

Organizing Information Professionals on Campus

The Information Resources Model serves as a framework for an institution's information resources

By **Fredrick Miller**

She is not a programmer, a system administrator, a librarian, or an instructional technologist, yet Talley Gentry plays an important role as an information professional at Illinois Wesleyan University. Gentry works in the Registrar's Office. Her duties include running curriculum audits, entering grades, printing transcripts, and creating ad hoc reports about students. She uses Microsoft Access to write reports that query the university's Oracle database. When someone at the university wants a report from the student database, chances are the request will go to her.

Gentry's role is not unique at Illinois Wesleyan. Many departments have developed their own report person who knows their department's information needs and helps others access and retrieve data. These information professionals are an important part of Illinois Wesleyan's information resources architecture.

This article describes a new model for thinking about information professionals working in information technology (IT), whether in the library or in other departments and organizations on campus. The Information Resources Model describes the roles of information professionals and how these roles

relate to users of information resources. The model can serve as a framework for examining how institutions of higher education address the challenge of providing efficient and effective information services and how they organize information resources on campus.

Seeking New Structures

In the 1998 book *The Mirage of Continuity*, noted librarian Patricia Battin and EDUCAUSE President Brian Hawkins called for new organizational structures to help institutions of higher education manage their information resources. Battin and Hawkins were writing in reaction to what had been the prevailing organi-



zational model for information resources for higher education toward the end of the twentieth century. This model identified three distinct organizational units: academic computing, administrative computing, and library.

The authors noted that many functions of these legacy units overlap. They called for institutions to recognize that individuals working in these areas are all information resources professionals and to develop new organizational models.¹

Since the book's publication, institutions of higher education have become more aware that information resources and information professionals are vital in helping institutions achieve their mission. With this recognition, we can begin to explore how to better use information resources. For example, how are institutions addressing their growing reliance on information systems and information professionals? Have institutions addressed the challenge of delivering efficient and effective information services? Are new structures shaping information resources decisions?

Categorizing Information Workers

While Battin and Hawkins were looking at the need for change within higher education organizations, the Northwest Center for Emerging Technologies (NWCET) was examining the functions that people working with IT perform. In 1999, NWCET cat-

egorized IT functions as technical support, technical writing, digital media, Web development and administration, enterprise systems analysis and integration, programming/software engineering, database development and administration, and network design and administration.² Although this categorization helps describe workers' technical roles, it doesn't provide a structure to show how these functions work together, nor does it address people whose work focuses more on information and less on technology.

