

# Successfully Deploying Enterprise Portals: Current Industry Assessment

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*Enterprise portals have matured as an essential component of enterprise systems, adding integration and consistency to the chaotic information environment of the typical corporation. Eight successful deployments of enterprise portals are described in detail. The lessons learned from these experiences are explained in terms of common threads, risk factors, and best practices. Strategies for realizing return-on-investment are given, along with suggested action steps toward your successful portal deployment.*

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## 1. Business Case for an Enterprise Portal

This section gives an overview of the ‘What’ and the ‘Why’ behind an enterprise portal, setting the appropriate mind frame for understanding its unique role.

### 1.1 What is an Enterprise Portal?

An enterprise portal or simply portal is probably the most misunderstood technology in the corporation. The term portal itself has evolved so as to distort its original meaning.

The term portal comes from medieval times to mean the large fortified gate into a walled city. The photo at the left shows the Porta Appia from ancient Rome.<sup>1</sup> It is a massive structure built to keep the barbarians out of Rome. The meaning of a fortified gate has evolved into modern times as any entrance, doorway, or gateway. However, that common meaning gives us only limited insight into enterprise portals as used today.

Starting as a student project at Stanford University in February 1994, Yahoo! deserves credit for reinterpreting the term ‘portal’ to mean a structured and managed gateway into the complexity of the Web. Instead of entering an URL to go directly to a specific website, Yahoo gave us the first example of a universal portal into thousands of Web topics with a simple *point-and-click*. In July 1996, they launched MyYahoo! that added per-

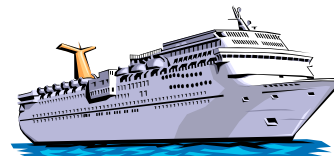
sonalization to its popular Web portal. The Yahoo! example is still inadequate to describe the full nature of enterprise portals. For instance, the usefulness of an enterprise portal does not end after a person has entered its context. In fact, its usefulness continues because the person continues to perform work within the context of the portal.

Another milestone was the Merrill-Lynch report on Enterprise Information Portals (EIP) in November 1998. EIP was defined as “an amalgamation of software application that consolidate, manage, analyze, and distribute information across and outside of an enterprise.” The EIP market analysis combined the areas of Business Intelligence, Content Management, Data Warehousing, and Data Management—all established markets in their own right. Hence, the market sizing was overly optimistic, expected to grow from \$4.4 billion in 1998 to \$15 billion in 2002.

Again, EIP is also not adequate to describe enterprise portals because of its emphasis on information (excluding business processes) and its broad market definition.

One should think of an enterprise portal as the context in which business interactions are performed. It is more than a doorway or entrance. It is more than a personalized user interface. It is more than consolidating or distributing information.

An offbeat analogy may help. Think of an enterprise portal as a cruise ship. Once you walk across the gangway onto the ship, everything that you need for your vacation is right there. Forget the shore excursions; just give me my favorite drink with my favorite book by the swimming pool. Or, give me a hundred other combinations of activities and services available on the ship.



The point is that the cruise ship is the all-inclusive context for a vacation. It is much more than a doorway to the vacation. It is pretty much the entire vacation. Think about enterprise portals in the same way—an all-inclusive context for business activities.

Therefore, we define an enterprise portal as a comprehensive context or environment to engage in business activity. In fact, the term *workplace* captures the key aspects and is a better term. We can interpret this definition narrowly so that a portal supports only one group with one application or database. Or, we can interpret the definition broadly so that a portal is the corporate workplace for both employees and even for customers and business partners.

*An enterprise portal is a comprehensive workplace to engage in business activity.*

## 1.2 Why an Enterprise Portal?

IT professionals have seen many technologies come and go. Few technologies leave an enduring impact of the IT landscape. With good reason, IT professionals tend to be cynical about new technologies, insisting on proof of their significance before investing in them.

An enterprise portal is no exception. Is it another glitzy technology that will soon fade from the IT industry's graces?

Portals are certainly glitzy with their pretty pixels flashing on the screen. When a vendor demonstrates a portal, it is usually the screen layout functions that are shown, as if it is a glorified HTML design tool. While the portal gets immediate attention, that attention is surface-thin.

This is a problem, especially in convincing management of the business value of portal technology. Too often, a company will approve a portal project for a point solution. The result is that the capability will be undervalued, the effort will be under-resourced, and the potential will be underestimated. In other



words, the whole vision of an enterprise portal will be lost for that company.

I believe and the case studies illustrate that there is considerable substance beneath the surface of portal technology. Portal technology will be an enduring milestone along our information highway. New technologies will certainly emerge and absorb portal technology into their structure. The term portal will eventually cease to be used, just as 'jet' in 'jet airplane' and 'transistor' in 'transistor radio'. Certainly the technologies of jet engines and transistors were and continue to be important to our society.

Based on our experience with portal technology, we should have high expectations for its impact on business. In particular, we should expect portals to help us recoup big technology investments, resolve nasty integration problems, structure severe business complexity, and build a corporate infrastructure for long-term growth. These are high expectations. They will only be realized if we understand the capabilities and limitations of portal technology and apply this technology appropriately to our business.

- 
- *Recoup technology investments*
  - *Resolve integration problems*
  - *Structure business complexity*
  - *Build long-term infrastructure*
- 

### 1.3 Key Functions

We should carefully examine the following functions for an enterprise portal, as we explore its proper role within our company.

- **Presentation**—Providing a consistent and managed user interface across a diversity of data sources and applications
- **Data Integration**—common piping to access many data sources and display results
- **Search**—Indexing content that is managed by the portal and respond with appropriate links when queried
- **Categorization**—Structuring content so that it is organized in a meaningful way to the business
- **Publishing**—Disseminating content by the content creator to other interested persons in a controlled manner
- **Process Integration**—Bringing together business processes and their underlying applications in a coherent manner
- **Personalization**—Molding the look-and-feel of the workplace to be more effective
- **Collaboration**—Interacting with other persons on common tasks and shared information



- **Security**—Authenticating and encrypting the workplace so that only certain persons can perform certain tasks
- **Administration**—Managing the entire workplace in an efficient and consistent manner
- **Internationalization**—Providing for a variety of languages, currencies, time zones, and other international conventions to ease global commerce
- **Scalability**—Ability to increase (or decrease) the capacity of the portal by several orders-of-magnitude

Only the first function is usually associated with portal technology. However, all of the above functions are required in the successful deployment of an enterprise portal.

## 1.4 Technology Evolution

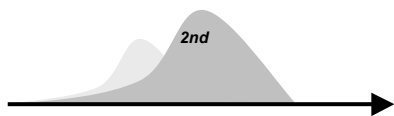
Portal technology has evolved over the past ten or so years. This evolution has typically been described as comprising three generations.

The first generation of portal technology is primarily a *home-page* designer/server that generalizes HTML authoring. Content integration was the most useful feature with the ability to present several data sources on the same screen. The arrangement of the content could be personalized -- but only manually. At least, the personalized profiles could be saved and automatically applied when the person logged back into the portal. The portal environment could be centrally configured, thus allowing greater numbers of users with less maintenance effort. The objective of the first generation was to manage the chaos of intranet web sites and provide some consistency to manage its growth.

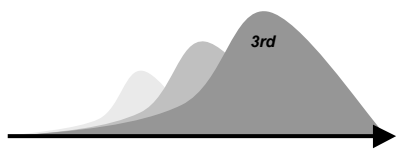
The second generation is primarily related to the concept of *workplace*, with an emphasis on role personalization. In other words, portal design assembles into a workplace all the information components required to support a specific job function or role within the business. Using role personalization, a person can have one or more workplaces depending on their job responsibilities. Application integration becomes critical so that a workplace can be integrated with all the applications that relate to a job function. Collaboration among persons with related job functions is also critical, particularly the ability to share common information (which is the beginning of a job-specific knowledge base). Finally, remote interactions with the portal are necessary via cell phones and PDA devices, as well as in a disconnected mode (e.g. while traveling in a airplane).



- *Generalized home-page*
- *Content integration*
- *Manual personalization*
- *Centralized configuration*



- *Role personalization*
- *Application integration*
- *Collaboration (info. sharing)*
- *Remote/disconnected mode*



- *Context personalization*
- *Process integration*
- *Knowledge management*

The third generation is primarily focused on business *velocity*, improving processes so that business activities can move consistently and quickly. Context personalization is now required that evolves a workplace based on past behaviors and predicted requirements. Process integration across application systems is also needed, probably employing the emerging technology of Web Services. Knowledge management is starting to mature with tangible impacts on the business.

