



UMass Portal Strategy Discovery Report

Executive Summary

March 25, 2004

Version 1.13

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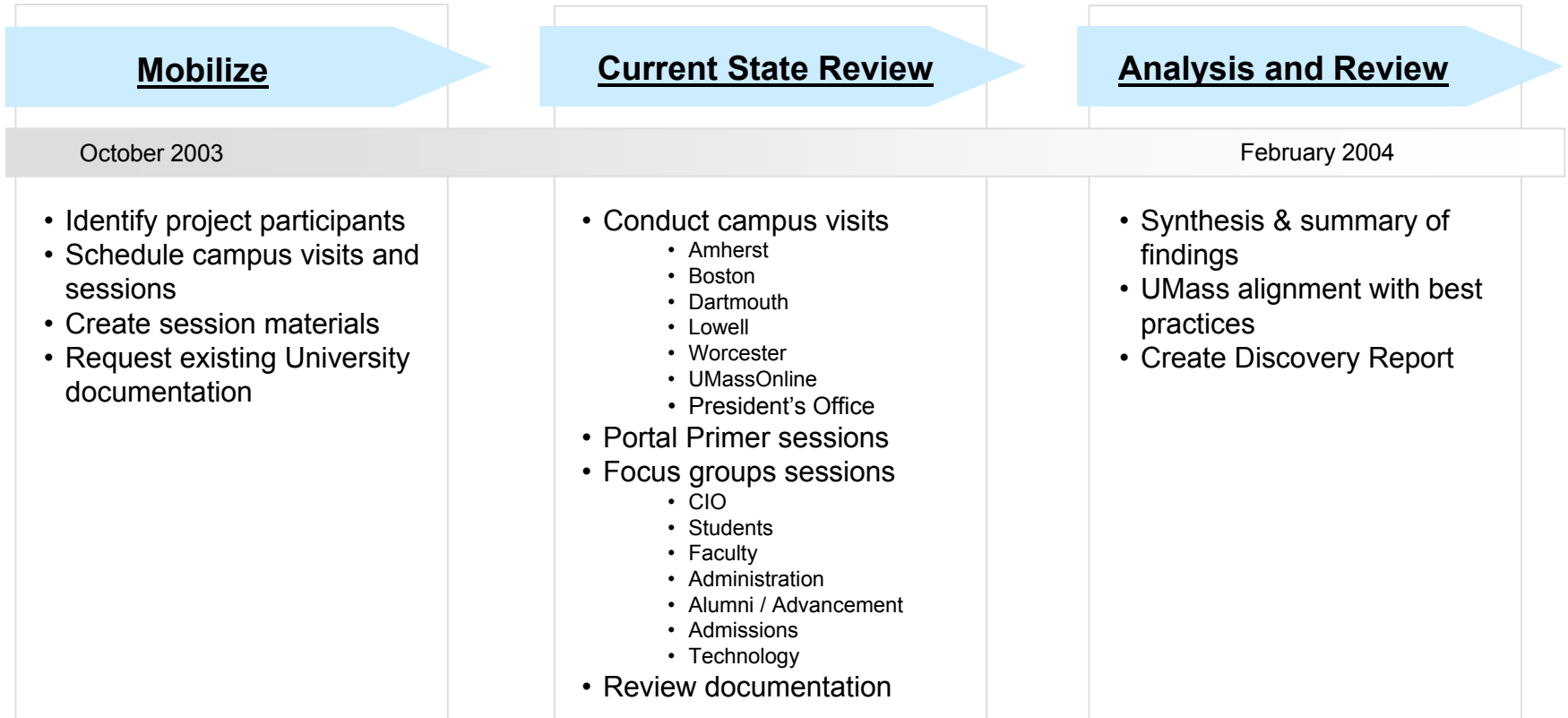
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Project Overview

- ▶ Over the course of the past four months, the Portal Strategy project team has been investigating the possibilities for a portal environment across the University of Massachusetts system. In the process of this investigation, the team has endeavored to understand:
 - The current state of online business services offered across the various campuses of UMass.
 - The current state of portal or portal like offerings across the various campuses of UMass.
 - Active initiatives to deliver or enhance portal-related functionality.

- ▶ In addition, the team has examined leading portal offerings within higher education to construct a picture of the services that a robust, compelling portal must offer.

Project Approach



Project Result

▶ A Discovery Report consisting of the following documents:

Current State Findings

- Current State Inventory
 - For each campus provides information on portal strategy, key technologies in use, and an inventory of web sites and applications.
- Constituency Analysis
 - Provides collective and campus specific views regarding portals for each constituent group.
- Best Practices Analysis
 - Provides a brief comparison of UMass against leading university portal offerings and best practices.

Future State Considerations

- Portal Considerations
 - Applies the research and findings of the assessment activities to create a series of considerations for “straw man” portal strategy for UMass.
- Next Steps Recommendations
 - Presents a high level portal initiative roadmap including candidate portal functionality, key activities, and estimated resources.
 - The level of detail is sufficient for UMass constituents to discuss portal next steps and requirements in a meaningful way.

Current State Inventory

- ▶ No formal campus portal strategy exists
 - Portal related initiatives exist at the campuses, but formal strategies for a portal, its use, and its benefits have not been created.
 - Most development has occurred in the form of small, targeted projects designed to enhance the functionality of existing web sites. These projects have been prompted by specific business drivers.

- ▶ Existing initiatives provide portal like functionality within siloes but not an enterprise portal
 - Initiatives like SPIRE, which implements PeopleSoft Portal, at the Amherst campus provide web self-service to students for academic and account information.
 - They do not provide a unified experience across multiple applications comparable to the experience offered by other university portals.

- ▶ Multiple owners and developers of web sites, delivered within varying levels of standards for “look” and presentation.
 - Each campus has multiple web sites associated with it that are owned, developed, and maintained by multiple owners (e.g. departments, colleges, offices, etc.) on an ad hoc basis.
 - A wide discrepancy exists in terms of site sophistication, look and feel, and technology used.

