



Pulling Value Through the Portal: Lessons From Experience

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Jim Murphy, Laura Carrillo

The Bottom Line: Companies that invest most aggressively in portal framework strategies are garnering returns and engineering for the future

Implemented broadly, portal frameworks bring remarkable and increasing return over time

Portals have been widely presented as a panacea—a universal cure for the information problems that all companies—as versatile, flexible, and adaptable as the Web itself. Companies have used portals as a means of delivering applications, integrating information systems, automating processes, and reaching out to employees, customers, suppliers, and partners. Of course, the versatility of portals is both a boon and a burden to companies that must solve a vast array of problems and serve a variety of constituencies, for they must decide where to start and how to extract the most value out of an obscure, emerging technology. And in an ever-changing and consolidating market, they run the risk of wasting time and money.

The value of a portal framework has far less to do with the product than it does with the way it's implemented and used. In fact, a company's esteem for a portal framework initiative, manifested in funding and high-level, cross-functional support, has a more direct correlation to ultimate value than the software does. Clearly, the most aggressive enterprises—those that adopt the portal as an essential platform for the future—are gathering the most return and are gearing themselves for accelerated return in years to come. (For a definition of the portal framework, see the *AMR Research Report* titled "Build a Unified Portal Framework; Regain IT Control," November 2001. This Report and other relevant research are described in "Related research.")

The portal framework isn't just one way; it's the only way IT can serve the various needs of the business

By all rights, the portal framework isn't an *if*, but a *when*. It's not just one way; it's the only way IT organizations can accommodate the wide-ranging needs of the business while preparing for the future. A couple of years ago, when most of the companies that we interviewed for this Report started implementing portals, companies regarded it as a "no brainer," justifying it as they justified corporate e-mail—that is, not justifying it at all.

But let's be realistic. In the current environment, no investment is a "no brainer." Companies must justify portals; they're more likely than ever to require high-level endorsement. To complicate matters, IT organizations often find themselves having to justify single portal frameworks versus multiple portals, intranets, Websites, or other narrow means of reaching constituencies.

Although many of our references started their portal projects in the "no brainer" era, we can derive a good sense of the value of portals, as well as a good sense of the best means to reap the value, by examining their experiences. To that end, we interviewed 25 companies with at least two years of experience implementing and deploying portal frameworks.

Companies we worked with tend to find value in a range of areas (see Table 1).

Table 1: A framework for identifying portal value

IT Savings: The Portal Framework as Infrastructure				
Area	Benefits	Valuable	Measurable	Examples from cases
Unify development environment	Reduce IT training cost	Low	Low	No companies could quantify this factor.
	Reduce development and integration cost	High	High	40% reduction in cost to web enable existing systems.
Extend use of existing systems	Reduce software license cost	High	High	No companies would quantify this factor.
	Reduce upgrade and replacement cost	High	High	Upgrade single server rather than 5000 desktops.
Centralize administration	Redeploy unneeded site administrators	High	High	Deploy time sheet application to avoid ERP seat cost for 1200 workers.
	Delegate business tasks to managers and groups	High	High	Business owners update content, manage groups.
	Unify identity management	High	High	No companies could quantify this factor.
Consolidate systems	Retire or redeploy old site servers and systems	High	High	No companies could quantify this factor.
	Reduce need to upgrade desktops	High	High	No companies could quantify this factor.
Offer online IT support and training	Reduce help desk cost; IT training	High	High	Reduce help desk calls 25% by posting network status notifications.
Give business visibility to IT strategy	Communicate IT projects and priorities to the business	High	High	Raise awareness of IT's service to the business.
Business Savings: The Portal as Platform for Knowledge Management and Collaboration				
Area	Benefits	Valuable	Measurable	Examples
Single point of access	Employees spend less time logging into, searching many systems	High	High	4 minutes per day for 200,000 employees.
	Customers know where to get all relevant information	High	High	No companies could quantify this factor.
Self-service	Reduce support costs	High	High	Headcount in call center reduced from 350 to 200.
	Reduce paper and shipping costs	High	High	1 month to 5 minutes distributing reports; personnel, print, shipping costs eliminated.
	Offer online sales support and product information	High	High	\$176M in influenced sales on \$5M investment 1st year.
Collaboration	Reduce travel costs, communications costs	High	High	No companies could quantify this factor.
	Reduce cycle times	High	High	Quicker response to customer requests; introduce products more rapidly.
	Address exceptions to automated, regulated processes	High	High	Reduce invoice approval from 3 weeks to 5 minutes; reduce paper and shipping costs to nil.
Knowledge management	Reduce duplication of effort	High	High	No companies could quantify this factor.
	Reduce risk of inconsistency, contradiction	High	High	Avoid fines for inaccurate or outdated information.
Business Intelligence; dashboards	Make quicker, more informed decisions	High	High	No companies could quantify this factor.

