

**Chapter 1**  
**It's a Bird! It's a Plane! It's a ... Portal?**

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**Web Portals and Higher Education**  
**Technologies to Make IT Personal**

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A Publication of EDUCAUSE and NACUBO

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# It's a Bird! It's a Plane! It's a . . . Portal?

Richard N. Katz

Information technologists yearn to be wordsmiths or pundits. We are at the very least fascinated by language. On the one hand, we are a professional community that has managed to reduce irreducible concepts to streams of incomprehensible acronyms. On the other hand, we borrow rich and descriptive language from other disciplines to illuminate our own. Such terms as *architecture*, *ecology*, and *webs* have originated elsewhere and emerged anew from the information technology (IT) cauldron, often to reemerge as a new part of the vernacular.

The most recent linguistic borrowing is the term *portal*, which *Winston Dictionary* defines as “a gate, door, or entrance; especially one that is stately and imposing, as of a cathedral.” Given the ecclesiastical origins of the modern university, perhaps it is fitting and appropriate that the latest information technology metaphor is one that fits the collegiate idea so well. The term *portal*, however, is a somewhat troublesome metaphor because it leaves as much unanswered as it purports to answer. One might legitimately ask, a doorway to what? What on earth, our campus colleagues must wonder, is a portal strategy, and why is one important to me?

From its invention less than a decade ago, the World Wide Web has purported to be a newsletter, an advertisement, a policy manual, a community gathering spot, a marketplace, a library, and a virtual university. In essence, the Web has elements of all of these

things and yet is not any of these things. The Web is the first ever medium that allows essentially anyone to become a content creator, developer, organizer, distributor, broadcaster, intermediary, buyer, or seller at any time (and in fact to be all of these things at different times). As a result, the Web remains today the ultimate frontier. As such, the Web defies precise description or characterization. It is bounded less by physics than by our imaginations; hence our tendency to borrow metaphors.

Frontiers seem to me to be inherently messy places—untidy and even unsafe places that attract adventurers and miscreants and await some measure of guidance, if not law and order. The portal, in this context, is more than a gateway. It is perhaps a unifying principle that may enable organizations—including colleges and universities—to leverage their investments in enterprise systems, in data warehouses, in reengineered institutional processes, and in staff talent.

## **The Commercial Sector Is Driving the Portal Dialog—for Now**

Recognizing the powerful opportunities for colleges and universities to rethink how their Web sites can be reorganized to serve and transform their institutional mission, private firms have been quick to act. Firms such as YouthStream Media, MyBytes, Jenzabar.com, and Campus Pipeline are offering colleges and universities sophisticated Web sites through which students can obtain campus (and other) information and engage various institutional services. Other firms, such as Click2learn.com, Hungry Minds, Blackboard, and Ziff Davis, are seeking to attract students to specialized learning portals.

Many campuses have also been quick to recognize the powerful and transformational potential of portals and have developed and implemented their own. Many of our colleagues from institutions such as Louisiana State University, Buffalo University, University of British Columbia, and the University of Washington presented

their experiences in this arena at EDUCAUSE conferences in 2000 and 2001.

Finally, some of the technologies underlying the Web—Java, in particular—are making it possible for colleges and universities to develop shareable software solutions. The Java in Administration Special Interest Group, known as the JA-SIG, is leading this work (see JA-SIG.org).

The decision as to how, when, and under what circumstances an institution should develop or buy portal solutions may have strategic implications that are not obvious at first blush. Many institutions now talk about “build and buy,” rather than “build or buy.”

## **Portals Are a Hot Topic—for a Good Reason!**

The EDUCAUSE Advisory Group on Administrative Information Systems and Services affirmed the importance, or even centrality, of portals at its meeting in February 2000 and again in 2001. Members of this group requested that EDUCAUSE organize a series of forums on the subjects of portals and e-business in higher education in conjunction with NACUBO—the National Association of College and University Business Officers. These forums, held in May 2000 and 2001, each with more than fifty financial and information technology professionals participating, were followed by two conferences delivered in collaboration with *Converge Magazine*, at which more than two hundred participated. Finally, EDUCAUSE and NACUBO developed this series of essays to share in the broadest way possible some of the insights and cautions that leading practitioners are discovering on the path toward formulating and implementing campus portal strategies.

The participants in these forums and conferences agree that the implementation of a portal strategy is necessary, difficult, and perilous in higher education. It is necessary because colleges and universities—to both compete and realize the full benefits of their investments in data warehouses, enterprise systems, and other elements of the campus

infrastructure—will need to integrate information, services, and infrastructure across a seamless and easy-to-navigate Web interface. This strategy is difficult and perilous because many on campus are weary and suspicious of yet another new enterprise-wide information technology initiative, and because portal initiatives, by definition, require across-the-institution agreements on approach and design that are hard to achieve in loosely coupled organizations like academic institutions.

