

Campus Portals

What are They, What Do They Do,
and Does My Campus Need One?



Portals are gaining popularity on campuses as a way of providing customized and personalized access to and management of web services. As the customization of portals increases, so does the interdependencies and reliability of data sources supporting the portals. This FAQ answers core questions about how portals are different from home pages and what benefits portals can bring to a campus community. This FAQ also describes alternative ways for approaching the design and development of portals and ways for incrementally implementing portals.

Section One:

An Introduction to Portals



1. What is a Portal?

Perhaps the best way to describe a portal is as “an individualized gateway to web information access.” A portal is a customized, personalized web interface or “hub” from which users can locate and access most of the online information and services that they commonly use. Although a portal will not provide access to everything users are ever going to use, a portal provides information that users typically need and use on a regular, even daily basis.

2. How Prevalent are Portals on Campus? Without Portals, How do Institutions Provide Gateways to Their Web Information?

Portals are relatively new to college campuses but are spreading rapidly. While most institutions still rely on a homepage to provide all users identical access to campus web information, a growing number of colleges and universities have already had great success with portals (e.g., UC Davis, Gettysburg College, Maryland Institute College of Art, University of South Florida, etc.). While a homepage is a “one-size-fits-all” approach, a portal accommodates and tailors its information to users. A portal recognizes and knows users. Campuses are gradually migrating to portals as the benefits of portals become clearer.

3. How Does a Portal Differ from a Homepage?

A homepage looks nothing like a portal in appearance. Every user sees the same homepage while every user sees a different portal. While a traditional home page is *institution-centric*, providing the same view to all users, every user of an enterprise university portal sees a customized, *user-centric* web site. A portal can be further personalized by each individual and even has the ability to adapt to the way each user interacts with the portal. The specific information a user needs obviously varies from time to time and with changing roles, such as when course loads change, juniors become seniors and when employees change responsibilities. The best portals adapt to changes in a user’s role, status, and workflow to deliver the most appropriate information each time the portal is accessed.

Most portal web sites are designed with similar navigation schemes. Many portals have a set of tabs visible at the top of the page. Portal pages are often divided into columns, typically three, and the columns are further divided into small window-like areas called channels. Since a user can personalize a portal, characteristics such as the colors, fonts, or position of channels are likely to be different for each user.

4. Are There Different Types of Portals?

There are three basic kinds of portals used by various organizations and institutions to serve different purposes. They are 1) horizontal portals, 2) vertical niche portals and 3) enterprise portals.

Horizontal Portals (HPs) are portals that attempt to provide a user with all of the general information and

services a user would want to find on the web. Horizontal portals are typically created by commercial firms and are designed to attract users to advertisements, search engines, products or services. Each user accesses the page and sees the same information initially; each user has the ability to personalize the information on the page to some degree. For example, the web sites of search engines such as Yahoo and Google and ISPs such as AOL offer each user a horizontal “mall” of every type of information, from “shopping” to “news” to “auctions”, etc. With a degree of personalization, users can tailor the information to their interests.

Vertical Niche Portals or VNPs offer a great deal of information on a small topic of interest to a small select group of people. For example, www.wine.com is a VNP that caters to wine lovers and has all the information and pointers one could imagine on the subject of wine, but little else. Similarly www.cheese.com is for cheese lovers while www.millstones.com is for collectors of millstones. There is a VNP for virtually every interest.

Enterprise Portals or EPs are portals that are *customized by the portal system*. The system recognizes the identity of the user and gives each user a different, customized view of the organization based on their identity and role within the organization. For example, if the system recognizes a faculty member, it provides information customized for that particular member of the faculty. This information is different information than what a student or staff member sees; and, in fact, is different information than what another faculty member sees.

Of course people belong to many organizations and have many affiliations beyond the university or organization that employs them. At some future time, enterprise portals may evolve into personal ubiquitous portals that will encompass everything a person does. For now, there is enough challenge in building an enterprise-wide portal.

Another kind of portal that may fit into the horizontal, vertical, or enterprise category is a *Portal Bar*. A portal bar is a miniature portal that is always available. It looks like a tool bar and typically floats above the browser or all applications. It is usually not much larger than an application tool bar and thus has a very limited area in which to display information. A portal bar often displays small icons that link to common applications and small windows for entering just a word or two of information for searching. A portal bar can be personalized, may be customized, and is often adaptive. If a user is working on a particular application, the contents of a portal bar may change to reflect the work that is being done. If the portal bar contains a field to enter searches, as many portal bars do, a user can usually choose the search engine that will be used. Many software vendors including Obongo, Infogate, Yahoo, and Excite offer portal bars. Of course, portal bars can also be written by users.