Source: AMR Research, 2002

- High
- Medium
- Low

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Successful companies use hard savings to fund projects

Companies can usually find enough hard savings to fund a portal project. One company we spoke with initially used the portal as a means to compile and distribute 1,200 unique reports per month. These are now available via the portal, saving the company numerous person-hours, paper costs, and headcount. The company will use the savings to fund further portal projects, especially those that show high potential and low predictability of value.

Because of their need to appeal to broad audiences, portal framework vendors are often compelled to water down their ROI messages as "increasing employee productivity." One automotive manufacturer, after a significant usability study, determined that its 200,000 employees would save at least four minutes a day with an employee information portal, using average salary to calculate the person-hours saved per year.

But most companies are skeptical about such broad calculations. An accurate assessment of increased employee productivity must ultimately be tied to an increase in revenue or a reduction in cost, usually via headcount.

Honing in on specific roles and business processes yields more tangible benefits:

- A power generation company calculated that if it could offer maintenance and parts information more readily to plant engineers, it would allow them to make at least two more site repairs per day, saving the company millions of dollars per year.
- Another organization showed a causal relationship between its customer-facing self-service portal and decreased activity in a call center, which allowed a decrease from 350 to 200 agents.
- Another company determined that technicians were spending 24% less time on rework in the field because of portal access.

The value conundrum: broad value depends upon focused use

The portal framework's ultimate value as an element of enterprise architecture rests upon its broad use and adoption. But broadly conceived portals offer scant predictable or measurable value, and where there is value, it often presumes the existence of additional systems and resources.

While grounding portal initiatives on hard, predictable savings can help fund portal projects, they can also lead into shortsighted, narrow portals with limited scope and extensibility. Companies must keep higher goals in mind, like improving customer (and constituent) satisfaction, promoting brands, and allowing better decision support, when evaluating portal frameworks and prioritizing investments.

While assessing specific value in specific roles is an important and worthwhile exercise, and many companies we spoke with undertook meticulous calculations to predict value, successful companies funded and prioritized portals using qualitative measures as well.

For instance, more than a few companies in our study funded broad portal projects with executive dashboards, appealing to CEOs, CFOs, and Sales VPs first. While ROI wasn't always as clear or even as compelling as with lower-level audiences or processes, executives holding the purse strings were more likely to perceive the "no brainer" value. In addition, there is priceless qualitative value in getting executive level buy-in for portal framework initiatives.

The hard work begins: garnering value means ignoring shortcuts

Unfortunately, merely identifying potential return doesn't start the money rolling in. It may seem obvious, but too many companies have failed to follow an assessment of potential return with strategy that accomplishes it. While the portal framework should allow enterprises to break down information silos and remove redundant or repetitive processes, the enterprise must define the processes, identify the inefficiencies, and eliminate them themselves.

For example, several organizations we've spoken with expect to save by consolidating multiple intranets (as in Table 1), but they simply develop pages of links to the existing systems, rather than decommissioning them. In effect, they still maintain the old systems, missing out on the opportunity to reduce administration, development, and hardware costs—and overlooking the greater opportunity to analyze user interaction across the business. Higher value is only possible by truly consolidating the systems, migrating, or integrating site content when necessary.

Thus, companies must execute portal strategies in line with the greatest potential return, which may mean ignoring shortcuts when they circumvent long-term goals.

Plan to measure; measure to plan

Accurate measurement or portal framework success requires careful planning and a high-level view of many systems, especially those that the portal will replace.

Most companies rely on Website usage metrics to gauge adoption and improve the portal sites, tracking users' registration, page views, and interactions. But usage in isolation is usually an imprecise, if not misguided, means of measuring value.

