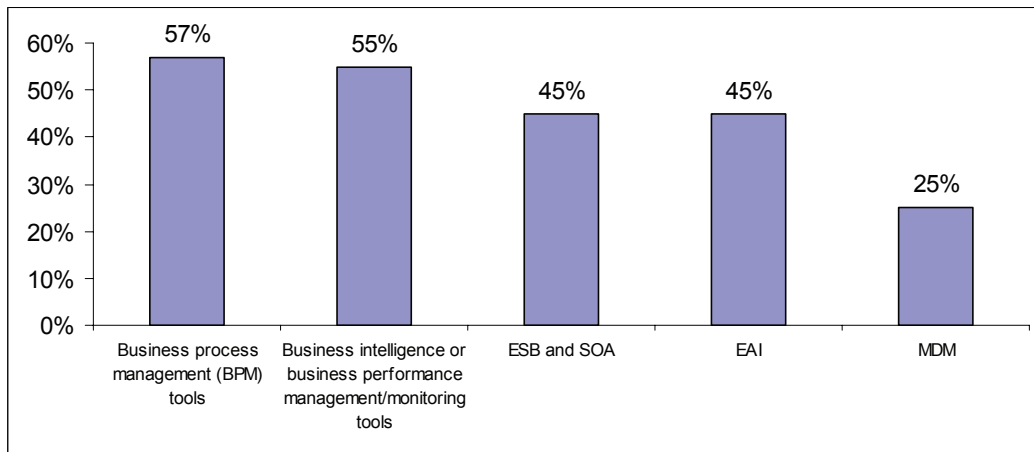


Source: Aberdeen Group, May 2007

BPM Technologies Lead the Way

Figure 4 shows the infrastructure middleware technologies in which the surveyed companies are investing. There is an overwhelming preference for BPM technologies to create and monitor business workflows, followed by the chief tools that assist with IT integration: ESB, SOA middleware, and enterprise application integration (EAI).

Figure 4: Infrastructure Middleware Tools Drawing Investment



Source: Aberdeen Group, December 2006

Table I shows how these technologies map to the pressures driving SOA that were listed in Chapter One. These findings highlight issues cited in the Aberdeen [Composite Applications Benchmark report](#):

- The biggest challenge in corporate IT organizations is improving real-time visibility into business operations;
- Business is discovering the SOA as a technological foundation that can make businesses more nimble and business processes more flexible with minimal IT intervention; and
- Sharing information with other parts of the organization, a key by-product of better business process management, is more reachable.

Table 1: Prioritized Pressures and Enablers

Priorities	Prioritized Pressures	Prioritized Enablers
1	The need to support new, agile business processes	<ul style="list-style-type: none"> → Business process management (BPM) tools for creating business workflows → Business intelligence or business performance management/monitoring tools
2	Current ERP systems or supply chain best-of-breed solutions do not provide the desired functionality.	<ul style="list-style-type: none"> → BPM front-end to ERP or back-end apps → Enterprise service bus (ESB) and SOA middleware software with composite applications → Enterprise application integration (EAI) middleware software
3	Lower cost integration and application upgrades	<ul style="list-style-type: none"> → Enterprise service bus (ESB) and SOA middleware software → Enterprise application integration (EAI) middleware software with composite applications
4	There are critical user functions stored in legacy systems that users need; composite applications are able to provide workflows that span legacy and ERP/supply chain systems;	<ul style="list-style-type: none"> → Composite applications that span at least some of the following: spreadsheets, legacy applications, ERP, best-of-breed applications, desktop applications, web-hosted/On Demand applications, customers' or suppliers' applications