The current industry status is that commercial products and most corporate deployments have matured beyond the first generation and are assimilating the functions of the second generation. A few commercial products are offering some features of the third generation, but deployment of third-generation portals is still in the prototype stage for most companies.

## 2. Examples of Successful Deployments

Customers who had deployed the CA CleverPath Portal and who were willing to be interviewed were selected for this study. Although such a sampling was not randomly selected for statistical validity, all the persons contacted were knowledgeable about portal technology, were familiar with their specific business impacts, and were open and honest about their experiences.

In the first stage of the research, the person who was primarily responsible for the technical management of the portal deployment was interviewed over the telephone. A 45-minute structured questionnaire was used, a summary of which is given in the Appendix. In the second stage, on-site visits were made to two companies (ACME and SMS) to confirm interview results and to investigate detailed usage and impacts of the portal technology.

The table below summarizes the eight companies interviewed. There is a range of industries and locations. Surprisingly there was also a diversity of objectives for their portal deployments. Some were internally focused on data integration, as expected. However, three (of the 8) involved external customers or partners, one of which was exclusively external.

Company	Location	Industry	Objective	Internal vs. External	Number Of Users
ACME Truck Line	New Orleans	Transportation	Competitive weapon	External	One customer with multiple users
Agricultural Cooperative	Midwest	Agriculture	Broker support	Both	175 staff & 125 external brokers
AMDEL	Australia	Laboratory services	Organizational integration	Internal	Half of the 500 employees with 50 full-time users

Company	Location	Industry	Objective	Internal vs. External	Number Of Users
Birch Telecom	Kansas City	Telecommunications	Corporate reporting	Internal	50-90 daily users going to 100
Cooper Health	New Jersey	Healthcare	Executive decision support	Internal	15-20 hospital executives
Record Management	Denver	Electronic Record Management	Central repository	Internal	All 25 employees
Office Supplier	New England	Retail	Sales analysis and enhancement	Internal	100 executives, adding 300 users
SMS	California	Data Center Outsourcing	Application integration	Both	1,000 users, half are full-time users

In alphabetical order, the next sections describe each of the eight companies.

## 2.1 ACME Truck Line: Competitive Weapon



Since 1960, ACME Truck Line has become a leader in the transportation of equipment, materials, and supplies for 5,000 clients throughout the United States. ACME is a private interstate trucking firm with annual revenues approaching \$100 million. Its goals are to gather the best people and equipment available with a commitment to exceptional customer service. ACME has exclusively used owner/operators to ensure strong motivation toward excellent customer service. They have established an outstanding record of safety, on-time deliveries, business integrity, and financial stability.

Headquartered in the heart of the New Orleans industrial district, ACME is an asset-based logistics provider that provides added value and reduced cost, consistently offering savings of 20% to 30% in total transportation cost.

Twenty-four hours per day throughout the entire year, a fleet of over 1,200 trucks operates out of 70 service locations in seven states. Over 100 approved carriers, with several thousand trucks, also supplement the fleet. ACME hauls approximately 4,000 loads of oil field and general commodities freight each week. ACME's diverse equipment and locations ensures the availability of the proper service to meet its customers' complex shipping demands.



ACME operates a state-of-the-art computerized truck management and centralized dispatch facility that specializes in cost reduction through the efficient use of truck assets. ACME is networked via the Internet for quick and effective dispatching with over 50 locations, providing complete billing and customer support.

The CleverPath Portal is a central element of ACME's information architecture, allowing its key customers to interact effectively with their logistics department to ensure quick and inexpensive shipping. "Our customers are moving to Internet-

based ways of interacting with us. With a business built upon exceptions, success means that we must provide excellent customer service, treating each customer as unique,” said Mike Coatney, president of ACME.

The Portal is initially devoted to servicing ACME’s key customers because this is the “greatest value-add” for ACME. ACME has about 6,000 shippers. However, customer activity is quite skewed. The top ten clients account for 29% of its revenue, and the top client accounts for 8%. Coatney summarized that, with the Portal, “we are, at this time, targeting our 20 largest shippers.”

Coatney outlines the main objectives for the Portal as better service for customers, clear differentiation from competitors, and greater efficiency in the logistics department. “With the Portal, we can now handle 15% to 20% more shipping orders than before,” claims Coatney.

He added, “We get about 20 thousand calls per month in our logistics department. Our goal is to shift 20% of those shipments to the Portal. It should become our standard way of doing business.”



Through the Portal, the major clients of ACME can create, manage, and analyze the entire spectrum of their shipment requirements. The specific functions provided are: load consolidation, around-the-clock operations, dedicated service, guaranteed savings, traffic studies, proven client/logistics partnership programs, internet-based load status reports, internet-based customer activity reports, split billing, convenience back hauls, convenience participation, product knowledge, EDI billing, customized monthly savings reports, and cost sharing.

The Portal provides the framework for live status reports, monthly analysis reports, the ACME newsletter, and links to other sections of the ACME website. Coupled directly to live data in AS/400, the status reports can selectively retrieve data on date ranges, origins, and destinations, as well as detailed locations for individual wells managed by oil companies. The analysis reports show cost saving details to the client and are formatted in Excel for easy analysis. An automatic e-mail notifies shippers of the status of their shipments.

The CleverPath Portal was selected because it met ACME’s objectives and for its simplicity from the user perspective. The Portal, complemented by CA’s CleverPath EUREKA: Reporter, operates on Windows NT. ACME’s Portal was implemented in just a few months, with the assistance of CA Services.

As the ACME’s president, Coatney was heavily involved in specifying the business requirements for the Portal, which he

believes was key to getting the project off the ground and achieving acceptance by ACME's customers.

Formal training classes on the Portal and the Reporter were useful in surveying the range of possibilities. Most of the training focused on the Reporting capabilities and on establishing connectivity to the AS/400 system. Since the implementation, the Portal operation has been stable, and only one IT person is responsible for its administration.

Improving ACME's time-to-market by providing a robust, e-commerce solution, the Portal enables ACME clients to view and customize information in practical formats via the Web. The Portal also enables ACME to deliver exceptional service to clients by providing both external and internal parties with all the information required to make decisions. In addition, the Portal enables collaboration across organizational boundaries and accelerates ACME's business processes.

Coatney illustrated ACME's competitive advantage with the Portal by saying, "We had a presentation to a major oil company. By demonstrating our online logistics capability, we had the inside track. Our system was in use and not "vaporware". Now, we have the competitive advantage as we bid our services with the larger corporate shippers."

Molding the Portal into the core business of ACME is an evolutionary process. Coatney elaborated that, "In only two years, we have come to rely on e-mail in our daily business. It was slow going at first, but now we completely depend on it. A few years from now, the Portal will be the same."

In terms of lessons learned, Coatney suggested that, "Companies should be open minded about the uses for the Portal. As a company's usage of the Portal evolves over time, there will be more and more opportunities to reap additional benefits."

CleverPath Portal propels ACME Truck Line into an industry leadership position with its superior technology. The Portal is meeting the needs of ACME's business today and provides the foundation to carry its business into the future. The Portal fits ACME's vision for the future. "The most important benefit, however, is the improved communication with, and service to, our customers," concluded Coatney.

## **2.2 Agricultural Cooperative: Broker Support**

As one of the largest U.S. industrial firms—with assets close to \$3 billion—this company is a national, farmer-owned agricultural cooperative. Sales are approaching \$6 billion per year with a diverse product line of over 600 products. The products are distributed to supermarkets, restaurants, schools, hospi-



tals, airlines, and other food services in all fifty states and more than fifty countries. The company is a leading marketer of a full line of dairy-based consumer products, along with an international variety of agricultural supplies (such as feed, seed, crop nutrients, and crop protection products). It employs more than 6,500 people in 200 plants and offices. Its members include more than 300,000 farmers and ranchers nationwide.



The majority of sales revenue is attributed to several hundred external brokers who market and sell the food products. The brokers do not exclusively represent the company, so the broker relationships are highly competitive.

Five hundred employees support the brokers by providing numerous reports for managing accounts, monitoring sales activity, analyzing demographic trends, and improving sales margins. These reports are critical to the sales process and, thus, to retaining the loyalty of brokers.