- ▶ PeopleSoft, ColdFusion and PHP are primary technologies
 - No campus is utilizing a portal specific technology.
 - All five campuses are in the midst of PeopleSoft student self-service initiatives.
 - Many university web sites are built using ColdFusion (Dartmouth, Worcester, UMassOnline, and the President’s Office).
 - PHP based sites are also common (Amherst, Boston).

Constituency Analysis

- ▶ There is general consensus across constituent groups that providing student services first makes the most sense from a cost/benefit perspective.

- ▶ Across all potential users the following portal functionality has been identified as the most useful:
 - Information Aggregation
 - Single Sign-On
 - Personalization
 - Customization

- ▶ Campus constituents agree that content for a portal would have to be controlled at the campus level in order to respect the uniqueness and integrity of each campus. The singular exception to this principle is an allowance for a small content channel for the occasional and judicious communication of University-wide news/announcements of common interest.

- ▶ All campuses have budgetary constraints and have expressed concern over the resources required to develop and support a portal initiative.

- ▶ Constituents involved with alumni relations value the ability to evolve the relationship with a student from applicant to alumnus through a portal that supports a life long relationship.
 - The portal can be used for recruiting, fund raising, and life long learning.

What Did Constituents Say?

- ▶ *“I’ve been asking my friends what they would think about a portal. The response has been fantastic – ‘When are they going to do it?’”*
 - Student, UMass Dartmouth

- ▶ *“There is really no good online tool for student-to-student interaction... Most interactions take place in person.”*
 - Student, UMass Lowell

- ▶ *“A portal could really help faculty organize their daily tasks on an individual level and for collaboration on research.”*
 - Faculty Member, UMass Dartmouth

- ▶ *“Campus specific identity and information are critical to the recruiting and admissions process.”*
 - Administrator, Admissions Office, UMass Amherst

- ▶ *“How do we effectively handle the transition from applicant to matriculated student?”*
 - Administrator, Registrar’s Office, UMass Amherst

- ▶ *“Overall, I would really like one simple way to get to everything.”*
 - Administrator, Provost’s Office, UMass Boston

- ▶ *“It would be really nice to have self-service HR.”*
 - Administrator, Finance Office, UMass Lowell








- ▶ *“Better inter-campus communication and collaboration tools would be helpful.”*
 - Administrator, President’s Office

- ▶ *“You’re preaching to the choir!” The question is when can we have a portal?”*
 - Administrator, Alumni Relations, UMass Dartmouth

- ▶ *“Alumni at Worcester is a small group, but we are not reaching out to them effectively.”*
 - Administrator, UMass Worcester

UMass Web Presence

(In Light of Enterprise Portal Functionality)

Campus	Overview of User Experience
	<ul style="list-style-type: none"> ▶ High degree of student web-based self service provided via Spire. Especially strong in providing access to academic records, course registration, and financial balances. ▶ No aggregation of content in a single location, single sign on, or current plan for integration across initiatives. ▶ New campus web site with portal like layout launching in 2004.
	<ul style="list-style-type: none"> ▶ Student web self service via PeopleSoft is in development. ▶ Portal type functionality has been proposed and some stand alone web tools have been developed. ▶ No personalized web experience. All content is targeted to a larger group and consists of static links.
	<ul style="list-style-type: none"> ▶ Portal like layout introduced with aggregation of content (e.g. weather, news, event calendar). ▶ Web self service for academics and finances on legacy system. Being upgraded to PeopleSoft. ▶ No single sign on or access point.
	<ul style="list-style-type: none"> ▶ Portal like layout on “intranet” site with aggregation of content (e.g. weather, news, event calendar). ▶ Student web self service via PeopleSoft is in development. ▶ No single sign on or access point.
	<ul style="list-style-type: none"> ▶ Intranet delivers aggregated content (e.g. weather, alerts, news, event calendar, campus information). ▶ No single sign on or access point.
	<ul style="list-style-type: none"> ▶ Primarily marketing oriented content. ▶ No personalization. ▶ Links out to campus sites for detailed course/degree information; no content aggregation.
	<ul style="list-style-type: none"> ▶ Static web site; no apparent dynamic content. ▶ No personalization. ▶ No role based navigation.

Portal Opportunity

- ▶ A UMass portal framework has the opportunity to:
 - Improve the services UMass offers.
 - Encourage a collaborative environment across the university system.
 - Aid UMass in developing a life long relationship with its students; from prospect to alumnus.
 - Position UMass as a leader in online services in the higher education space.
 - Help UMass utilize some of its resources more effectively

- ▶ Altogether UMass has the opportunity to innovate its approach to web-based offerings and in doing so improve and enhance its relationship with its constituents: students, faculty, staff, alumni, etc.

Portal Benefits

- ▶ The constituencies across the system and its campuses enthusiastically agree that a portal can provide value to them.

- ▶ Primary areas where a portal will help the University improve the level of service to its constituents:
 - Improved communication
 - A portal can provide constituents with easier access to information as well as providing constituents with information that is more relevant to them.
 - University constituents no longer have to hunt for information in various locations, whether online or offline.

 - Single online resource
 - A portal provides constituents with a single online destination from which they can receive content, perform tasks, and access other online systems. As a result, users no longer have to remember multiple logins or multiple URLs.

 - Greater efficiency and potential cost savings
 - This value was emphasized by university leadership at both the campus and system levels.
 - By providing more relevant and accurate content online as well as unified access to typical constituency tasks, common processes can take place online.
 - A unified approach to the portal framework can provide better service at a reduced cost via efficiencies in the form of shared infrastructure and a single technology stack to support.

- ▶ These benefits are very much inter-related and reinforce one another.

Portal Vision

- ▶ President Wilson desires not just to play “catch-up” with the UMass portal but rather to “leapfrog” the competition and become a leader.
 - UMass currently lags peer institutions in terms of campus level portal services for students.
 - One opportunity for UMass to lead may be a central portal framework that provides a personalized user experience that is campus focused (though not to the exclusion of all system content).

- ▶ The proposed portal vision is focused, at least initially, on providing a personal portal to university constituents rather than a “portalized” home page for UMass.