5. What Portal Type Works Best for a University?

An enterprise portal is ideal for the university environment because it is designed for each user and not for the institution. Students, faculty, staff, alumnae, prospective students, parents of students, and siblings of students all want to see something quite different. An enterprise web portal that is customized and personalized will give each user a web page tailored to their roles and to the way in which they work best.

Only enterprise portals can provide this role-based customization because the enterprise (university) knows a great deal of information about its members or employees. The enterprise uses this information about employee roles, benefits, authority, years of service, and so forth to build an initial portal page that is unique for each employee. It gets this information from the same enterprise databases used to run the overall institution.

6. What Are the Benefits of a Portal versus a Homepage?

The distinguishing features of a portal that make it preferable to a homepage are its ability to 1) customize and 2) personalize for each unique user and therefore to support 3) increased efficiency.

Everyone acknowledges that people in a university, such as faculty, staff and students have different roles. If each person views an identical homepage, it may be difficult for that person to find the information he or she may need. For example, imagine a homepage built specifically for the Registrar of the university and a homepage built specifically for the Head of the Computer Science department. The people within these two functions are very different, and web pages should take these differences into account.

The Three Primary Benefits of Portals

Customization: While a homepage is the “same thing for all people,” an enterprise portal is aware of who one is and what one’s role is in an organization. Once an enterprise portal authenticates someone — by use of name and password or digital certificate — the portal has the ability to customize information that pertains *specifically to that person and his/her role*. Thus, the web software customizes the page according to the identity of the user. *Customization* is the tailoring of the set of web pages that constitute an enterprise portal *by the portal system* using the information it has about each user.

Personalization: In addition to being able to customize information, portals also differ from home pages because they can be *personalized* by the user. Once a user has access to customized information, that user can then decide what information is most pertinent to keep and can alter the way information is viewed or stored. Once a user completes personalizing the portal page, the user can save it. The next time the user accesses the portal, the page will retain the changes and display the portal page specifically designed for the user’s needs and preferences.

Efficiency: A portal that is customized makes the user more efficient and increases the speed of the workflow. A personalized, customized portal enables users to find information they need quickly and easily. We have all looked at homepages of organizations—perhaps our own—where we have searched too long and too hard to find what we need. Since a homepage has to be all things to all people inside the university, there is an overabundance of information to sort through. This is information that a portal can tailor and eliminate if it is irrelevant to the user. A portal cuts through the clutter and gives each user precisely the tools and information they need on their computer screens all the time.

7. How do the Benefits of a Portal Work?

A typical user needs very specific information to do his or her work. For instance, a typical user usually accesses only a few dozen web pages and a handful of services each day. However, a user often needs to sort through an immense volume of information on the web to find these pages. It is estimated that there are over three billion web pages on the Internet. An almost infinite number of additional web pages are dynamically built at the request of a user; for example, budget reports or search engine results. There are also many millions of services offered via the web. Merely navigating through all this material is not only exhausting, but also very time-consuming.

Today, portal technology makes it possible for this information to be sorted electronically for the user. For instance, if a student goes to the URL of the university and finds a portal instead of a homepage, that student would likely be asked to authenticate herself, perhaps by typing her ID and password or by presenting her digital certificate. The portal system would recognize that this user is a senior student in the math department who is a member of the drama club, is vice president of the student pizza delivery agency, has a critical paper due in three days, and so forth. The system would then display the student portal to her, which might include student-tailored discussion groups, announcements, alerts, job openings, applications for certain programs, etc. Depending on the student’s year of study, major, courses, and activities, each student’s portal is customized and personalized differently. A university with 25,000 students would have 25,000 different portal web pages able to be dynamically presented to each of the 25,000 students who went to the same URL. These pages would be updated constantly as situations change.

Section Two: Characteristics of Portals



1. What is CPAD and Why is it Important?

CPAD (pronounced SeePad) is an acronym for the four most important characteristics to keep in mind when designing portals. They are Customization, Personalization, Adaptive, and Desktop.