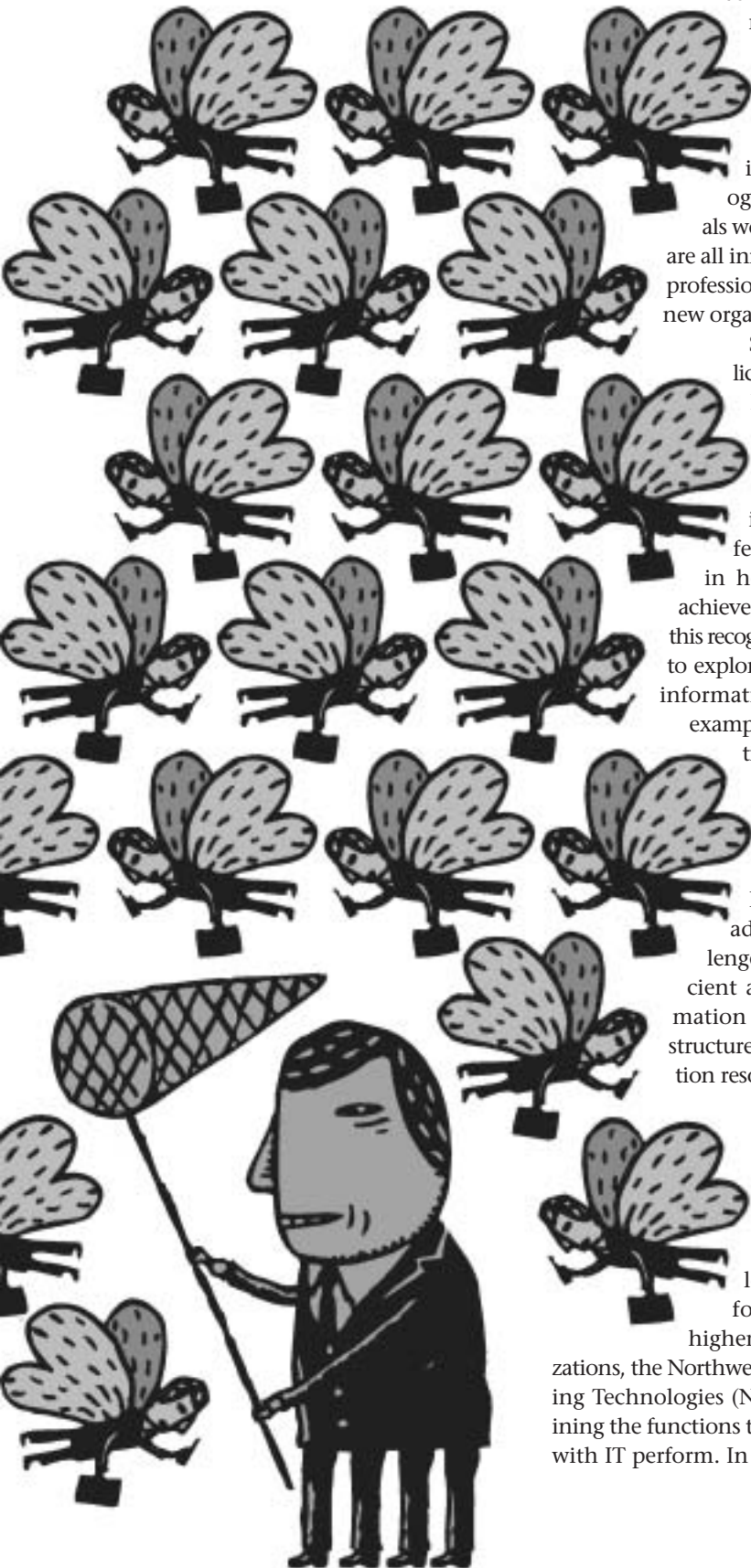
Before Battin and Hawkins' call for new information organizations in higher education, Debons, Horne, and Croneweth had begun to categorize information workers (in 1988). Debons suggested categories such as information scientist/theorist, information systems specialist, information intermediary, information technologist, manager of information, and educator and trainer of information workers.³ Although these categories are more inclusive than a list of technology specialties, neither approach gives us a way to think about how to best organize the work of information professionals.

Categories without structure offer little guidance for addressing the questions Battin and Hawkins posed. The NWCET study highlights a trend toward technology specialization, with a growing reliance on information workers. The challenge for institutions of higher education is to balance the positive effects of technology specialization with the efficiencies that communication and information sharing make possible.

User's View of IT

In 1996, Illinois Wesleyan University began using a new model when it reorganized its academic computing, administrative systems, and telecommunications departments into a single Office of Information Technology. The university expected improved customer service as well as improved communications and professional development opportunities within the new office.

Illinois Wesleyan's model provides a framework for talking about IT services from the perspective of someone using a



networked environment. This “user’s view of IT services” model presents technology functions as a series of interdependent layers; they are (from top to bottom) desktop support, shared applications, server administration, and network systems.

With this model, technology staff are organized to support information users. At the top layer, desktop equipment must function before users can perform their information work. Once the local environment is working, users can think about the next layer — working with shared applications. On campus, shared applications typically include administrative systems and library catalog and circulation applications. Users may know that these applications run on servers (another layer) and that someone must manage these servers. And finally, in the Internet Age, users know that the institution’s network (the bottom layer) ties all of the services together. With this model, users can see each layer as a separate function, but each of these functions depends on the other layers to deliver information services.

