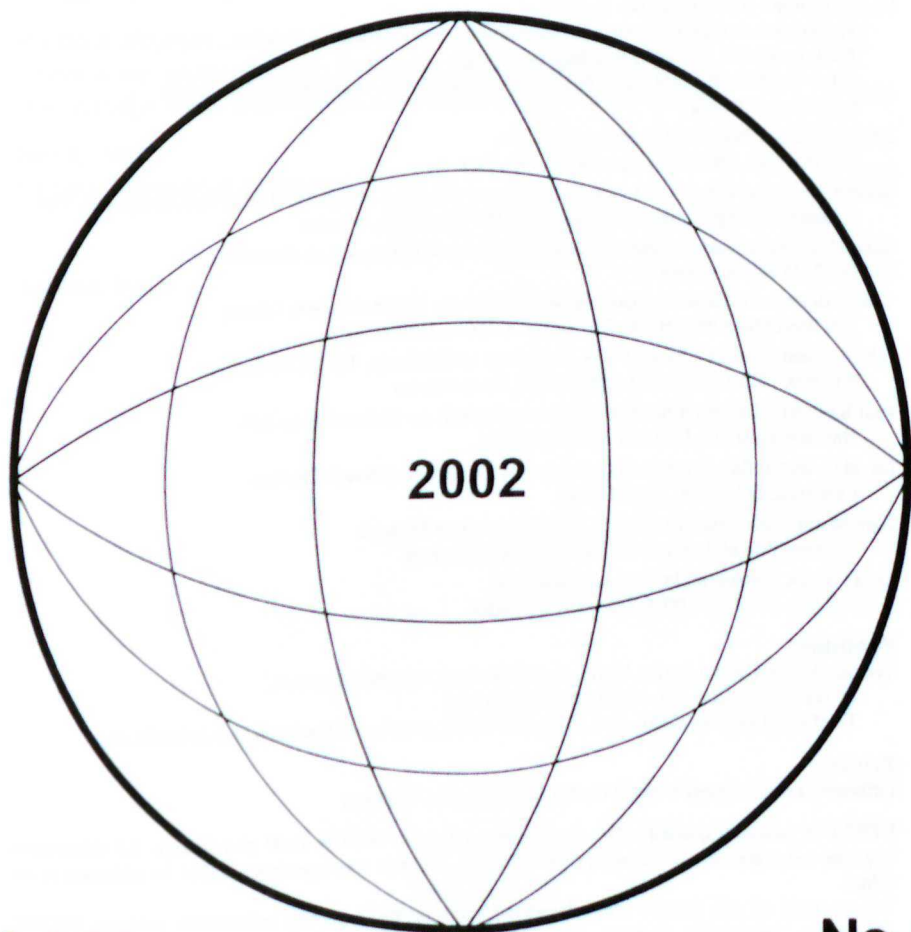


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Editorial Board:

Hans-Christoph Hobohm (Editor in chief)

Fachbereich Archiv-Bibliothek-Dokumentation, Fachhochschule Potsdam,

PO-Box 600608, D-14406 Potsdam, Germany.

Tel.: +49 (0)331 580 1514, Fax: +49 (0)331 580 1599; e-mail: Hobohm@FH-Potsdam.de

<http://inspel.ifla.org>

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Cromwell Road, London SW7 2RL, United Kingdom

Lena Olsson, Stockholm Institute of Education
P.O.Box 34103, S-10026 Stockholm, Sweden

Publisher:

Technische Universität Berlin, Universitätsbibliothek, Abt. Publikationen,

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**LIBRARIES AND LIBRARIANS: THE KEY TO GROWTH
AND SURVIVAL?
THE RELATIONSHIP BETWEEN CORPORATE
PRODUCTIVITY AND INFORMATION SERVICES***

By Yvonne J. Chandler, Margaret Aby Carroll

Introduction

The relationship between productivity and the existence of a library or information center and/or librarian or other information agents has been the topic of prior research across disciplines as diverse as economics, social sciences, engineering, as well as library and information science. Most of the research by library and information scientists on this topic was conducted between 1975 and 1995. A substantial portion of that research focuses on calculating the value of information and information services. Other studies approach the issue by exploring the impact of information services and information professionals on creativity and innovation, scientifically proven contributing factors to productivity.