- ▶ Draft Vision Statement

The University of Massachusetts portal will serve as the single starting point for university constituents to obtain information and to access system and campus based information systems. The portal will provide a personalized web-based vehicle for delivering university-wide and campus-specific communications and services across the entire enterprise that promotes the university, highlights the diversity of the individual campuses, and respects the campus affiliation of its various users.

UMass seeks to deliver a portal that exceeds contemporary portal offerings in higher education, improves the level of service offered to students, faculty, staff, and other university affiliates, encourages a collaborative culture across the university, and promotes cost-effective use of resources.

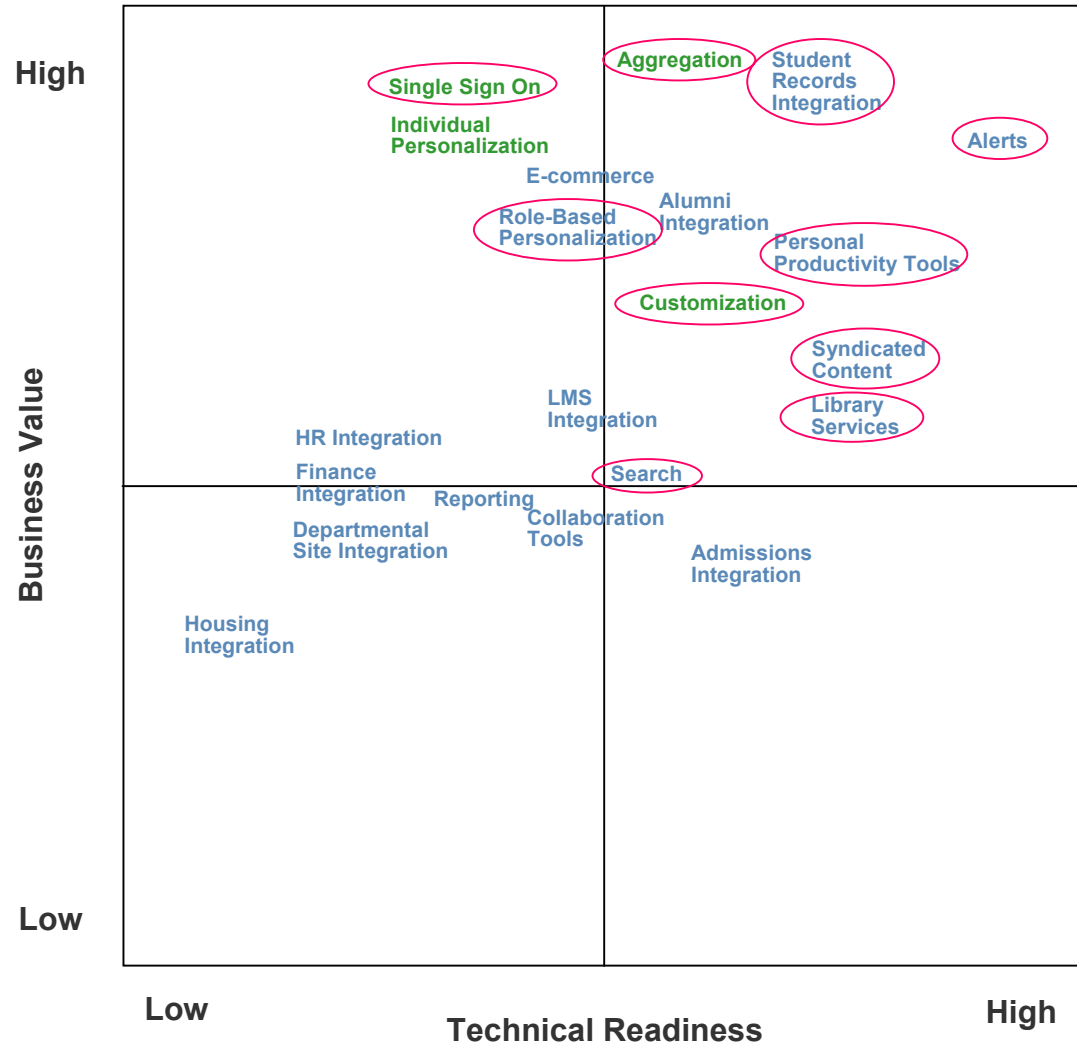
Functional Priorities

- ▶ A high level view of functional areas that might be supported by the portal framework.
- ▶ The chart's intent is to highlight functional priorities that may be "easier" for UMass to implement.

■ Constituent top priorities

○ Candidate functionality to consider for the first portal release

- ▶ Business Value was determined by averaging constituent responses across campuses and constituent groups on a scale of high, medium, and low.
- ▶ Technical Readiness is based on current systems and initiatives scheduled to complete within the next 12 months (including all PeopleSoft Student implementations).