It's a leap of faith to say that getting more users to use the portal is, in itself, a measure of the portal's value. While it may drive down the per-user cost of the portal software, the goal is to improve the performance of the business—not the traffic in the portal.

Measurement can be further complicated by the need to show causal relationships between portal use and its impact on more antiquated, disconnected processes. For instance, a customer may visit a self-service portal to find information about a product, then speak to a call center representative for more information, then order it via fax. In this case, the portal may have little or no impact on the customer's decision to buy. In fact, time spent in the portal may only reflect her inability to find what she needs.

In planning portal deployments and assessing potential return, companies must establish meaningful metrics to gauge success across departments. Each area of potential return should be accompanied by a means of measurement.

Ultimately, as the portal is promoted as a single point of access for the enterprise—as the unified infrastructure is used for the customer service and sales portal, it can provide the cross-channel, cross-departmental visibility required for accurate, meaningful performance metrics.

Cost is a long-term factor and portals should be managed and funded accordingly

Initial ramp-up cost for a portal may be high, up to \$5M for companies we interviewed, depending upon the sophistication and the size of the audience. But implementing a portal framework broadly will reduce cost over time as benefits increase exponentially.

Furthermore, the inherent value of a portal framework is in allowing companies to exploit existing systems as much as possible. When capable elements, like content management or security administration, are already in place, companies should make an effort to standardize upon them or extend their use.

Table 2: Portal framework cost considerations

Portal Cost Factors	Percentage of Cost	Required/Optional	Included/Extra	Total Cost per User Low	Total Cost Per User High	Average Cost Per User
Portal Framework and Software	43%			\$78	\$1,040	\$437
Community Definition		Required	Included	Partial	√	
Security Administration		Required	Included*	√	√	
Personalization		Required	Included	√	√	
Content Management		Required	Extra	Partial	√	
Integration		Required	Included**	√	√	
Workflow		Required	Included**	Partial	√	
Collaboration		Optional	Extra	Partial	√	
Search, Retrieval, and categorization		Required	Included*	√	√	
Analytics/Business Intelligence		Optional	Extra		Partial	
Portal Infrastructure	11%			<i>Source: AMR Research, 2003</i>		
Web Servers		Required	Included			
Application Servers		Required	Some			
Databases		Required	Some			
Data warehouses/marts		Optional	Extra			
Development Tools		Optional	Some			
Hardware	9%					
Servers		Required	Extra			
Networking		Required	Extra			
Services	37%					
Professional Services		Optional	Extra			
Internal Development		Required	Extra			
Internal Administration		Required	Extra			

*Many products provide this element through OEM relationships.

**Included products may not suffice for more sophisticated deployments.

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The price of portal framework software has dipped drastically in the past several years, especially as infrastructure providers like **IBM**, **Microsoft**, **BEA**, and **Oracle** recognize the high stakes in the market and incorporate portal frameworks into their technology stacks. In fact, Oracle's portal framework comes free with its *9iAS* application server. IBM and Microsoft have offerings available for as little as \$70 to \$80 per user. Of course, their strategies are often to sell or solidify other software components, applications, or services, so total project cost hasn't likely dipped as drastically as portal software prices.

In any case, initial software cost is minor compared to development cost. Ideally, development and administration costs decrease over time, as IT gains experience and reuses, shares, and adapts existing components. Unfortunately, short-sighted companies don't often realize this increased return, considering the project "failed" before it can gather momentum.

Companies we talked to started enterprise portal projects with an investment of as little as \$80K and as much as \$5M. The real keys to successfully funding portal projects are as follows:

- Invest in the future. Fund for initial deployment in the first year and continue funding at a lower rate in ensuing years as you continue deployment.
- When funding is scarce, focus on key constituencies and specific needs while engineering for the future. For instance, several companies we talked to established a framework for executive dashboards (an effective means of getting CFO endorsement) before deploying portals more broadly.

A principled approach is the only way to derive value

Ultimately, savings, revenue opportunity, and agility depend upon a strict, principled approach to all enterprise Web initiatives. Companies will derive the most value if they adhere as closely as possible to the following principles:

- Establish one unified portal framework.
- Use existing resources whenever feasible.
- Break down application and departmental silos.
- Drive pertinent information to users (push) while letting users gather (pull) information for themselves.
- Drive toward the portal as a single point of access for the enterprise. Make it *the* place to go for interaction with your company.
- Don't let failure be an option; commit to success and rectify problems when they occur.