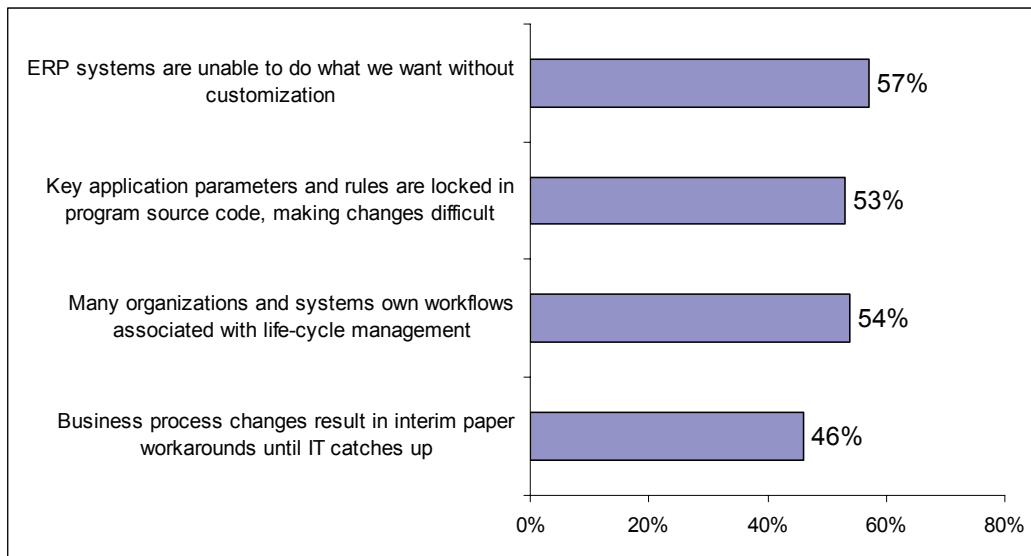
Source: Aberdeen Group, May 2007

Roadblocks to Process Improvement

Still, improving business process visibility and integration capabilities doesn't come without its challenges (Figure 5). Companies surveyed indicate:

- ERP systems don't provide the needed flexibility. Alarming, 75% of companies that are the biggest users of ERP systems cite this issue. Yet, **only 33% of Best in Class companies are constrained by their ERP systems**;
- Key application parameters and rules are locked inside program source code;
- A lack of centralized workflows associated with management life-cycles; and
- A lack of IT agility that forces interim paper workarounds to change business processes, with a resulting increase in labor and loss of management visibility.

Figure 5: Challenges with Applications for Key Business Processes



Source: Aberdeen Group, December 2006

Breaking technological and organizational logjams can go a long way toward improving business processes to meet today's business demands. These issues also come up when we asked respondents to cite the challenges they face or will face in implementing an SOA-based system (Figure 6), as well as the factors that result in data management complexity (Figure 7).

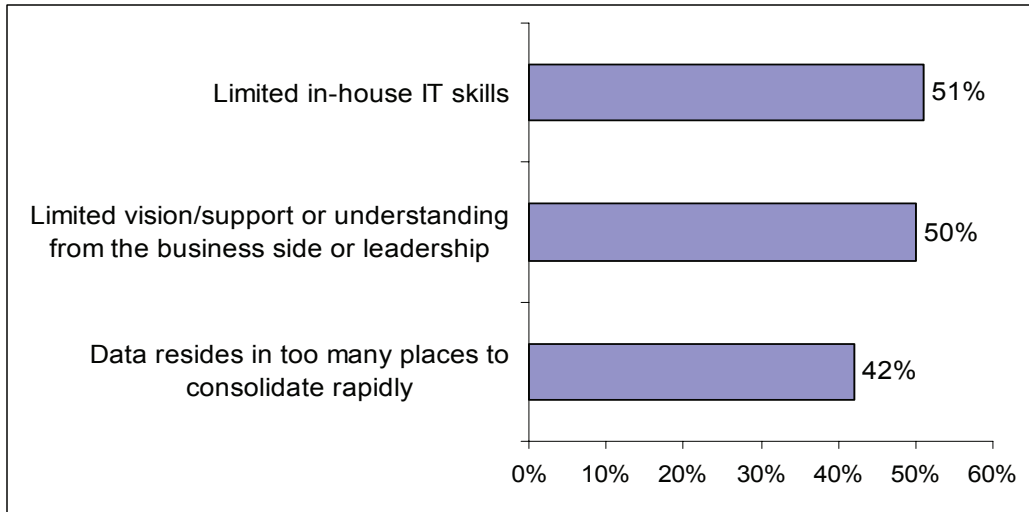
“Once we realized how much effort was going into doing things our ERP's way, the BPM solution to doing things our ‘own business’ way became obvious.”