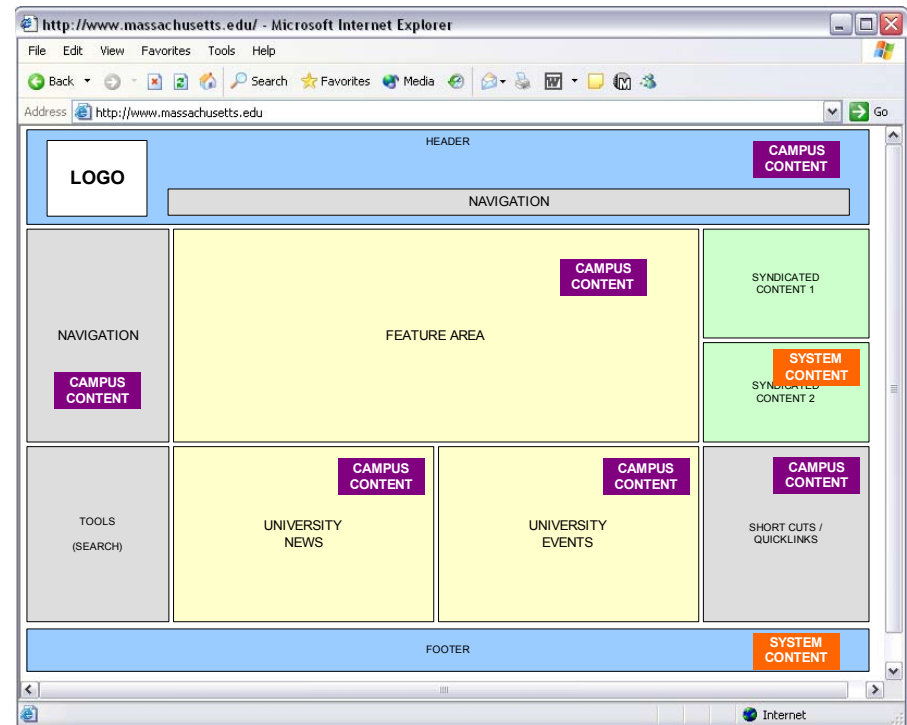
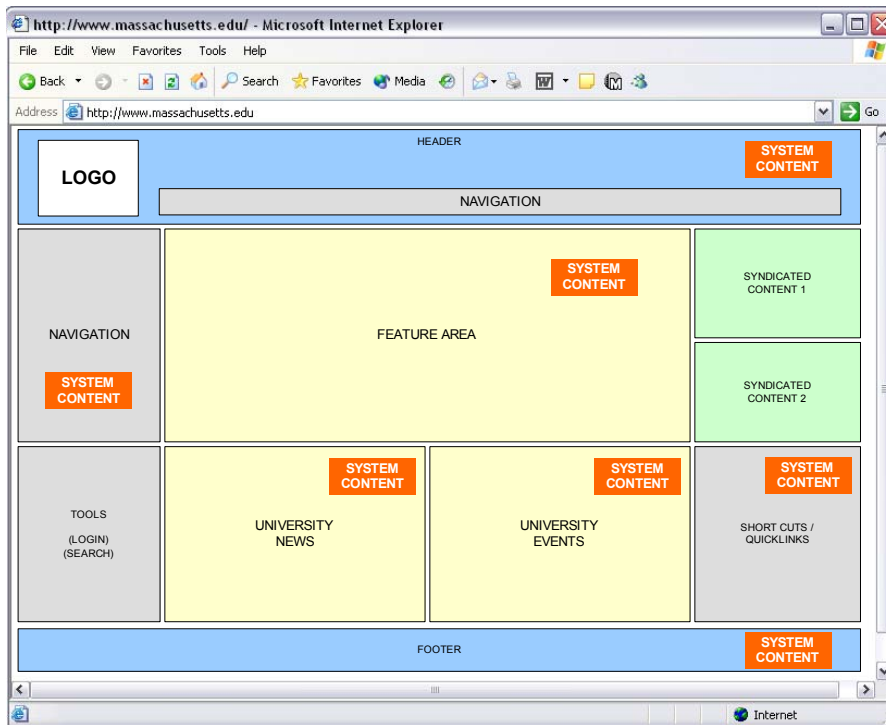


Adaptive User Experience

- ▶ A schematic view of how a portal might adapt based on who the user is.
 - Note that these schematics are illustrative only and not intended to indicate actual information architecture or page layout.

The type of web page that a guest user might see. The branding and content is system oriented as the "System Content" tags within the content areas indicate.

How branding and content might change if a student logs in to the portal. In this case, most content areas display campus specific information and images. Note there are still areas for system information in this context.



Leverage Existing Assets

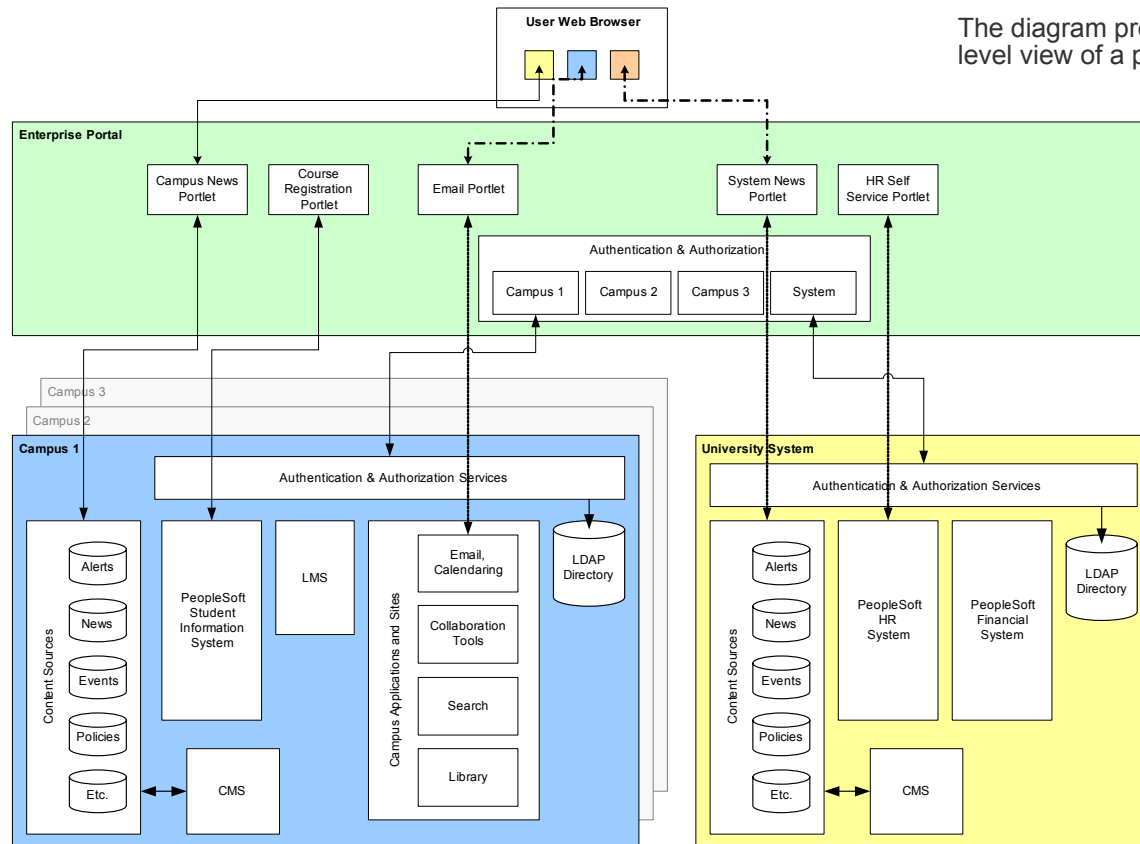
- ▶ The portal framework will be built over and around existing web and IT assets. The idea is not to replace existing systems of value.