IT and business must coordinate effort

Clearly, most companies face more daunting organizational than technical obstructions. Among other prevalent problems, business departments, because the pain and the greater return often lies in their realm, often control the budget for portal initiatives. Business units tend to gravitate toward their application providers for their portals because they can offer the most functionality in the shortest amount of time. But a departmental or application-oriented approach tends to propagate portal instances and perpetuate departmental boundaries, defeating the ultimate value of the unified portal.

Successful enterprises foster mutual understanding between the various business departments and IT, usually employing a cross-departmental steering committee to scope the project, identify requirements and opportunities, and prioritize tasks. A particularly successful strategy is to employ separate directors for supplier portals, customer portals, and employee portals, who can act as liaisons between IT and the business as well as meeting together to ensure that the portal framework remains unified—in terms of long term strategy and architecture.

If you build it, they will ignore it; if they build it, they will come

While equating portal usage with value to the business can be a mistake, lack of adoption is the most frequent hindrance to success. Accommodating and appealing to end-users is far more difficult than most companies expect.

As with any enterprise-wide initiative, the portal framework requires executive buy-in, which entails the executive's visible sponsorship and use of the portal. For instance, when the CEO communicates corporate messages and accepts and responds to feedback through the portal, other users are more likely to recognize its establishment as a system of record and a platform for the future.

Still, encouraging a single high-level executive to utilize the portal is easy compared to prodding the mass of end users, managers, employees, customers, suppliers, and partners to use it. Companies often find themselves running ad campaigns, contests, polling, or offering entertaining content as encouragement to attract people to the portal.

But users will adopt the portal if it helps them to do their job. Companies must get the user perspective—that is, not just understanding the needs of the business and its departments, but understanding what people need to make their jobs easier.

One company we interviewed for this Report takes the extraordinary step of identifying representatives of key end-user roles and taking them out of daily tasks—for periods of three months—to identify information needs and enhance usability. While few companies, with headcount restraint as tight as it is, would find this strategy feasible, this is the kind of commitment that will make the portal framework more valuable to both end user and enterprise.

The right start is critical to success

So much depends upon a methodical approach to deploying enterprise portals—a rational and deliberate method for starting and progressing through the deployment.








Companies can't possibly accomplish all they want at once; they have to start somewhere, and initial decisions are critical to success. The question is how do they garner the most value in a short time—enough to ensure visible, measurable success and continued funding—while driving toward the long-term goals and benefits of broad and thorough adoption?

Companies tend to implement broad and shallow—for instance, deploying an HR portal with employee directories and corporate communications that every employee finds a use for—or narrow and deep, identifying a specific role and delivering the information and functionality they need to improve efficiency.

The most aggressive and successful portal strategies employ both approaches, implementing broad portals for general constituencies while identifying key, high-value user roles and business processes. While the broad-shallow approach is often easier, as many of the portal frameworks have built-in applications to support common

corporate needs, it offers little in the realm of measurable value. And while it's considerably more challenging to integrate the information and accommodate the needs of individual constituencies, it's also more valuable and measurable. Over the course of time, value is multiplied with the ability to reuse the components, the integration, and the experience gained in the course of enabling additional roles and processes.

