

AMR Research Market Analytix Report: Market Trends Series

Service-Oriented Architectures: Survey Findings on Deployment and Plans for the Future

by Eric Austvold and Karen Carter

With every major software provider touting plans for a Service-Oriented Architecture (SOA), we have seen a dramatic increase in the number of inquiries from clients. In this Report, we share the findings from our survey of 134 companies on their understanding of SOA, current deployment status, and future plans.

List of Figures

Figure 1: SOA components.....	4
Figure 2: SOA component standardization.....	5
Figure 3: Increases in SOA investment.....	6
Figure 4: SOA state of deployment.....	7
Figure 5: SOA state of deployment by industry focus and company size.....	8
Figure 6: Challenges in managing software.....	9
Figure 7: Expected benefits of SOA.....	10
Figure 8: Challenges in managing software, currently using SOA vs. future SOA adopters.....	11
Figure 9: SOA spending in 2005.....	12
Figure 10: SOA spending—2006 investment plans.....	12
Figure 11: Focus of SOA deployments today.....	13
Figure 12: Focus of SOA deployments in future.....	13
Figure 13: SOA deployments—internal.....	14
Figure 14: SOA deployments—customer.....	15
Figure 15: SOA deployments—supplier.....	15
Figure 16: SOA support.....	16
Figure 17: SOA support by industry and company size.....	17
Figure 18: Vendors most often mentioned as leaders in SOA.....	18
Figure 19: Industry profiles.....	20
Figure 20: Company employee size.....	21
Figure 21: IT responsibility.....	21
Figure 22: Title of respondent.....	22

© Copyright 2005 by AMR Research, Inc.

No portion of this report may be reproduced in whole or in part without the prior written permission of AMR Research. Any written materials are protected by United States copyright laws and international treaty provisions.

AMR Research offers no specific guarantee regarding the accuracy or completeness of the information presented, but the professional staff of AMR Research makes every reasonable effort to present the most reliable information available to it and to meet or exceed any applicable industry standards.

AMR Research is not a registered investment advisor, and it is not the intent of this document to recommend specific companies for investment, acquisition, or other financial considerations.

Service-Oriented Architectures: Survey Findings on Deployment and Plans for the Future

by Eric Austvold and Karen Carter

SOA complements Web services and proves useful for early adopters, and we expect most companies will make substantial SOA investments in the near future.

The
Bottom
Line

Executive Summary

Last year, we published the *AMR Research Report* “Web Services 2004: Overhyped and Unlikely To Transform Business Anytime Soon,” June 2004. In that Report, most of our survey respondents were just beginning to invest in Web services, and generally concluded that Web services show promise, but were difficult to design, deploy, and manage.

In this Report, we expand our research on this subject, looking beyond Web services to include a generally accepted set of technologies that make up Service-Oriented Architectures (SOAs). Here, we study the use of SOA technologies as a means to tame Web services and make them more manageable and easier to use.

SOAs have been evangelized by vendors, touted in the press, and hyped as the next revolution in computing. We set out to uncover the facts on SOA deployments, and intend to dispel some myths about real-world usage of the technology. While we believe in the promise, we see SOA as merely one component of a larger ecosystem of technology that will improve business performance: “Applistructure”—the convergence of applications and technology infrastructure. The definition for applistructure can be found in the *AMR Research Report* “Realizing the Promise of Applistructure,” March 2005.

Research methodology

AMR Research surveyed 134 companies on their use of SOA. We targeted manufacturing and service companies with 1,000 or more employees. Respondents were IT managers with titles including CIO, Vice President of IT, and IT Director and/or Manager.

Key findings from the survey

- **While SOA deployment is modest today, interest is growing.** 21% of respondents have deployed SOA, with 33% planning to implement it in the next 12 months. Despite SOA shortcomings, leaders are moving ahead with additional investment.
 - **Does SOA address today's IT challenges? Yes and no.** The biggest challenge for IT is integration, and while SOA and Web services tackle some parts of integration nicely, the assembly of software components from multiple providers makes large-scale deployment challenging.
 - **SOA's most anticipated benefit: Faster and more flexible reconfiguration of business processes.** Those who plan to deploy SOA expect to reconfigure business processes more easily than with traditional methods of integration.
 - **SOA's greatest shortcoming: The burden of complexity.** Even though the biggest expected benefit of SOA is reconfigurable business processes, a resulting burden of complexity has appeared post-implementation of SOA. Those that have deployed SOAs find that most of their software applications are not yet modularized to work in an SOA, that highly modular software services need a common repository to manage the services, that a Business Process Management (BPM) orchestration layer is needed to facilitate a relationship between services, and rigorous IT change management processes are mandatory to guarantee service availability, reliability, and scalability.
 - **Spending on SOA is low today, but will trend higher in the future.** 65% of companies currently using SOA spent less than \$1M in 2004. Investments in 2005 remained flat, but 60% of companies plan increases averaging 17% for 2006.
 - **Leaders plan to make customer-facing business processes their largest investment area for SOA.** After investing in internal SOA projects, leaders turn to external-facing customer processes for future investments in SOA.
 - **Early adopters start SOA projects focused first on internal business processes rather than customer-/supplier-facing business challenges.** 44% of current SOA deployments are focused on internal business processes, with application integration and IT help desk as the two leading projects for SOA. Customer oriented was the next most popular choice of SOA project with 32%, followed by supplier oriented with 21%.
 - **The leading architectural constructs of SOA: Web services, portal frameworks, and application servers.** These are used primarily for application integration and for reconfiguring employee-facing user interfaces.
 - **Today's leader in SOA recognition: IBM.** While most companies manage their SOA deployment with internal resources, the most widely recognized provider is IBM by nearly a three-to-one margin.
-

What is SOA?

We provided several choices for definition of service-oriented architecture to our survey respondents. The leading response for SOA definition was as follows:

A standards-based approach to managing services made available by different software packages for reuse and reconfiguration.

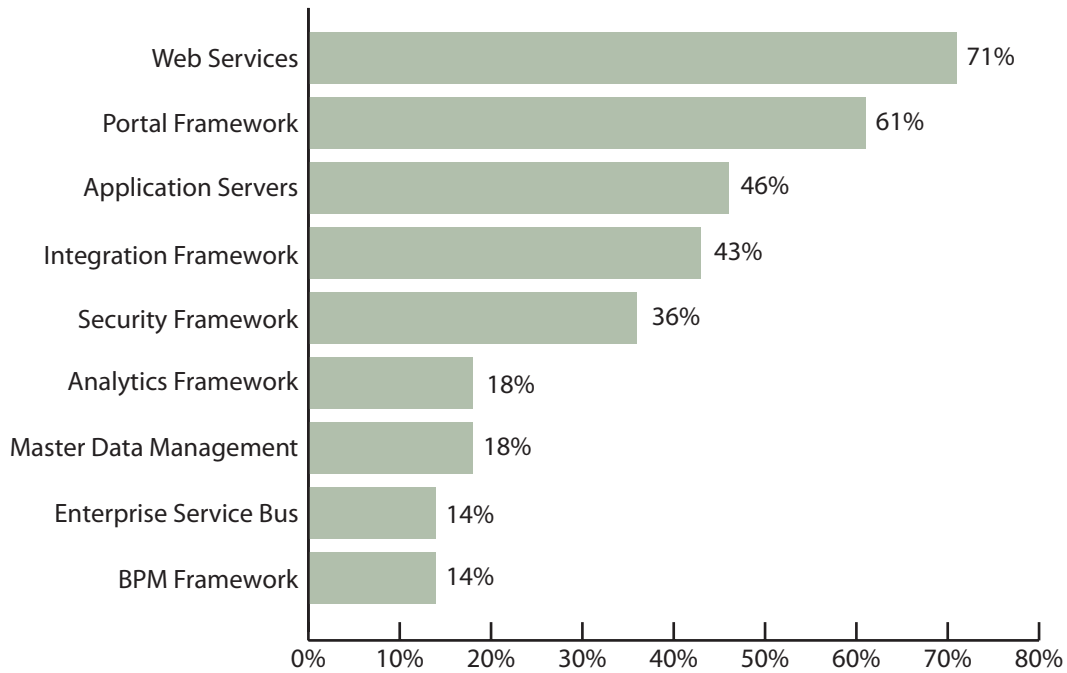
The key phrases in the definition are the following:

- **Standards-based**—As in agreed upon by multiple vendors in order to make it easier for software written by different organizations to be more interoperable. Today's SOA standards include standards for protocols between services, data descriptions, registry definitions, display mechanisms, and orchestration rules. Services are written to common protocols that are interchangeable, unlike today's programmatic interfaces that are unique to each software application and typically vary by hardware platform, software language, and operating system.
- **Services**—As in the request-response mechanism in software, where one software program asks another for information. Common examples include “Get customer address,” “Give me a credit rating for this customer,” and “Check the price of this item.”
- **Managing**—The collective system of guaranteeing the security, reliability, availability, and scalability of services. This includes the creation of the service and its evolution from inception to retirement.
- **Reuse and reconfiguration**—Since the services are standards based, the goal is to write once and use it many times. This is where the biggest benefit of SOA lies, when organizations can reuse services and reconfigure business processes quickly and easily.

Components of SOA

SOAs are made up of several architectural components. We asked those in our survey who have deployed SOA to list the technologies they use in their SOA deployment.

Figure 1: SOA components

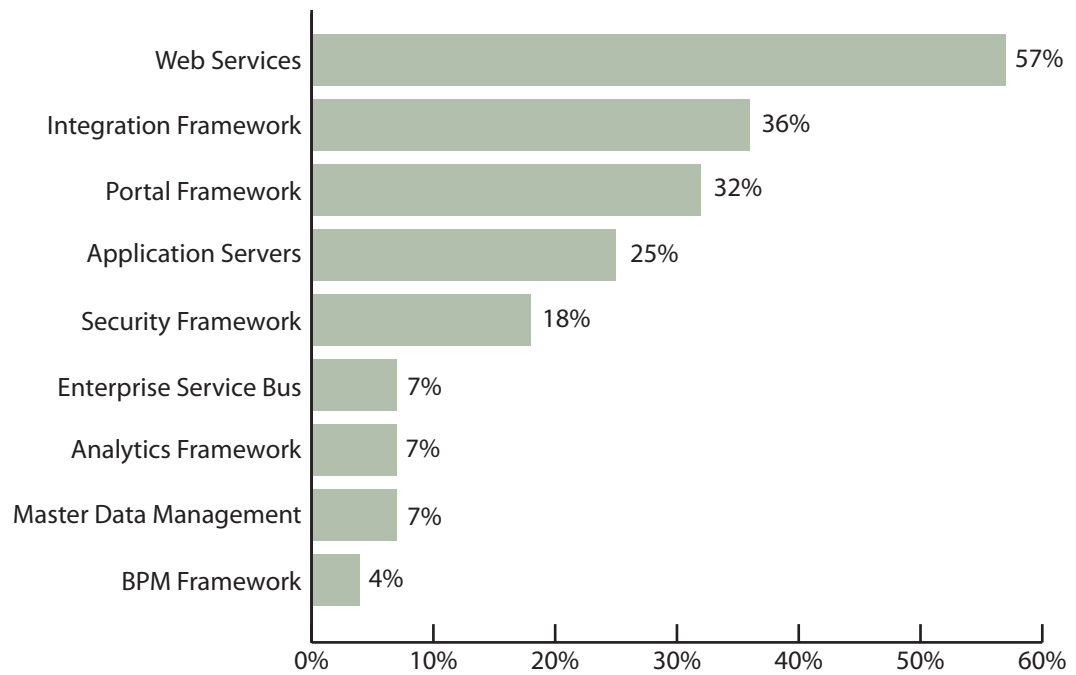


Base: Companies currently using SOA, n=28

Source: AMR Research, 2005

Of the components used in SOA, we asked a follow-up question to determine which components have been standardized in their deployment throughout the organization. The key finding from this question is that very little has been standardized on beyond the use of Web services. Because of the lack of standard technologies, SOA remains challenging to manage for most IT organizations. Buying technologies from several vendors and building the SOA component stack is the most common form of SOA deployment today.

Figure 2: SOA component standardization

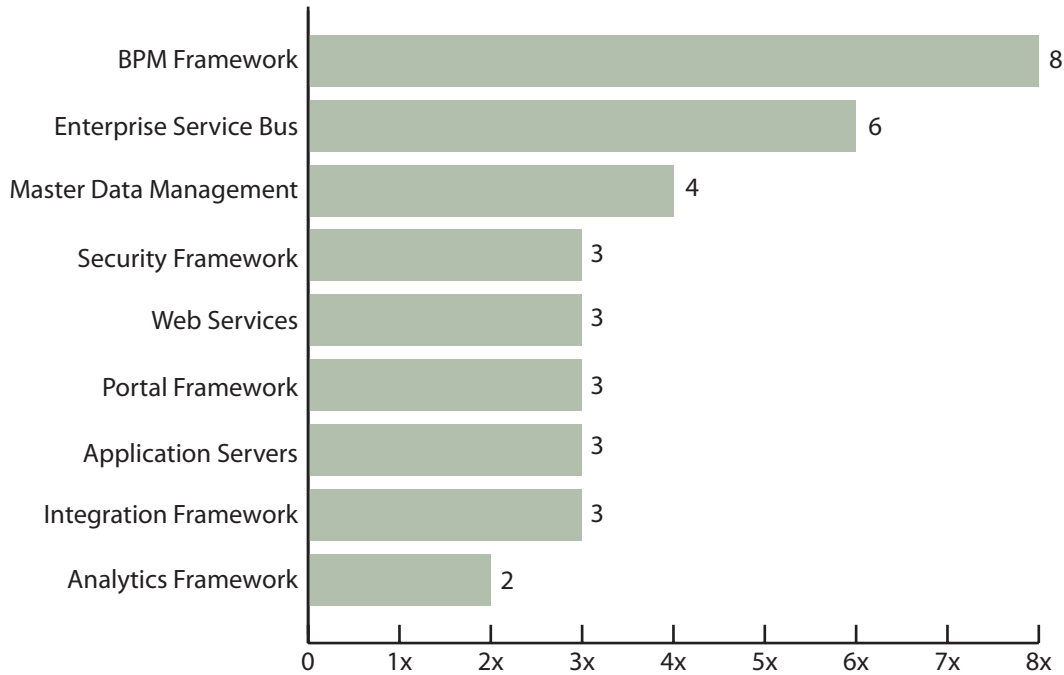


Base: Companies currently using SOA, n=28

Source: AMR Research, 2005

What about future investments in SOA? For those companies that have SOA in place and those planning to implement SOA in the next 12 months, BPM, enterprise service bus, and Master Data Management (MDM) technologies top the list.