Prior to the portal implementation, brokers often complained about a lack of information and considered the company disorganized with its information management. If the requested sales information could be found, it often required hours of effort to locate and disseminate.

For employees, the intranet environment was complex, requiring specialized analysis tools to be installed on their workstations. There was no way of organizing the various reports and analyses so that specific information could be easily located and then quickly disseminated to the brokers.

In 1998, an IT manager heard a presentation about how portals could disseminate corporate reports effectively, and some effort went into developing a custom portal. In the spring of 2000 after its Y2K efforts phased down, the portal project “got serious” again. A new release of the Portal permitted rapid implementation with stable connectivity to the data warehouse.

The project was staffed with two developers, plus a networking expert, totaling fifty to eighty person-hours. Within one month, the CleverPath Portal was supporting the two user groups. The project went smoothly, with only minor problems related to networking issues, such as domain name registration and SSL licensing. The CleverPath Portal is operating on an inexpensive Windows NT 4.0 server.

CleverPath Portal is currently supporting 300 users, 175 of whom are internal support staff and 125 are external brokers. User training consists of a group meeting with portal demonstrations for a couple of hours. This training is repeated once every two months and attracts 15-20 persons. Over the coming years, the user base is expected to grow to 700 users for this



application and to extend into other applications within the company.

Maintenance of the CleverPath Portal has been very low. The Director of Data Warehouse estimates the maintenance requires about 10% to 25% of his time, plus 25% to 50% of a developer's time. Most of the work involves managing and expanding the categories (or taxonomy) for organizing information.

Future portal projects should have a clear understanding of the implementation steps, especially networking issues. The integration of data sources and security authentication are also critical to a successful implementation.

CleverPath Portal is highly recommended by the company as an enterprise portal, citing good technical support and quick product follow-up by Computer Associates.

Because brokers usually work on a non-exclusive basis, improvements in the information services they receive increase their level of satisfaction and their loyalty to the company. This is a significant benefit since it leverages the portal as a distinct advantage over competitors.

The director of data warehousing remarked that, "the project has been a success mainly because the cost basis was so cheap. The benefits are not in dollars saved but mainly in less frustration for users." Less time to find (and not recreate) reports proved to be the winner. And, reporting and analyses across multiple applications and tight integration with the data warehouse are factors contributing to the Portal's success.

CleverPath Portal clearly leverages the integration and centralization functions to provide the external brokers and internal support staff with better access to critical information. In particular, CleverPath Portal has enhanced its broker relations by improving information access, both directly through self-service and indirectly through the support staff.

In the future, the company expects to broaden its support for brokers and extend the Portal's functions into other areas of the company.

### **2.3 Amdel: Organizational Integration**



Amdel is a leader in premium laboratory services to a broad range of industries, including minerals, petroleum, environmental, food, beverage, pharmaceutical, and agriculture. As one of the top 500 companies in Australia, Amdel employs 500 people and generates AUS\$40 million in annual revenue. Since its inception in 1940, Amdel has become synonymous with high

quality and innovation. Its mission statement is “to be the most successful and respected laboratory and technical services company in all the markets in which we compete.”

Amdel has a centralized IT group consisting of seven people and headed by Information Systems Manager, Sandra Hajszan.

Amdel’s intranet environment has grown rapidly and chaotically over the past few years. Extensive effort by the IT group was required to maintain the intranet and users found it difficult to find documents and launch applications. The need for a stable, web-based platform for knowledge management and information sharing was obvious to the company. Amdel was also growing rapidly through acquisition and had a major coordination problem among its 14 laboratories scattered throughout Australia.

Last year, Hajszan considered four alternatives for an enterprise portal for Amdel. Three of the alternatives were custom development projects, which would have been too expensive and difficult to maintain. The fourth was CleverPath Portal, which was chosen because it was an off-the-shelf solution with a proven track record.

Planning started in January 2001 for the portal implementation. Actual work to deploy CleverPath Portal 3.0 was started in May and completed in less than four weeks.

Existing technical personnel—one technical manager and one business-oriented member—were devoted to the project, both at 50% time. A CA Services consultant assisted for one week and provided one-on-one training. Existing equipment was used to support the Portal environment, thus avoiding additional expenses.

Hajszan reflected that, “It went smoothly. The technical part was easy. But getting the proper data into the Portal was hard because you must craft into the Portal the way that the company works.” She advised potential users to, “Carefully select who will be on the [development] team from the business side and what business information will be put on the Portal.”



Half of the 500 employees of Amdel are using the CleverPath Portal since not all have a networked workstation. About 50 of those users are heavy users in quality control whose daily routine required the Portal.

The primary purpose for CleverPath Portal is corporate communications and coordination. A Welcome message from the managing director is updated often and has become a “great communication tool” for relating current events to employees. In addition, minutes from corporate planning sessions, happen-

ings in the innovation program, and other corporate documents of general interests are posted to the Portal. Content from subscribed trade and scientific publications are available via the Portal, along with ChemAlert bulletins and other safety notices. Links to airlines and important trade organizations are conveniently located on the home page. Finally, experts are utilizing CleverPath Portal's discussion boards to resolve specific problems and questions across the corporation.

Employees also have access to several mission-critical applications in corporate finance, payroll and human resources, and online training. Most importantly, the corporate e-mail facility is integrated with the Portal, which provides critical access when employees are traveling.

Users have been posting their content to the Portal, keeping it organized and up-to-date. Hajszan remarked that, "users have become proactive in loading their content into the Portal, rather than placing it somewhere on the intranet."

Training for users has been extremely simple. During the initial Portal deployment, two developers visited each of the laboratories and conducted a demonstration training session. Since then, the employee introduction program covers the fundamentals of using the Portal as a standard part of the curriculum.

When asked whether the Portal is a success, Hajszan said, "absolutely" without hesitation. "[The Portal] has been very successful, and we can still do more. It is the common center to find things the easy way." With 14 laboratory facilities across Australia, the Portal has become an essential tool for "effective coordination and innovation."

When Amdel acquired a new laboratory from BHP, there were no common systems. Everything was incompatible. The only information linkage with the new lab was via the Web and hence via the Portal. Hajszan noted that, "the Portal filled the gap, especially with quality control and intranet training."

Amdel has received "good value" from the Portal because it avoids having to reinvent the wheel by developing an Intranet or an expensive custom solution. The Portal provided a stable, off-the-shelf product that was up and running quickly. Hajszan noted that the Portal is "low maintenance because it is easy to train users to add and maintain content." With a small IT group having wide-ranging responsibilities, the reduction in web administration effort is greatly appreciated.

Hajszan concluded, "Remember that the Portal is not an IT initiative. Other people can and should own it, like telephones and e-mail."



With a quick, easy, and inexpensive deployment, CleverPath Portal has rapidly proven its value to Amdel, by providing the critical benefit of information integration across a disperse company.

“Our strategy of using a portal that all employees can update, means low maintenance for the IT team and extreme ease of use for employees. The Portal has delivered the benefits originally identified. The Portal will deliver even more benefits as information is added and the product continues to be developed,” added Hajszan.

In the future, CleverPath Portal will be expanded in new areas, such as labware tools, human resource benefits, and sales and marketing functions. Eventually, the Portal is expected to evolve into a “centralized port-of-call that will be the Amdel desktop” for all information exchange.



## 2.4 Birch Telecom: Corporate Reporting

Birch Telecom Inc. offers advanced telecommunications services for small and mid-sized businesses in nine states in the Midwest and Southeast. These offerings include local and long distance telephone service, Internet data, web hosting, integrated voice and data transmission over broadband lines, and customer premises equipment sales and services.

Formed in 1997, Birch was one of the first companies to be certified in the Midwest to provide competitive local phone service. Since then, Birch has acquired many companies specializing in telephone services, business phone equipment and Internet services to further build its product offerings. Birch has grown to become one of the largest competitive local exchange carriers (CLECs) in the nation with over 300,000 telephone lines in service as of October, 2001. Birch employs more than 1,400 people throughout the nine states that it serves.

The primary objective of the Portal at Birch is corporate reporting and information delivery. The areas impacted are finance, customer operations, IT helpdesk, engineering (capacity planning), internal IT, and customer service for voice lines. Initially there were 300 reports available via the Portal.

