Unlocking ERPs with Portals

A portal's usefulness increases exponentially with its integration into an organization's back-end systems

By **Karin Steinbrenner**

Portals are the latest "hot" technology. According to the Gartner Group's technology lifecycle, they have probably reached the peak of the hype curve. Nevertheless, portals represent an extremely important development in information technology (IT). An effective portal integrates disparate technologies and transforms them into a seamless system to best serve the portal visitor.

This viewpoint explores how portals can deliver on the promises made by enterprise resource planning (ERP) systems. Portals can leverage the vast investments made in ERPs by facilitating targeted information access and delivering individualized Web services.

Unfulfilled ERP Promises

When institutions implement ERP systems, major objectives include

- Departmental efficiency
- User self-service
- Direct access to data for decision making

For many institutions only the first objective has materialized — departments involved in day-to-day operation achieved greater efficiency. Since ERPs commonly use an integrated database, one department could build on data entered by the previous one, creating a value chain. Further, the integrated database guarantees correct, up-to-date, consistent, and nonredundant data about the institution's critical resources: students, courses, faculty, staff, facilities, finance, and so on. This by itself is an invaluable but infrequently promoted ERP benefit.

However, ERPs seldom achieve the promised self-service, since they were designed to optimize departmental and not end-user processes. Also, ERPs do not deliver easy data access for decision making because the database is optimized for operational efficiency and not for end-user information retrieval.

The Portal Evolution

Initially, different Web sites promoted the image of the sponsoring institution to the electronically enabled world, serving largely as a marketing tool. The Web's ability to communicate information to vast external and internal audiences without the need to distribute hard-copy materials made it a perfect forum for the distribution of news, policies, procedures, and other relevant information.

With the exploding volume of information, it became increasingly important to target relevant information to appropriate audiences. Instead of having only two sites, an extranet and an intranet, organizations began to develop Web sites for specific population segments. Institutions of higher education developed Web pages for students, parents, faculty, alumni, and others, emphasizing information deemed to be of value to those constituent groups. At the same time, the Web's ubiquity and ease of use induced many software vendors to develop Web services with the end user in mind. This boosted the Web's usefulness even further, since organizations could offer real-time services along with relevant information to their Web visitors.

To target services and information to

a single user, organizational directories became imperative. Directory services not only identify and authenticate users, they also link users to information and individualized services maintained by the ERP system. The delivery of targeted information, combined with network and other personalized services, is the hallmark of portals.

While portals are still evolving, in future they will let users enter their own data space — a space that allows them to view and do what they want to do and not what someone else wants them to do. Portals will become user-centric.

A portal uses Web technologies, directory services, ERP data and logic, network services like e-mail, and other collaboration tools to deliver just-in-time information and services. These formerly segregated technologies complement each other and work together to create a new personalized desktop — the home-portal.

Today's portals are characterized by

- A single user sign-on: This gives the user access to multiple organizational services and information.
- User-customized services and information: By using the information maintained about their users, organizations can target them for individualized services and information.
- Personalization: The portal visitor can change the portal's appearance, select from a wide range of services and information, and add personalized links.
- Access to networking tools: Tools might include messaging, calendaring, whiteboards, and others.
- Just-in-time action targeting: The portal visitor is notified of an action to take or a task that will be performed for the visitor.
- Individualized processes: Users can perform processes previously handled by dedicated office staff.

Connecting the portal to the organization's ERP enables it to serve as the single point of access to integrated information and application services. The institution's back-end systems know

- Who is visiting
- That person's educational, professional, and (often) recreational history
- Which information the visitor needs and when
- The visitor's interests and preferences
- When the visitor has to take action and what those actions are
- The visitor's schedule
- The group to which the visitor belongs

Therefore, the ERP can bring two very powerful components to the portal:

- Targeted information and event delivery
- Individualized Web services

Targeted Information and Event Delivery

The objective of an ERP system is to support the organization's business processes. To that end, information maintained in the ERP's database has to be current and correct at all times. For example, it would be inconceivable for an institution's accounts receivable system to store incorrect tuition rates, because that would render all student bills invalid. However, independent Web sites have been known to post not only incorrect or outdated rates, but also different rates on different Web pages for the same institution.

By retrieving information in real time from the ERP's database, the institution's portal can deliver consistently up-to-date, correct, relevant, and timely information. In addition, the institution doesn't need someone to maintain the Web site, since that's integral to the ERP maintenance processes. This is true for a vast amount of information, such as class lists, department lists, employee lists, events, classroom schedules, course offerings and descriptions, organizational hierarchy, and inventory, to name a few.

Besides information of general interest, suited for an extranet or intranet, the ERP maintains data unique to groups and individuals. Using e-mail, the portal can turn that data into timely, relevant information and let students know, for example, when to register or when grades are posted. However, the visitor should not be swamped with too much information, since trivial messages can dilute those containing important information, creating the perception that recipients are getting spammed.

A rich visitor profile should be leveraged for proactive delivery of timely and valuable content. Information becomes even more valuable when tied to an upcoming action; an embedded URL inside the notification could either launch the action, or an event could be automatically entered into the person's calendar.