~ Insurance company executive

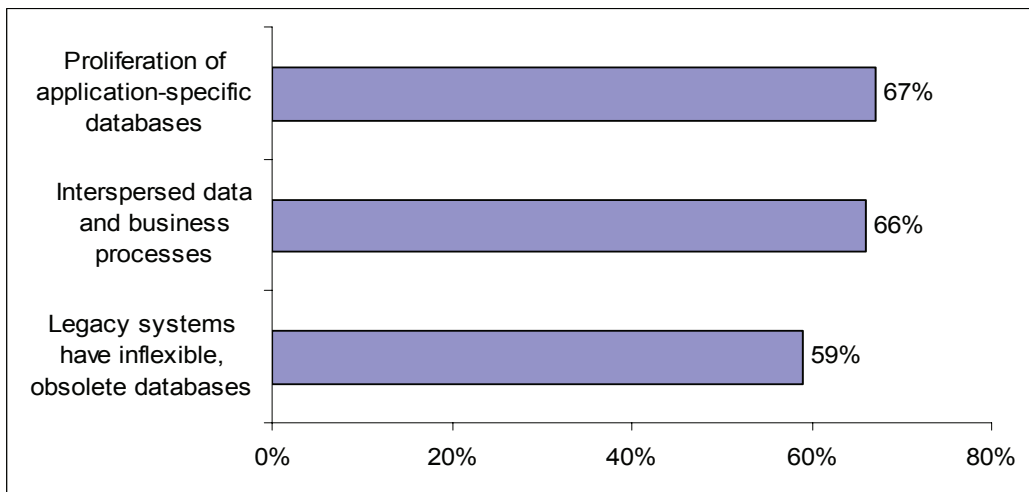
Payback is Starting to Ramp

These challenges may be preventing companies from realizing the full potential return on investment (ROI) from SOA and BPM. Of course, these solutions are relatively new on the IT scene and require much effort and a steep learning curve. For instance, only 19% of companies represented in Aberdeen's [Composite Applications Benchmark report](#) have had SOA-based solutions in place for more than a year, while another 22% were implemented only within the last 12 months.

Already companies have shown an average return of about 9% based on an average investment in SOA at around \$730,000 while the mean payback to date is \$798,000.

Figure 6: Challenges in Starting or Implementing BPM/SOA

Source: Aberdeen Group, December 2007

Figure 7: Factors Resulting in Data Management Complexity

Source: Aberdeen Group, December 2006

When we separated the Best in Class organizations from the rest of the survey pool, the **Best in Class are recouping averaging a return of more than twice their investment**, while Industry Average and Laggard companies - have yet to recover all they have invested. In spite of these work-in-progress ROI results, companies are continuing to invest aggressively in these technologies.

“We missed some long-term recurring cost savings in software maintenance by trying to get by with old development tools.”

~ Petrochemical company executive

Chapter Three: Implications & Analysis

Key Takeaways

- Best in Class organizations are far ahead of Industry Average and Laggard companies in their adaptability of applications and in their ROI from BPM and SOA investments.
- Most supply chain-intensive industries such as manufacturing, retail, and distribution/logistics say their ERP or best-of-breed supply chain solutions don't provide the functionality they want and need.
- Large organizations are twice as likely to invest in data quality tools as small and mid-size enterprises are.
- Mid-size organizations are more likely than small and large companies to cite organizational and technical impediments to progress.

How can an organization succeed in improving business processes? According to our survey results, success begins with knowledge and extends into implementation of BPM, SOA and master data management (MDM) tools. Table 2 shows Aberdeen's Competitive Framework for this report to distinguish leading, or Best in Class, companies, from Industry Average and Laggard organizations. We determined that:

- **Best in Class** organizations have software applications that can allow them to adapt quickly to most customer requirements
- **Industry Average** companies have applications that force the use of some manual processes to meet requirements.
- **Laggard** organizations find that their applications offer little or no flexibility to meet individual customer requirements or force the organization to limit the services it can offer.