## **Portals Will Change How Colleges and Universities Operate**

Whether or not the implementation of a campus portal strategy is difficult or perilous, participants in these recent events agree that this activity is necessary and complex. In the months ahead, collectively and individually, colleges and universities will have to grapple with a variety of business, organizational, technical, and policy questions related to portals. For example:

- How will institutions regulate advertising on their Web sites?
- Will institutions be able to muster the political wherewithal to make institution-wide decisions over IT, as well as standards to create compelling and “sticky” Web environments that create communities rather than attract surfers?
- How will institutional privacy policy be shaped to accommodate the creation of portal sites that remain compelling to different members of the campus community throughout their lives?
- Can we create either the technical or organizational infrastructure to foster what Robert Kvavik (2000)

calls “cradle-to-endowment” relationships via our virtual environments.

- How will we integrate our physical and virtual sites to foster social and intellectual interactions worthy of our mission?

The challenge of a portal strategy is no less than the challenge of bringing higher education fully into the new wave of technology. This challenge, like so many we have encountered and overcome, seems to depend less on technology per se than on our ability to create a compelling vision for our institution and to galvanize the institutional will to think about how to personalize the institution for everyone in the community. It is clear in this instance that IT professionals, acting alone, will likely achieve only imperfect results. This is a daunting challenge, and the months ahead are sure to be exciting ones for us.

## **So What Kind of Metaphor Is Portal?**

If, as I suggest, the portal is an “organizing principle” or metaphor for how institutions will organize themselves and their services in cyberspace, what are the elements of that organizing principle? The University of Washington has been developing a simple schematic that helps situate the portal within a larger technology architecture.

This schematic is helpful in serving at least two purposes. First, it situates the portal clearly within a broader context that includes other major IT initiatives, such as enterprise resource planning (ERP) systems, data warehouses, security initiatives, and the like. Second, it clearly presents the portal within a customer-centered or stakeholder-centered model of Web services or Web information delivery. The customer-centric aspect of portal strategy and design is central to understanding how new and evolving technologies can be used effectively to meet the needs of the institutions’ stakeholders.

## From Mass Production to Mass Personalization

As Howard Strauss (2000) makes clear, “a portal is a fundamental departure from the old entity-centric Web experience. Portals represent a basic change in the way we present web information to users and in which users use the web.” In the 1960s and 1970s, our information systems were designed to support the information and transaction processing needs of such large central organizational units as registrars, personnel offices, and accounting offices. These systems provided limited flexibility. The introduction and proliferation, in the 1970s and 1980s, of fourth-generation languages made it possible for sophisticated users of information and technology to produce customized reports, again primarily for central units. On a parallel track, minicomputers performed essentially these same tasks to meet the needs of local units in disparate academic units of the institution. As Strauss indicates, the focus of technology throughout this period is on the organization entity as the “end user.”

The proliferation of networks and the introduction of the World Wide Web and client-server or Web-based ERP systems in the 1990s created the potential to customize the delivery of information and services between the central and devolved organizational units of the institution. This pathway was anticipated and described by Katz and West (1992) as the “network model.” At many institutions, these innovations have enabled (1) a significant devolution of organizational responsibilities, (2) enhancements to service levels between central campus units and interdependent departments, and (3) reductions in the rates of growth of administrative costs. Now, accounting professionals in academic departments can execute on-line transactions once that will be posted to institutional ledgers. At the same time, data warehouses and decision support tools make it possible for faculty members to obtain current information on their grants, budget authorizations, travel, and other administrivia.

The Web was the pivotal element of this evolution, insofar as it has allowed large numbers of campus citizens to overcome much of the “unfriendliness” inherent in most legacy systems. Some of this unfriendliness owes to the underlying complexity of institutional information, an issue that no technology is likely to overcome soon. The Web has also been liberating, making it possible for almost anyone to develop respectable, usable, and useful information pages for others to view and use. In the past five years, thousands of Web flowers have bloomed. In fact, today there are more than seventeen million distinct Web sites, a number that is growing by more than two million sites per month!<sup>1</sup>

### **What's Really New?**

The implication of such a remarkably accessible technology is the creation of the information frontier spirit described earlier. On college and university campuses, as the technical barriers to building Web sites fell, new campus entities entered the Web fray. As a result, a visit to most campus Web sites reveals a view of the institution most akin to that institution's organizational chart. If you are looking for a policy on how to report on NIH grants, you are likely to need to know that the sponsored research department's site will be found within the Controller's Office site, which is a part of the site maintained by the Office of the Vice Chancellor of Administration. Of course, a campus calendar that shows relevant reporting deadlines for the same type of grant might be maintained and found elsewhere on the campus Web site. The point is that “first-generation” Web tools and techniques continued our historical focus on the organizational entity as both the producer and consumer of significant institutional information and services.