Mic Zoodsma, Senior Reporting Administrator at Birch, remarked, “It has been an uphill struggle to consolidate corporate reporting. Reporting does not happen naturally. Every IT project develops systems that generate results, which are distributed via reporting. However, those projects usually do not deal with the requirements, such as distribution and shared database issues, in a standard and consistent manner..

If everyone is doing his or her own report design and execution, it is very unproductive and inefficient.”

Another advantage with shifting corporate reporting to the Portal was the elimination of client-based tools, which required a visit to each workstation in three buildings to install. Further, the report server generates the reports on a regular basis (daily, weekly, etc.) and automatically posts those reports to the Portal for instant availability.

The Portal supports reporting from several data warehouses. A 4TB Oracle database supports a revenue-chasing application. Other applications include Telecom Provisioning and Trouble Tickets.

The deployment of the Portal was simple and fast. Zoodsma remarked, “It took only 10 minutes.”

The Portal has become critical to Birch’s business. When asked about the pain to the business if the Portal went down, Zoodsma quickly estimated, “A lot of pain! And, it will grow as more people depend on it.”

## 2.5 Cooper Health: Executive Decision Support



The Cooper Health System is a non-profit provider of comprehensive health services, medical education and clinical research in south New Jersey. One of the largest employers in Camden County, Cooper Health System has 3,100 full-time employees, 540 physicians and medical residents, and more than 21,000 patients admitted to their hospital during 2000. During the same year, Cooper cared for over a quarter of a million patients on an outpatient basis.

To better serve the patients of Cooper Health System, hospital executives needed a more efficient way to manage and share information about their healthcare organization. Hospital executives were using a complex system of email and numerous intranet sites maintained with Microsoft FrontPage. This required labor-intensive system maintenance and content updating by the IT staff, resulting in information that was constantly out-of-date. Major decisions were hindered by a lack of critical information, resulting in confusion among colleagues and the postponement of decisions.

Cooper Health Systems decided to implement an enterprise portal to create an executive healthcare information center unique to Cooper Health System. During the product selection process, CleverPath Portal was chosen over a ‘pure-portal’ product without adequate security features and another product without thin-client support.



The project was accomplished in one week with one programmer and one CA Senior Technician. Within two days, a prototype of the CleverPath Portal was working.

Most of the remaining effort consisted of establishing the content hierarchy, customizing templates, personalizing selections for specific physicians, and controlling security to specific data. The content hierarchy is crucial for organizing Cooper's information so that its executives could find and post documents properly. In effect, the content hierarchy reflected the company's unique structure and key business processes. The generic templates were also customized for Cooper with familiar logos and banners guiding users to specific topics. For each key hospital executive, the CleverPath Portal workplace was customized to his or her work needs and habits. By just logging on to the system, users were immediately presented with all the key information they usually needed on a daily basis. Finally, the security parameters to access specific areas of information had to be defined and then assigned to the executives and their staffs.

No formal training was required. The product demo was sufficient. "We spent about six hours total in learning the product," estimated Dr. Simon Samaha, VP of IT and CIO of Cooper Health. No additional hardware was purchased. An existing server platform hosted CleverPath Portal, since the "footprint [to support the CleverPath Portal] was nothing," stated Dr. Samaha. Two members of the IT staff maintain the enterprise Portal on a part-time basis.

A significant reduction in labor and frustration resulted from the Portal deployment. In the past, the IT staff would take the content (primarily Microsoft Word and Excel documents) and convert them into HTML consistent with the proper web page style. The IT staff could not keep up with this conversion and posting effort, creating considerable frustration for all involved.

By granting publishing privileges to the hospital executives and their staff, the IT staff no longer need to be in-the-loop with posting new content to the portal. The user who creates the document can easily do the posting without help, and the document becomes instantly available for use by others. "We [the IT staff] have virtually nothing to do since the users post content themselves," noted Dr. Samaha.

Dr. Samaha stated that, "the technology [of the CleverPath Portal] has been wonderful and smooth." However, he cautioned that implementing a portal within your company "is an educational and cultural issue, not technology. That is the biggest challenge. We are changing habits with sharing information [among our executives]. We are asking people to do



something different. Education about the benefits to the organization is essential.”

Cooper Health System is utilizing CleverPath Portal to improve strategic planning and general management of a complex healthcare system spanning thousands of people in over fifty locations. CleverPath Portal now gives the healthcare executives at Cooper access to the information required for proper planning. As a result, the executives can devote their attention to managing the organization proactively.

These benefits were accomplished quickly and inexpensively by: a quick and easy implementation in only one week, ongoing IT staffing of two part-time persons, no formal and/or lengthy training required for developers or users, no additional server equipment to be purchased, and all software (especially CleverPath Portal) performed as expected. In particular, CleverPath Portal allowed Cooper to avoid an increase in IT staffing. Users were enabled with self-service capabilities to post documents without technical assistance and have those documents immediately available for others to use. The IT staff could then concentrate on the technical issues of planning and maintaining the system.

Future plans include extending the Portal to support the hospital’s middle management and integrate various intranet applications, such as HR form submission.

## 2.6 Records Management Firm: Central Repository

This services firm is a pioneer and leader in Electronic Records Management (ERM) software that reduces the risks and costs associated with doing business electronically. ERM enables companies to create the digital equivalent of a paper trail, protecting against fraud, deception, and error. To take advantage of the speed and efficiency of the Internet, its customers deploy ERM solutions to ease the transition from paper-based to digital-based processes.



Its products allow companies to capture, archive, and retrieve digital information as appropriate for regulatory compliance, legal requirements, or authorized business use. The solution manages the full range of digital data types, including e-mail, instant messaging, and digital documents. The advanced architecture of its products continues to protect the enterprise as technologies, laws and regulations evolve.

Started in 1998, the firm has a diverse and highly skilled team of professionals with experience from Oracle, Sybase, J.D. Edwards, Neon, Unisys, and Tandem. Several major venture capital firms privately hold the company. With a round of financing

for \$11 million last summer, the company is positioned for fast growth in a substantial market.

As a fast growing software firm, the firm had major problems managing and sharing its internal documents. It estimates that each professional generates five to ten critical documents per week. However, merely placing these documents on a shared network drive and circulating them via email attachments quickly proved to be a disaster.

For example, a new salesperson was sent on an initial sales call. He asked for a product demo to take on the trip and was told that it was on the shared drive. Unfortunately, he chose an outdated version, which resulted in a lost sale. Further investigation revealed that there were four different versions of the demo on the shared drive. For a fast growing company in an expanding market, this company's management determined that such situations could not be tolerated.

Their analysis resulted in the following requirements for its internal records management:

- A centralized repository that is searchable, classifiable, and publishable. All documents should be managed in a single secure environment. All content should be immediately indexed so that users can quickly find relevant documents. All content should be classifiable into a corporate taxonomy unique to Central Repository's business. Finally, all content should be publishable so that relevant documents will be 'pushed' to interested users proactively.
- Centralized interaction that is secure and easy-to-use, with support for threaded discussion forums to replace random, unorganized e-mails, thereby providing and maintaining organized content.
- Implementation that is easy to administer and scalable.

It evaluated enterprise portal products from Plumtree, Viador, and Computer Associates, and explored internally developing its own portal solution. It decided on CA CleverPath Portal because it satisfied the above requirements better than the alternatives.

Implementation of CleverPath Portal began in July 2001 and was completed in two weeks. At a company-wide kickoff luncheon in mid-August, the Portal was demonstrated, and a pictorial handbook was released. Except for informal one-on-one discussions, no formal education program was needed.

Time was spent analyzing the structure of the shared files stored on the network, resulting in a content taxonomy that adequately described the business of the company. This taxon-



omy was discussed and approved by the management committee. The implementation consumed an estimated 2.5 person-months of effort from a manager, developer, and one outside consultant.

The sole person responsible for CleverPath Portal spends only one hour per week on its maintenance because the managers in engineering, client services, sales, and management use CleverPath Portal to add or update their own business content. The collaboration features of CleverPath Portal have proven to be essential. The Portal manager remarked that, "it [collaboration] is a tool that you don't know you need until you need it."

In just a few months of use, the Portal has become critical to the business. As proof, the Portal recently went down for ten minutes because of a failed hard disk on the server. The Portal manager said that he received complaints within two minutes of the failure from several engineers and even the CTO/founder.

Through a reduction in time to find and disseminate critical corporate documents, the ROI of the CleverPath Portal is estimated at \$41,000 for the first year.