- ▶ PeopleSoft
 - UMass has made a significant investment in the PeopleSoft platform, and the majority of constituent data now exists, or soon will, within a PeopleSoft system.
 - UMass owns an enterprise license for the PeopleSoft Portal product which runs on the PeopleSoft 8.1 platform.
 - It is clear that any UMass portal will at minimum need to integrate with PeopleSoft.

- ▶ Campus Initiatives
 - SPIRE – Amherst’s student information system. PeopleSoft based and the next (imminent) release implements PeopleSoft Portal.
 - Web Design – Portal like layouts for Amherst and Dartmouth web sites.
 - Dartmouth Directory Services – Currently under way, it appears that Dartmouth will have the first implementation in production.
 - Dartmouth Content Management – Dartmouth campus has begun to pilot a content management system for updating and publishing web site content.
 - Worcester Intranet – The Medical School campus provides a restricted access intranet with a number of tools including campus calendar, personal schedule, and campus announcements (alerts). The intranet also provides some basic content management functionality via the capabilities built into the ColdFusion platform.

High Level Architecture

- ▶ Given its role as an aggregator of data and functionality, a portal requires integration with a number of supporting back-end applications and data.
- ▶ Key standards and approaches that should be examined for the UMass portal framework include:
 - Java Specification Request 168 (JSR 168)
 - Web Services for Remote Portlets (WSRP)
 - Services Oriented Architecture (SOA)



The diagram presents an illustrative high level view of a portal architecture.

Portal Dependencies

▶ Directory Services

- Single sign-on was identified as a key portal priority by university constituents.
- To achieve this the UMass Portal will require some sort of facilitated authentication capability to successfully aggregate content and functionality from different IT systems across multiple campuses.
- The appropriate solution is unified, system-wide directory services for authentication and authorization.
- Therefore the UMass Portal will require directory services to be implemented in advance or in parallel.
- Note that implementing directory services will require a significant effort in its own right.

▶ PeopleSoft Integration

- Project planning and technical architecture and design will need to account for the PeopleSoft implementation schedules and technology standards and capabilities.

▶ Content Management

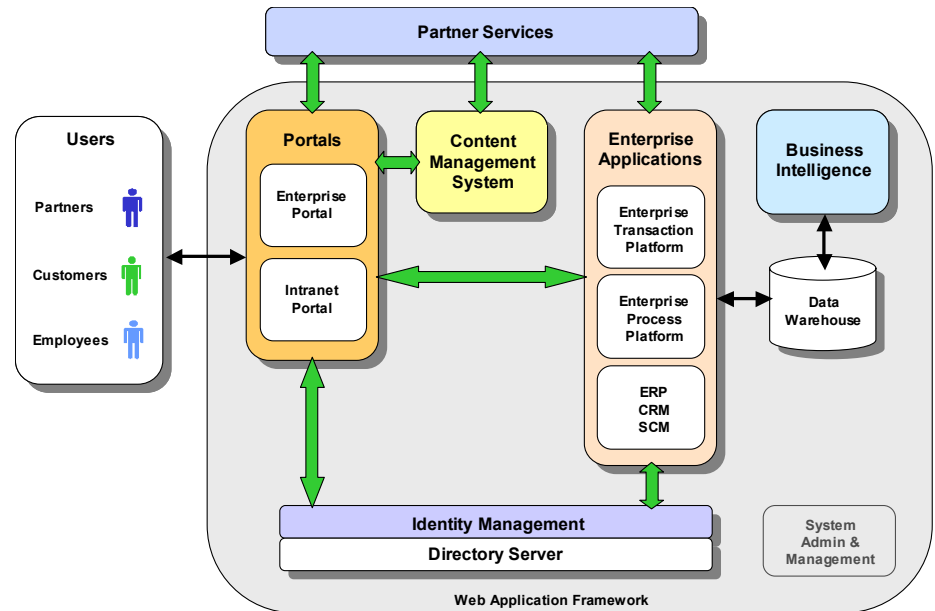
- Content management processes and systems are essential to displaying accurate, up-to-date information on the portal.
- UMass should examine content creation and publishing processes at each campus as well as at the system level to ensure that the different content owners are maintaining their content and are able to publish it on the portal in a timely manner.

Portal Dependencies

▶ Application Security

- As access to different applications is unified via the portal, the security policies for those applications will need to be reconciled.
- Appropriate steps must be taken to ensure the overall security of the application including:
 - For the network that the portal runs on and across.
 - For the session between the portal client (e.g. web browser) and the portal server.
 - Within the software platform running the portal.

