THE LIBRARY AS INFORMATION CENTRE: AN UTILITY MODEL FOR INFORMATION RESOURCE MANAGEMENT AND SUPPORT

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ABSTRACT

Advances in information technology are transforming the way people work, communicate, and document their activities. At the same time, the global nature of the modern organization has dictated the development of convenient and economical methods of electronic data exchange. This series of events has, in turn, necessitated changes in the ways information resources are managed and serviced. The implications of these dynamics for most traditionally defined library organizations are significant. In response, library administrators need to consider alternatives to current structures and modes of management. The purpose of this article is to characterize the operational, organizational, and technological developments that are transforming the workplace; to discuss the advent of the "knowledge worker" and the "information utility," and to consider how all of these factors provide opportunities for library administrators and other information resource management (IRM) professionals to better serve their customers.

Keywords: *Library, Information Center, Utility model, Information Resource Management*

INTRODUCTION

The largest single factor which has caused significant changes in library services during this century is undoubtedly information technology (IT). It has revolutionalized existing library services, made possible to introduce innovative new services apart from tremendous increase in speed of processing and retrieval and overcoming distance and other communication barriers. In an attempt to know whether IT can affect the ability of individuals and organisations to innovate, it was found in a study that IT has significantly enhanced innovation by augmenting individual/group capabilities through motivation support, resources support and information support (Saraf, 1988).

IT has virtually unlimited potential for variety of applications in libraries. IT news from developed countries provide enough ground for visualising ideals, enormous scope for academic exercises and even fantasies. The ground realities are that there is a significant gap, at least in terms of time, between academic or theoretical possibilities, fantasies and costly experience-gaining experiments on one hand and the practical implementation of the same to reach ultimate beneficiaries. Over-excitement about IT and perpetual experimental approach are likely to lead to illusion that the profession has successfully adopted IT (Sridhar, 1989, 1995, 1996. 1997).

Lack of assessment of required technology and complete exploration of available options often lead to getting wedded to whichever comes first in the way. On the other hand, consequent under-utilisation of available technology is not uncommon. We examines the forces at work within the modern organization that are driving information professionals to

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reconsider how best to structure and deliver their services. Global information needs, the increasing diversity and complexity of available information resources and systems, and the escalating "utility" costs of service maintenance are all factors influencing these developments. We therefore begins with a consideration of external environmental forces and the emergence of the "knowledge worker" as the IRM professional's primary customer. From this more general discussion, we will focus upon the positioning of the library within the context of the information utility model. The conclusion will provide readers with some thoughts on the critical success factors associated with integrating the library into the Information Utility.

Selection of Vocabulary

To orient the reader for the discussion that follows, and position the frame of reference away from the established library science framework of concepts and responsibilities and move toward a comprehensive information resource management perspective, the following terms and definitions are offered.

1. ***End-Users:-*** These are referred to as "customer," "patron," or "constituent," the end-user is the knowledge worker in the modern organization. I/T systems, services, and resources must be tailored to the requirements of the end-user who in turn addresses through his/her efforts the primary mission of the parent organization.
2. ***Enterprise: -*** While "enterprise" may be used interchangeably with "organization" and "institution," it is the preferred term because it conveys action and the creation/delivery of value to the end- user. Regardless of the strategic focus of the organization, enterprises must create "value" as perceived by their customers if they are to survive and prosper. This statement applies to government services and higher education as well as private industry. Similarly, the "library" must be viewed as an enterprise within the "information utility" which is itself an enterprise within the parent organization.
3. ***Information Resource Management: -*** the economical and efficient management, servicing, and support of all information (in whatever format) that is of value to the organization. The value-added component of IRM is the information utility's ability to deliver accurate specific information to the end-user in a timely manner.
4. **IRM *Strategic Planning: -*** IRM strategic planning is a necessary subset of the parent institution's process. It is necessarily shaped by the goals and objectives of the greater organization and must complement the more global directives established in the corporate plan.
5. ***Information Services Professional:-*** While the terms librarian, archivist, records manager, and systems analyst have relevance in today's information technology environment, the twenty-first century information utility requires the services of cross-trained, highly integrated staffs of I/T professionals to act as facilitators, catalysts for change, standards monitors, and resource managers for complex user-driven and controlled information delivery systems.
6. ***Information Utility: -*** Within any organization, the information utility includes all of those resources, services, and facilities that comprise, process, and deliver information to the end-user. More than computer hardware and software, an information utility is an approach to customer service that emphasizes availability, ease of access, economy, efficiency, and accountability to the community.
7. ***Knowledge***: - We often think of "information" in terms of documents, records, files, etc., but these are merely formalized vehicles for the delivery of data to an end-user.