The strength of the User’s View of IT model is its recognition that various information services are a collection of interdependent functions. For those familiar with network theory, it resembles the OSI model — a framework of standards for communication between different vendors’ systems. The OSI model categorizes communication processes and places the categories in a layered sequence on the basis of their relationship to the user.⁴

Illinois Wesleyan University structured its central Office of Information Technology with work groups to support each layer of the User’s View of IT model. This model helped the university create an environment in which its central IT organization has gained respect for its expertise and patient response to almost any service request.⁵

Information Resources Model

Although the User’s View of IT model has worked well for Illinois Wesleyan, it doesn’t address the information professionals outside the central technology organization. At Illinois Wesleyan, many

people help others use information resources on campus. These “information intermediaries” include librarians and faculty development professionals, as well as staff working in administrative departments who help others retrieve information from various systems on campus. These people may not be part of the university’s formal information resources structure, but they communicate regularly with other technology users and with the university’s technology organization.

To recognize the importance of these information intermediaries, we must modify the model. We do this simply by adding a top layer — information access — to represent the people who help others use an institution’s information resources (see Figure 1). Thus we have

- information access,
- desktop support,
- shared applications,
- server administration, and
- network systems.

We can call the entire revised model the “Information Resources Model,” or simply the IR model.

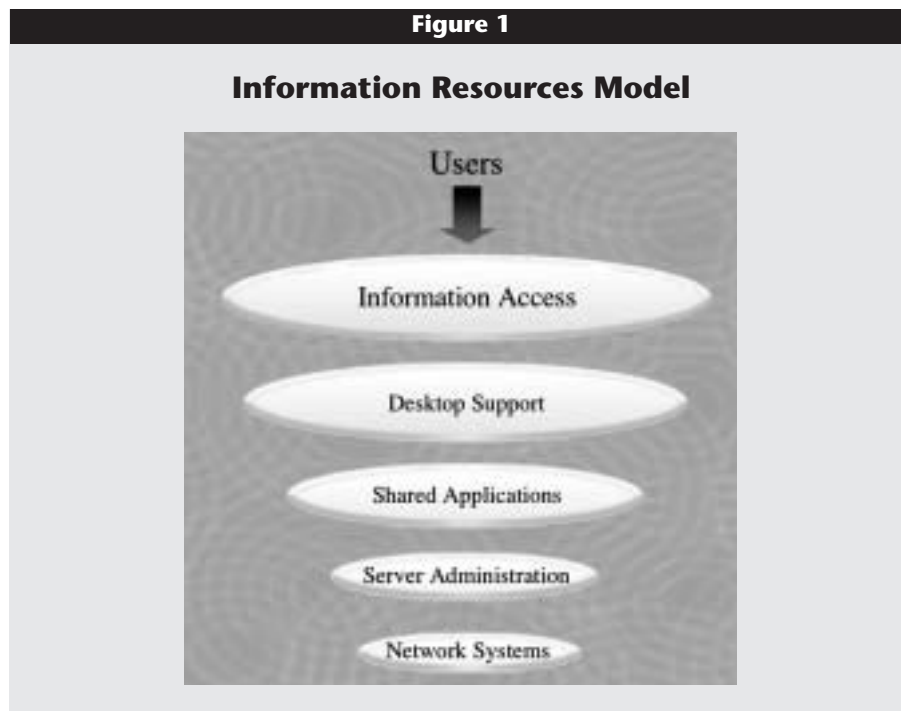
The IR model illustrates that information professionals, just like the underlying technologies, must work together to provide information services. It recognizes that users have varying degrees of knowl-

edge about an institution’s information resources. This model goes beyond our user’s view of IT services model to include all people who help with the institution’s information resources functions. It can help organize a mostly centralized campus technology environment like Illinois Wesleyan’s, and it can provide insight concerning when to decentralize certain information services.

Centralization and Decentralization

The question of decentralizing versus centralizing is important when discussing new organizational structures for information resources in higher education. In colleges and universities, a decentralized structure is typically organized around departments or constituencies, providing a strong department focus and strategic alignment with department needs. It gives individual departments more control over priorities. Unfortunately, a decentralized IT structure tends to place multiple demands on the people performing the decentralized function, causing them to act more like information generalists than specialists in a particular technology function.