Table 3: Progressing through the portal deployment

	Factor	Benefit	Challenge	Comments
Horizontal 	Portal by functionality (Information to Transaction to Collaboration)	•A safe way to deploy portals. •Allows companies to test portal with little risk.	•Adoption can be slow. •Initial experience with the portal can be so unsatisfactory.	Deploy only in areas where visibility itself is valuable.
Horizontal 	Portal by broad audience (e.g., Employee to Customer to Supplier to Partner, etc.)	•Focus on audience is crucial to success.	Companies may need to institute new roles (e.g., director of customer portals) to employ the portal as a mechanism for building relationships with various audiences.	While portals have typically been deployed in the order of employee to customer to supplier, the potential value may well be in the reverse order.
Horizontal 	Portal by Title (C-Level to VP to Director, etc.)	•Early executive buy-in. •Effective means to cascade performance metrics throughout the enterprise.	Often stalls at the executive level as IT and other resources get caught up in analytics issues.	Use as a means to foster performance from top down.
Vertical 	Portal by Application (e.g., ERP, CRM, Mainframe)	•A practical concern for companies with difficult-to-access legacy systems.	•Perpetuates information silos based on applications. •Web enabling applications may be wasting effort, as vendors should be doing the same.	•Avoid inclination to Web enable single systems. •Put application information into a useful context for the user by role, especially in relation to the business process they must perform.
Vertical 	Portal by department (e.g., Human Resources, Procurement, Sales...)	Effective way to automate departmental processes, reduce administrative tasks, and offer constituencies consistent information and self-service.	•Perpetuates departmental silos. •Tends to benefit the department rather than the whole organization or its constituents.	Departments deploying portals should keep in mind that they are for the benefit of constituencies first, department workers themselves second.
Vertical 	Portal by business process (e.g., material requisitioning, invoice approval, etc.)	Breaks up information, application, and departmental silos. Focus on performance. Easy to monitor and measure value.	•Requires well-defined business processes and understanding of relationship to role. •Can result in a fragmentary experience for end-users who play parts in many processes.	Ideal, but recommended only for companies with a wide range of thoroughly defined and documented business processes.
Vertical 	Portal by role (Sales Manager, Plant Maintenance Engineer, etc.)	•Productivity can be measured in terms of key audience's performance. •Gain experience in critical roles.	•Can be costly and time consuming to enable a single key role.	Combine with a horizontal approach.

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Source: AMR Research, 2003

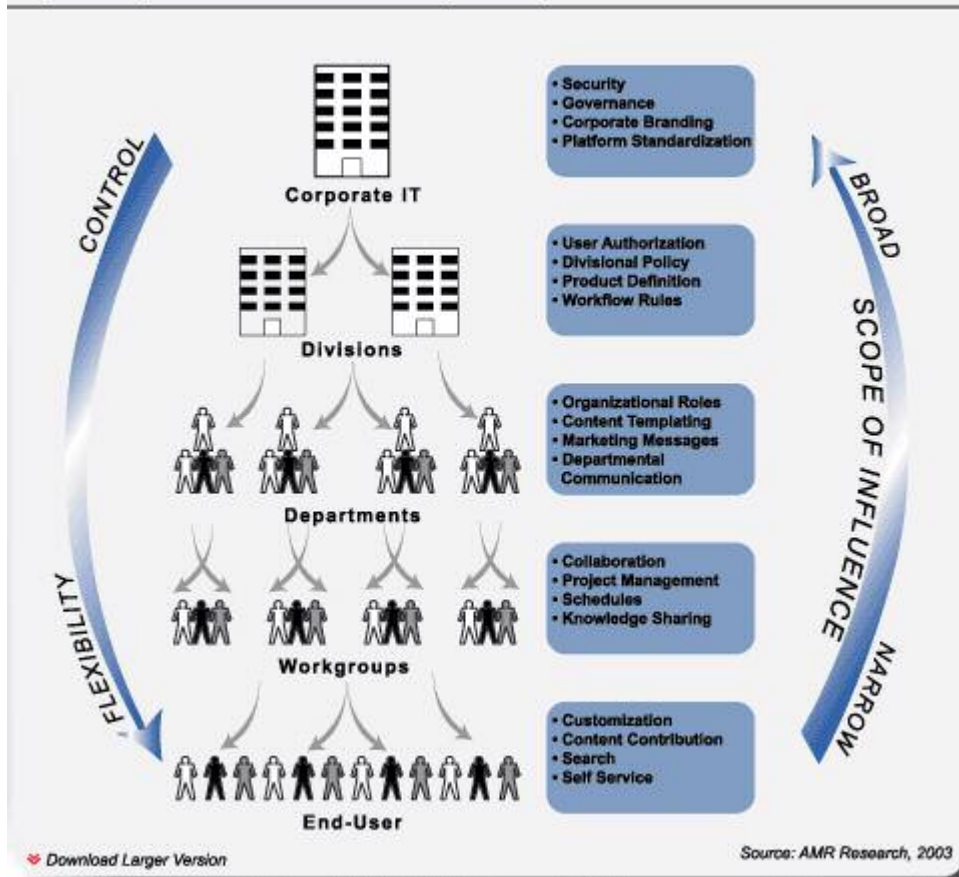
Meeting halfway: The importance of balancing top-down and bottom-up

Another important consideration is in finding the appropriate balance between a top-down, or push, approach to a portal, and a bottom-up, or pull approach. More specifically, many corporate portals seek to control and deliver applications and information to every role according to security rights and privileges. While these portals tend to offer control and security, they are cumbersome to manage—requiring IT support even for ad hoc processes—and slow to gain adoption.