Competitive Framework Key

The Aberdeen Competitive Framework defines enterprises as falling into one of the three following levels of practices and performance:

Best in Class (20%) —practices that are the best currently being employed and significantly superior to the industry average

Industry Average (50%) —practices that represent the average or norm

Laggards (30%) —practices that are significantly behind the industry average

Best in Class organizations are more likely to be aware of SOA, due largely to the knowledge levels of their IT organizations and the support and commitment from the business side or executive leadership. In short, these organizations are committed to SOA as their platforms of the future. They are also the least likely to suffer from snags in their ERP integration projects.

Process and Organization

Commitment to and interest in SOA and BPM spell the difference between Best in Class organizations and the rest of the survey pool. Facilitating that is that only 11% of these companies believe they're dealing with too much complexity for employees to handle, in spite of the fact that close to half of them indicate they're busy with several technology/business process initiatives.

Further, only 24% of the Best in Class use legacy mainframe applications to manage critical business processes, well below the 39% of Industry Average. This highlights a willingness and commitment by the Best in Class to use more advanced applications, such as best of breeds and Web-hosted and On Demand tools.

Commitment to and interest in both SOA and BPM spells the difference between Best in Class organizations and the rest of the survey pool.

Kinks in the SOA Supply Chain

For all the benefits SOA bring, **companies that rely heavily on their supply chains are least likely to use SOA**, even though their benefits are more than apparent.

Here are some key survey findings on this group, which made up more than half of the respondent pool:

- 63% say the upfront costs for implementing SOA are higher because of a need for more design and architecture (56% of the entire survey pool cited this);
- 63% say they lack the IT governance and process systems to ensure SOA success - full survey pool: 43% (Note: see Aberdeen's [Information Governance and Process Systems Benchmark Report for additional information](#));
- 63% say their current teams can't adjust to the culture change that's needed with reusable services (full survey pool: 45%); and
- 58% say piloted projects were very expensive and yielded many lessons to learn. This was more than twice the entire survey pool (21%).

Even worse, these technological and organizational limitations may well impact performance at many of these supply-chain-centric companies. For instance:

- A whopping 93% cite **inconsistency** or **outdated information** in orders sent to manufacturers, compared with just 12% cited by the whole survey pool.
- 69% cite **data errors caused by manual updating**, which can potentially affect purchase orders and inventory.
- 67% say **business process changes result in interim paper workarounds until IT catches up**. In an age of tighter compliance with Sarbanes-Oxley and other business regulations, this finding points up the importance of SOA as a tool that can improve IT agility: the ability of IT to keep up with the business.

Large Companies Show the Way in Technology Investments

Close to three-quarters of large companies (annual revenue of more than \$1 billion), where the processes are more complex, are investing in BPM tools, as well as ESB and SOA middleware software (Table 3). Most are also investing in EAI tools, and they are twice as likely to spend on MDM and data quality tools than small and mid-size organizations.

From these and other findings, it's clear that larger organizations are showing the way on these integration catalysts. They are also much more likely to have the right functionality from their ERP systems and best-of-breed supply chain tools.

Most small and mid-size organizations represented in our survey say their ERP and supply-chain tools don't provide the functionality they want. Mid-size companies, in particular, are unable to adjust to the rapid technology change underfoot, with 43% citing this as a challenge and, 57% reporting that line-of-business executives' expectations are too high for IT to meet, .

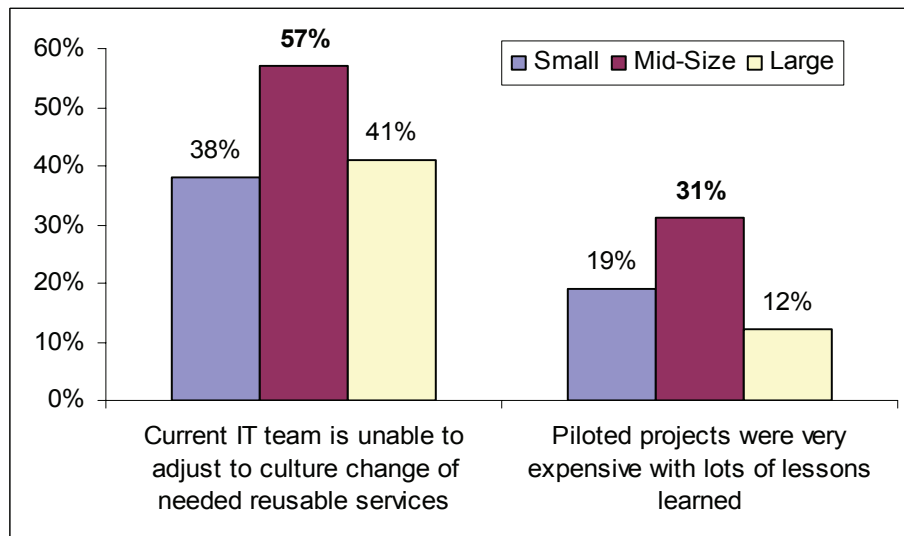
Table 3: Technology Investments by Organization Size