In 1979 two things happened to change the focus of research. First, growth in United States (US) productivity, measured as US gross domestic production per employed person, hit an all-time low. Second, it became evident that traditional workforce productivity measures, formulated during the industrial age, fail in the information age. Today's workforce, largely a new class of professionals known as *knowledge workers*, spends a large amount of its time creating, using and communicating knowledge. Currently knowledge workers spend an average of 9.25 hours per week gathering and analyzing data (Strouse, 2001). Identifying techniques for improving productivity of knowledge workers becomes increasingly important since improving knowledge worker productivity should improve an organization's productivity. Subsequent development of econometric calculations dealing with the overall effect of information as a factor in industrial productivity yield consistent results from a variety of research studies (Koenig, 2000).

There are a number of ways in which productivity can be defined because of the many potential variables. Revenue per employee is a commonly used metric in

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the business sector, particularly the software/technology industry to measure profits, operational efficiency, growth and productivity (Hadley, 2002). It is one of the most important benchmarks used by companies to compare their performance to competitor and peers because companies with high revenue per employee ratios demonstrate a tendency to better utilize their workforce (Software Success, 2002). Revenue per employee is defined as the amount of total revenues from all sources divided by the average number of employees both full and full-time equivalent. Average number of employees is defined as all employees during the revenue period (“From the Middleton,” 1997).

This study uses the following formula published by the Bureau of Labor Statistics (referred to in Bearman, Guynup & Milevski, 1985) to develop a “revenue per employee” number to serve as the criteria for productivity measure.

$$\text{Productivity} = \frac{\text{Output (software/service revenue)}}{\text{Input (employees)}}$$

(Revenue/employee)

Where:

Output = Calendar year 2000 total worldwide software and service revenue
Source: Software Magazine 2001 Software 500 Methodology

Input = Calendar 2000 (year end) employees
Source: Software Magazine 2001 Software 500 Methodology

Information environment characteristics fostering productivity gradually emerge as research turns to user studies that focus on information seeking habits and information usage by workers. Studies by Koenig (1990) and Griffiths and King (1993) show that highly productive companies share information freely across the enterprise and their workers seek information from diverse external and internal sources. Researchers from a variety of disciplines, particularly those investigating creativity and innovation, report substantially the same results. Findings on the characteristics of productive information workers are consistent with and complementary to these information environment findings.

Unfortunately, there remains no consensus as to which services provided by libraries or information centers and librarians at highly productive companies make the greatest contribution. Lastly, there is no research into the impact of either internets or intranets on a library or librarian’s contribution to productivity. Since it is known that libraries and librarians contribute to organizational productivity, then understanding characteristics of information agencies (libraries) and information agents (librarians) of highly productive companies should enable creation of an information environment that would support productivity

improvements. Improved productivity will ensure viability of both the sponsoring organization and its library and librarians.

This study will seek to answer the question, “Will an analysis of characteristics of libraries or information centers and librarians in highly productive companies yield operational models and standards that can improve their efficiency and effectiveness and their parent organization’s productivity?” If so, then models for optimum staffing, staff profiles, operational efficiencies, information products and tools, and information services best practices for software and services libraries and librarians can be developed in tandem with appropriate metrics and measurement techniques.

Review of Selected Literature

A number of studies examined the value and contribution of library and information centers, information professionals, and information content to company performance, health and success. Highly productive companies require a steady stream of actionable information to sustain a competitive advantage (Davidow & Malone, 1999). The more competitive the market place, the greater the information need, and the greater the investment in information services though there is evidence that companies consistently underinvest in information resources (Koenig, 1999).

Companies do differ in their ability to produce productivity gains from information resource investment. Industries considered information intensive such as financial services are more likely to improve their productivity than non-information intensive ones such as manufacturing (Harris & Katz, 1991). Internal and external factors affect a company’s productivity gains. Internal factors may be top management’s commitment, a company’s prior experience and satisfaction with information investments, and company politics. External factors can include marketplace, a company’s financial standing prior to the investment, and the company’s size and ability to benefit from economies of scale (Olson & Weill, 1989).