A centralized information resources structure, on the other hand, lets an institution pull together its information



workers and provides more opportunities for technology specialization. The centralized structure allows for more professional development for staff and lets organizations more effectively apply lessons learned within departments across the organization.

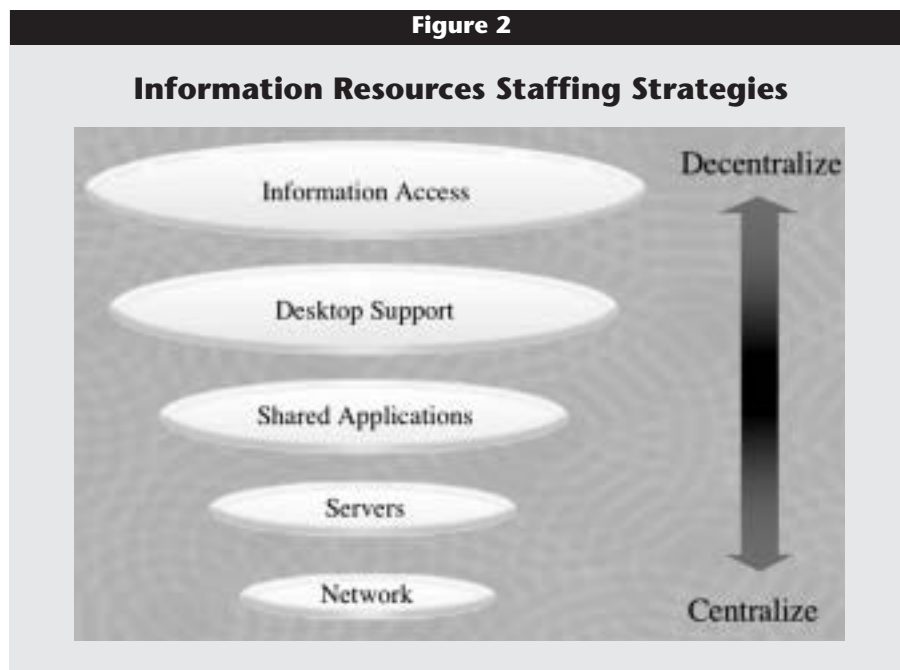
The disadvantage of the centralized model is that the one-size-fits-all approach allows more organizational efficiencies at the price of solutions that might not fit some departments. Conversely, a decentralized solution provides better tailoring to the needs of individual departments at the cost of efficiency, along with a need for more communication.⁶

New hybrid information resources organizations may provide the benefits of both decentralized and centralized structures. In a hybrid IR model, the top-level information access layer (closest to users) is more likely to be decentralized within an institution. At the same time, the model's lower layers will likely have more centralized structures, to deliver more efficient services (see Figure 2).

Researching the Model

Considering information resources in light of the IR model raises some interesting questions. Have institutions already begun developing new hybrid structures for managing their information resources? Are examples of such hybrid information resources organizations growing more common in higher education? Do administrators recognize support information professionals working outside the centralized technology organizations and create structures to support them?

Casey Green's Campus Computing Project⁷ has been surveying higher education's use and management of IT for the past 12 years. The 2001 Campus Computing Survey summarizes responses from 590 institutions. Although most of the survey questions address the legacy technology organization model, a few apply to the hybrid IR model. The 2001 survey indicates that a combined administrative and academic computing organization is now the dominant model for organizing IT professionals on campus. The Campus Computing Survey also notes that most institutions now have either a chief information officer or a chief technology



officer. The survey data indicates that the primary organizations reporting to the CIOs are what were traditionally called academic computing, administrative computing, and telecommunications. Libraries, however, are not included.

Mark Cain, Executive Director of Information Services and Support at the College of Mount St. Joseph, conducted a smaller, related survey on the EDUCAUSE CIO Listserv.⁸ This survey also looked at the CIO portfolio, at 120 institutions, and concluded that most CIOs are responsible for academic computing (97 percent), administrative computing (96 percent), telecommunications (79 percent), and media delivery (71 percent), but few (20 percent) are responsible for libraries.

These surveys show a pattern for managing information resources in higher education, but they don't describe organizational structures in any detail. Neither do they give us a sense of how organizations choose to manage and communicate with information professionals working outside a central information resources structure.