Figure 3: Increases in SOA investment



A gauge of interest by component. BPM is 8 times more likely to be part of future deployments than existing deployments.

Base: Companies that are either using or planning to use SOA, n=99

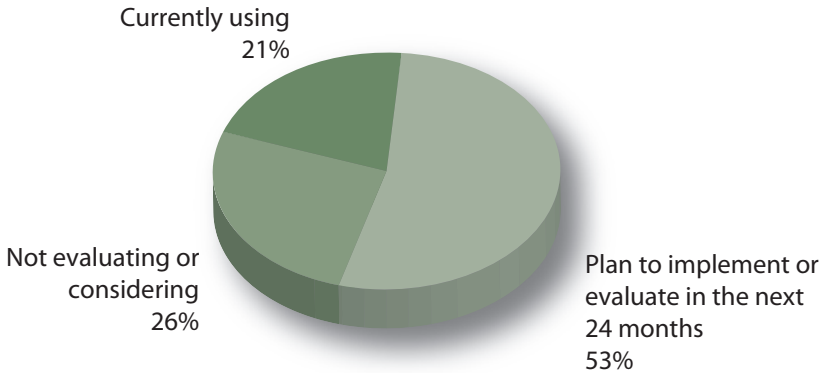
Source: AMR Research, 2005

We believe that BPM becomes the fastest growing component in SOA, as it is a strategically important component responsible for orchestrating the relationship between individual services. Enterprise service bus technology plays a key role in making services available from different technology sources and ensuring service availability and scalability. MDM becomes critical as well, as SOA deployments expose data from key systems of record for customers, suppliers, employees, and products for use in new ways that mandate the synchronization of all sources of data in real time.

State of SOA deployment today

Our survey shows that 21% of organizations have deployed SOA today, with another 53% planning to implement or evaluate SOA components within the next 24 months.

Figure 4: SOA state of deployment

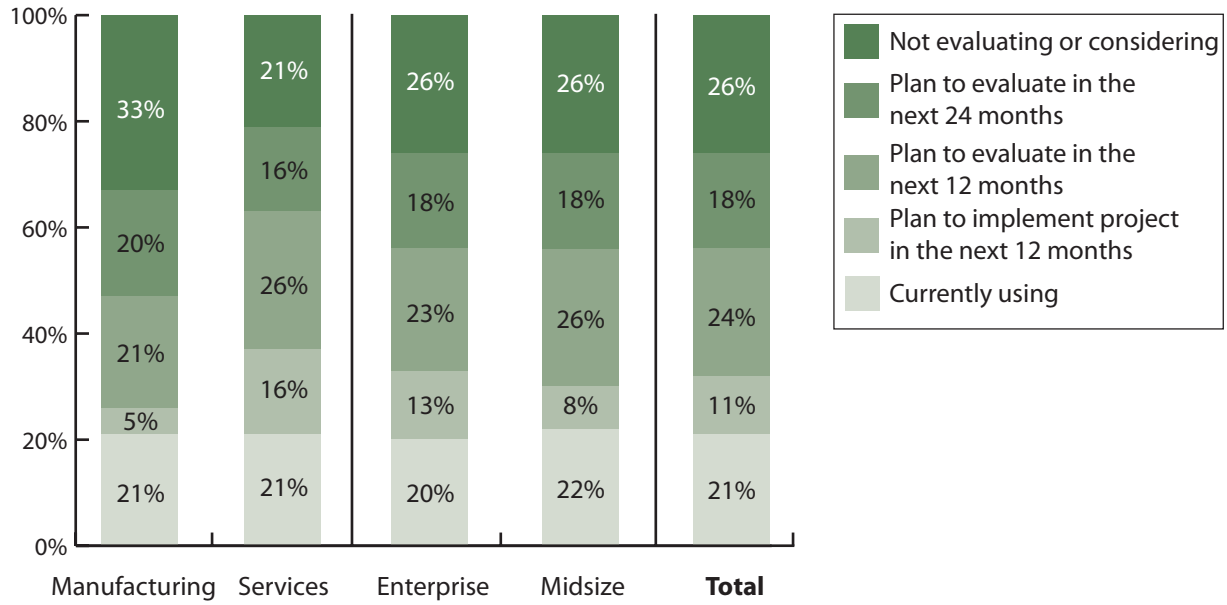


Base: IT professionals from companies with 1,000 or more employees, n=134

Source: AMR Research, 2005

Service companies are more likely to implement SOA technologies in the next 24 months than are manufacturers and retailers. Why? Most haven't standardized on an Enterprise Resource Planning (ERP) backbone—they have a mishmash of systems. This becomes worse through Mergers and Acquisitions (M&As).

Figure 5: SOA state of deployment by industry focus and company size



Base: IT professionals from companies with 1,000 or more employees, n=134

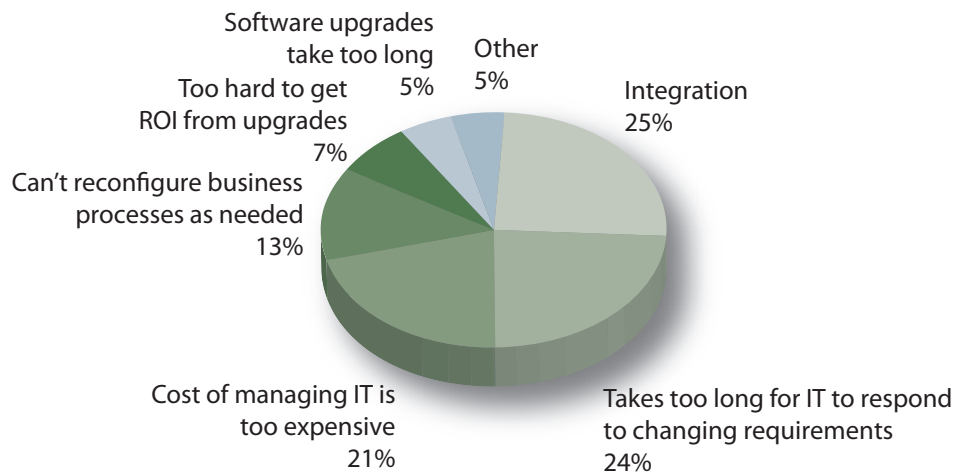
Source: AMR Research, 2005

Why are organizations using SOA?

Challenges exist in managing enterprise software. Respondents prioritize their challenges as follows:

- Integration
- Takes too long for IT to respond to changing requirements
- Cost of managing IT is too expensive
- Can't reconfigure business processes as needed