Historically, these information products were/are self-supporting and generally sufficient in terms of satisfying the needs of the end-user. With recent developments in I/T, "information" alone is not satisfactory-primarily because there is too much of it and the "products" in question are insufficiently focused and unadoptable. Instead, users seek "knowledge": a higher level of information, at times in multimedia formats, tailored and processed to address a specific requirement.

8. ***Knowledge Worker***: - This is the end-user who employs a wide range of information technologies to draw upon diverse information resources in a variety of formats to address his/her immediate needs through the sophisticated researching, sifting, search, and reassembly of data into highly usable formats. Note that all "knowledge workers" are "end-users" but not all "end-users" are "knowledge workers." It is the responsibility of information service professionals to assist in the development of end-users into knowledge workers.
9. ***Strategic Planning***: - Strategic planning is that process of thought and action that directs the long-term growth of an organization. It focuses upon the clearly defined mission, goals, and objectives of the organization; assesses the available resources to bring these milestones to fruition; and establishes a method of performance measurement.

By way of orientation, examine Figure 1.5 This exhibit graphically represents the flow of raw data in various media and formats to intermediate data collection and distribution platforms (e.g., databases). From there, it is manipulated by higher-level information processing ("knowledge") tools (i.e., computer applications) and then transmitted via an array of networks to the desktop of the end-user, who, in this illustration, is either a living person or an automated process. The ultimate delivery of "knowledge" as defined earlier may then lead to specific informed actions.

As described here, the entire set of transactions in Figure 1 constitutes modes of information resource management and use within the modern organization. The unique character of these processes defines the institutional context and corporate culture within which people work. Like the role of IRM itself, the modern organization is also changing radically due to technological innovation and adaptation. To better understand the forces at work and what they mean to the library administrator, we will next explore the information requirements and evolving I/T environment of the modern institution.

Organizational and IRM Environments

As we proceed toward the twenty-first century, organizations are becoming less bureaucratic, more complex, and global in their orientation. Their management structures will flatten with senior executives playing a larger role in the direct management of people and processes. These players will map out the strategic programs for their organization, employing external alliances, resource sharing, outsourcing (i.e., the use of external agencies to perform services or processes hitherto maintained by the organization), and new information technologies to enhance their overall performance. Middle management will grow thin and serve primarily as a group of technical specialists developing policies, procedures, and applications for other employees. The vast majority of those remaining will directly contribute to value creation in terms of either products or services provided to the customers of the organization. In this more fluid, less hierarchical environment, most, if not all, employees will have both information resource management and production responsibilities.7

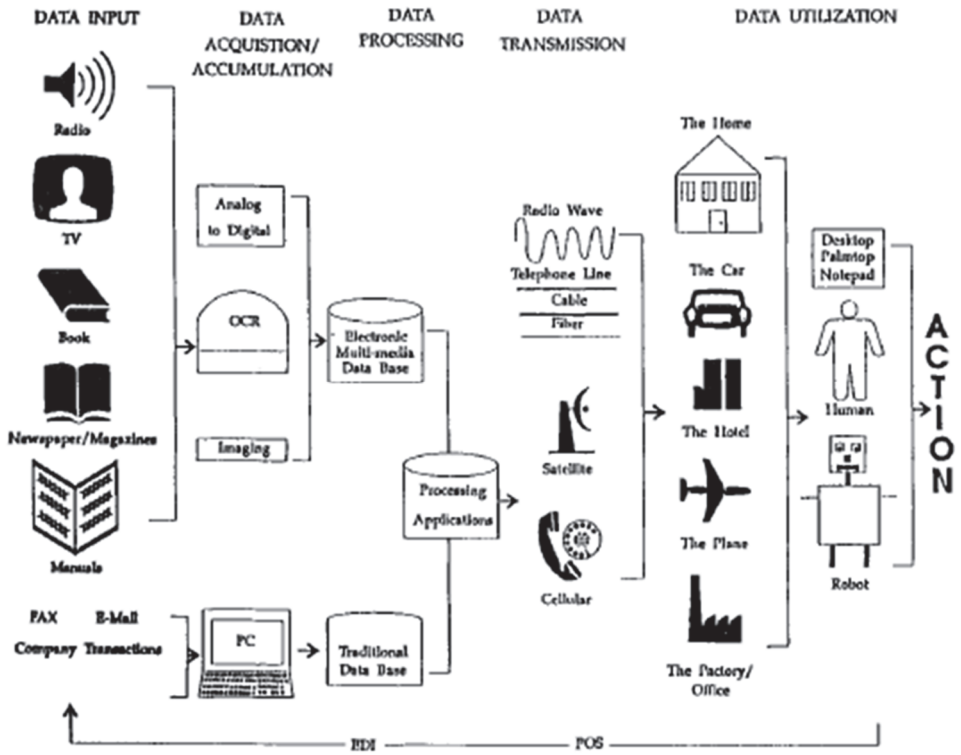

Figure 1. Flow of raw data in various media and formats to intermediate data collection and distribution platforms (Source: ***Library Trends by Richard M. Kesner).***

Information technologies have played, and will continue to play, a central role in this restructuring of the enterprise. They facilitate streamlining and encourage a more entrepreneurial operating mode among managers now freed from dependence on others for vital information.