	Small	Mid-size	Enterprise
Business process management (BPM) tools for creating business workflows	55%	52%	76%
Business intelligence or business performance management/monitoring tools	55%	48%	48%
Enterprise Service Bus (ESB) and SOA middleware software	18%	35%	71%
Enterprise application integration (EAI) middleware software	27%	35%	57%
Master data management (MDM) tools	9%	17%	43%
Data quality tools	9%	17%	33%
Event management tools	14%	9%	19%

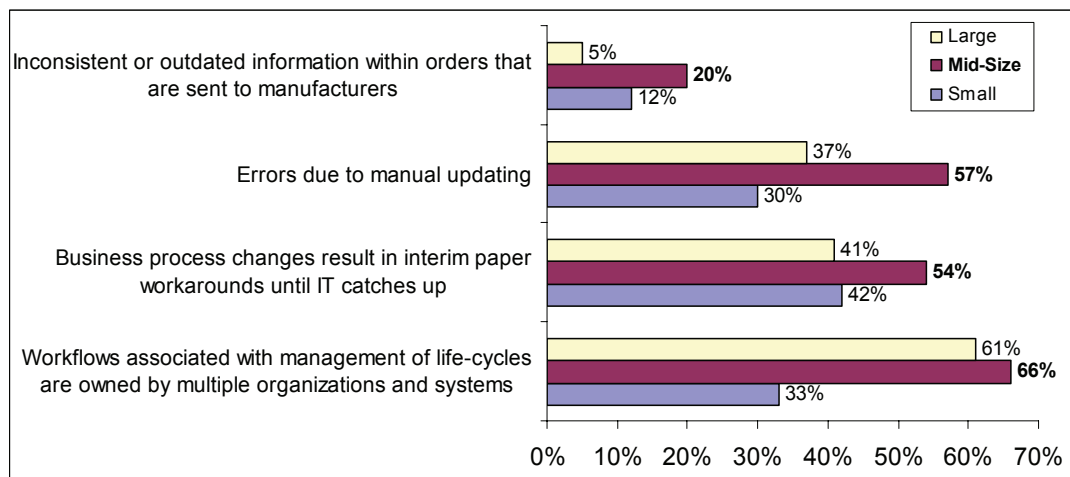
Source: Aberdeen Group, December 2006

Organizational Impediments

Many mid-market companies are in a tight spot when it comes to technical, financial, and human resources, given their size, and that's reflected in the survey. For instance, they are more likely than larger or smaller organizations to cite challenges in these areas (Figures 8 and 9). Companies with these symptoms need to look at personnel issues.

Figure 8: Organizational Challenges to SOA Implementations

Source: Aberdeen Group, December 2006

Figure 9: Application Challenges to Business Process Improvements

Source: Aberdeen Group, December 2006

Management alignment is another issue worth underlining. More than **half the companies using BPM report limited vision/support or understanding from the business side and/or executive leadership**. These companies go even further, saying “We have realized that it requires not only buy-in but also strong commitment from lines of business execs, not just IT.” Because BPM projects require active participation during the development phase by the lines of business, plus ownership of BPM changes once the system is in place, IT needs to negotiate appropriate expectation levels with the business units before commencing initial BPM projects.

