

XTIVIA

**Portal Platform:
Build versus Buy**

by Vivek Agarwal and Derek Nerenberg

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Introduction

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Given that there are several options available to you when you are ready to deploy a corporate portal, this white paper introduces and helps you evaluate these options, which include in-house portal framework development, commercial portal products like IBM WebSphere Portal, Microsoft SharePoint Portal, and others, and open-source portal products like Liferay Portal, JBoss Portal, and others.

Various factors will affect your technology selection given that any of these portal framework options can be appropriate for your organization, but Xtivia's believes that using a commercial or open-source portal platform as the basis for your portal initiative carries significant advantages.

This paper presents the benefits that a portal platform brings to your portal implementation as opposed to building it from first principles using in-house resources.

Portal Overview

Like most organizations, your organization is continually challenged by the unique demands of your employees, customers, and partners, who expect timely access to personalized and up-to-date information from any place at any time. Portal solutions enable employees, customers, and partners to become better informed and more effective in their interactions. Their productivity and satisfaction will increase by presenting them with personalized access to real-time information across the enterprise.

Portals can support a wide range of strategic and tactical business objectives, from transforming how the organization acts to simply cutting costs. Effective utilization of Portal technology brings several benefits including:

- ➔ *A complete, yet personalized view of your business spanning people, processes, applications, and content*
- ➔ *Cost savings through creation of self-service portals for employees, partners, and customers*
- ➔ *Improved operational efficiency through communication via one channel and partner integration into your business processes*
- ➔ *Customer retention and opportunities for cross-selling revenue*
- ➔ *Increased employee productivity and response times*

Development Choices

As mentioned above, you have several development options to build your portal solution. Each option presents pros and cons that should be evaluated in the context of your organization. The portal development choices are as follows:

In-house Developed Portals. These portals provide an organization significant flexibility given that the custom development is geared towards meeting specific requirements that your organization may have. Other development options carry a disadvantage on this front since they often dictate a certain architectural and design framework that can occasionally get in the way of implementing certain non-standard features. This approach has cost advantages from a licensing perspective though those cost advantages are often significantly out-weighted by the higher labor costs in creating framework features that come “out-of-the-box” with the other options. An advantage of this approach is that in-house resources can be used to build the portal using technologies with which your in-house resources are already experienced as opposed to having them learn new skills. A con, though, is that because it is custom development, as new resources are added to the team they will need to understand the in-house framework – you cannot simply hire new resources familiar with the custom base platform. This is particularly important given that once the initial portal platform is built, new functionality and applications are continuously added in subsequent years. All in all, this approach makes sense mostly for organizations with very rigid requirements and bigger budgets unless the portal will be very simplistic.

Commercial Portal Software Products. In addition to providing the essential portal infrastructure, they also deliver the architecture and tools for building and deploying the latest applications. These products are specifically designed to integrate applications and data sources, user interface frameworks for addressing numerous audiences, and packaging options that can tackle usage scenarios such as self-service, dashboards, and role-based workspaces. While you must factor in the initial and ongoing licensing costs, in-house developers can leverage the commercial portal framework to focus their development work on applications that deliver value unique to your organization.

Open Source Portal Solutions. These solutions provide both an alternative to building a portal infrastructure from the ground up and a vendor-neutral approach that takes advantage of the contributions from community members to enhance the base portal infrastructure. Traditionally, organizations are drawn to the open-source route not only because of the absence of license fees, but also because of the collaborative development process of open source initiatives. A number of open source portal projects, which provide different levels of features and functionality, are currently active in the open-source community. When evaluating open-source portal software, you should pay attention to the support and customization requirements necessary to meet your unique needs, the availability of documentation and training, and the strength of the community resources available to support and enhance on-going development.

Portal Software Benefits

This section discusses many of the standard features that are common in commercial and open-source portal platforms.

Personalization

Personalization has several different meanings. Although personalization allows users to pick and choose the information or applications that appear on a page in a site, in this paper, we will also discuss personalization from the perspective of your ability to customize a portal solution “out-of-the-box” to make it fit your business. At a higher level, personalization is also a capability that enables the portal to customize its content automatically based on the user accessing the portal.

Corporate Branding

Your corporate identity allows people to recognize your company and products quickly and easily. In the online world, your corporate identity is your brand, which must extend to people through the consistency and usability of your website. This brand often provides people with a feeling of quality, commitment, or loyalty that sets you apart from your competition. Accurately promoting your brand is paramount to your online presence and can generally be controlled through a portal product’s theme capabilities.