2. What is Customization?

The initial tailoring of the portal *by the system* is called *customization*. The goal of customization is to provide each user with a unique user-centric web page that comes as close as possible to providing access to all of the information commonly used by the user. Customization design also applies to a user's hardware and environment. If a user is using a PDA (personal digital assistant or other palmtop device), cell phone, network appliance or any other device, the system will customize the appearance of the portal to fit that device. Customization may be further modified by personalization; however, personalization always overlays on top of the customization action. This means that a user can always return to the default customized view of a portal and that when the customization changes, the personalization layer is simply applied over the new customized layer. A user does not have to redo personalization when customization changes.

3. What is Personalization?

Even the best customization will not always produce a portal page that is exactly what a user wants. A user may want to change the format, rearrange the content, add or delete content, and adjust parameters in content. This tailoring of the portal *by the user* after it has been customized by the system is called *personalization*. The goal of personalization is to allow every user to optimize the portal to make using it as natural and efficient as possible. Portal systems designers cannot design a portal that is optimized for every individual user and the way users think. Users need to be allowed to personalize a portal in ways that designers might find dreadful, but that nonetheless improve the productivity and comfort level of users.

4. What Does Adaptive Mean?

For a portal to be adaptive means that a portal changes when a user changes. This means that a portal adapts to a user's roles and the way a user works. For example, if a user changes responsibilities, such as when a user is promoted, the portal automatically reflects the new role, giving a user access to the new systems and features that are available. When a student changes from a third year status to a fourth year status or when a student changes his major, the portal changes too. When a member of the enterprise community gets married and changes their address, phone number, marital status, and possibly their name, the portal changes with these changes.

The portal also is aware of the way a person works. If a portal detects a user doing repetitive tasks that could be done more easily, for example, it creates icons and tools to make those particular tasks easier to do or suggests

other tools that might support more effective ways of getting the work done. We are not surprised today when Amazon.com tells us that "people who bought this book also bought ..." In the future we should not be surprised when our portal tells us, "I think you are trying to write an online citation. We have the *Columbia Guide to Online Style* available. Would you like a link or cameo for it?"

5. How Does an Enterprise Portal Replace the Operating System Desktop View That You See When You First Turn on Your Computer?

A portal gives users individualized access to all of the information users commonly use. This means the portal will be the first page that a user will see when the computer is first turned on. In fact the portal screen will fill the entire screen of a user and will likely be the place from which all other applications are launched.

Today a user sees an operating system-specific desktop simulation. Since a portal is just a collection of web pages, portals run on any web browser, any operating system, and any hardware. A portal totally covers up the operating system desktop view and in almost all cases replaces the simulated desktop. It is largely operating system independent. The portal therefore becomes each user's desktop. It is important to note that an operating system such as Windows accesses data and applications on a user's local disks and on network connected computers in addition to accessing information on the Internet. To be a complete desktop replacement, a portal must also provide that access.

Section Three: Planning for Portals

1. Before We Get Started Building our Portal, are There Some Major Issues We Should Consider?

By far, the most important thing to do is to recognize the need for — and commit to — a lot of planning. Good portals deal with data that different departments may feel they "own". For this reason, one will need to be able to plan and work effectively with staff from many different areas within the university. In this process it is critical to pay attention to the 1) overall plan, 2) designation of duties, 3) strong leadership, and 4) adequate infrastructure.

Overall Plan: An overall plan for portal building is absolutely essential. A university should not attempt to go "one bit at a time" as individual pieces need to be able to fit together in the end. There needs to be a compelling, overarching vision and objective for the portal. What is the audience, what sorts of functionality and features are going to be delivered? Without a strong vision and the cooperation of many people within the university — and outside the university, too — a portal may not be able to serve those it is intended to serve, such as prospective students, alumni, visitors and visiting



scholars. Planners must also recognize that a portal will drastically change the way the university treats its data. A university's data is a valuable resource created at great expense. It belongs to the university, not to any particular department. A planning committee must communicate with all of the departments about the ownership of data: who creates it, how it is treated, and how it will be transmitted for use by the portal. Staff from each department should be included in the portal planning for this reason. Similarly, when planning a portal for students, staff, or faculty, members of those communities should be involved in the planning process. Though this clearly means a host of meetings, which can be time-consuming, it is essential to involve the affected people since they often have the best idea of what their customized portal should look like.

Designation of Duties: An explicit specification of the division of labor among the various groups should also be included in the initial planning, as more than one technical group and many user groups will be involved. Each group will need to know and understand their roles and how they will work together. The group that built an effective homepage will not be able to build your portal without a great deal of help from other IT groups and other portal stake holders.