This estimate does not include the potential costs savings that the Portal can deliver by eliminating the need to recreate documents that were lost or deleted, which could be 5-10 times the above amount. For example, in one instance, an important reply to a customer's RFP got deleted. It took three person-weeks of effort to recreate it.

The above estimate also does not include the reduction in paper production and distribution that CleverPath Portal provides, which is a significant savings. In particular, the Portal reduces the versions of a document that must be printed for comparison and verification. Sending materials to clients is now easily done by quickly composing an email package with the appropriate attachments.

With a quick implementation, low maintenance, and a tangible payback, CleverPath Portal has proven its value for internal record management for this fast-paced company.

A lesson learned from its experience is to have more formal education, both during implementation for developers and after implementation for the users. A portal lab where users could come with their problems would have also been useful.

Future plans include expanding the publishing capabilities of CleverPath Portal, along with integrating a new competitive intelligence tool, a sales force automation tool, a CRM solution, OLAP analyses, and other internal applications.



## 2.7 Office Supplier: Sales Enhancement

This firm is one of the world's largest retailers with \$11 billion in revenue from office supplies, business services, furniture and technology in the United States, Canada, United Kingdom, Germany, Netherlands, and Portugal. Headquartered outside Boston, the firm pioneered the office superstore concept in 1986. The company has 51,000 employees who staff 1,300 superstores, mail order catalogs, five e-commerce websites, and a contract business.

The firm is focused on serving the office supply needs of small businesses. This market segment represents 98% of all organizations in the US and has continued to grow rapidly over the years. It has continued to expand operations into catalogs and websites to meet this growing demand. Recently, it put interactive kiosks into each of its superstores. This move has enlarged the number of items that can be ordered from 7,500 to 45,000 and has enabled customers to pay for online orders before they leave the store. The mission is aptly put, "to slash the cost and hassle of running your office!"



Success in the office supply market is based on a company's understanding and responding to its customers and then to its cost structure, in that order. This company's CEO admitted that his biggest mistake was not entering the delivery business earlier. The company avoided adding incremental cost to its operations to keep its prices down. However, it missed a different type of customer by not offering the delivery of office supplies. The CEO stated that, "this was one of the few times in our corporate history when we made a decision based on cost factors as opposed to customer preferences. You're way better off starting first with the customer and moving next to cost, rather than the other way around."

Most recently, the CTO explained the profit power of multiple (and integrated) channels. Business customers buy office supplies in a variety of ways: at the local store, over the Web, by fax, over the phone, and through EDI or Ariba portals. A typical customer spends an average of \$600 per year at a local store. However, a customer who uses two channels will spend 2.5 times that average, and a three-channel customer will spend 4.5 times. The challenge is that these channels must be integrated. For example, online website purchases can be returned to local stores, and items that are out-of-stock at a local store can be ordered via kiosk through the website.

In March, 2001, this company's merchandising, marketing, and customer support groups were unified by combining the direct catalog business with its public website.

With these experiences driving its corporate directions, the analyses of customer preferences and sales trends are crucial to their long-term success. The CTO advised “giving customers what they want” is a great strategy for success. However, precisely determining those needs can be tricky.

To support operations and business analyses, the firm has over 20 large HP servers running the HP-UX operating system. A merchandizing data warehouse is at the heart of the company’s inventory analysis. It contains weekly data for about three years down to the individual item number (or SKU), amounting to 2.5 terabytes of data managed on an IBM DB2 UDB database. Analyses are generated using CA’s EUREKA:Strategy, a high-volume OLAP server.

The six-month implementation of CleverPath Portal was finished in December 2000. There were two developers and a CA professional services consultant working on the project.

The initial deployment for CleverPath Portal was targeted to 100 executives. The Portal will support an additional 300 users in the near future, with a potential rollout to 5,000.

No formal education courses were taken. However, CA Services conducted one-on-one training during the implementation. For users, self-running presentations are available via the Portal for training on the use of EUREKA:Strategy. Also, training classes are offered as needed, occurring about twice per month.

The primary challenge was satisfying the business requirements—from the business intelligence perspective—in merchandizing, replenishment, purchasing, capitalization, and expenditures. The company was hindered by the massive distribution and maintenance of reports from simple summaries to large-scale calculation-intensive analyses. CleverPath Portal consolidates all those reports into one place, providing secure, organized, and personalized access. In addition, the Portal provides a unified interface to other applications (particularly, to EUREKA:Strategy and Brio analysis tools) and to a personalized workplace that shows various, convenient links to other information needed for day-to-day decision making.

Summarizing its situation, a senior programmer responsible for the Portal cited the continuing benefits of CleverPath Portal as: effective communication with its users, integration with business intelligence tools, ease of running and disseminating reports, and the consistent user interface design. Maintenance of the Portal only requires a “few hours per week”. The manager of the Portal remarked that, with CleverPath Portal “we got what we needed, and there is lots of potential for future



growth.” He is striving for better utilization by the executive staff through better awareness of the Portal’s capabilities.

## 2.8 SMS: Application Integration

System Management Specialists (SMS) is a leader in technology outsourcing, system integration, application development, and compliance assessments. The company is part of the Enterprise Division of Marconi plc, a global company with historic roots back to the Nobel Prize winner and wireless communication pioneer, Guglielmo Marconi, in the early 1900s. SMS operates multiple data centers with support for a variety of mainframe and mid-range platforms, along with a large data communications network to provide clients with access anywhere across the USA.

SMS has pioneered innovative concepts such as transitional and selective outsourcing and is recognized for its effective approach to transitioning companies from mainframe computing platforms to the latest server architectures.



SMS offers IT services in three areas: Managed Hosting Services, Managed Networking Services, and Essential Support.

The Managed Hosting Services group provides the complete infrastructure (hardware, operating systems, etc.) to a range of service providers so that they can quickly and easily support their customers in such markets as healthcare, education, entertainment, retail, government, and transportation. SMS operates three major data centers in Monroeville, PA, Brea, CA, and Secaucus, NJ. The centers operate a full spectrum of platforms from NT, Netware, UNIX, SUN, HP9000, and VSE to MVS/390.

The Managed Networking Services group performs a similar service for distributed networks. Network Operations Centers are strategically located to monitor, manage, and maintain worldwide networks. Network faults are identified and isolated before the client recognizes that there is a problem.

Finally, the Essential Support group offers 24x7 phone and web-based technical support, repair, and replacement within predetermined service levels. Technical Assistance Centers (TAC) deliver this multi-lingual technical support either on-site or remotely.

SMS was challenged to provide quality assistance to its hosting clients on a 24x7 basis. To differentiate its services from competitors, SMS concluded that it needed a consistent and standardized way of communicating internally with staff at various

locations and externally with clients and prospects. Unfortunately, SMS had a diversity of communication systems worldwide.

“The Portal was the start of a very big project to foster distributed collaborative teams, which is the key to success in 24x7 services,” according to Leslie Mezirow, Senior Web Developer at the SMS Brea facility. She noted that SMS needed an integrated tool to systematically manage its best practices.

The first phase of the Portal implementation focused on a virtual helpdesk, since SMS had acquired many companies and required a uniform information exchange across SMS. The helpdesk application was the highest priority because it would reduce the licensing costs of the helpdesk software and provide support to many more users.

“Most people think of the Portal as a magic box with a souped-up web page. It is much more. The Portal leverages our resources and increases productivity and creativity. It enables information integration and standardization across the company,” said Mezirow.

SMS investigated creating its own enterprise portal from standard web technology. However, it evaluated CleverPath Portal and found that it would meet its objective of a standardized communication environment on a thin-client architecture, using any current version of Microsoft Internet Explorer or Netscape Navigator.

The Portal is connected directly to the helpdesk package (Remedy), which allows both employees and clients to manage helpdesk tickets securely via the Web.

The project was started in April 2001, and an initial prototype was operational in days without assistance. Most of the initial effort focused on configuring the Portal so that the two common browsers would be supported. Minor issues with SSL certificates and new software versions requiring additional system rebuilds were quickly resolved.

Four part-time employees participated in the project, expending about two person-months of effort over the one-month implementation period. CA field personnel provided three days of assistance for the prototype and full implementation. The project team did not require formal training classes.

There are currently about 1,000 Portal users, of which half are full-time users who staff the technical support group. A documentation writer and classroom trainers conduct user training, usually at the client sites.