Figure 6: Challenges in managing software

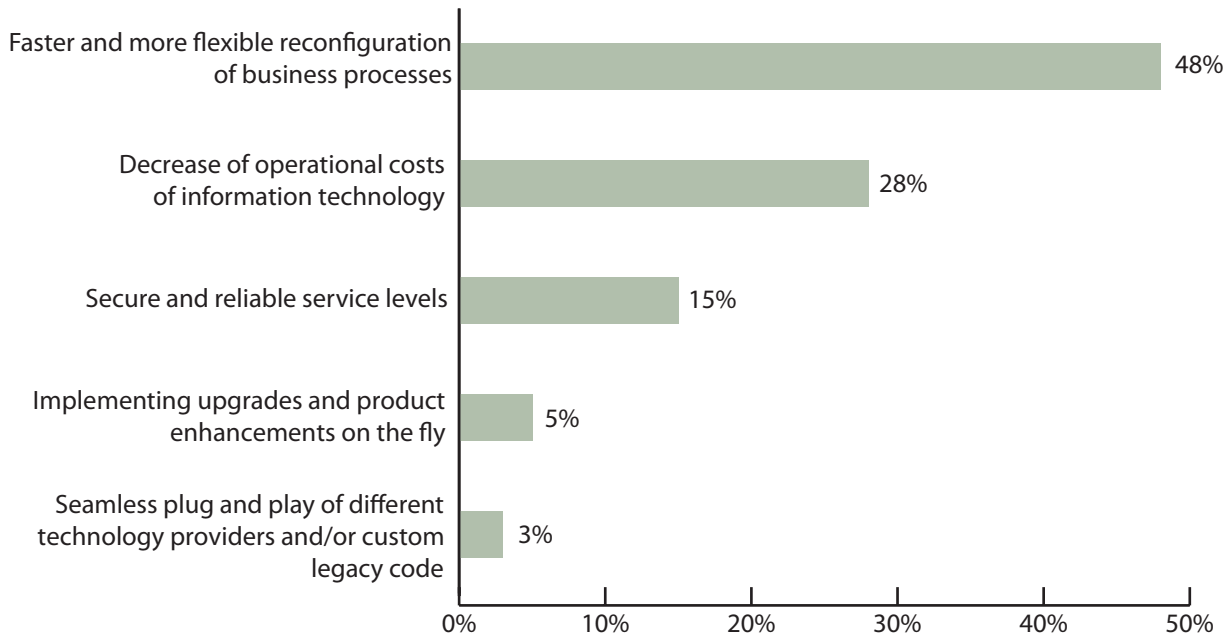


Base: IT professionals from companies with 1,000 or more employees, n=134

Source: AMR Research, 2005

In fact, those who plan to or already have SOA deployed state their No. 1 reason for SOA is a faster and more flexible reconfiguration of business processes.

Figure 7: Expected benefits of SOA



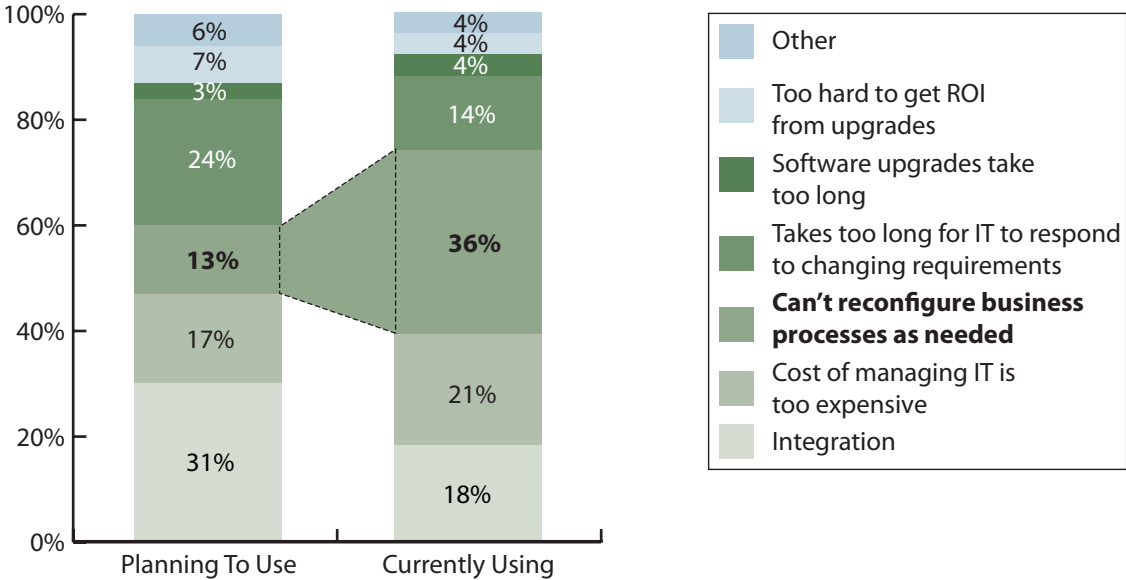
Base: Companies that are either using or planning to use SOA, n=99

Source: AMR Research, 2005

However, as noted in Figure 8, an interesting challenge emerges from those who have implemented SOA as compared to those who are planning to implement SOA. This is in the area of reconfiguration of business processes as needed.

One would think that by having SOA deployed, an organization would be able to reconfigure business processes more easily. However, our survey shows a substantial increase in companies that cannot reconfigure business processes as needed.

Figure 8: Challenges in managing software, currently using SOA vs. future SOA adopters



Base: Companies that are currently using or planning to use SOA, n=99

Source: AMR Research, 2005

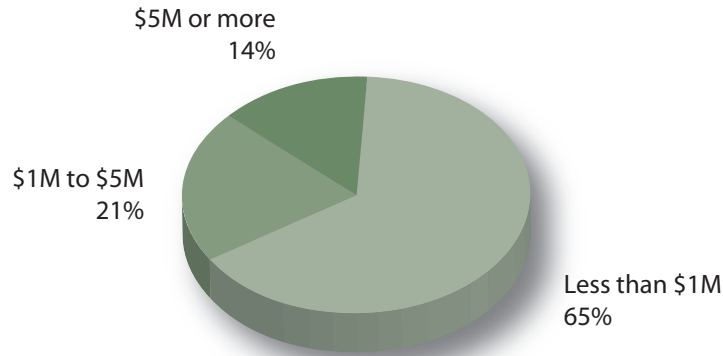
We believe this is because of two reasons:

- Limited deployment of BPM technologies**—BPM is the orchestration layer used to reconfigure business processes. However, even among those who have deployed SOA, only 14% have deployed BPM (see Figure 1). Therefore, the reconfiguration of services is still difficult, if not impossible.
- Size, number, and complexity of legacy systems**—The number of legacy systems with their embedded business processes makes them immensely difficult to service-enable. This just adds to the complexity of reconfiguring business processes, which is only highlighted once an organization embarks on an SOA project. It is likely that many of the companies that have implemented SOA only realize post-implementation some of the complexities in service reconfiguration.

Spending on SOA

Spending on SOA by our survey respondents will average \$667K per company in 2005, with 65% spending less than \$1M.

Figure 9: SOA spending in 2005

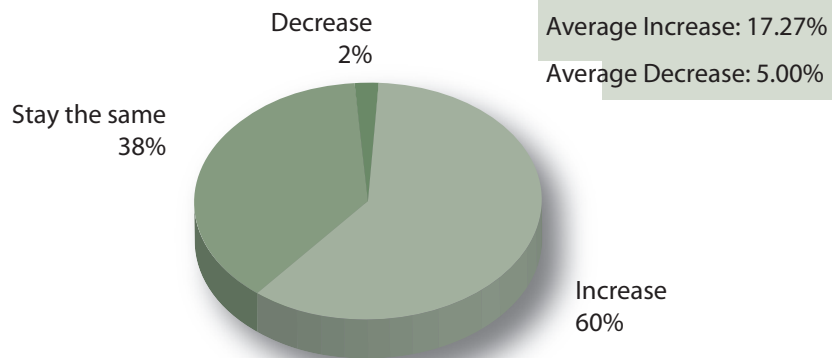


*Note: The average expected to be spent on SOA in 2005 is \$667K.
Base: Companies currently using SOA, n=28*

Source: AMR Research, 2005

Spending on SOA will rise, with the majority of companies maintaining their investment or increasing it. For 2006, 60% of surveyed companies plan to increase their spending on SOA by an average of 17%.