For example, through electronic mail and executive information systems, senior managers can readily access field personnel and assess the status of far-flung projects. The management process need not occur through direct face-to-face interaction but may be mediated through electronic mail and teleconferencing. These same technologies also tend to foster linkages with external global partners. As operations become more complex, they are being segmented with the relocation of specific functions to the most advantageous locales. For example, automobile and computer manufacturing now occurs in a global arena where plants are located near cheap labour and the necessary raw or processed materials. Without the computer and telecommunication facilities of the modern corporate infrastructure, these arrangements would not have materialized.8

Furthermore, the ubiquitous and increasingly user-friendly nature of emerging information technologies has meant that line managers rather than technologists have taken charge of the resource, refocusing IRM requirements on core services and strategic business objectives (Tom, 1991; see also Emery, 1987; Targowski, 1990). This trend ex- emplifies the realization that, to manage a process, those in charge must also control the related IRM functions. It manifests itself in the growing acceptance of end-user “ownership” of the data and even associated information systems and IRM resources. The proliferation of I/T and information resources throughout the organization is illustrated in Figure 2. No functional area in this representation of an organization is without its IRM capabilities and responsibilities.

As represented in Figure 2, each operating unit of the XYZ Organization has fully integrated business functions. This structure is indicative of the worker empowerment and managerial flattening of the enterprise alluded to earlier. Similarly, each unit has its own information processing capabilities, ranging from individual personal computer workstations to large corporate databases run on mainframe computers. They also have access to, if not complete control over, the I/T tools, hard copy and online information resources, and associated support services deemed necessary to satisfy the requirements of their customers. The organization's administrative units are similarly endowed as the "owners" of human resource, financial, real estate, purchasing, insurance, and other corporate data. In this context, the information services arm of the organization acts as the I/T standards watch dog, the keeper of networks and operating environments (i.e., the I/T infrastructure), the provider of access to external information utilities (e.g., bibliographic utilities and extra- corporate electronic mail networks), and the developer and supporter of new I/T capabilities.

As a result of these functional allocations of I/T responsibilities, information service providers within the modern organization are concerned less with the efficient and economical storage of data and more with the proactive delivery of knowledge. Thus the IRM shopping list includes such products as intelligent, personal computer- based tools for end-users; future-focused decision support systems; business simulation software; and expert systems (for an excellent summary of what leading international CIOs are looking for, see The Index Group, 1991. See also The Index Group, 1988). Throughout, the objective of these I/T scenarios is to empower the end-user and to put this person in touch with the appropriate data to address immediate customer needs today and plan for tomorrow.

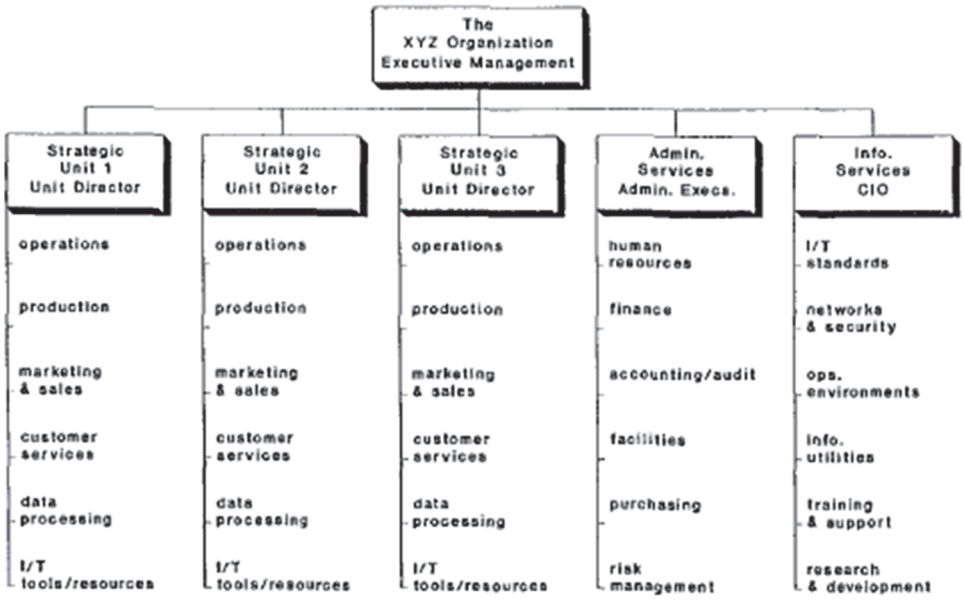

Figure 2. The Information Utility Model. The organizational disbursement of I/Ts (Source : ***Library Trends by Richard M. Kesner)***

The Emergence Utility of the Information Model

To manage the enterprise wide use of information technologies and services, organizations are currently experimenting with a number of different reporting/management structures.