The Portal interface is Java-based and operates the CleverPath Portal with iPlanet web server 6.0 under an existing Windows NT 4.0 server on one four-processor Compaq platform.

Mezirow remarked that she is pro-portal, “because the Portal encapsulates our needs and provides better communication. It is the first step toward the real intelligent enterprise with full knowledge management.”

When asked whether the Portal project was a success, Mezirow replied, “It was a tremendous success, and we are definitely heading in the right direction. Furthermore, we are looking forward to fully realizing the Portal’s potential for internal/external communications, increasingly employee productivity, and more powerfully leveraging intelligence to support good strategic business decisions. These benefits as well as the prioritized implementation of an array of applications and systems through the Portal will demonstrate our commitment to leadership in the technology industry.”

As an indicator that the Portal has become mission critical, Mezirow stated that a significant failure would cause a serious impact and have high visibility across the company.

Additionally, the Portal is low maintenance. Currently, the staffing for the Portal is: one developer at 5% to 10% time, one security specialist at 12% time, and the six-person helpdesk support team to maintain content.

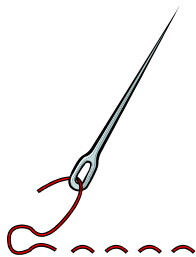
The Portal continues to supplant various intranet sites, integrating both information and applications into a standardized environment. In the future, the second step is to reengineer other applications to be merged into the Portal. The third stage is a full e-commerce site for the entire company.

Mezirow gave some final advice to fellow portal implementers: “To unify diverse data into a portal, be clear on your goals. Prioritize and deliver functionality in phases. Reap the benefits from the innovative delivery of new and existing business intelligence.”

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### 3. Lessons Learned

Based on the above experiences of portal deployments, what are the lessons that we should learn? This section will cover the common threads across the case studies, the risk factors that surfaced, and the best practices recommended, concluding with the important issue of enriching business information from the portal perspective.



- *Rapid deployment of first version*
- *Low operational maintenance*
- *Evolving and changing*
- *Cultural acceptance is critical*

### 3.1 Common Threads

The above examples of successful deployments are remarkably diverse. There are small companies to very large ones. Users range from a couple of people to thousands and often crossed organizational boundaries. Applications involved sales analysis, logistics, order entry, helpdesk, decision support, and general information sharing.

However, there are several common threads throughout all of the cases, as described below.

First, the companies were able to rapidly deploy their first version. The duration from initial development to the first operational version was often less than two months. Several mentioned days or a few weeks. Another stated that six hours was all that was necessary to learn about the portal. In the cases where deployment was longer, causes other than the portal itself were identified, such as problems with database connectivity or reporting tools.

Second, the portal was low maintenance. Many stated that one or two persons part-time were required to maintain the portal. Transferring the responsibility for content publishing to those who create content was the biggest factor in reducing maintenance. Problem areas requiring maintenance tended to be involved with security and databases.

Third, all of the portal projects are ever evolving and changing. One manager remarked that his portal “changes more than a one-year old baby’s diaper” which certainly conveys the proper sense. It seems that in successful deployments portals closely track the changes in the organization, which can be considerable.

Fourth, the cultural acceptance of the portal deployment is critical. As with any IT deployment, some users adapt and adopt the technology quickly, while other users resist. However, a portal tends to accentuate these cultural reactions because it strikes close to the user’s job responsibilities and work activities. Extra sensitivity by IT professionals is definitely required, along with a shift of real ownership of the portal to the business users. At AMDEL, the manager stated, “the portal is not an IT initiative. Other persons can and should own it.” Through these cases, successful deployments depend upon cultural acceptance that further depends upon a real sense of ownership by content creators and content consumers.

### 3.2 Risk Factors

Deploying any new technology is always a risky endeavor. Since portal technology can touch many people, both internal



and external to the company, the risk factors must be identified early and managed throughout.

Spotty security is certainly at the top of any list of risk factors. The purpose of the portal is to gather and organize business information and processes. If used inappropriately or maliciously, the impact upon the company can be quite serious. Be sure that the portal security is compatible and integrated with the IT infrastructure.

- 
- *Spotty security*
  - *Doubtful sustainability*
  - *Limited scalability*
  - *Tough data integration*
  - *Messy application integration*
  - *Immature product*
  - *Unstable vendor*
  - *Lack of proper people and skills*
  - *Goal not in synch with business*
- 

Doubtful sustainability (or reliability) is probably the second most significant risk factor for enterprise portals. Once operational, portals tend to become rapidly mission critical. We asked whether the company would feel ‘pain’ if the portal were unavailable for three or more hours. Most quickly answered with a strong “YES”. Similarity to the crash of the corporate email server was often cited.

Limited scalability is a risk factor that can also sneak up from behind. If your portal project is as successful as you expect, usage will increase dramatically, either through more intensive usage by initial users or by additional groups becoming new users. Capacity of your system will soon be exceeded. The issue is how gracefully and inexpensively capacity can be increased, possibly by several orders of magnitude.

Tough data integration is a frequent barrier to implementation. The portal is operational, the database is operational, but the connectivity between the two is not. There are usually 3 to 8 layers of connectivity that all have to work across disparate platforms and operating systems, whether ODBC or native connections.

Complex application integration can be a greater challenge. If the applications are web-enabled, it is often easy to interact with two applications at the same time within the portal. This may often be sufficient for simple result comparisons between applications. Information sharing, event coordination, or workflow management involve surprisingly high complexity and require much greater development effort.

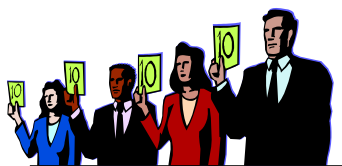
An immature product or an unstable vendor is always a risk factor in any IT project. The portal product is a key component. It must be a stable product with an established track record and a healthy development future assured by a solid vendor.

Lack of the proper people and technical skills is another common issue in IT projects. With a portal deployment, it can be a major issue. An enterprise portal is a mixture of diverse technologies, such as TCP/IP networking, HTTP server, HTML/XML, international character sets, database interfaces, Java coding, and so on. The deployment team must be compe-



tent in each of those technologies, requiring extra training and varied backgrounds.

Goals that are not in synch with the business are the oldest risk factor in IT history. Well-intentioned IT professionals may make all the right technical decisions, but they are sometimes clueless as to the impacts on the business. Blending teams with technical and business people, along with firm management support and direction, is required.



### 3.3 Best Practices

As we interviewed the portal managers about the advice they would give to others embarking on similar portal projects, several themes for best practices emerged.

- 
- *Design the portal to the business*
  - *Know your key audiences*
  - *Make the portal sticky*
  - *Develop iteratively*
  - *Effort changes as portal evolves*
  - *Do formal training*
  - *Engage outside expertise*
- 

First, design the portal to the business. The last risk factor is the first best practice. For any IT professional, it should be common sense to design the portal to be critical to the business and not just a demonstration of neat technology. However, we stray too often from this important principle— establish specific business benefits and maintain focus on them. Benefits to the business are basically: cost reduction, cost avoidance, or revenue enhancement, in order of tangibility. Once these benefits are defined and agreed upon, then the hard work is to maintain focus through the development and into operation.

Second, know your key audiences. The key to establishing credible benefits for the portal deployment is to know your audience. A portal is a people thing! It touches people. And if successful, the portal will change and hopefully enhance the way that they perform their job functions.

Consider these questions: Who are the key players in your business? How do they interact with your business? In the future, how should they interact with your business? Do you understand their work culture, work language, work requirements, and so on? Then, build the portal for the audiences that have the greatest impact on your business.

A major distinction in defining an audience is whether the people are internal or external to the organization. This distinction drives many design aspects, such as security requirements, user interface, reliability, etc. Simply put, external audiences are tougher to support. The benefits also shift. Internal-facing portals typically affect productivity and cost impacts, while external-facing portals affect revenue enhancement. Situations where both audiences are supported in a shared work environment can be synergistic. For example, the major agricultural producer supported external distribution brokers, along with the support staff for those brokers. Both shared a common in-

formation environment, thus enhancing their overall productivity.

Third, make the portal sticky. Portals are meant to be used like cruise ships. One would not leave the ship every night to sleep at a hotel. Likewise, the portal should be all inclusive of the work environment, reducing the fragmentation among work tasks. Hence, many companies have embedded into the portal the corporate email, calendar, corporate news, and other common office functions. In addition, they have embedded broad horizontal applications, such as common human resources applications.