Figure 10: SOA spending—2006 investment plans



Base: Companies that are currently using or planning to use SOA, n=99

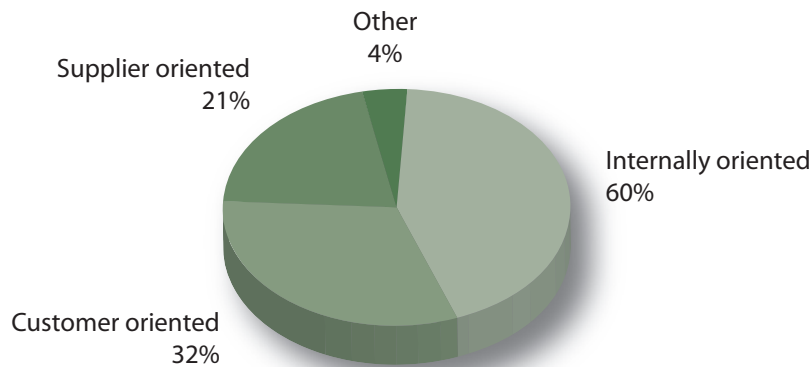
Source: AMR Research, 2005

So where are the monies going? Referring back to Figure 3, survey respondents report the three most likely SOA technologies to lead future investments will be BPM, enterprise service bus, and MDM technologies. Why? They are the technologies best suited to manage the orchestration and reuse of services in an SOA implementation, and provide the platform necessary to upgrade current SOA pilot projects into production.

Focus of SOA deployments

SOA deployments today are mostly internally focused. Early adopters of SOA technology have deployed technologies in safe, controlled environments, often embarking on pilots where most of the collaboration is with employees or software applications managed by a single department or company.

Figure 11: Focus of SOA deployment today

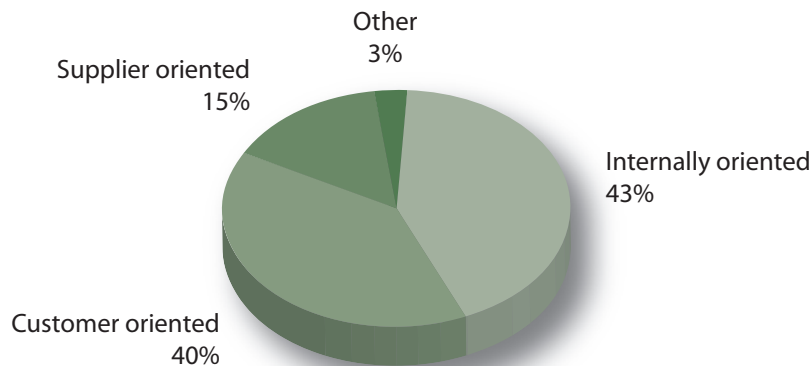


Base: Companies currently using SOA, n=28

Source: AMR Research, 2005

In the future, surveyed companies plan a substantial rise in customer-facing SOA deployments. This is a positive sign for SOA in general, as the early adopters have become comfortable with the technologies and are willing to use them for processes that support customer interaction.

Figure 12: Focus of SOA deployments in future

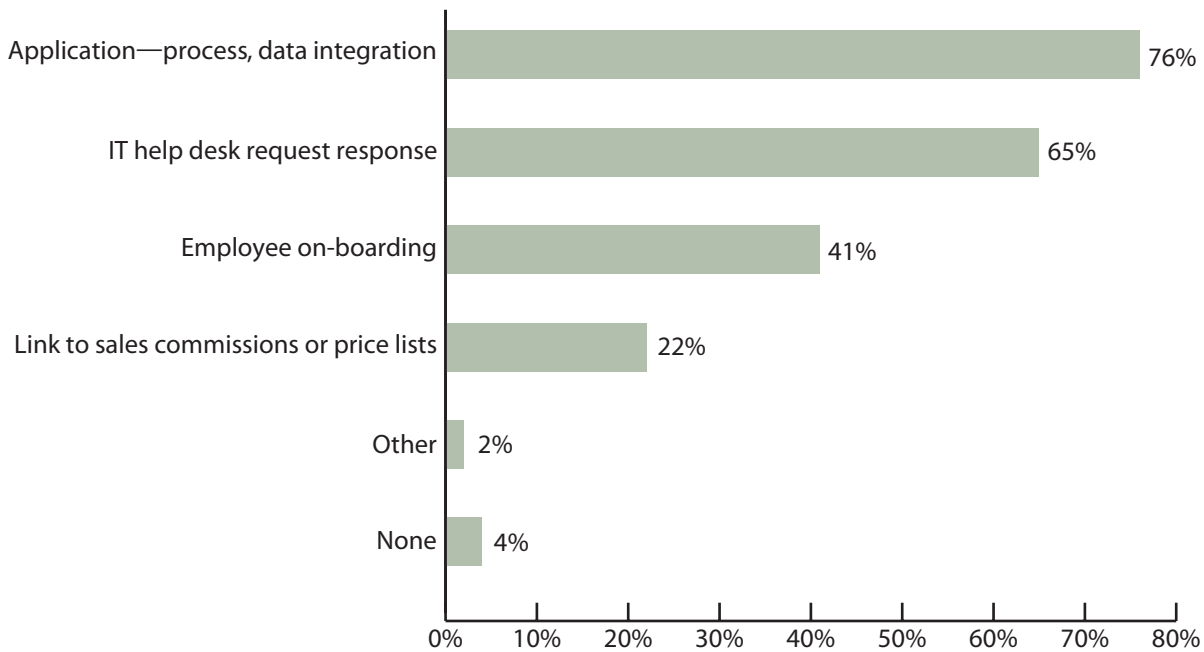


Base: Companies currently using SOA, n=99

Source: AMR Research, 2005

For companies that focused on internal SOA deployments, the leading investment was in application integration, followed by IT help desk request and response activities and employee on-boarding. Each of these types of SOA deployments represents environments that are relatively stable and where the IT staff can control variables such as service users, protocols, and security. Internal SOA is a safe bet for first-time implementers of SOA.