The societal forces influencing these changes are easily discerned. In the first place, demographic shifts in both the work force and the customer base of many organizations have

necessitated a reconsideration of IRM products and services. Today's economic climate, with its ac-companying resource scarcity, is forcing overall institutional restructurings and a critical review of expensive operations such as the I/T functions. The technologies themselves are changing rapidly, obliging those in charge to look for new opportunities and to rethink old strategies. Lastly, a new generation of skilled and knowledgeable I/T users is exerting pressure on information services to perform and deliver as never before. Clearly, institutions of higher education are being influenced by these very trends.

In response, many organizations are moving toward the development of an information utility (I/U) under the aegis of a chief information officer (CIO). Structurally, the I/U serves as an administrative umbrella for a mix of I/T enterprises that may include libraries, archives, records management programs, data centers, networks, technology training centers, media production and operations, and end-user documentation.

However, the heart of the I/U concept has less to do with departmental structure than it has to do with service. As its name suggests, the I/U exists to provide capabilities to its customers. With the aid of computer hardware and software, communications networks, documentation, and training, the I/U seeks to empower its users to exploit all available information resources in paper and electronic optical formats. Through direct participation in the strategic planning process, those who manage the I/U work with their customers to identify opportunities for the deployment of emerging technologies and the creation of new learning and information processes.9

In focusing its information technology capabilities in the information utility, the enterprise is making a statement as to the importance of the I/T within the organization. The CIO usually sits in the organization's senior decision-making body and is instrumental in the development of internal and external linkages among information user communities. On the other hand, the I/U does not "own" corporate data and all of the associated systems and services. These tend to be the property of key I/U customers. By contrast, the CIO and hid her team facilitate, coordinate, and support the structures that deliver the data and enrich its value to the end-user. I/U personnel are also responsible for the protection of the network and overall data integrity.

Thus, the typical information utility must function in an environment that is both centralized and decentralized. On the one hand, it maintains and enhances the organization's core information technology infrastructure, including libraries, data centres, networks, enterprise databases, and so forth. It also provides a wide range of user support functions, coordinates corporate wide IRM activities, and polices system standards. On the other hand, it promotes user ownership and maintenance of data resources, client self-sufficiency in the exploitation of I/T tools, and technology planning at the operating unit level.

The structure of the information utility and the role of the CIO may be illustrated by contrasting a more traditional organization with one employing the I/U model. For this example, let us consider the "XYZ University" (see Figure 3). In this illustration, the information service components of the organization are disbursed among various operating units. For example, "academic computing" and "administrative computing" report to different university divisions. While the "library" is also under academic affairs, the synergies between it and "academic computing" cannot be realized without the involvement of "networks" and other information technology services positioned elsewhere in the organization. Information resources and associated services, on the other hand, are to be found everywhere. Clearly this more traditional structure does not afford opportunities arising from the combination of complementary I/T services, such as library, media, and computer services (for two informative anthologies on this subject, see Hawkins, 1989; Arms, 1988)."J