Testing the Model — “The Very Short Survey”

Does the IR model help describe how institutions of higher education are structuring their information resources

organizations? Are colleges and universities decentralizing or centralizing information services? What about information professionals outside the formal information resources structures?

These are some of the questions I sought to answer in February 2002 when I posted a single-question survey to the EDUCAUSE CIO Listserv.⁹ The set of multiple-choice answers was applicable to each layer of the IR model (see “The Very Short Information Resources Staffing Survey” sidebar). I received responses from 71 institutions, including baccalaureate, master's, and doctoral-granting institutions.

Some conclusions are immediately apparent. All respondents indicated that network support had been centralized at their institutions. Only four respondents indicated that academic computing and administrative computing remained as separate organizational units. Institutions gave a wide variety of responses regarding how to centralize or decentralize support for institutional resources, yet there were some identifiable trends.

The survey responses indicate that institutions of higher education can think of their information resources organizations in the layers described by the IR model. It's also apparent that institutions are increasingly decentralizing information functions toward the

The Very Short Information Resources Staffing Survey

The survey asked, “How has your institution chosen to assign staffing for the following technology support functions?” The instructions asked that respondents indicate as many choices as appropriate for each support function. Comments were encouraged.

The support functions correspond to the layers of the IR model and were described as follows:

Information Access — Provides support or assistance to help with the retrieval of information. Activities include research assistance, report writing, technology training, and other assistance helping others work with information resources on campus.

Desktop Support — Includes repair and maintenance of computers owned by the institution or departments, help-desk support, and support for classroom computers and computer labs.

Shared Applications Support — Support for multiuser applications at either the institutional or department level. Such applications include administrative systems, e-mail, shared-calendar applications, library catalog and circulation, and so on.

Server Administration — Maintains servers used by either the institution or departments of the institution. Includes responsibility for applying patches and securing servers, establishing user accounts, and other maintenance activities.

Network Systems — Operation of the campus network backbone and local subnets. Includes cabling, routers, hubs, switches, and IP assignment, but excludes operation of servers used to provide application services.

The survey listed the following choices for each support function:

- Core IT (combined academic and administrative computing)
- Academic computing
- Administrative computing
- Library
- Other department(s) outside IT/library (please describe)
- Outsourced (please describe)

model’s top, or information access, layer. We also see that centralization is more common for functions associated with the model’s lower layers, and the lowest layer — support for campus networking — is universally centralized (see Figure 3).

Some differences in the approach to organizational structure are based on the type and size of the responding institutions. Server administration was reported to be mostly centralized at master’s institutions but less so at baccalaureate schools; doctoral institutions reported various mixes of centralized and decentralized server administration.

We may soon see greater consolidation of server administration on campuses, mainly because of increased security concerns. EDUCAUSE and Internet2 recently called for more attention to IT security.¹⁰ To better support the type of specialization required for server security, institutions may want to consider a more centralized model — just as they have done to support campus networks.

Answers pertaining to the model’s shared applications support layer varied only slightly from those concerning the server administration layer. However, some institutions did report centralized

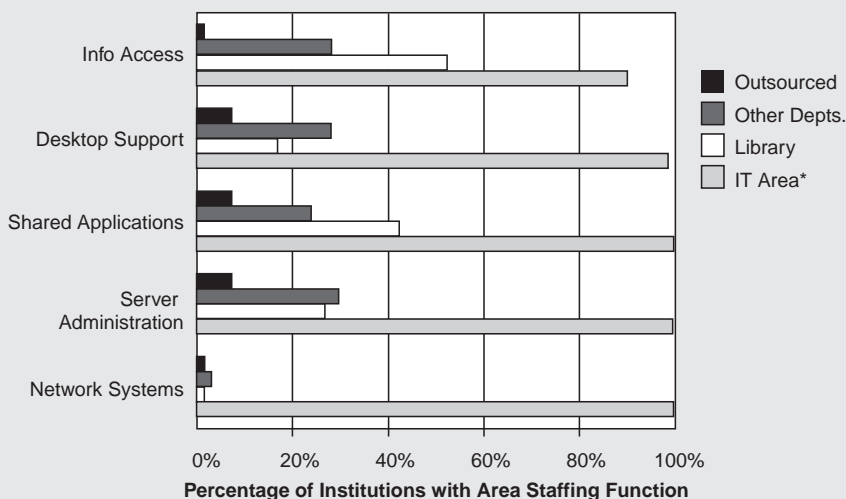
server support while also reporting decentralized support for shared applications. If institutions recognize that they can treat server administration and shared applications support as separate functions, they might be better able to address server security.