The other extreme is the ad hoc portal, a simple environment upon which people can collaborate and share work. Adoption tends to be high—to the point of running rampant in some cases. This means sacrificing security, analytical capability, and the ability to structure and reuse business processes.

The ideal portal offers a measure of control for the business, through security administration and delegation, and a measure of flexibility for end users, through collaboration and open sharing of information.

Figure 1: Top-down control versus bottom-up flexibility



Value means using portal frameworks for what they're worth: bringing personal and group productivity together with enterprise performance

Generally speaking, portal frameworks constitute a packaging of software that includes personalization, integration, content management, security administration, and community definition, and services like workflow, search, and collaboration in most cases. Most portal software vendors offer development tools to integrate other applications or build new Web-based ones in the portal, and many offer an array of pre-built templates, portlets, or other components. Part of the value is in the packaging itself—pre-integrated systems offer better ease of use across the board. For instance, integrated security administration addresses the goal of single sign-on, and integrated content management, search, and retrieval ensures that users can organize and find the necessary information to do their jobs.

As value rests upon integration with so many other systems and applications, no portal framework is entirely “buy” or entirely “build.” For one thing, few portal framework vendors can provide users with everything they need: adequate content management, search, or security on their own. In addition, the vendors with the most assets to lend to the portal market, namely IBM and Microsoft, lack the necessary cohesiveness to make the portal work. This characteristic has a couple of implications when evaluating portal vendors:

- “Completeness” in a portal framework is one factor; “cohesiveness” is entirely another.
- A vital characteristic of good portal software is its extensibility: its ability to facilitate building, integrating, or customizing to the needs of the business.

But in order to get the most from the portal—and more importantly—in order to be more responsive to the needs of their constituencies, companies must work toward the unique value of the portal framework—which lies in the ability to correlate personal and group productivity with accomplishment of business process, thereby improving enterprise performance. The portal framework is the best way of bringing an understanding of role and community to the enterprise.

Therefore, companies evaluating portal software or strategies should look for the following attributes:



- Flexible role management and community definition. Typically, IT’s understanding of role is tied to security; HR’s understanding of role is tied to title, or at best, job description. Neither is adequate to ensure that users get the information and tools they need to accomplish a given business process. Granular, flexible role management and community definition are the keys to bringing unique value to the portal deployment.
- A portal that offers a balance between push and pull: top-down control for the corporation, and bottom-up flexibility for users and groups. Solely push portals are barely better than a static Website, costly and slow to

manage, and consequently slow to garner worthwhile adoption and value. While collaboration environments tend to gather quicker adoption, it can be impossible to control, measure, or refine their impact on business performance.

Table 4: Leading portal framework vendors

Vendor	Current Product	Complete	Cohesive	Role and Community	Control/Push/Structure	Flexibility/Ad hoc/Pull	Extensibility
Plumtree	Enterprise Web Suite	Excellent Coverage	Adequate Coverage	Adequate Coverage	Adequate Coverage	Adequate Coverage	Adequate Coverage
IBM	WebSphere Portal	Excellent Coverage	Adequate Coverage	Adequate Coverage	Adequate Coverage	Adequate Coverage	Adequate Coverage
Oracle	9IAS Portal	Excellent Coverage	Adequate Coverage	Adequate Coverage	Adequate Coverage	Adequate Coverage	Adequate Coverage
Vignette (acquired Epicentric)	Application Portal	Excellent Coverage	Adequate Coverage	Adequate Coverage	Adequate Coverage	Adequate Coverage	Adequate Coverage
BEA	WebLogic Portal	Excellent Coverage	Adequate Coverage	Adequate Coverage	Adequate Coverage	Adequate Coverage	Adequate Coverage
Open Text (acquired SAP)	CorePort	Excellent Coverage	Adequate Coverage	Adequate Coverage	Adequate Coverage	Adequate Coverage	Adequate Coverage
Sybase	mySAP Enterprise Portal	Excellent Coverage	Adequate Coverage	Adequate Coverage	Adequate Coverage	Adequate Coverage	Adequate Coverage
ATG	Enterprise Portal 5.0	Excellent Coverage	Adequate Coverage	Adequate Coverage	Adequate Coverage	Adequate Coverage	Adequate Coverage
ATG	ATG Portal	Excellent Coverage	Adequate Coverage	Adequate Coverage	Adequate Coverage	Adequate Coverage	Adequate Coverage
BroadVision	One-To-One Portal	Excellent Coverage	Adequate Coverage	Adequate Coverage	Adequate Coverage	Adequate Coverage	Adequate Coverage
Microsoft	SharePoint Portal Server	Excellent Coverage	Adequate Coverage	Adequate Coverage	Adequate Coverage	Excellent Coverage	Adequate Coverage
PeopleSoft	Enterprise Portal	Excellent Coverage	Adequate Coverage	Adequate Coverage	Excellent Coverage	Adequate Coverage	Adequate Coverage