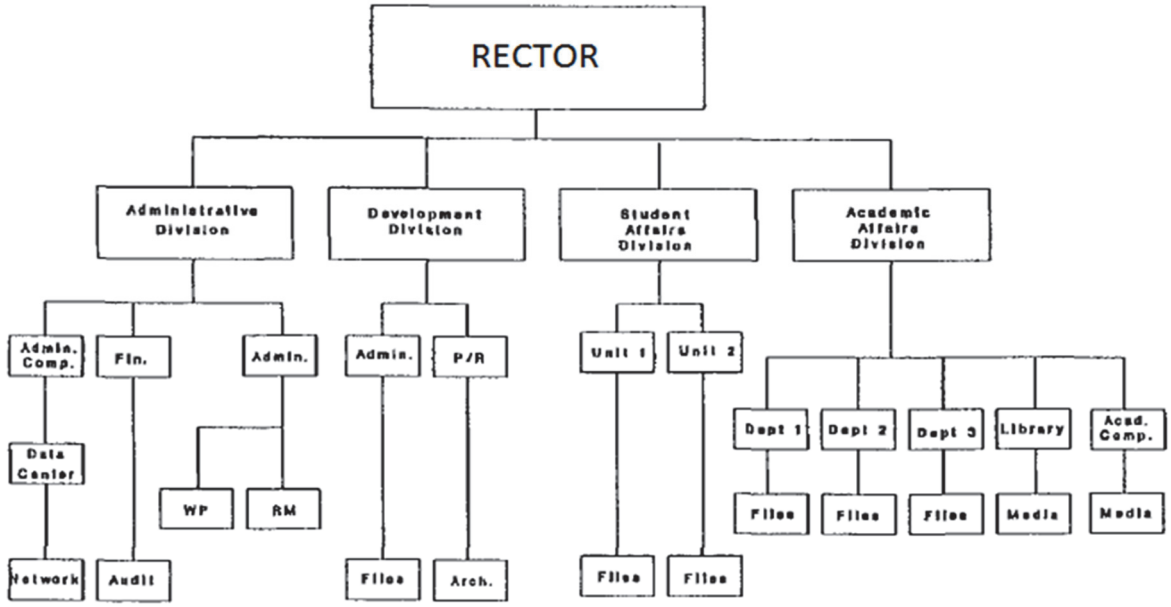

Figure 3. Polytechnic, Typical organizational structure (information service components)
(Source : ***Library Trends by Richard M. Kesner)***

Our second example assumes the structure of an information utility (see Figure 4). Here information technology services are reorganized to take advantage of the synergies absent from the previous example. At the same time, it allows for the streamlining and downsizing of the I/T team as well as the ability to focus the investment in people, hardware, and software where it will have the greatest impact. Furthermore, in this scenario the chief information officer is now a player of senior executive rank. He/she will therefore participate in the institution's strategic planning process and hence learn firsthand how the development of the information utility can best address the organization's overall goals and objectives. Similarly, as the direction of the parent institution changes, the CIO has the advanced warning and flexibility to redirect I/U resources accordingly.

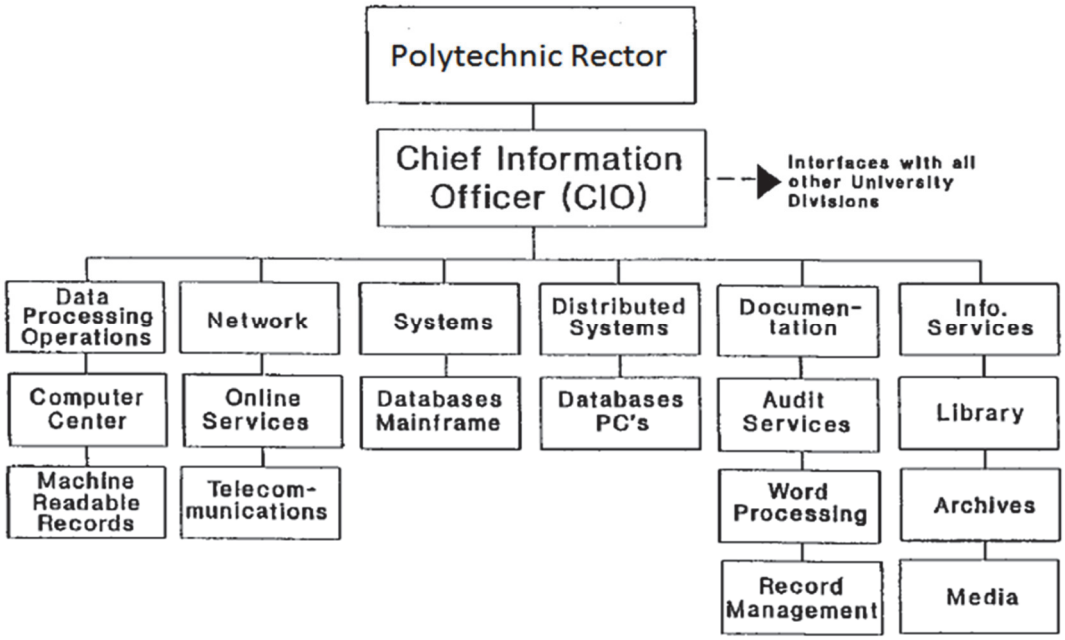

Figure 4. Integrated information systems & services division: The information utility model
(Source : ***Library Trends by Richard M. Kesner)***

Unfortunately, the appointment of a CIO and the reorganization of information technology will not in and of itself lead to a successful implementation. Ultimately, the corporate culture of the information utility team must also change. Individually, players must become more flexible and proactive in their approach to their respective assignments.

Collectively they must commit themselves to total quality, which in turn means an acceptance of the team's success over individual recognition (Buckland et al., 1991; Garvin, 1987, pp. 101-09; Lin Kow. 1989, pp. 12-14). They must also act entrepreneurially, seeking out opportunities to maximize the benefit of the I/U through the innovative use of new technologies and skilful change management.