Of course, organizations don't consume information, people do. The transformational wave associated with portals is being energized by the notion that organizations now must and can array their Web-based information and services in ways that are tailored to the

individual. This is a powerful shift, because, in the main, most organizations, including colleges and universities, have rarely organized their information and service offerings—anywhere—around the personal needs of their community members. Even the reengineering work of the 1990s focused on end-to-end processes within broader “stovepipes.” So while one can now find campus enrollment systems that span the traditional subprocesses of admissions, financial aid administration, class registration, degree audits, and so forth, rarely are these systems linked with systems that support marketing for adult education, alumni systems, and other systems that support a lifelong relationship. The new, wonderful, and challenging aspect of Web management posed by portals is the idea of creating and managing information systems whose primary purpose is to sustain positive relationships between an institution’s stakeholders and the institution. That’s new.

### **Is It Important?**

The metaphor of “customer relationship management,” tied so closely to portals, is important. Devising and implementing campus portals strategy forces the institution to begin to think of its Web site(s) as being strategic. Most college and university leaders today agree that information technology is important. Many might not yet agree that IT is strategic. In fact, it seems likely that the campus Web site will influence prospective applicants’ early opinions about an institution—perhaps decisively or immutably. How institutions organize their Web sites, Web-based services, and information will affect their ability to create communities. Throughout our history, colleges and universities have described themselves as communities. We are “communities of scholars,” “communities of skeptics,” “learning communities,” and so forth. Creative and Web-sophisticated organizations—commercial and academic—are harnessing the evolving technologies and new organizing principles to create powerful and compelling communities. Once created, on-line communities create and reinforce stake-

holder loyalties in much the way our traditional campuses do. The harmonious blending of a relationship-centered set of campus-based strategies with those delivered over the Web is a powerful strategy. As Greg Baroni (1999) puts it, “the debate is not about portals. It’s about modernizing education, leveraging possibilities and securing a successful future for your university in a radically different environment.”

### **It’s Also About User Roles and Self-Service**

The portal metaphor and organizing principle is not just about customization and personalization; it’s also about roles. Colleges and universities are unique institutions that bring together multiple communities and deliver to them myriad services. This is why commercially dominant metaphors such as customer service become controversial in a higher education context. Colleges and universities are more like city-states than they are like businesses. Yes, we sell products to “consumers.” We also provide day care, operate K–12 schools, provide housing and food services, dispense funds, process payrolls, deliver mail, deliver babies, operate wastewater treatment facilities, and, oh yes, educate students and pursue research and scholarship. Our communities are, by definition, diverse, and they often organize themselves along the lines of roles, interests, academic disciplines, and axes other than a consumer axis.

Two other important organizing principles around portals are well articulated by Jenny Rickard (2000): “Portal technology provides the capability to aggregate content from multiple sources, integrate ERP backbone systems into role-based self-service transactions . . . access role-based analytical information and, if desired, facilitate commercial transactions” (p. 3). Other key aspects of relationship management à la portals relate to the ideas of role-based access to information and services and to the idea of self-service.

The role-based access idea encourages future designers of campus Web sites to differentiate virtual views of the institution according

to the role or roles of the Web site user. While students, faculty members, staff members, patients, and others all may use a college's or university's campus or services, they do not use these (or experience these) in the same way. Other stakeholders, such as parents and alumni, see the institution through yet another variety of lenses. Today's portal architects are crafting unique and varying top views of the institution, based on these roles. The challenge before us is to organize views that reflect the needs and wants of different stakeholders of our Web, so that again we might convert casual browsing into community building—and loyalty building—activity.

The role-based access metaphor is also powerful in the context of using portal technology as a tool to enhance institutional efficiency and productivity. Whereas the focus of much of today's discussion of portals relates predominately to the creation of Web-based student services, information, and community, one important institution has focused on the portal for administrative productivity. The portal sits at the center of what the University of California (UC) (2000) calls "a new business architecture." In essence, the UC portal strategy argues that the portal is "designed for optimal cycle-time and performance, ease of access, personalized views of information and extensive online help and training, [and that] these systems enable staff to learn about and perform a function in a single transaction. Eliminating the intermediate transactional processes between staff and the information and functions they require is the key to containing costs and reducing cumbersome bureaucracy" (p. 5).