Figure 13: SOA deployments—internal



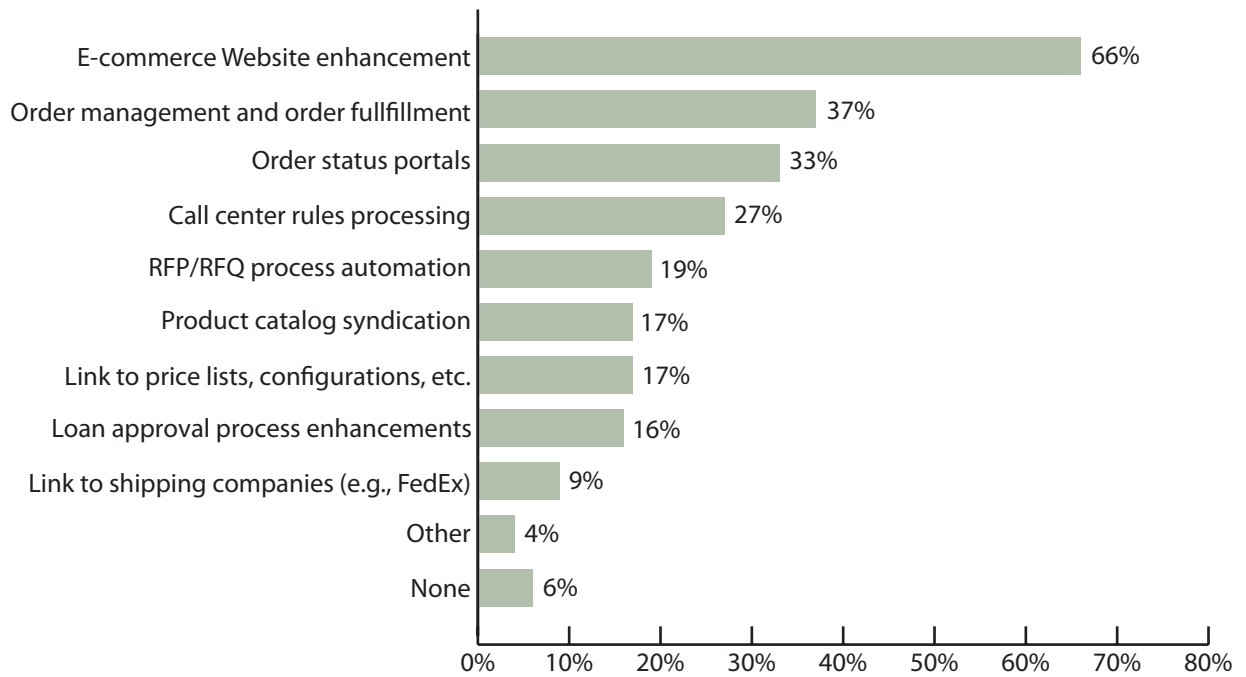
Base: Companies that are either using or planning to use SOA, n=99

Source: AMR Research, 2005

For companies that focused on customer SOA deployments, the leading investment is e-commerce Website enhancements by almost a two-to-one margin. The reason for this kind of investment is so that IT professionals can write one service and use it multiple times. An example is writing a “check inventory” service that can be used for custom point-of-sale systems, handheld warehouse devices, customer service return systems, and the e-commerce self-service customer portal.

Using SOA techniques would reduce the cost of maintenance of the check inventory service, having a single source of software that performs that task regardless of the requesting software.

Figure 14: SOA deployments—customer

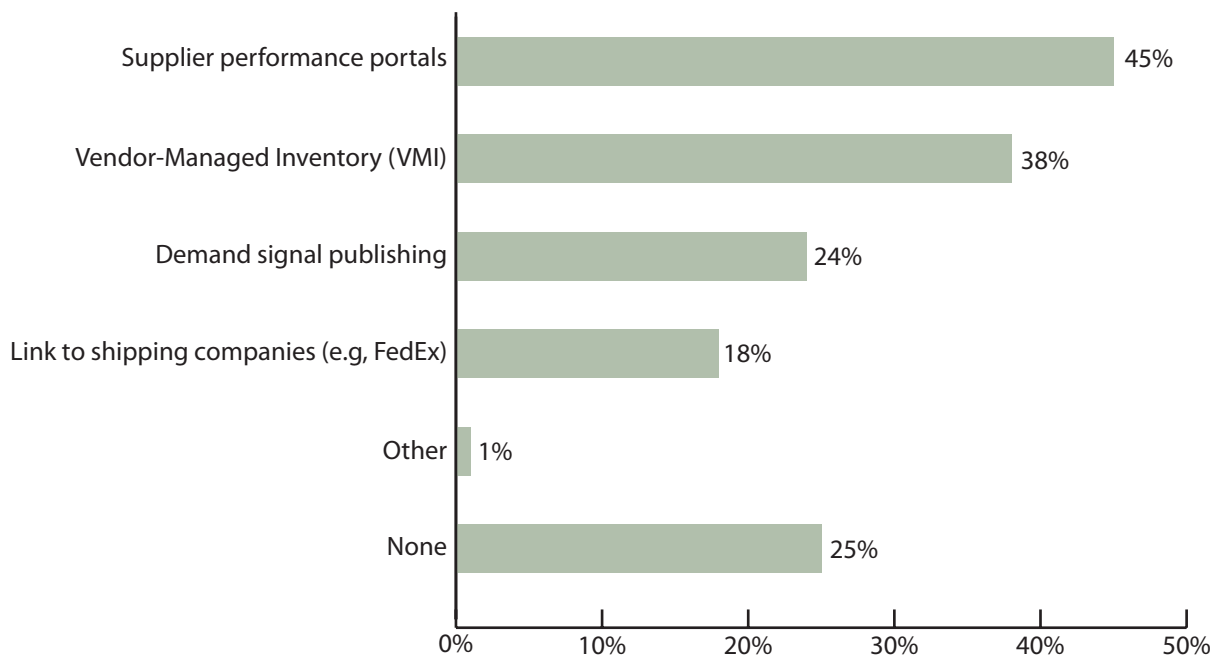


Base: Companies that are using or planning to use SOA, n=99

Source: AMR Research, 2005

For companies that focused on supplier SOA deployments, the leading investments are supplier performance portals and Vendor-Managed Inventory (VMI) systems.

Figure 15: SOA deployments—supplier



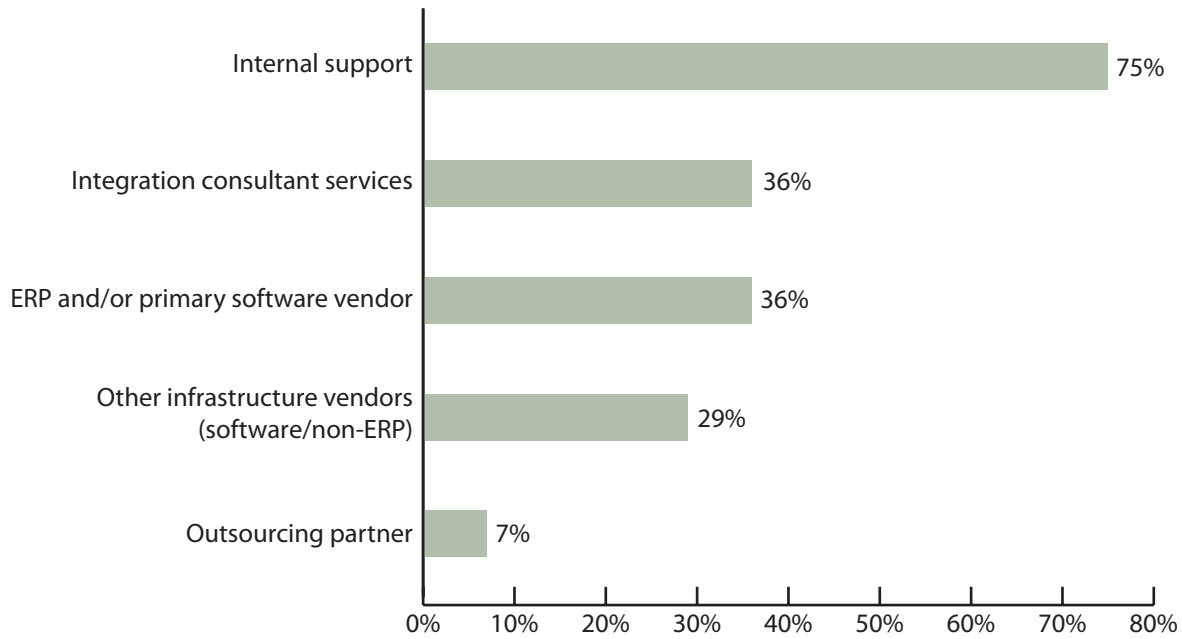
Base: Companies that are either using or planning to use SOA, n=99

Source: AMR Research, 2005

SOA vendor support

Most companies in our survey supported their SOA deployment with internal resources.