Literature on the relation of libraries, library services and productivity is scattered among various disciplines. In the information and library science field, the earliest research focuses on the value of information. It either describes the concept of value and ways to measure it or describes the calculation of the value of information products and service using those measurements (Griffiths, 1982). The definition of productivity and its measurement are also considered because of the close relationship to measures for valuing information.

Value assessment from the user perspective was advanced by the work of King et al during a study on the value of the Energy Database (as referred to in Griffiths, 1982). Three views of user perspective valuation were defined: 1) *input perspective* or what users would pay for information and its products or services; 2) *process perspective* or how the use of information affects works; 3) *output perspective* or how work affects the environment as a whole.

Graham and Weil's 1975 Exxon Research Center study is considered the seminal work on valuing information services (Koenig, 2000). This study evaluated the benefit of the service provided *and* derived a value of information something that had never been done before. 62% of Exxon researchers reported that information events recorded over twenty randomly selected days were of benefit and 2% of the participants quantified that value. Graham and Weil were able to extrapolate an 11:1 ratio of benefits to cost of providing the information services. This study was followed by a similar but larger study at NASA in the late 1970s.

Both of these studies developed a cost/benefit ratio comparing the benefits likely to be saved or cost savings to product costs. Valuation methodologies of this type were most fully developed and widely applied by King Research in the late 1970s and 1980s. A comprehensive review of this research is available in Griffiths and King, (1993) Special Libraries: Increasing the Information Edge. The business and management literature also contains reviews of research conducted on the relationship between information and productivity, but with a focus on the impact of information on innovation and research (Buder, 1999).

Two factors led to a change in direction of research examining the relationship between information services and productivity in the late seventies. First, the growth rate of United States (US) domestic production per employed person hit an all-time low. Bearman et al. (1985) cite contributing factors for the decline such as aging industrial plants, a decline in research and development spending, growth of the service sector, the end of the shift from agriculture, an influx of inexperienced people into the workforce, and management attention to return on equity rather to productivity. Second, it became evident that traditional workforce productivity measures, formulated during the industrial age, and based on traditional production processes and techniques, failed in the information age.

The workforce is now comprised largely of a new class of professionals known as *knowledge workers*, a term first coined by Peter Drucker in 1959 (Drucker, 1994). Since knowledge workers spend a large amount of their time, 9.25 hours a week (Strouse, 2001) creating, using and communicating knowledge, improving knowledge workers' productivity should improve an organization's productivity.

Productivity is defined as “a concept that expresses the relationship between the quantity of goods and services produced—output, and the quantity of labor, capital, land, energy, and other resources that produced it--input” (Bearman et al. 1985, p. 371). Griffiths & King (1993), when referring to increased productivity, state, “this involves increasing profits” (p.28). Many variables affect productivity, such as economic performance, marketing and advertising, the customer base, and the number or diversity of business segments in a company. These factors and their effect will vary by company or industry. In this study the productivity measure of revenue per employee will be used to define highly productive companies.

Research and development (R&D) units have most often been the subject of studies examining information environments in productive corporations. Orphen’s 1985 study (referred to in Koenig, 2000) reveals that productive organizations are populated with managers displaying the following behaviors:

- Literature and references were routed to scientific and technical staff
- Staff was directed to use scientific and technical information (STI) and to purchase STI services.
- Professional publication, networking, and continuing education of staff were encouraged

Koenig (1990, 2000) developed, as part of a study, a generalized list of characteristics of the more highly productive pharmaceutical companies. They are:

- Greater openness to outside information - Researchers attended more external meetings at which information was *exchanged*, they were encouraged to not only keep current in their field, but to see information beyond their current assignment, and professional activities were supported.
- Less concern with protecting proprietary information – Publication after a patent had been granted and published was encouraged, and the company was perceived as typical rather than well above average in concern for protecting proprietary information
- Greater information systems development effort - More time was spent developing more sophisticated information systems by library or information center staff.
- Greater end-user use of information systems and more encouragement of browsing and serendipity – The corporate research culture encourages researchers to spend time in the library or information center and to browse sources themselves.

- Greater technical and subject sophistication of the information services staff – Staff conducts the more complex technical and subject research while the researchers do the routine literature searches.
- Relative unobtrusiveness of managerial structure and status indicators in the Research & Development environment – There is an egalitarian culture.