This last characteristic is particularly important in an environment where teamwork will cut across organizational lines, where users "own" the data and may also control their own hardware and software, and where those in the trenches, not the technologists, are the experts in specific applications. Under these conditions, process management will require the nurturing of alliances where the common ground is defined by corporate strategic objectives and personal relationships rather than by a rigorous reporting structure. Indeed, we are entering an era of individual employee empowerment where organizational "authority" is being replaced functionally by informal, complex, overlapping, reciprocal arrangements. While formal organizational and reporting structures will continue to exist, most of the activity will come from intra- and interdepartmental coalitions of knowledge workers. In this setting, decisions and associated actions will emerge from negotiation processes where all participants believe that they have a stake and will therefore benefit from a positive outcome (on the theme of influencing others within a complex organizational structure, see Cohen & Bradford, 1990; 1984). Similarly, the effective manager will be measured in terms of his/ her success as a negotiator, facilitator, catalyst, and team builder.

To Serve the Knowledge Worker

Given this view of the modern organization and information resource management operations, it is clear that the library administrator will possess a different skill base than has hitherto been the case. More importantly, the librarian will come to view his/her services as an integral part of those offered by the information utility. In so doing, the librarian will continue to serve as a role model to other IRM professionals in his/her understanding of the "knowledge worker" whose information resource and service requirements in turn are the driving force behind the design and functionality of the information utility model.

Here again it is helpful to begin from the perspective of the information resource management dynamics of the workplace. The work process of the typical electronic office may be summarized as follows:

(1) raw data are created/collected-"input,"
(2) the data are enhanced through value-added services-"data processing applications,"
(3) the enhanced data-"information"-are distributed via electronic networks to the desktop,
(4) the information is then received and manipulated by a worker or a work process, and
(5) the resulting creation is a "knowledge product" that exists for a specific purpose in time (see Figure 1 for a graphical representation of these relationships).

To achieve these ends, the knowledge worker needs access to a complex array of information resources, including printed publications of all kinds, information systems documentation, bibliographic and other information utilities, proprietary and public databases, and the thoughts and voices of colleagues. But access alone is not enough.

To be "empowered" and indeed to add value to the information at hand, the knowledge worker requires independent data processing capabilities, including a personal computer workstation with local and wide-area network connectivity to both in-house library databases and holding lists, and external information resources, relational database tools, a multimedia receipt and transmission capacity, and even perhaps artificial-intelligence based information resource management applications. With this functionality at hand, the worker can more readily address his/her self- managed assignments, adding value to the greater organization's products and services.

The knowledge-worker scenario described here reflects a growing desire within the modern organization to enhance the productivity and corporate contribution of each individual employee. To achieve this end, information services will be tailored to the specific needs of the worker and readily accessible, preferably at the desktop. The implications of this design for the traditionally defined library are immense. No longer can the library view itself as an institution only to be "visited" on site by its customers. It will instead represent a series of interrelated services that are to as great an extent as possible available at the user's desktop. It will look for innovative ways of promoting and providing value-added access to its information resources. Finally it will tailor its activities in concert with the strategic and tactical direction of its parent institution.

To do so it will need to complement the functions of other information utility players.

Implicit in the aforementioned circumstances is a great deal of role redefinition, cross-training, and resource sharing within the units of the information utility. These types of activities disturb established paradigms of library operations and funding. Indeed, they call for a different approach to library administration, one that seeks to dissolve many of the self-imposed distinctions that separate some librarians from their information service professional colleagues. In brief, library administrators should invest in the information utility model, joining the rest of their organization's information resource management.

Integrating the Library into the Information Utility

At the core of the information utility model runs the theme of customer service. The I/U exists to place a wide range of strategic information resources, tools, and capabilities in the hands of end- users. Its mode of operation ought to be proactive, anticipating the requirements of its customers and building the infrastructure and support systems to address those needs. In the same spirit, it will continuously scan the information technology horizon in search of new applications that might benefit enterprise performance. The placement of library services within this context is essential for the success of the enterprise. However, the operationalization of this stratagem is perhaps less obvious.

To begin, let us consider the functional structure of the information utility in greater detail (see Figure 5).