To put it simply, the long-term vision is to evolve the enterprise portal into the *Corporate Workplace*—a common environment for everyone (employees, customers, suppliers, partners) to interact with and through your business.

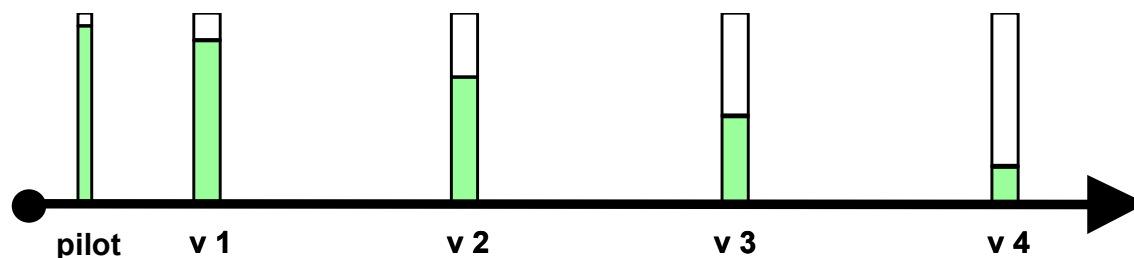
Fourth, develop iteratively. Rome was not built in a day, neither is an enterprise portal. There are three good reasons for iterative development. We are not smart enough to get it right the first time. People need time to adopt changes in the work habits. And, requirements are constantly changing. The portal is tracking a moving target (your business).

Some practical advice emerged from the case studies. Start small and quickly with a pilot in 1-2 weeks, but after adequate planning and training beforehand. The first production version should go operational in 2-4 months. Subsequent versions should be scheduled on 6-month cycles. Finally, do not stop. Continue to deploy new versions indefinitely. A portal project is never done because your business is never static.

Fifth, the effort changes as the portal evolves. Expect that the early versions will be mostly configuration efforts in which the parameters of the portal are tuned to your business. Later versions will be mostly development efforts in which custom code will evolve along with your business functions.

The figure below illustrates this changing effort as the portal evolves. The bottom shaded bar represents your effort in configuring the portals. This is the functionality that the portal vendor provides. The top hollow bar represents your effort in developing custom code for the portal. This is the functionality that your development staff provides. As your portal evolves, your development staff must be increasingly involved, despite the initial impressions.

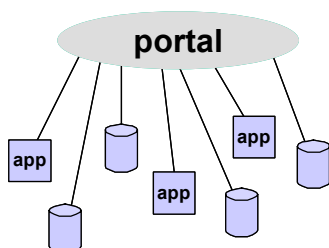




Finally, do formal training and engage outside expertise. Many managers stated that the portal could be learned in hours or a few days. However, at least two of your staff should take formal training since it is an investment in shortening the development cycle and sharpening the benefit focus. In addition, there will tough technical issues (usually with security and database connectivity) unique to your company. Specific expertise to bust through these technical roadblocks is also a good investment. Select outside professional service providers that have an attitude of hands-on mentoring by ‘make-it-happen’ experts.

### 3.4 Business Information Enrichment

The portal is a key component in enriching the information of the business. When an enterprise portal taps into typical corporate data, the poor quality of this data becomes apparent to many. This data is collected and maintained by specific application that only check for quality within the functions of the application. The Portal uses that data in way not intended by the application.

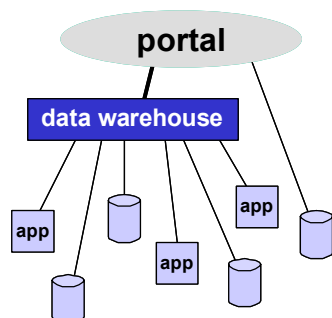


The figure to the left illustrates the situation of the portal tapping into various sources of corporate data. Assuming that the issues of data connectivity are resolved, the portal environment now provides a window into these various sources, raising several problems.

First, the presentation of data may be messy. The raw data is created to drive application code, not to be reported, charted, and analyzed by humans. Often, considerable transformations are required to make the data useful.

Second, the relationships among data sources may be nonexistent or ambiguous. In relational terms, join paths from the foreign key of one table may not map adequately to the primary key column of another table. You simply cannot compare two tables in any meaningful manner. Or worse, comparison of two tables often generates erroneous but plausible results.

Third, the data is simply inaccurate. Most data is collected as an incidental function of an application—nice to have in case of problems. For example, names, addresses, and telephone num-



bers are often of low quality. As long as the billing statement reaches the proper household, slight variations in a name are not important to the billing application. However, searching for a specific customer via a portal window may be frustrating because of these inaccuracies in customer data.

The figure to the left shows the role of a data warehouse in enhancing corporate information for a portal. Portals historically emerged as the front-end of data warehouses, but this is not the case in many portal deployments today. Seriously consider incorporating existing warehouse systems into your portal. If your company has not invested in data warehousing, seriously consider linking your portal deployment to a warehouse deployment. The two are synergistic because of the imperative for information enhancement.



#### 4. Realizing the Return-on-Investment

So, you deploy an enterprise portal utilizing the above best practices and managing the above risk factors. How do you actually realize the return-on-investment from your efforts?

First, do the formal ROI analysis and then believe it. Too often, such analyses are performed simply to cover one's rear or to satisfy standard procedures. And, no one takes the analysis seriously. If so, you are losing a big opportunity. A ROI analysis requires quality time and thinking. Take it seriously, and it will pay off for you and your company.

An ROI analysis tool tailored for enterprise portals is available as a free download from Computer Associates.<sup>2</sup> This Excel application allows you to analyze several portal scenarios and calculate the expected cost and productivity benefits, based on industry estimates by the Delphi Group. An associated whitepaper on portal ROI issues is also available.<sup>3</sup>

When should you do the analysis? Usually the analysis is only performed to justify funding for the project, and then quickly forgotten. A serious analysis is continuous throughout the project providing valuable mid-course corrections and priority juggling. In addition, the analysis can provide a post-implementation assessment. If the project is successful, then you have a documented track record that can be a huge springboard to leverage subsequent projects.

What generates the ROI? Think about our cruise ship analogy. An enterprise portal by itself is like the hull of a cruise ship—just a hollow space within. There is not much benefit from sailing on such a ship! The full benefits of a portal come from all that it contains—databases, applications, websites, and so on.

Hence, do the ROI analysis on the whole assemblage. Do not delineate the pieces; deal with the whole.

#### 4.1 Productivity Enhancement

The majority of portal projects are justified on the basis of productivity enhancement. The arguments go like this: “With the same people, we are able to do twice the work in half the time.” Or, “we can accomplish the same work with less people.” Or, “we can avoid hiring more people to handle future demands.”

An argument based on productivity enhancements can be quite compelling. However, do not stress it too much, or rely on it as the sole justification for the portal. The reason is that productivity enhancements often do not materialize as expected. The project is delayed; cutbacks are averted; your better people leave; other demands pop up; and so on. You are left with a project for which there is no apparent benefit, providing little justification for the continuing development of the enterprise portal. Thus, your portal efforts eventually reach a dead-end.

Think beyond productivity enhancements into tangible impacts on your business, ones that can be defined and measured. The next sections suggest a few.

#### 4.2 Small, Short-Term Benefits

Think first about small (and short-term) benefits. These are benefits that may not deliver millions of dollars of return. But, these benefits can be clearly defined and quickly realized.

Managing the intranet chaos is a theme with which most executives now empathize. Either through personal experience or through visible screw-ups with customers, executives are ready to expend effort and money to clean up this mess. Justification is based on lost opportunities, wasted effort, document replacement, and so on.

Universal user interface is another compelling theme. There is a diversity of workstations and networking across the typical corporation. Luckily, most have invested in “web-izing” their infrastructure. If so, then moving everyone to a web-based, thin-client workstation using common web browsers is a ‘no-brainer’ for most executives. Further, consistency of the user interface is important so that the workplace can evolve to be universal throughout and beyond the enterprise.

Managing a large user base is a common complaint by IT professionals because of the enormous amount of time required to perform this task. Most of this effort is because there are multiple environments to be managed and ever-changing content

- 
- *Managing the intranet chaos*
  - *Universal user interface*
  - *Managing a large user base*
  - *Bridges among applications*
  - *Access from any network device*
- 



to be updated. By consolidating users into a single portal environment, this effort can be reduced significantly.