Strong Leadership: Finally, good leadership and commitment to portal building is essential. It is a huge undertaking, so a leader who understands the scope of the project is needed. Also, the portal leader will need to have support in good managers to ensure that deadlines are met. Personnel in charge of this project need to have a high level of commitment for the time and resources they will need to complete the project.

Adequate Infrastructure: There are also technical issues to consider. Is the infrastructure in place to deliver a portal? If not, planners will need to ensure it is. Planners will want to define the portals' interactive content and customized content, which means having either a centralized directory or access to the disparate databases on campus. Before any work begins, planners must assess the campus' ability to create a portal with its current infrastructure and determine what needs to be put in place before building a portal.

2. What Should Campuses do Until the Portal Comes?

Planning for a portal takes time, money, and commitment from senior management. Here are several steps that campuses can take that will both prepare the institution to start a portal project and - even if it never comes to fruition - will provide users and the IT organization with many benefits.

- Change the institution's home page to a multiple role-based page and reorganize the web site to be role-based. Instead of general information on the home page provide links for different roles, e.g., prospective students, faculty visitors, current undergraduates,

faculty, alumni, etc. Have these links go to web pages specifically designed for those roles.

- Rationalize campus data and make it available online. What data elements do the totality of the information systems keep? Who owns each data element? What is the source for each data element? Getting answers to these questions and ensuring that campus data is accurate is an essential step towards building a portal.
- Define and build user profiles. Decide what information to keep about each person including job function and roles. Build and keep profiles up to date.
- Create a single or simple sign on. Reduce the number of independent IDs and passwords that a user needs. Allow for password synchronization. Beef up security and authentication policies.
- Allow for secure temporary IDs and passwords for visitors to the campus web sites.
- Allow limited targeted personalization of web sites.

Section Four: Design and Implementation

1. What are the Key Planning Steps in Designing a Portal for My Institution?

Going from institution-centric home pages to an enterprise portal is difficult and time-consuming. It is a very complex and potentially expensive task *that will not be successful without the right planning* and the cooperation of many different people within and outside the college or university.

The key planning steps in designing a portal are:

Determine Users and Audiences: Decide whom the portal will serve. It may be best to pick just one constituency first — e.g. students, faculty, etc., but have the grand plan in place before starting work on the first constituency. One successful design model is to build a portal for one group and gradually add other groups to the portal. However, building more than one portal for different groups with the plan of someday having all groups use the same portal is unlikely to be successful.

Determine Services: Decide what services will be offered now and in the future.

Evaluate Services and Software: Consider commercial services, such as specialized software for limited constituencies (e.g. Blackboard or WebCT or others for students, etc.) Do this only after thinking through the overarching vision.

Explore and Evaluate Options: Examine commercial portals and other universities for examples and content advice. Also look at horizontal portals, especially for ideas on personalization.



Migration Plan: Consider evolving the homepage into a portal as part of an overall plan. Evolve a portal a few features at a time.

2. Should a University Use Commercial Providers Such as Campus Pipeline, BlackBoard, PeopleSoft, Oracle, etc. to Build Their Portal, or Build Their Own?

There are pros and cons to using an outside vendor to build portals.

There is no question that building portals *without* the help of outside companies is an expensive undertaking. However, building a portal internally also means a continuing maintenance need to keep information updated, secure, and useful. In addition, since cross-departmental involvement is required, universities need to plan for staff training and technical support.

However, contracting with outside help to build a portal is also quite expensive and relinquishes some control over the appearance and content of the portal. Vendors may build an effective student portal, but there still remain the faculty, staff, and other various roles within the university to be served. Many vendors today now have portal solutions for the entire campus — students, faculty, staff, researchers, alumni, etc. If using an outside vendor to build a portal, planners will need to integrate the campus data sources into the portal and create the user profile information needed for customization, so portal development, by its nature, involves many campus groups.

Portalware vendor solutions are at an early stage in their development, but they are advancing rapidly. The Ann Arbor, Michigan-based Gartner Group predicts that within a few years, every middleware vendor — anyone that sells any kind of software for colleges and universities — will have some type of portal solution. Perhaps even a year from now the possibilities for portalware will look quite different, so it may make sense to “wait and see” what new options will be offered before investing in current solutions.

The important thing to keep in mind is to start planning now, but move slowly, and keep abreast of developments. Over time, solutions and tools usually bring increased ease of use and increased ease of implementation.

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