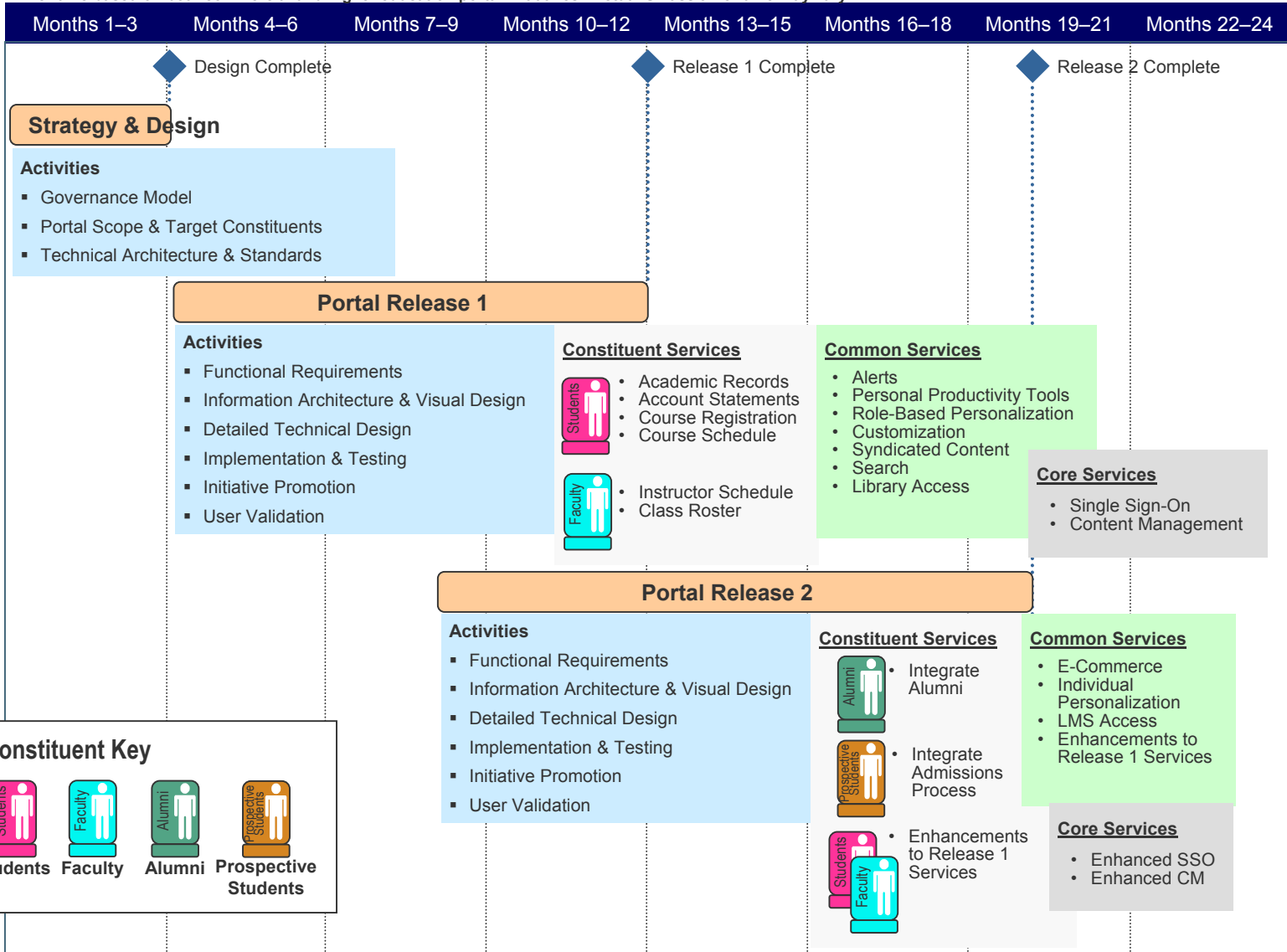
Web Application Framework – To meet business challenges and opportunities, large organizations such as UMass will benefit from standard and flexible methods for internal and external application integration. The portal dependencies listed, as well as the portal itself, all fit within the concept of a Web Application Framework. UMass would do well to begin considering the elements of portal, directory services, content management, and application integration in a holistic manner to ensure that these solutions are built to work together in a manner that improves business process efficiency and information sharing while lower the cost and complexity of connecting IT systems.





Portal Initiative Roadmap

Timeframe based on both commercial and higher education portal initiatives. Actual UMass timeframe may vary.



Roadmap Phases

Three primary phases:

▶ **Strategy and Design**

- Finalize the UMass Portal Strategy.
- Build consensus across the university.
- Define the governance model for the portal.
- Design the portal framework architecture and infrastructure.
- Define the scope for the initial portal releases.

▶ **Portal Release 1**

- Focused on providing enhanced services to students with some tangible benefits to faculty.
- Initial creation of core services and/or processes for authentication and content management.
- Leverage PeopleSoft student self-service.
- Provide additional value via news, alerts, and other aggregation.

▶ **Portal Release 2**

- Enhance services to students and faculty with the potential to also target alumni and prospective students.
- Provide additional functionality such as e-commerce while integrating other processes and services such as Admissions.

Key Next Steps

- ▶ Socialize Discovery Report findings and build consensus portal strategy
 - Take the findings of the Discovery Report and “straw man” strategy back to the constituents across the university. Gather feedback to ensure buy-in and support moving forward.
 - More than one iteration may be needed to create a portal strategy that sufficiently addresses key constituent concerns.
 - Included in this step should be a functional definition of the “UMass Portal” to ensure that everyone has a common understanding of the portal (What is it? What will it do? Etc.).

- ▶ Define the governance model
 - Resolve the conflicting matters of resource constraints and the desire of campuses to own the portal at the campus level.
 - UMass should consider a central, unified approach to governance like Indiana University and University of California.
 - Based on other successful higher education portal initiatives, UMass should include representation from constituent areas (e.g. Faculty, Admissions, Registrar, Library, Finance, Alumni, and Continuing Education) on the portal steering committee in addition to representatives from the information technology organizations.

- ▶ Define portal scope for initial portal releases
 - The functional elements of the UMass portal should be prioritized and grouped according to their potential development and release. While subject to change, the scope definition will provide guidance to the development team as well as serve as the basis for expectation setting with UMass constituents.

Key Next Steps

- ▶ Agree upon and apply best practices and open standards for the portal
 - To ensure consistency of design and implementation.
 - This is *not* the current practice for web based development at the university and is hindered by the lack of CTO or Enterprise Architect roles at the system and campus levels.
 - Help “future proof” the portal framework by adopting current and emerging standards including JSR 168 and WSRP as well as a services oriented architecture (SOA) approach.

Appendix

- ▶ Additional Next Steps for Roadmap Phase 1
- ▶ Portal Release 1 Candidate Functionality
- ▶ Portal Release 2 Candidate Functionality
- ▶ Portal Best Practices

Appendix: Roadmap - Additional Next Steps For Phase 1



▶ Conduct vendor evaluation and selection

- As the portal architecture and standards are defined, UMass should conduct a technology evaluation to ensure that the portal product chosen will meet its long term needs and objectives.
- Part of this exercise should be an in depth analysis of the capabilities of existing assets.