Bridges among stovepipe applications is a frequent need in large corporations. Through a history of many legacy applications and a few mergers, there is often extensive fragmentation of critical business processes, such as providing a single point of contact for customer service. A portal may quickly provide presentation integration of two or three applications on the same screen at the same time. Although this approach is a limited integration, it may be a quick and inexpensive portal solution to a major problem.

Access from any network device is becoming a major draw to portal technology. By standardizing the user interface to the common web browser, that interface can be extended to cell phones and PDA devices. Thus, you and your customers can conduct business with your company at any time from anywhere. Concentrate on short-term payoffs based on existing interactions that have become problem areas with key partners or critical staff.

### 4.3 Large, Long-Term Benefits

Once you have built a track record of actual successes with the small benefits, think about the large (but long-term) benefits.

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- *Mergers and acquisitions*
  - *Customer self-service*
  - *Business velocity boost*
  - *Value chain integration*
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Mergers and acquisitions can be the basis of big wins with portal technology. AMDEL noticed that several of its acquisitions had totally incompatible systems. However, it was able to interconnect all the new employees via its Portal quickly after each acquisition.

Customer self-service is a 'sleeping giant' of benefits for many companies. Afraid to open their systems externally, they continue to buffer customers from information about their own business transactions with a thick layer of staff. Usually, this results in frustration for all and unfavorable perceptions of service. Portal technology can open those systems to direct interaction by customers in a controlled manner. Your customers will like you, and you can reduce internal costs.

Business velocity boost is an often ignored and misunderstood benefit because it requires a shift in thinking about your business. Reducing the time to perform a business process not only speeds the process, but also enables the creation of whole new processes. As an example, American Century, a division of J.P. Morgan, was able to reduce the reporting time to the Human Resource administrators in its client corporations. End-of-month reports were typically available 15 days thereafter, as disseminated through support staff. By interacting directly



through the portal, administrators were able to access their report the day after the month end. That changed the whole equation, enabling new uses for the report.

Value chain integration is the ultimate benefit from utilizing an enterprise portal. The portal can provide a workplace for not only your staff and maybe your customers, but also your suppliers, or distributors, or any other partner critical to your profitability. By integrating them into your systems via the portal, you have enabled a much closer collaboration across the value chain that can spawn unexpected efficiencies.



## 5. Suggested Action Steps

What should you do based on the experiences and lessons of these enterprise portal cases? Here are some suggestions:

First, learn about portals and continue to learn. It is an evolving technology with maturing architectures amid emerging standards. Practical experiences for applying portal technology and for realizing its business benefits are constantly unfolding. Because portal technology is very intertwined with other key technologies (such as text analysis, wireless, and workflow management), it is a difficult area in which to stay competent.

Second, just do it. Prototyping a portal is quick and inexpensive. Use existing equipment and trial versions from vendors. Focus on demonstrating the potential business impacts, while level-setting the understanding and expectations for all concerned.

Third, design for all of the parties involved. Understand your audiences—all of them. The power of the enterprise portal is in the personalization to specific workplaces that are unique to the work role of the people involved. Do not underestimate the diversity and complexity of those roles. It is directly related to what you are as a business and what makes your business unique.

Finally, implement point solutions as steps toward unifying your enterprise architecture. This is a paraphrase of “act locally but think globally.” You must achieve an early return-on-investment that is perceived as tangible and credible. Leverage that track record into subsequent projects that steadily build infrastructure for the enterprise architecture.

This paper has described eight successful deployments of an enterprise portal, along with the lessons learned. Now is the time for your company to embark on the portal cruise. Steer the efforts in the proper direction, as suggested above. And, do not forget to enjoy the cruise.

## 6. APPENDIX: Interview Questions

This appendix lists the questions used in the structured telephone interviews.

### Pre-Interview Background

Company Name:  
 Industry:  
 Geographic Location:  
 Company Profile:  
 Major merger/acquisitions:  
 Product/Services:  
 Organization Structure:  
 Major Locations:  
 Financial/Stock Performance:  
 Trade Press Buzz:  
 Notable Press Releases:  
 Competitors:

### Interview Preface

Interviewee Name:  
 Interviewee Title and Job Responsibilities:  
 Interviewee Contact Info:  
 Verify above background information

### Portal Motivation

What were your key objectives for using an enterprise portal?  
 What was the primary business processes supported?  
 What were your expected benefits from using a portal?  
 What were your top reasons for selecting the CA CleverPath Portal?

### Portal Implementation

How long did it take to implement the first production version?  
 How many developers worked on the project?  
 What difficulties or issues did you experience during implementation?  
 Did you use outside services during implementation?  
 How much training and education was required during implementation?

### Portal User Experiences

Do your employees use the portal?  
 How many and how frequently?  
 Targeted to specific departments or job functions?  
 What types of resources are available to employees?

- Company documents and reports
- Analysis tools
- Enterprise applications
- Internal/external websites
- E-mail tools
- Collaborative tools

Do your external business partners use the portal?  
 How many and how frequently?  
 Targeted to specific groups or functions?  
 What types of resources are available to partners?

- Company documents and reports
- Analysis tools
- Enterprise applications
- Internal/external websites
- E-mail tools
- Collaborative tools

Do your external customers (end-consumers) use the portal?  
 How many and how frequently?  
 Targeted to specific groups or functions?  
 What types of resources are available to customers?



- Company documents and reports
- Analysis tools
- Enterprise applications
- Internal/external websites
- E-mail tools
- Collaborative tools
- eCommerce selection and purchase

How much training was required to support the above user groups?

### **Portal Evolution**

Are you continuing to enhance the resources available via the portal?

- New portlets, database access, ...

Are you expanding portal usage to other groups? Who? Why?

Do you expect portal usage to double over the coming year? Explain.

### **Portal Benefits**

From your perspective, was the portal project a success?

What was the biggest Return-on-Investment?

Did you perform a ROI analysis on the portal project?

What was the projected ROI during the first year?

Has this projected ROI been realized?

If the portal were down for three hours, how much 'pain' would there be?

Did the portal provide cost-reduction in the following categories?

Decrease search/retrieval time for business information

Decrease paper production and distribution for reports

Decrease email volume for information dissemination

Decrease difficulty in managing multiple systems/applications

Did the portal provide value-added benefits in the following categories?

Increased customer satisfaction

Did the portal provide a reasonable Total Cost of Ownership in...

Hardware and special software required

Skills and people required

Implementation and maintenance effort

### **Portal Lessons Learned**

What lessons did you learn during implementation?

What lessons did you learn during production usage?

If you did this portal project again, what would you do differently?

Would you recommend the CA CleverPath Portal product to other?

What are the key strengths and weaknesses of CleverPath Portal?



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## Notes:

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<sup>1</sup> Samuel Ball Platner, A Topographical Dictionary of Ancient Rome, London: Oxford University Press, 1929, pp 402-403. Reprinted at [http://www.ukans.edu/history/index/europe/ancient\\_rome/E/Gazetteer/Places/Europe/Italy/Lazio/Roma/Rome/.Texts/PLATOP\\*/Porta\\_Appia.html](http://www.ukans.edu/history/index/europe/ancient_rome/E/Gazetteer/Places/Europe/Italy/Lazio/Roma/Rome/.Texts/PLATOP*/Porta_Appia.html)

<sup>2</sup> CleverPath Portal ROI Scenario and Analysis Tool, November 2001. Available at <http://www3.ca.com/Solutions/Collateral.asp?ID=1177&PID=1628>

<sup>3</sup> Delphi Group, Portal ROI: An Examination of Payback Scenarios for Deployment of CA's CleverPath Portal. Available at <http://www3.ca.com/Solutions/Collateral.asp?ID=1083&PID=262>

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Richard has published numerous articles in trade and academic publications, presented regularly at leading trade conferences, and conducted professional seminars in eighteen countries. He writes for DM Review with a monthly column entitled The BI Watch that reaches over 75,000 IT professionals. He has written three professional texts, entitled Enterprise Database Connectivity, Using the Data Warehouse (with W.H. Inmon), and Web Farming for the Data Warehouse.

For over a decade, Richard was a professor at the Wharton School of the University of Pennsylvania and at the University of Colorado. He received his B.S. degree in Information Science from the California Institute of Technology and his M.S. and Ph.D. degrees in Information Systems from the University of California, Irvine.

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