Chapter Four: Recommendations for Action

Key Takeaways

- Best in Class companies have the most experience with SOA, and they should rely on it to drive higher ROI from their investments in SOA and BPM.
- Industry Average organizations must focus on modernizing their application approaches to BPM, eschewing pure legacy mainframe applications in favor of composite or best-of-breed tools.
- Laggard companies must invest in more technology to improve BPM. Discovering the potential of SOA by using external expertise would be a good start.

Best in Class Next Steps

- 1) *Drive more ROI from your SOA investments.* Better returns come with maturity. As your organization gains more experience with SOA, it will find ways to generate higher returns on its investments. Look to consolidating services under SOA to create a common back end to BPM-driven front-end applications.
- 2) *Make SOA better for the user.* Improving the user experience is - or should be - the top mission of any corporate IT organization. Utilize the superior SOA knowledge within the IT staff to help the user - especially those in customer-facing roles - become more productive. BPM and composite application development tools can improve the usability and productivity of legacy applications vastly.
- 3) *Focus on application life-cycle management costs.* BPM and SOA are no longer two distinct technologies that IT must integrate into custom solutions. Technology suppliers are doing the integration, delivering products that start with BPM and include the SOA transport and infrastructure, including composite application technology to modernize legacy applications and, for the application providers, SOA-enabled application versions that fit well with BPM.

Industry Average Steps to Success

- 1) *Get out of the old and into the new.* Decrease your dependence on legacy mainframe applications, desktop applications, and spreadsheets as keys to business process improvement and replace them with more BPM-based, composite and best-of-breed applications.
- 2) *Discover the potential for BPM in your organization.* BPM holds the potential to dramatically improve IT agility with rapidly changing line-of-business requirements, and as a tool for critical process transformation.
- 3) *Is there interest in SOA?* All but 5% of Industry Average organizations at least have interest in the potential advantages of an SOA. But more than one-quarter of Industry Average organizations in our survey that haven't heard about SOA want to know more (Only 36% have SOA solutions in place). The increase in knowledge starts at the top; 61% of Industry Average companies cite limited vision, support, or understanding of SOA from the business side or executive

leadership, compared with only 37% of Best in Class companies. There are numerous SOA success stories across vertical markets to use as guideposts.

Laggard Steps to Success

- 1) *Make sure you have the right core application software.* Trying to make due with the wrong software (e.g. ERP)— or a home-grown equivalent — creates a perpetual money hole in integration costs. After looking at the *real* costs of running your systems, consider replacing it or using BPM software to deliver a business-friendly front end to the transaction engine.
- 2) *Invest in more modern technology to improve management of critical processes with BPM.* If you have the financial resources, spend some on best-of-breed or composite applications and modernize old legacy mainframe apps, especially the user interface, by extending the legacy applications with a BPM front end that matches what the business units really need. Pay for the investments in measurable productivity improvements just on reduced keystrokes and screen changes alone.
- 3) *Discover the potential of SOA.* Chances are if you haven't embarked on or are planning an SOA project, there is interest in the organization. If so, ramp up the internal knowledge on SOA and learn what an ESB and SOA middleware software can do to help improve business processes.
- 4) *Extend your already existing investments.* The investment in office tools, communication systems, document management and knowledge managements systems exists. Implement your BPM tool strategy into these already existing applications and leverage your employee knowledge base.

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Appendix A: Research Methodology

Over the last year, Aberdeen Group examined the technology use, investment plans, pressures, and challenges of more than 125 enterprises in such middleware solutions as Business Process Management (BPM) and Service-Oriented Architecture (SOA) as integration catalysts that can potentially improve their business processes.

Responding executives and managers completed an online survey that included questions designed to determine the following:

- The factors pushing companies to initiate or implement an SOA-based system;
- The challenges companies face in initiating or implementing an SOA;
- The amount of organizational investment in SOA and BPM and the payback from investments;
- The degree of importance organizations place on a set of technological capabilities that can impact the performance of critical business processes; and
- The degree of satisfaction with their investments in SOA and BPM solutions.

Aberdeen supplemented this online survey effort with telephone interviews with select survey respondents, gathering additional information on middleware strategies, experiences, and results.

The study aimed to identify emerging best practices for the use of these middleware tools as integration catalysts in today's modern IT infrastructures and provide a framework by which readers could assess their own capabilities in these areas.