▶ Plan the portal user experience

- Portal users should not feel as though they are using multiple disparate applications.
- The portal should allow for campus specific (and potentially even department level) branding with different color schemes, logos, and even fonts that reflect the appropriate context for the user.
- The portal user experience should reflect the user's role and personal attributes.

▶ Define an implementation model

- Provide economy of scale while ensuring a campus specific user experience. This can be done via a common, shared approach.
- The implementation model should be aligned with the governance model.

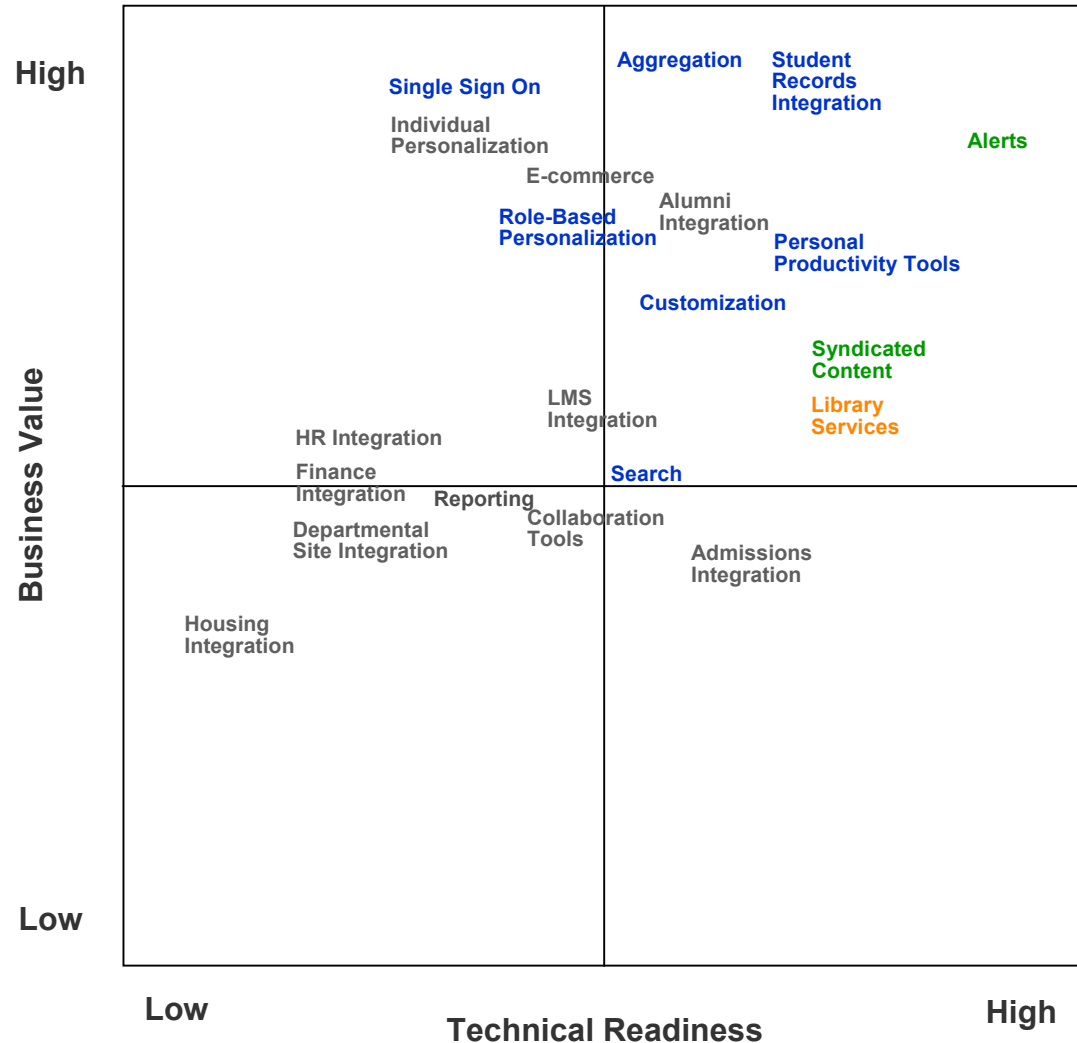
Appendix: Candidate Portal Functionality – Release 1

▶ Actual determination of Release 1 Portal functionality should be one of the next steps in the portal initiative.

▶ Still, based on the discovery engagement, this version of the functionality chart presents candidate functionality for Release 1 of the UMass Portal.

▶ Chart legend:

- Indicates functionality that should be fully realized in the release.
- Indicates functionality that should be implemented to the degree possible. At least some portion of the functionality can be achieved.
- Additional functionality to consider.



Appendix: Candidate Portal Functionality – Release 1



▶ Core Services

- Single Sign On
 - At minimum some sort of simplified or facilitated sign on that provides unified access to the portal and supporting IT systems relevant to Common Services and Constituent Specific Services.
 - Leverage directory services to the degree possible.
- Content Management
 - Defined format and interface for publishing content although execution may still involve manual steps.