The desktop support layer drew significantly different responses by institution type. Desktop support was generally centralized at baccalaureate and master’s institutions and mostly decentralized at doctoral institutions. One of the Campus Computing Survey’s questions — about “support for most labs” — drew similar results, indicating that computer lab support varies significantly by institution type. Casey Green suggested that departments at small and medium-sized universities might not want the bother of managing computer labs.¹¹ Alternatively, this might be a reaction to the costs of decentralized lab support. In any event, institutions must consider whether decentralizing desktop support functions would provide better technology support for their campus community.

Responses showed that the model’s information access layer experienced the greatest decentralization, although this largely involved the library and IT areas. It’s surprising that so few institutions (less than 30 percent) reported that the information access function was performed outside these areas. Doctoral institutions were more likely to report this pattern of decentralization (44 percent).

The scarcity of on-campus information professionals outside the centralized organization could indicate an institutional communication problem. Some institutions may not officially acknowledge distributed staff performing as information professionals, but I believe most institutions have people *unofficially* acting as information intermediaries outside their central information services organizations. More institutions might wish to consider structures that include these people as part of their information resources plan.

The survey data suggests a number of organizational trends. Nearly 60 percent of institutions reported some type of hybrid model — a combination of

Figure 3**Centralized Staffing for IR Model Layers**

* Includes academic and administrative computing.

centralized and decentralized information resources support. Hybrid structures are most prevalent at doctoral institutions, where more than 80 percent reported some combination of centralized and decentralized structures for the IR model's four lower layers. Although hybrid structures are quite common, no single hybrid model dominates. Institutions' individual cultures and missions are likely to guide them as they seek to balance the effectiveness of their information resources with the need for institutional efficiencies.

Conclusions

Thinking about the IR model leads to several conclusions. First, it's clear that higher education has moved away from the legacy model of separate academic and administrative computing organizations. The apparent catalyst for this change is the need for centralized management of campus networks. Higher education offers many examples of hybrid structures, and similar types of institutions tend to approach the centralized/decentralized issue in similar ways.

The IR model also helps us explore how information intermediaries function within higher education. Although the Internet might give the illusion that users no longer need help getting information (a.k.a. disintermediation),

in fact the amount and complexity of information is making the role of information intermediaries and information access more important than ever. How an organization chooses to integrate these information professionals within its information resources structure will become increasingly important.

The IR model is based on two primary assumptions: first, that the various people involved in delivering information resources must communicate, and second, that the model's layers appropriately summarize the functions supporting an institution's information resource needs. One could argue that the model doesn't account for the complexity of delivering information resources. However, communication is critical for addressing the challenges of today's new hybrid organization structures. The model's interdependent layers stress the importance of communicating with information professionals both inside and outside the IT and library organizations.

The IR model can be a useful tool for discussing the roles of information professionals on campus. It lets us talk about how information resource professionals work together, and it recognizes that these professionals are not necessarily employed just within the IT and library organizations. Centralization versus decentraliza-

tion, specialists versus generalists, and accurate recognition of information professionals are all topics the model raises. The IR model gives institutions a context for discussing how to best organize information resources on campus.

Remember Talley Gentry, the information professional in Illinois Wesleyan's Registrar's Office? Her title is "secretary." *e*

Endnotes

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3. A. Debons, E. Horne, and S. Croneweth, *Information Science: An Integrated View* (Boston: G. H. Hall, 1988), cited in R. E. Rubin, *Foundations of Library and Information Science* (New York: Neal-Schuman Publishers, 2000) p. 340.
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