Responding enterprises included the following:

- **Job title/function:** The research sample included respondents from the following areas of the organization: information technology (53%), business process management (10%); other (13%); marketing (6%); sales (5%); logistics/supply chain (6%); finance (3%), customer service (2%) and manufacturing (1%). **Job titles** included the following: manager (24%); consultant (22%); senior management, such as CEO or COO (18%); staff (11%); director (11%); CIO (6%); vice president (6%); other (3%) and CFO (1%).
- **Industry:** The research sample included respondents predominantly from manufacturing and services industries, led by the following: finance, banking, and accounting (18%); high technology/software (14%); insurance, real estate, legal services (8%); transportation/logistics (8%); public sector (4%); publishing and media (4%); retail (4%); aerospace/defense (3%); apparel (3%); automotive (4%); education (3%); health, medical, and dental services (4%); and utilities (3%). Other responding sectors included computer equipment and peripherals; construction/engineering; consumer electronics, consumer packaged goods; food and beverage; medical devices; metals and metal products; mining/oil/gas; paper, lumber, and timber; pharmaceutical manufacturing, telecommunications services, and wholesale. The survey was supplemented with responses to a

select group of supply-chain companies in the discrete manufacturing, process manufacturing, distribution, and retail industries.

- **Geography:** About 45% of all study respondents were from North America (US, Canada, Mexico); 28% were from Europe; 20% from Asia/Pacific; 5% from the Middle East and Africa; and 3% from South America and the Caribbean.
- **Company size:** About 32% of respondents were from large enterprises (annual revenues above US\$1 billion); 31% were from mid-size enterprises (annual revenues between \$50 million and \$1 billion); and 37% from small businesses (\$50 million or less).

Solution providers recognized as sponsors of this report were solicited after the fact and had no substantive influence on the direction of this benchmark report. Their sponsorship has made it possible for Aberdeen Group to make these findings available to readers at no charge.

Table 4: PACE Framework

PACE Key
<p>Aberdeen applies a methodology to benchmark research that evaluates the business pressures, actions, capabilities, and enablers (PACE) that indicate corporate behavior in specific business processes. These terms are defined as follows:</p> <p><i>Pressures</i> — external forces that impact an organization’s market position, competitiveness, or business operations (e.g., economic, political and regulatory, technology, changing customer preferences, competitive)</p> <p><i>Actions</i> — the strategic approaches that an organization takes in response to industry pressures (e.g., align the corporate business model to leverage industry opportunities, such as product/service strategy, target markets, financial strategy, go-to-market, and sales strategy)</p> <p><i>Capabilities</i> — the business process competencies required to execute corporate strategy (e.g., skilled people, brand, market positioning, viable products/services, ecosystem partners, financing)</p> <p><i>Enablers</i> — the key functionality of technology solutions required to support the organization’s enabling business practices (e.g., development platform, applications, network connectivity, user interface, training and support, partner interfaces, data cleansing, and management)</p>

Source: Aberdeen Group, 2007

Table 5: Relationship between PACE and Competitive Framework

PACE and Competitive Framework How They Interact
<p>Aberdeen research indicates that companies that identify the most impactful pressures and take the most transformational and effective actions are most likely to achieve superior performance. The level of competitive performance that a company achieves is strongly determined by the PACE choices that they make and how well they execute.</p>

Source: Aberdeen Group, 2007

Appendix B: **Related Aberdeen Research & Tools**

Related Aberdeen research that forms a companion or reference to this report include:

- [The Composite Applications Benchmark Report](#), December 2006
- [The Legacy Application Modernization Benchmark Report](#); September 2006
- [2007 Aberdeen Benchmark Report](#), April 2007
- [The Business Process Management Benchmark Report](#); August 2006
- [Outsourcing Application Development and Maintenance](#); November 2006
- [Enterprise Service Bus and SOA Middleware](#); June 2006
- [Achieving More Value from Enterprise Applications](#), May 2006
- [The SOA in IT Benchmark Report](#); December 2005

Information on these and any other Aberdeen publications can be found at www.Aberdeen.com.

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