The second powerful idea expressed by Rickard is that of self-service by the user of portal technologies. Robert Kvavik and Michael Handberg (1999) make a compelling case for self-service by describing how automated, user-initiated services can simultaneously enhance service and lower costs by transforming the college or university administrative workplace from one dominated by specialists, schooled in exotic and arcane policy and procedure, to one that supplements intuitive, self-service systems with employee generalists and, when necessary, a small cadre of specialists.

## Getting There Will Be Tough

To the extent that it is true that the drive toward portals is more about securing a successful future for your institution in changing times, the effort will be arduous. As the University of California document suggests, this activity is really more about a change in the institution's approaches to managing relationships and business than it is about a change in hardware and software. To meet this challenge, colleges and universities will need to make significant investments and changes in

- Information technologies
- Business practices
- Institutional policies
- Human factors (culture, organization, incentives)

The technical challenges are daunting. Colleges and universities must strive to achieve what technologists refer to reverentially as "single sign-on." If campus information and Web-based services are to be truly easy to use and compatible with the self-service and role-based ideals described, it won't help if every component requires a separate password and user ID. At the same time, these systems need to be secure and to handily recognize an individual's authorizations, based on roles and other personal attributes. In essence, the information system must be able to know "up front" that John Doe is really John Doe and that Dr. Doe is a tenured faculty member authorized to enter the closed stacks, park in lot 3, transfer funds among three grants, and so forth. Organizing an infrastructure and institutional information and services to behave in this fashion is just hard.

Business practices will have to change. The personalization and self-service metaphors are as different from the prevailing campus business models as they are compelling. As systems are developed

and placed on stream, legions of campus specialists are likely to be displaced. Whereas many will welcome the opportunity to be retrained as broadly empowered generalists, many will have difficulty coping with change and will resist such change efforts. Change management strategies will have to be developed and implemented to support the drive toward these new capabilities. Ultimately, campuses will have to make new choices of business models associated with e-business; that is, they must decide whether auctions, shopping bots, cookies, and other techniques and technologies have a place in campus business practice.

Institutional policies will be stretched into new shapes and configurations by these technologies. Will some of this activity be financed by advertising revenues enabled by the successful creation of “sticky” Web sites and “on-line communities of practice”? Should campus on-line communities be converted into buying collaboratives, and, if so, who really is a member of the “campus” community? What are the ethical, legal, and policy constraints and concerns around using student information to populate alumni profiles? Once data systems have been linked in new ways (by user roles, and so on), who really has access to what information, and for what purpose?

And, of course, the people issues will be enormous. Portal technologies, organized in ways designed to create long-term user loyalty via personalization and self-service, are inherently transformational in nature. If the technologies of the 1960s reinforced the hegemony of the central campus operating units, the technologies of the 1990s were designed to redistribute power and authority to devolved campus academic units. The new portal technologies are designed to devolve power and authority to the individual. To accomplish this, the hundreds of campus central and distributed units that have set up shop with our Web spaces will have to develop and conform to certain uniform standards of practice and design. This will not be easy. The issues raised here will also be about how one creates loyalty to an institution in environments that are completely tailored

to the individual. If the first round of campus portal implementations is creating portals named MyUB, MyUW, PAWS, MyUBC, and others, the second round is likely to feature portals named MyJoe, MyMary, and MyRichard. It remains to be seen if MyPortal will foster my loyalty to YourInstitution.

## The Opportunity Is Exciting

As the challenge is great, so are the opportunities. Portal technology firms have discovered higher education because they understand that colleges and universities are quintessentially relationship management enterprises. We develop *in loco parentis* relationships with people (yes, consumers) whose very roles involve receiving impressions. Faculty members, fellow students, our campuses, the teams, and every aspect of what colleges and universities do leave lasting, lifetime impressions on students. These students, when these impressions are positive ones, become lifelong members of our communities. Private firms understand this unique power. The portal challenge is a battle cry to get ourselves organized to better form these lifelong impressions. It is a belief system, a worldview, a set of approaches and technologies organized to arrange and rearrange both our front door and our rich holdings. It may be the next basis of competition between us and a new emerging knowledge “industry” or a path back to the personalized educational ideals and practices of Plato. It’s our move.

This chapter expands on an essay first published in *EDUCAUSE Quarterly*, Summer 2000.

### Note

1. See the survey by Netcraft [<http://www.netcraft.com/survey>].

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