Researchers from a variety of disciplines investigating creativity and innovation report substantially the same findings. Studies show that information access, contact with external information sources, and diversity of information sources are key factors to successful innovation. Utterback's (referred to by Koenig, 2000) review of management literature cites consistent communication as the primary contributing factor to innovation. Wolek and Griffith's (referred to by Koenig, 2000) review of sociology literature reaches the same conclusion. McConnell (referred to by Koenig, 2000) credits the flow of formal and informal information up, down and across the enterprise as the source for improvements in operational productivity. Kanter, after investigating innovations by middle managers, formulated recommendations for organizational support of creativity that included "a free and somewhat random flow of information" (referred to by Koenig, 2000, p. 91). She also asserts that a manager's needs are information, resources and support, in that order.

Research has developed a positive correlation between professional level employees' productivity and the amount of time spent reading. Koenig (1999) cites research by Mondschein, Ginman, King Research, Inc. and others to validate this theme of greater access to and use of information services by more productive individuals across all findings.

Knowledge workers consistently spend about 20-25% of their time to access and use information. Also, individuals intuitively cease information seeking after spending 20-25% of their time doing so because a) other work-related tasks have become more important and b) they perceive further effort will yield insufficient results to warrant more time expenditure. A lower percentage would indicate the desired information is found. Since this percentage remains constant across companies and industries, the correct information or all the required information required may not be consistently found. It makes sense for an employer to provide the most relevant information resources possible to increase effectiveness of employees information seeking.

Various approaches have been used to calculate the effect of information as a factor in industrial productivity. Hayes and Erickson (referred to in Koenig, 2000) used the Cobb-Douglas formula in 1982. Braunstein (referred to in Koenig, 2000) incorporated the constant elasticity of substitution and the translog production

functions into the Cobb-Douglas formula in 1985 to produce a consistent 2.34:1 ratio, e.g. each unit of information service input yields 2.34 units of output value. King Research, Inc.'s ratio of 2.2:1 for the Department of Energy's Energy Database and a 1.98:1 ratio for NASA's information services are very similar though they did not use the Cobb-Douglas formula in any form.

Matarazzo, Prusak and Gauthier in 1990 and Matarazzo and Prusak in 1995 conducted studies on the value senior executives placed on information centers and information professionals. They used a trend analysis technique to profile corporate libraries. Results reveal the value or impact of the library or information center increases when it is closely aligned with the more strategic pieces of the parent organization. A deep understanding of the parent's business and industry and market in which it operates is essential to delivering more complex services such as data analysis. Data analysis was cited as a primary example of a skill that could be developed to enhance the library or information center's contribution to its parent.

Other findings include greater end-user access to information which then requires increased training on selection and use of information resources; reduction in size or stagnant growth of library or information center staff, space requirements, and budgets; adoption by information professionals of a more proactive stance in delivering information. However, no determination was made as to which factors contribute most to corporate productivity (Matarazzo et al. 1999; Matarazzo and Prusak, 1999).

Methodology

Unlike companies in the industrial age when hard assets represented value, software and service companies' value in the information age resides almost exclusively in intellectual assets. The extraordinary degree to which knowledge comprises software and services working capital, coupled with the fact that this industry has not been the focus of prior studies, makes them an ideal and interesting candidate for this study. "Because knowledge has become the single most important factor of production, managing intellectual assets has become the single most important task of business", Steward (1997, p. xiii).

The software and services companies listed in the Software Magazine's 2001 Software 500, serves as the survey population for this study. This list is published annually in the June/July issue, and is available electronically on the internet (Frye, 2002). Public and private companies selling business software and services across numerous diverse industries are ranked according to *total worldwide software and services revenue* for calendar year 2000. This figure is used by Software Magazine in determining rank rather than total corporate revenue

because some companies have other lines of business. In calculating revenue per employee for purposes of this study, total corporate revenue was used since library and information centers and information professionals serve the entire company. *Software Magazine's* annual vendor survey, public documents, press releases, SEC filings, and industry analysts served as the source for the employee and financial information.

Data was collected using an email survey instrument. The survey could not be anonymous since data was correlated according to the productivity measure of revenue per employee ranking of respondent. To mitigate participant concern about release of competitive intelligence, individual responses are known only to the researchers. The findings are presented only in aggregate form with individual responses not attributed to any named person or company.