Source: AMR Research, 2003

 Excellent Coverage
 Adequate Coverage

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Enterprise portal frameworks may require new skills

Enterprise portal deployments present challenges not easily solved with traditional technology or business skills. At the strategic level, few companies are even prepared to reasonably manage the prioritization of portal initiatives. In addition to project management, many companies lack necessary expertise in taxonomy, information, and interface design that broad-based portals require.

Companies undertaking broad-based portal framework initiatives would do well to seek help from experienced professional services organizations—of course, with a view toward managing and maintaining the portal themselves. A great many consulting firms and SIs, large and small, have portal framework practices. **Cap Gemini Ernst and Young, BearingPoint, IBM Global Services, Deloitte Consulting, and Accenture** have considerable experience with portal framework products—most commonly IBM, **SAP**, BEA, **Plumtree, Vignette**, and Microsoft—and deployments. In addition, we’ve spoken with impressive customers from smaller firms, including **CSC, Intelligroup, Sapient, Neoris (NEC), SSA GT, SBI, and Boston Consulting Group**.

Nevertheless, many of the organizations we spoke with planned and implemented portals on their own—in some cases with an impressively low number of developers and administrators. The number of full-time employees required to implement portals ranged from 5 to 20 for the larger projects (up to 10,000 users), including both IT development and administrative personnel. The numbers are reduced significantly for maintenance of the portal. Several firms, after delegating functions like content management and workflow design required only a few people to administer and maintain the portal.

Research demographics

We interviewed 25 companies about their portal deployments. We also derived information from our everyday interactions with clients developing portal, collaboration, or knowledge management initiatives.

Companies surveyed for this research included various large enterprise in industries including Consumer Products, Oil and Gas, Financial Services, Healthcare Services, Retail, Discrete Manufacturing, Chemical, and Automotive. Titles interviewed were primarily CIOs, however, some VP and Director-level representatives were surveyed. The average portal deployment started three years ago. Audience for the initial portal was typically employees, though four companies started with customer portals and two started with suppliers.

Related research

AMR Research has produced a series of Reports on portal framework strategies:

- “Build a Unified Portal Framework: Regain IT Control,” November 2001. This Report defines the essential elements of the portal framework and argues for its establishment as a key component of IT infrastructure.
- “The Portal Framework: The New Battle for the Enterprise Desktop,” March 2002. This Report evaluates 15 leading portal framework vendors against the criteria established in the previous Report.

- "More Than a Fad: The Portal Framework as an Enterprise System," April 2002. This Outlook examines the future of the portal market and discusses the high stakes for software and infrastructure providers.
- "Role and Community: Exploiting the Real Power of the Portal Framework," June 2003. Using the same data gathered for this Report, this Outlook discusses the distinct value of packaged portal software versus more traditional Website management systems.

Additional research:

- "Microsoft SharePoint's Impact on the Enterprise," February 2003. This Report discusses Microsoft's approach to the portal market, evaluating early customer experience with Microsoft SharePoint Portal Server.
- "Reorienting Your Content and Knowledge Management Strategy," October 2002. This Report discusses the implications of a more holistic, user-oriented approach to content and knowledge management, driven largely by the influence of portals.
- "Portal Fever: Help or Hindrance to Content Management," February 2002. This Outlook examines the market dynamics in the relationship between content management and portals.
- "Getting the Value Out of SAP Portals," November 2001. This Report discusses early user experience with SAP's portal technology.