Figure 16: SOA support

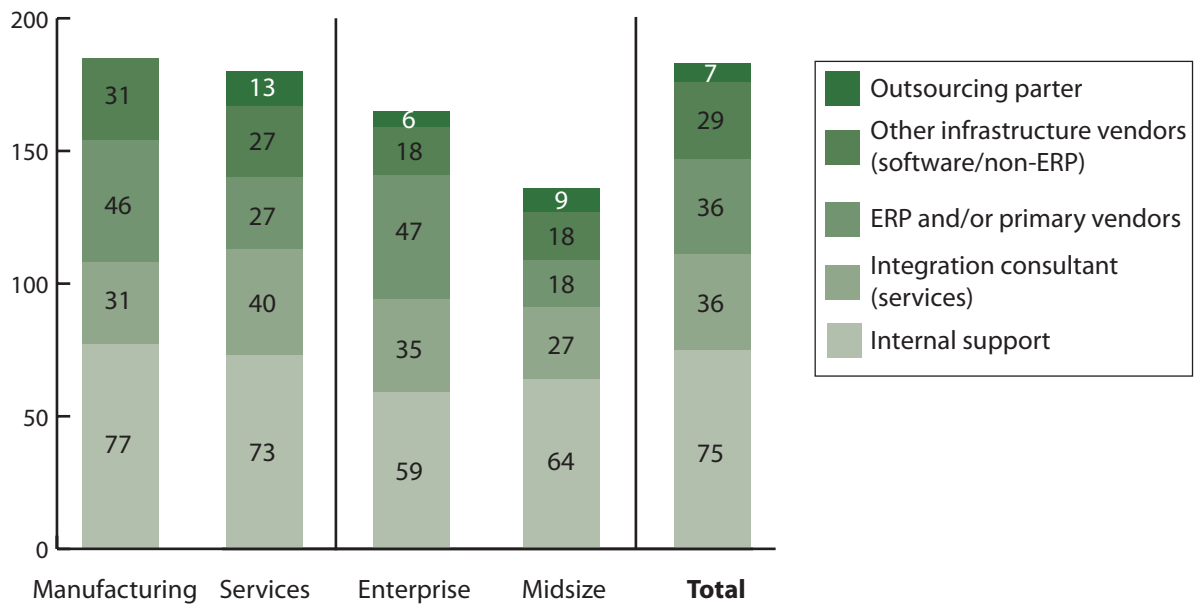


Base: Companies currently using SOA, n=28

Source: AMR Research, 2005

In a comparison by industry, one noticeable difference is in the use of ERP suppliers by manufacturers as their primary support for SOA, which is almost twice as often as service companies use their ERP provider. This is likely because many service companies don't have an ERP system, but rather a wide variety of custom software applications to support.

Figure 17: SOA support by industry and company size

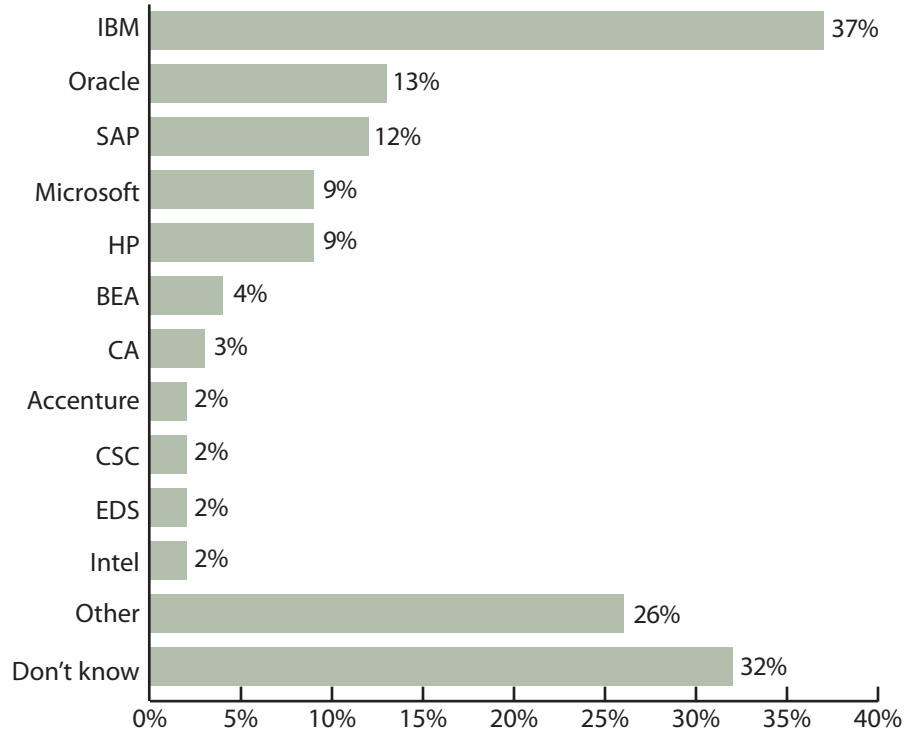


Q. What type(s) of vendor is your company currently using to support your SOA initiative? (n=28)

Source: AMR Research, 2005

We also asked who our surveyed companies thought were leaders in SOA technology. IBM was mentioned most often, leading other providers nearly three to one.

Figure 18: Vendors most often mentioned as leaders in SOA



Base: Companies that are either using or planning to use SOA, n=99

Source: AMR Research, 2005

Conclusion

Every major software company is delivering or planning to deliver service-enabled software. Standards are improving and will address some of the barriers to successful implementations in the near future. Orchestration and reuse of services will get easier with BPM implementations.