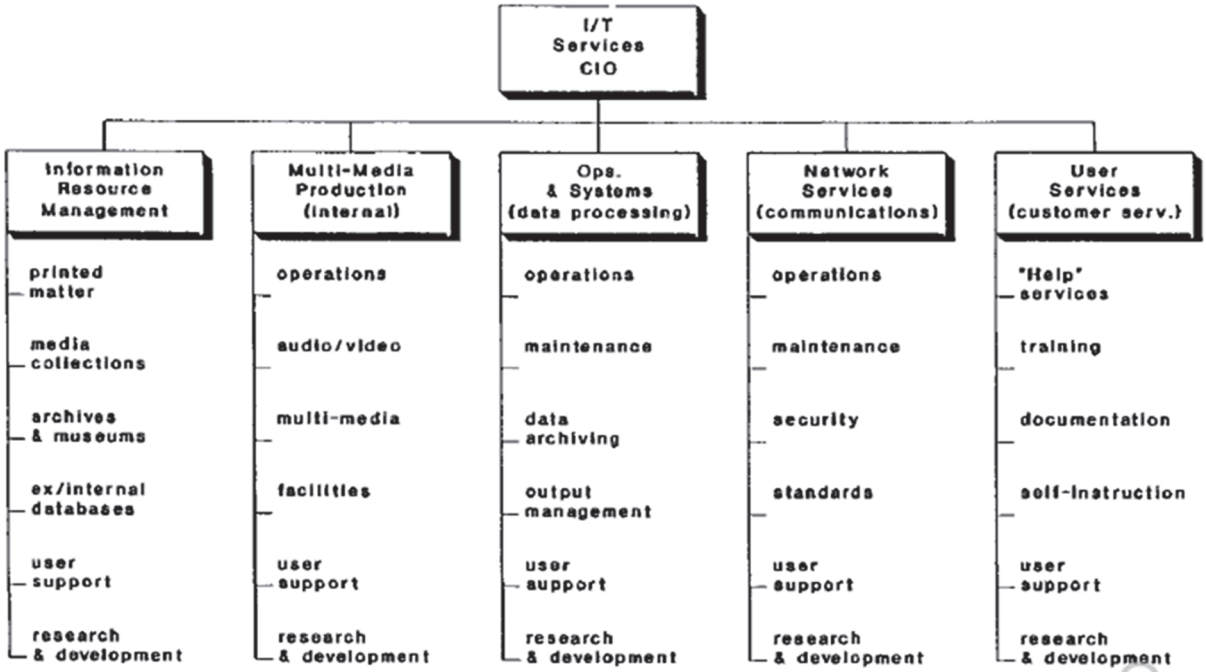

Figure 5. The Information Utility Model. A functional representation of structure
(Source: ***Library Trends by Richard M. Kesner)***

The I/U brings together all of the organization's traditionally defined information and data processing services, including information resource management; media production (e.g., video, audio, graphics, and multimedia); computer operations; information systems development; implementation, and maintenance; voice/data communications; and "end-user" support. The latter function is often referred to as the organization's "information center," providing personal computer training, documentation, and support. This "center" might also include a "help desk" or some other online service for customer assistance and 1/U problem resolution. The library reference function is a key offering under the "user services" rubric. Though it typically involves personal interaction with a library specialist, more recent designs include automated services.

Certain activities cut across the entire organization. For instance, each and every unit is involved in customer support. To deliver this service, all information utility departments will engage in some degree of documentation, user training, and online customer assistance-either via the phone system or through a computer-based help desk. Bibliographic databases and other electronic reference utilities may also flesh out this function. Each unit also participates in I/U research and development, encompassing such activities as the review of function-specific technologies for use within the organization, the evaluation of opportunities for the enhancement of existing or the development of new services, and the consideration of cooperative ventures within the I/U or between the I/U and its customers. To coordinate all of these ventures, the team will come together, both formally and informally, on a regular basis to exchange information and revise plans.

At first blush, the information utility concept may appear to be merely a convenient handle for a group of related though distinct services. Indeed, each I/U component may continue to be organized and staffed along well-established lines. However, the significance and true benefit in applying the I/U model comes from the critical mass of resources and the opportunities for a more efficient and economical coordination of IRM activities created by its establishment. From the library administrator's perspective, the return on the investment in

an I/U comes in many forms:

1. better overall customer service and support;
2. the delivery of library services to the desk top;
3. integration of other information technologies with library services for better overall use of corporate information services;
4. greater recognition of the library and the I/U's contribution to the parent organization's mission, goals, and objectives and hence more clout;
5. access to new information technologies;
6. better overall resource planning; and
7. staff cross training and cross fertilization.

By exploring these points in greater detail, the author will suggest how a library organization might begin its integration into the information utility.

From the outset, a rigorous planning process is critical to the success of the undertaking. Since in all likelihood the parent institution recognizes the need for a strategic approach to the management of its own affairs, information utility personnel would be well advised to follow a similar course. Such a process will cause them to prioritize their activities in light of the institution's goals and objectives. It will ensure expenditure of resources in accordance with these corporate priorities and similarly that they identify barriers to the accomplishment of mission-critical assignments. As players in these discussions, library personnel will help shape the direction of the I/U. Of equal importance, they will spend concentrated periods of time with their information resource management colleagues. The ensuing interdepartmental communication and cross fertilization of ideas will stengthen the I/U plan as well as contribute to the evolution of a shared view of corporate information technology priorities.