▶ Common Services

- Alerts
- Personal Productivity Tools
 - Personal Calendar
 - Web-based Email
- Role-based Personalization
 - Recognized roles: Student, Faculty, Staff
 - Recognize campus affiliation
- Customization
- Syndicated Content
 - Basic content such as weather, university news, and campus news and events
- Search
- Library System Access

▶ Constituent Specific Services

- For Students
 - Access to academic records, account statements, course registration and schedule
- For Faculty
 - Access to course and instructor schedules

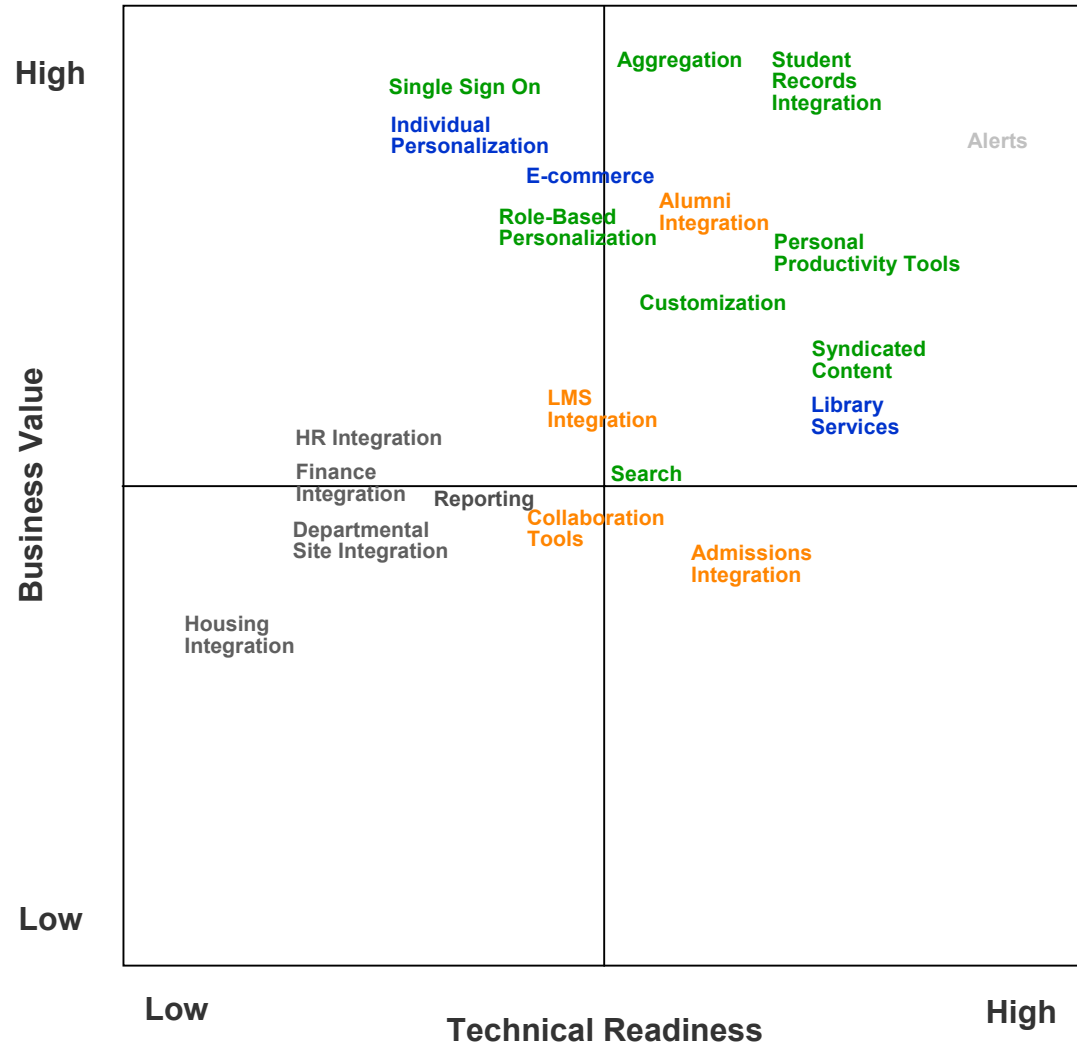
Appendix: Candidate Portal Functionality – Release 2

▶ Determination of Release 2 Portal functionality will be dependant on Release 1 as well as related systems.

▶ Extending the reasoning from the Release 1 Candidate chart, this version of the chart presents candidate functionality for Release 2 of the UMass Portal.

▶ Chart legend:

- Indicates functionality that should be fully realized in the release.
- Indicates functionality that should be implemented to the degree possible. At least some portion of the functionality can be achieved.
- Additional functionality to consider.



Appendix: Candidate Portal Functionality – Release 2



▶ Core Services

- Single Sign On
 - Extension of authentication and authorization components to support additional Common Services and Constituent Specific Services.
 - Leverage directory services to the degree possible.
- Content Management
 - Automated publishing of campus, office, and department content.

▶ Common Services

- Ecommerce
 - Where possible permit online payment.
- Individual Personalization
 - Recognize program or department affiliation of the user.
- Collaboration Tools
 - All group creation and community via discussion boards and document sharing.
- LMS Access
- Enhancement of Release 1 services

▶ Constituent Specific Services

- For Alumni
 - Integrate alumni specific site and content into the portal framework.
- For Prospective Students
 - Integrate online admissions process into the portal framework.
- Enhancement of Release 1 services

Appendix: Portal Best Practices

- ▶ **Begin with services for Students**
 - Follow with services for Faculty and Staff
 - In the future extend the portal to Prospective Students and Alumni

- ▶ **Develop a Vision and Roadmap**
 - Outline the long-term objectives and strategy for portals at the university
 - The vision should be shared across the university and its various constituents

- ▶ **Collective Ownership**
 - Portal ownership should
 - Span campus offices, departments, and roles
 - Be inter-campus

- ▶ **Accommodate varying constituent needs**
 - Develop solutions to meet the needs of specific university communities
 - One portal does not have to fit all possible constituent needs

- ▶ **Communicate with stakeholders**
 - Practice ongoing communication with constituents to set expectations, promote accomplishments, and provide an avenue for feedback.

Appendix: Portal Best Practices

- ▶ Provide enhancements by leveraging existing investments
 - Make use of strengths of the current technology systems

- ▶ Consolidate “smartly”
 - Avoid developing services that duplicate existing functionality

- ▶ Embrace an iterative approach to development
 - The scope and complexity of a robust portal is daunting if all development is attempted in a single phase
 - Build upon a series of smaller successes

- ▶ Understand supporting processes, policies, and systems
 - Key areas to examine are security and content management

- ▶ Understand and define requirements
 - Requirements should address business, functional, user, and technology needs and constraints

- ▶ Robust portal solutions deliver
 - Consolidated web-based information services
 - A single login point
 - The ability to search for information across multiple, disparate web resources
 - Personalized content and information