Most portal products allow your team to fully control the presentation characteristics of your site by creating one or more themes. Information technology resources usually start with a copy of an existing theme and modify it to match your corporate brand. You generally have full control over what the site looks like and how users interact with a myriad of features such as site navigation and logging in to name a couple.

Department Branding

Depending on your organization, you may have a need for individual departments to brand themselves. For example, the marketing department may want to identify their team as energetic, outgoing, and fun because it ties into their message and purpose. Human resources, on the other hand, may want to identify themselves as thoughtful, caring, and helpful for employees at all levels of the organization. Developing custom themes will allow each of the departments to adhere to the corporate brand and add their own spin to the emotional aspects of their portion of the intranet / extranet site.

End User Customization

Customization describes the ability for an end user to change their personal experience of the portal site once they’ve logged in. Portal products have the capability to allow end users to customize different features such as page navigation, page layout, content they see, or even different aspects of the look and feel according to their set of permissions.

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When an end user makes a change or “customizes” their experience, the change may not be visible to all other users. This change may be specific to the individual or it could propagate to all other users. The amount and types of customization end users experience will be at your discretion. Many companies develop a policy that describes the amount and types of customization that are practical for their needs.

Dynamic Page Creation

Privileged users can create and appropriately administer new pages within your portal site. Business users with the appropriate security privileges create and manage pages and content. The IT department no longer has to be involved with the daily maintenance of the web site for areas controlled and managed by other departments.

Dynamic Page Layouts

The pages within your site will likely have different layouts. In some cases you may want the entire body of the page to be a single column, whereas other situations would require more complex layouts. Portals let you choose from a couple of out-of-the-box page layout templates when you create the page. Depending on the vendor, you could either create your own templates or develop a very rich page layout using the web browser.

Additionally, you can add needed functionality to a particular portal page from the list of portlets that are deployed on a portal. This enables the user to customize the page content to match their usage patterns. For example, a human resources manager that is running a 401k enrollment campaign may choose to see how effective the campaign is on the intranet home page by adding the relevant campaign results portlet to his/her personalized version of the intranet home page. This customization of the intranet home page would only be visible to the human resources manager and could be done by the human resources manager in a minute or two without IT intervention.

Portlet Customization

Some portlets that you add to a page may be tailored to present information based on a user's preferences. A simple example of this would be news content. Default configuration for the news portlet may display industry news. Users may be able to customize their preferences for additional news feeds that only they will be able to see without affecting other users.

Look-n-feel Customization

Depending on your corporate policy and the themes you develop, you may want to provide users with the capability to change the look and feel for their intranet / extranet experience. Let's consider the scenario where you have external business partners that login and interact with your systems in some customized way. You may want users to see the default branded option or change the look and feel so it appears to be co-branded between both companies. Or perhaps you want to allow a business partner to change between color schemes, a private label, or your default branding.

Rule-based Personalization

Rule-based personalization allows you to deliver a highly personalized experience to users when you deliver content through your portlets. WebSphere Portal, for example, supports various approaches to personalization ranging from basic, less flexible support to advanced, powerful functionality. A basic form of personalization provides view access to a set of pages, portlets, documents, and web content to a group of users. A member of one group logs into a portal and sees only those portlets, pages, documents, and web content that the group is allowed to see; users in a different group could access a completely different set of portal resources.

Rules based personalization is a form of “push personalization.” A business user writes business rules for particular pages and portlets. Those rules select content based on the attributes of the current portal visitor. For example, a Gold customer of an insurance company sees information about services relevant to Gold customers, while a non-Gold customer sees different information on the same page within the same portlet.

Recommendation-based Personalization

Personalization within WebSphere Portal contains a dynamic recommendation system based on LikeMinds. LikeMinds is software that is used with your e-commerce applications. LikeMinds analyzes user interactions that occur on your web site and generates real time predictions and recommendations to your web site users.

When a user visits your web site, rating and action beans log captured transactional data. If your e-commerce web site is set up so that users can rate content (or products), you use rating beans to capture rating data. Similarly, if you use shopping cart technology, you use action logging beans to capture content affinity behavior to capture shopping activity. Both rating and action data is stored in your database.

For example, the following types of transactions may be recorded:

- Products a user has purchased
- Items added or removed from a shopping basket
- A history of the user's navigation throughout the application
- Products that go best with a product that the user has already selected
- Any action or series of actions that are meaningful for a site

Using recommended content rules, LikeMinds surfaces results through a set of recommendation engines. These engines predict relevant content for users based on their past web browsing habits and displays the appropriate recommendations to the portal user.