The coherence of the information resource management team's strategies is all the more desirable when one recognizes the interdependence of the information utility's service components. For example, if the I/U's plans call for online access to the library's automated systems, library personnel will work with their counterparts in computer operations and network services to ensure success. As part of this or any other systems implementation, the I/U will need to create documentation and training tools to complement the new installation. Since they will serve as the front line of support and problem resolution, the help desk staff will also be involved in this process. To keep the ongoing costs of the implementation within reasonable limits and to protect the organization's information assets, the I/U's technology standards and data security functions will also have a part to play.

Thus each integrative process undertaken by the information utility team helps to bring its resources and services closer together. The reciprocal relationship among players builds a mutual understanding of individual and operating unit capabilities. These exchanges also expand staff awareness to I/U potentialities. One could rightly observe that the greater organization could realize these same objectives through the cooperation of unintegrated information services. Historically, there is plenty of evidence to support this contention. However, within the I/U, the barriers to success are fewer in number and less formidable. Because the members of the I/U identify with the achievements of the whole, they have a greater stake in its accomplishments and are therefore more willing to provide the necessary value-added input.

Returning once again to the preceding example, online access to the organization's automated library system requires more than a bridge between that system and the corporate network. The interfaces will work efficiently so as not to degrade response time and hence try user

patience. Screen formats need to be "friendly" and make the best use of end-user workstations.

The connections between the library's automated and manual systems and between these tools and the actual servicing of customer requests will appear as seamless as possible. Quality user support and documentation are therefore paramount to the implementation's success. One could go on, but the point is that there are many milestones in the afore-mentioned process. Some of these milestones are best achieved by librarians while others should be assigned to non library members of the information utility team. The I/U possesses the critical mass of talent and expertise to get the job done.

Another clear advantage in the envisioned information utility alliance is the quality of customer service that the library staff brings to the mix of information resource management capabilities. Of all the IRM specialties, librarians are best prepared to listen to the customer and establish an accurate understanding of user needs. Too often the more technology oriented players of the I/U are so absorbed with the functionality of the computer hardware and software under consideration that they lose sight of the customer's requirements. By contrast, library personnel are adept at probing beneath the surface of a request and identifying the user's true need. If, through demonstration and direct involvement, this skill is transferred from the librarians to their colleagues, the I/U will achieve a higher rate of success in the delivery of products and services that meet and even anticipate customer requirements (see, for example, Davidow & Uttal, 1990; Buckland et al., 1991; Perry, 1991).

To achieve this end and to more generally integrate the information utility team, senior management will seize every opportunity to bring cross sections of information resource management professionals together. One obvious stratagem in this regard is to empower small groups of I/U players to review and reengineer customer services. By jointly analyzing such topics as "workstation support," "project management," "database administration," and "collection (both paper and electronic) development," librarians, technologists, and end-users can come together to better understand each other and how best to leverage the organization's information resources. In the same vein, librarians should participate in integrated information technology support, service, and training functions, and work with their colleagues on a uniform approach to the marketing and documentation of I/U services.

Ultimately, this approach will yield major benefits to all those involved. First and foremost, it will make the most out of the organization's considerable investment in information resources and technologies. The success of the information utility enterprise will win it the respect and the support-both political and financial- of the parent institution. Resource sharing within the I/U and the synergies afforded by a team approach to problem solving and project implementation will reduce costs and promote greater efficiency. Finally, in a world overtaken by rapid change, the I/U model provides a flexible framework within which innovation and teamwork are encouraged. The results should speak for themselves.

Critical Steps in Library Information Utility Integration

To conclude, the author offers the following critical success factors for library/information utility integration:

1. Reorganize-realign people and functions to optimize staff and information technology resource synergies.
2. Plan-a forward-looking strategic planning process will afford an ample opportunity for staff participation, idea sharing, and skill development. It will get the team behind the program because they will have had a part in its creation. Bear in mind that the plan is merely a tool to keep the information utility focused on priorities. It will remain flexible

and adaptable as circumstances and assumptions change.

3. Listen to your customers; become totally customer driven-this does not mean abdicate responsibility. Make certain that you possess customer support and an understanding of their expectations before you proceed.
4. Develop a total quality management culture-this point overlaps with number 3 above but is nevertheless essential. It will provide many opportunities for the library and other information resource management players to share ideas and work on the improvement of services.
5. Hell, desk-involve the library staff in the help desk/information center function.
6. Training and documentation-involve the library staff in the development of marketing and training services and materials.
7. Staff development-devise individual strategies for each in-formation utility player that allows for the development of skills and experiences in line with overall I/U requirements. Be sure to expose as broad a spectrum of the staff as is practical to potentially applicable information technology innovations and new management ideas.
8. Service/project sharing-develop project work plans that draw upon the diverse talents of the I/U to address the objectives outlined in the corporation's overall IRM strategy.
9. Innovate and experiment; take risks-history has taught us that inaction may be as costly as action. Do not rely on the paradigms of the past. Continue to challenge past practices and test new options.

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