Individualized Web Services

As noted, ERP systems were designed to optimize departmental processes. Earlier Web-enabled applications didn't change that, since users, instead of visiting departments physically, now visited them virtually on the Web. In contrast, the portal is user-centric; it offers services relevant to the user and has to be designed to optimize processes around the user. It creates a self-service environment by empowering the user to perform tasks that were formerly completed by operational staff.

Paradoxically, this creates a win–win situation for both the organization and the portal visitor. The department, relieved from performing clerical, repetitive tasks, can focus on delivering nonroutine, value-added functions. Students, who register for courses, don't have to visit the registrar's office any longer — they can register any time, anywhere. With control comes increased customer satisfaction, and they perceive more and better services even though they actually get less. The Student Information System not only knows who the student is and which courses she is permitted to take, but also has all the rules associated with registration imbedded. In leveraging that knowledge, the portal can guide the student through the entire registration process without administrative staff support.

More powerful, portal-enabled, user-centric processes invoke tasks that span more than one department or even organization. Consider the following example:

A remote student, who has no relationship with the university, finds a course offered at University X through an educational portal provider. She selects the course and enters the university's portal as a visitor. She is asked for limited demographic information and gets a user ID assigned. She can register and then pay for the course electronically. Upon completion, she receives a greeting from the instructor, can view a class list, and enters the online classroom.

During the process, the student used multiple services that are administered by various, distinct departments. In the pre-portal days the above process took several weeks and required the student to contact each department. Now it can be done in minutes without any intervention from the university's administrative offices. Also, previously, no single departmental staff person was cognizant of the entire process, which often resulted in the student's being sent from one office to the next to obtain correct information. The portal can link all the formerly disjointed tasks together into a seamless user process, and the student is oblivious to that fact that she has performed tasks owned by separate departments.

The next example invokes both internal and external processes:

An alumnus receives notification of the university's upcoming reunion. Inside the e-mail is a URL that links him to the event registration. He fills out the registration (he only has to enter his ID; the system fills in the remaining demographic data) and selects the subevents he wants to attend. Knowing that he lives far away, the application asks him if he requires lodging and links him to an appropriate hotel. There he can purchase overnight accommodations. Upon completion he is directed to a travel site to make plane reservations. When he has completed all his arrangements, he receives a single bill, which he can pay electronically with his credit card. Returning to his home-portal, he receives, electronically, a registration confirmation from the university and the hotel, and a note from the travel agency that the plane ticket will be mailed via FedEx. Finally, his PC calendar is automatically updated to block out the time for the event.

In contrast to the first case, this example invokes internal and external services, and PC applications. The ERP logic triggers the notification, and from there the alumnus can handle the entire process — from registration and hotel accommodations to a plane reservation — in a single, seamless process using both on and off campus services. While such a scenario remains somewhat futuristic, given current technologies it could become a reality in a few years, if not months.

Both examples exemplify how, by merging multiple technologies, portals create a pervasive customer-centric information and service era. Portals allow organizing processes around one's clients by extracting information and logic from their ERP systems. In the not-too-distant past, institutions built a central physical location where students could go for all campus services. Today, the portal is poised to become the "one-stop-shopping" center for students.

The New Desktop — The Home-Portal

Portals aggregate multiple services, systems, and information into one consolidated platform. They represent the top layer of the institution's system integration efforts, placing the customer at the center. The future home-portal will provide access to PC applications, organizational information and services, and remote systems. Resource location will become irrelevant.

New standards such as UDDI (Universal Description, Discovery and Integration), SOAP (Simple Object Access Protocol), and XML (Extensible Markup Language) will make distributed services accessible to authorized users. The home-portal will become the user's personal view of the world, so it's up to the user to determine which services and information should take up desktop real estate. As the user changes, he can adapt his home-portal to reflect new interests.

The more information that organizations have accumulated about their customers, the better they are positioned to deliver valuable, just-in-time information and services. Users are more likely to adopt the organizational portal as their home-portal where organizations exploit this strategy successfully. However, home-portals eventually may become independent of the organization because users can pick and choose channels from a wide range of network resources.

The Higher Ed Advantage

No other institutions have accumulated as much information and knowledge about their constituents as universities. Moreover, they begin capturing student information at a time when students are unlikely to have an established relationship with a portal provider. During the four to five years each student attends that university, the university will collect and maintain educational, service, and recreational information, then continue to track students after graduation.

This puts universities at a distinct advantage over most organizations that depend on sales information and demographics that their visitors volunteer. Universities can therefore offer services that are potentially of immense value to their constituents, such as targeted course offerings based on alumni career development or the offer of interim insurance when an alumnus loses his job.

Universities that intelligently leverage this wealth of information, without becoming over eager, could become the preferred home-portal provider for their students and later for their alumni.

The question is — will universities seize the opportunity? *e*

Karin Steinbrenner (Karin.Steinbrenner@villanova.edu) is Associate Provost and CIO at the University of North Carolina at Charlotte. Prior to that she was Executive Director of University Information Technologies at Villanova University in Villanova, Pennsylvania, where this work was done.