You can use LikeMinds in a variety of situations, including:

- eRetailer promotion and personalization Web sites
- Travel bureau trip planners
- Financial portal content recommendation and personalization Web sites

- Help desk and/or on-line technical support recommendation Web sites
- Gift recommendations for eRetailer
- Music, movie, book, or other product rating and recommendations

Portal Administration

Nearly every application server on the market today has some type of user interface to help you identify errors, deploy applications, and manage the applications you have deployed. Since a portal product is an application extension of an application server, you will usually use a completely different interface for managing and maintaining your portal instance.

The Portal Administration interface typically allows you to manage portal pages, portlets, users, and user groups in addition to other types of portal resources. This section describes several different types of management capabilities that you should expect from most or all portal administration interfaces.

Portal Page Management

Portal technology allows an administrator to easily add new portal pages, move existing portal pages, and reorder pages dynamically without writing a single line of code. When adding a new portal page, in most cases you simply navigate to a place within the site where you want to create the page, click the button and add a title. Depending on the portal technology, you can usually enter titles for each supported language, restrict access to specific users or groups, and enter a friendly URL for your page so it could be accessed something like <http://www.mycompany.com/intranet/mypagehere>.

User and User Group Management

Portals offer you centralized administration of users and user groups, allowing you to better define users and manage user access rights. Users can register and manage their own account information or an administrator can provision and manage users. Group memberships can be used to give the required permissions to access an object or perform a request.

Most portal platforms offer integration with LDAP out of the box that enables you to use your corporate directory for authentication and address book purposes.

Delegated Administration

Delegated administration refers to the ability of a Portal Administrator or Security Administrator to delegate specific subsets of privileges to other users or groups. These end users in turn will manage the access to an area or areas within their business domain or portal site area without interfering with the other aspects of the portal.

For example, Mary Sanchez is the Human Resources Director at XYZ Corp. Mary is the person responsible for everything in the HR section of the Intranet. The Portal

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Administrator has given Mary the privileges to modify everything in the HR section of the Intranet. Mary can easily delegate the access control responsibilities to her assistant so she can stay focused on tasks more inline with her position. Mary's assistant will then control which users can access certain resources that may be confidential even within their own department.

Dynamic Access Control

Portal Administrators can dynamically change access control for a particular portal resource using the Portal interface without needing to modify code. For example, a portal page may initially be visible only to members of the HR department for review purposes before rollout to the larger intranet audience. In this situation, you could set up the page initially with access limited to the HR group and later make it available to the "All employees" group.

Reduced Development Costs and Faster Response Time

Will a portal reduce your development costs? In most cases, the answer to this is yes. Think of portal technology as the window through which people look to see the information in your systems. You control who can look through your window. The window has the infrastructure for managing who can see into it. Since the infrastructure is already there, your team no longer has to maintain it and develop it. Developers and IT resources remain focused on solving specific business problems and less time building, maintaining, and changing frameworks.

The portal you employ within your organization may dictate your ability to reduce development costs and faster response times. Additionally, the portal you employ may depend on the amount of documentation and training available as well as the availability of portlets for your chosen platform.

Many enterprise systems have existing JSR168 compliant portlets that should run within any portal container. However, some enterprise portlets are developed with some minor variations that will make them run only on specific portal platforms.

Out-of-the-box Portlets

Most portal technologies come out-of-the-box with a set of JSR168 compliant portlets in addition to a robust framework for pluggable portlet components. This means you hit the ground running on day one. The number and types of portlets varies widely between products, but commonly include –

- Collaborative portlets for email, calendar, tasks, instant messaging, web conferencing, and people finder
- Community-oriented portlets for wikis, blogs, and discussion forums
- Content management and display portlets

“Developers and IT resources remain focused on solving specific business problems and less time building, maintaining, and changing frameworks.”

- Administrative portlets
- Document management portlets

Third-party Portlets

Most enterprise systems today offer JSR168 compliant portlets that you can deploy into the portal solution of your choice. For example, consider the scenario where your organization already employs a customer relationship management (CRM) system. Several CRM software vendors offer portlets that can be deployed on your portal and configured with views into the CRM system. The same is true for many other products including enterprise resource planning (ERP) systems such as SAP.

IBM, for example, provides a portlet catalog at <http://catalog.lotus.com/wps/portal/portal> that enables you to find standard IBM and other third-party portlets either free or for a fee.

Google Gadgets

You can quickly integrate Google's gadgets within your portal and applications with ease at no additional cost. A corporate portal is best known as a common entry point for business users and consumers who need to share information regardless of where the information resides. Various portal products now let users create, customize and use rich Internet applications with Google Gadgets directly from within the Portal so they appear as ready-to-use services.

Users can choose from literally thousands of Google Gadgets such as language translators, package delivery tracking, Podcast searches, Wikipedia information, YouTube postings and more.