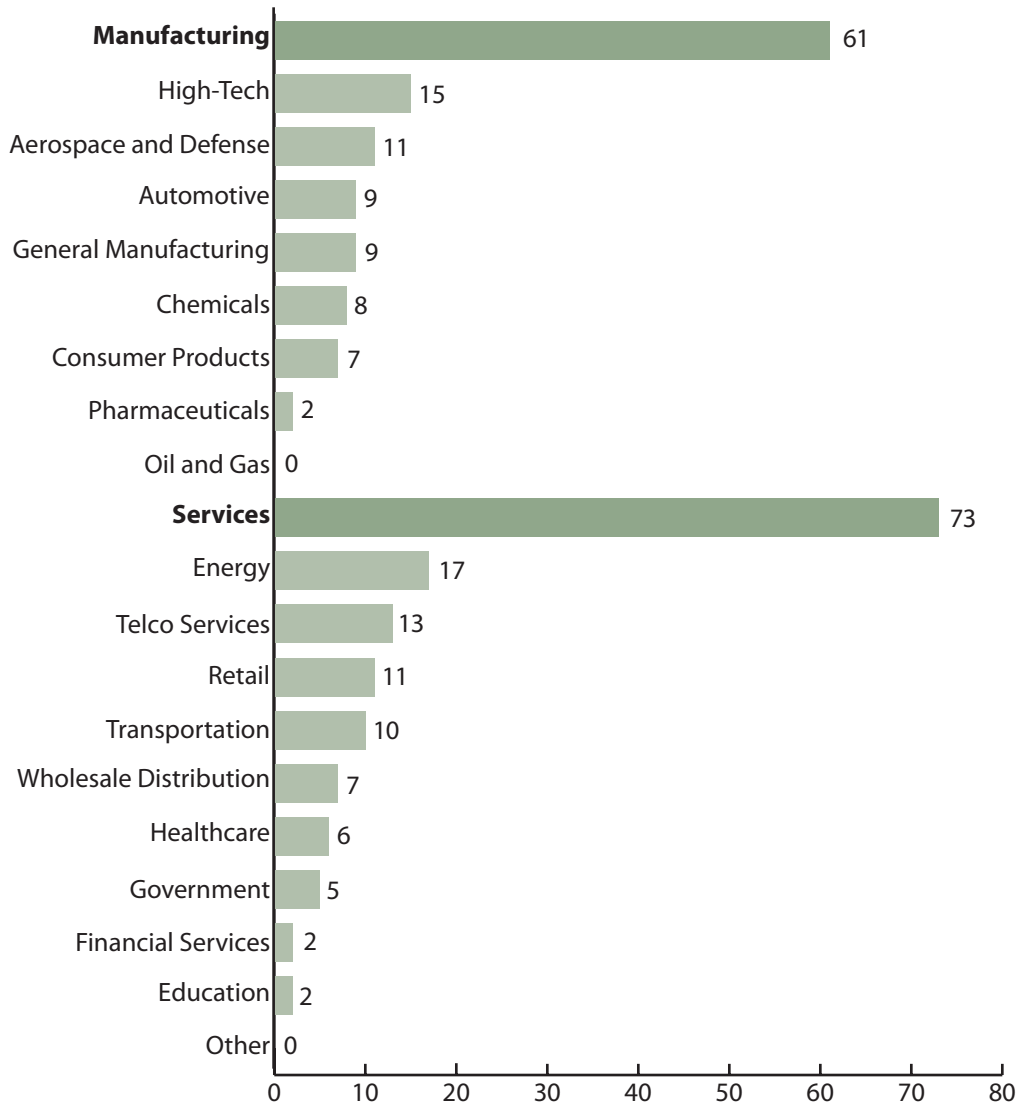
Those companies that have deployed SOA find it useful and plan to invest more money in 2006. Every company should be investigating the technologies related to SOA and finding ways to educate their employees on them, starting with internal business processes as a relatively safe area of investment.

SAP's *Enterprise Services Architecture (ESA)* and **Oracle's** *Fusion* are driving increased awareness of SOA today. Their expected delivery dates for the initiatives are 2007 and 2008, respectively.

Survey demographics

The following figures depict the demographics of our survey respondents.

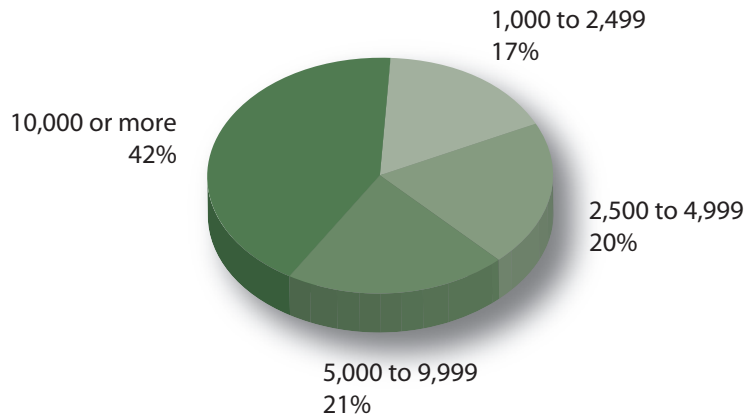
Figure 19: Industry profiles



Base: IT professionals from companies with 1,000 or more employees, n=134

Source: AMR Research, 2005

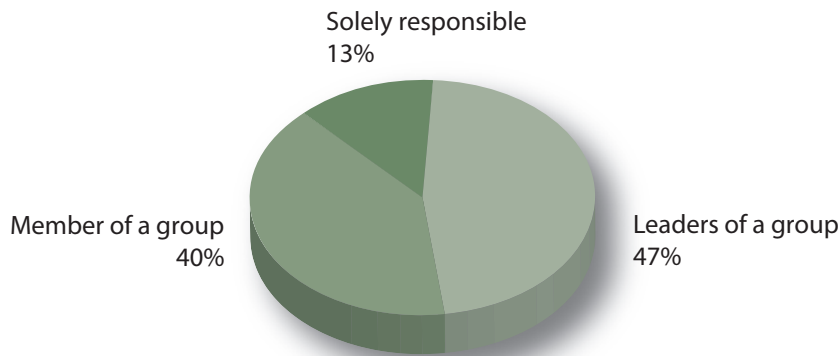
Figure 20: Company employee size



Base: IT professionals from companies with 1,000 or more employees, n=134

Source: AMR Research, 2005

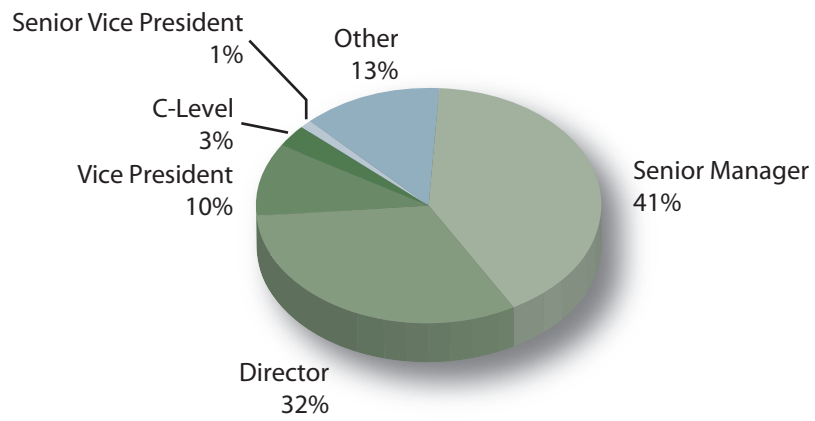
Figure 21: IT responsibility



Base: IT professionals from companies with 1,000 or more employees, n=134

Source: AMR Research, 2005

Figure 22: Title of respondent



Base: IT professionals from companies with 1,000 or more employees, n=134

Source: AMR Research, 2005

Notes

Acronyms and Abbreviations

AMR Research provides world-class research and actionable advice for executives tasked with delivering enhanced business process performance and cost savings with the aid of technology. 5,000 leaders in the Global 1000 put their trust in AMR Research's integrity, depth of industry expertise, and passion for customer service to support their most critical business initiatives, including supply chain transformation, new product introduction, customer profitability, compliance and governance, and IT benefits realization. More information is available at www.amrresearch.com.

Your comments are welcome. Reprints are available. Send any comments or questions to:

AMR Research, Inc.
125 Summer Street
Boston, MA 02110
Tel: +1-617-542-6600
Fax: +1-617-542-5670
www.amrresearch.com

555 Montgomery Street
Suite 650
San Francisco, CA 94111
Tel: +1-415-217-3737

Whittaker House
Whittaker Avenue
Richmond, Surrey TW9 1EH
United Kingdom
Tel: +44 (0) 20 8822 6780
Fax: +44 (0) 20 8822 6790

BPM	Business Process Management
ERP	Enterprise Resource Planning
M&A	Merger and Acquisition
MDM	Master Data Management
RFP	Request for Proposal
RFQ	Request for Quotation
ROI	Return on Investment
SOA	Service-Oriented Architecture
VMI	Vendor-Managed Inventory