RSS, ATOM and REST Feeds

You can enable quick content integration from internal and third-party sources with the click of a button. Many sites today allow you to subscribe to RSS, ATOM, or REST feeds to retrieve content. Most portal products provide a portlet that you can configure to subscribe to one or more of these feeds. Users can view their own feeds for news, discussion forums, and other content directly on their homepage, on another page provided by a portal administrator, or on a private page created by the end-user.

Integrated Functionality

In order to use enterprise portal technology to provide a single point of access to the information in your systems, you may need to rely on different technologies to deliver products that are robust and useful within your organization. This section describes the different technologies and areas where vendor selection may be important.

Web Content Management

Web content management is a core component for most portals. You can use web content management to manage corporate content from the creation of the first draft to

the final web presentation. Because web content management separates the design from content, you can create content independently from the web design and then combine the content and design at run time.

With web content management, business users create and manage their own content with limited or no technical knowledge. This content could be in one or more language and delivered consistently to your audience. The web site designers design the presentation aspects of the content, which is reused throughout the web site to drive high quality and consistency in the delivery of your corporate identity and site usability.

Document Management

You can control access to documents and maintain versions through a portal document management system. Users often work with documents, folders, and views similar to Windows Explorer. Some portal solutions provide components that integrate with tools such as Microsoft Office, allowing users to easily upload and edit documents from this central repository.

Single Sign-on (SSO)

You can reduce the number of passwords users need to remember to view all of the different systems they access on a day to day basis. Single sign-on is a method of access control that enables a user to authenticate once and be able to access several different systems. Most portal systems offer some method for implementing SSO. However, you will likely need to do some custom development as you convert your applications to portlets. The level of complexities will vary – for many systems / portlets, it could be as simple as having the user configure their username / password one time for the portlet.

Team Sites

Using a template driven approach to collaboration, some products offer the ability for users to create their own “team sites” to manage their own collaborative efforts. Through a combination of blogs, wikis, document management, web content management, and discussion boards, users share their project ideas and artifacts as they work to achieve their goals.

Business users choose a template with the features likely required by their project to quickly create a new team site without requiring programming resources from the IT department. Within a matter of minutes, a manager can setup a new team site and start sharing information with the project team members. As a quick and easy source of project documentation, users can easily find the information they need to deliver on time and on budget.

Miscellaneous

Process Integration

In an on-demand business environment, efficient customer, employee, and supplier interaction is critical. Your business needs to ensure that all users, regardless of role, can seamlessly participate and collaborate in business processes. Developers need to provide interfaces to support human interaction with business processes, such as filling out forms or responding to alerts. Some portal products provide support for deploying processes with human task integration through standard human task portlets.

“Some portal products provide support for deploying processes with human task integration through standard human task portlets.”

Mobile Device Support

Some portal products support mobile devices by generating pages in any markup language including WML and cHTML in addition to HTML. Users can customize a unique home page for each device by selecting content and applications that are most useful on the device. When the home page is requested, the page is produced by detecting the type of device that is making the request and then by assembling the portlets, each of which renders its content in the appropriate markup language.

Portal Search

You can provide a search feature on your portal site that allows users to easily find information on your site. Different portal vendors provide different facilities for implementing the search feature. Some vendors will require you to adhere to their existing functionality, while others will allow you to extend their existing framework to meet your needs.

References

The following resources have more useful information about some of the concepts discussed in this white paper:

- Liferay Portal - <http://www.liferay.com/>
- WebSphere Portal Infocenter:
<http://publib.boulder.ibm.com/infocenter/wpdoc/v6r0/index.jsp>
- WebSphere Portal Zone:
<http://www-128.ibm.com/developerworks/websphere/zones/portal/>
- WebSphere Portal Demos:
http://demos.dfw.ibm.com/solutions/portal/?S_TACT=105AGX10&S_CMP=LP
- WebSphere Portal Express offering:
<http://www-306.ibm.com/software/genservers/portalexpress/index.html>
- List of Portal Vendors - <http://www.cmswatch.com/Portal/Vendors/>
- Collaboration - <http://en.wikipedia.org/wiki/Collaboration>
- REST - http://en.wikipedia.org/wiki/Representational_State_Transfer
- Single sign-on - http://en.wikipedia.org/wiki/Single_sign_on
- Portlet - <http://en.wikipedia.org/wiki/Portlet>

For More Information

To learn more about Portal Services from Xtivia as well as other Xtivia products and services, please visit www.Xtivia.com.



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Xtiva, Inc.
304 South 8th Street
Suite 201
Colorado Springs, CO 80905
(888) 685-3101, Option 2.