The survey was structured to identify companies that had libraries, librarians or information centers. Participants from companies without libraries, librarians or information centers were asked to identify content purchased and where the company got the content it used. Companies with libraries, librarians or information centers were asked twenty questions. Since the research objectives were to define characteristics of library or information centers and librarians, questions were aggregated into the following segments: General Information, the Parent Organization, the Information Staff, the Library or Information Center Organization and Company Return on Investment and Customers. Types of data collected include:

Library or Information Center -

- Number and placement of library or information center(s) within the organization
- Number and placement of librarian or information professional(s) within the organization
- Reporting structure for highest ranking library or information center staffer
- Staffing by category of work (professional, para-professional, clerical or technical), employee status (full, part-time or contractor/outsourced), and experience
- Staff professional development requirements
- Source of funding and allocation
- Services offered in the physical location
- Services offered in a virtual location
- Content purchased
- Measures of return on investment
- Ranked (by strategic value) customer segments

- Ratio of staff to potential and actual customer base

Librarian or Information Professional -

- Level of Education
- Tenure at current organization
- Prior information industry experience
- Title
- Professional development activities

The survey questionnaire was pre-tested by four Fortune 500 corporate information professionals in the Dallas/Ft. Worth metroplex area. These professionals have over 80 years of combined information industry experience. They offered a number of suggestions that contributed to the general organization of the survey. Recommendations included clarifying desired context of responses from the perspective of the individual or the company, categorizing multiple data points in single questions and structuring the survey so that participants without libraries, information centers or information professionals completed fewer questions.

An Access database of the 500 largest Software companies was constructed to include ranking, company name, contact name, title, telephone number, email address, mailing address, revenue, headcount and revenue per employee. Since the primary goal of this research is to profile librarians and existing library or information center operations, surveys were sent to the library or information center director or manager in a firm. Library professionals would be most knowledgeable and would be more likely to respond to the survey. Company contact names were developed using the Special Libraries Association Who's Who member directory and the Directory of Special Libraries and Information Centers. If no library professional could be identified, surveys were sent to administrators or officers of a companies who held the position of chief intelligence officer (CIO), chief technology officer (CTO), chief knowledge officer (CKO), or marketing manager.

All survey respondents were asked to provide title and area of responsibility. Participants from companies with a library or information center or information professionals (defined as individuals with Masters of Library Science, Masters of Information Science or Masters of Library and Information Science) were immediately redirected to the Parent Organization section which begins the principle twenty-question survey. Participants with no library or information center or librarians were asked to describe the information content used by their company and how they retrieve that information.

A total of 500 emails were sent. Each email contained a brief introduction of the investigator, the purpose and scope of the research, and the survey. To ensure identification of the source of a response, each survey carried the recipient's Software 500 rank number. Surveys were not sent to organizations if a contact was not identified. A number of surveys were returned as undeliverable for a variety of reasons. Attempts were made to identify an alternative contact and, if successful, the survey was resent. A "second request" was sent to recipients with valid addresses who had not responded within five days. The initial analysis of the survey responses found a total of 25 surveys have been returned to date of which 23 were usable for a 4.6% response rate. Corrected names, titles, and email addresses are being compiled for emails from the initial mailing that were returned as undeliverable. Final results will be reported at the 2002 Special Libraries Annual Conference in Los Angeles, Calif.

Results and Discussion

Preliminary Findings

Analysis of the responses from the first mailing yield interesting findings concerning companies with formal libraries or information centers and those without a traditional library or information center. Of the twenty-three respondents to the survey, fifteen of the software companies reported they have no library or information center. Fourteen of these responding companies do not employ a librarian or information professional with a master's degree in library or information science. One company did state that while there is no physical library or information center, there is an enterprise information resource that includes some of the materials typically found in a library. They also employ an individual to assist employees with their information needs.

The information content used and purchased by software and services companies with and without libraries or information centers was very similar. Table 1 presents a listing of the content identified by both groups. Over three-fourths of both groups of respondents cited business and management resources, directories, journals and magazines, market research reports and online services. Software and services companies *without* libraries, information centers, or information professionals, also responded that they purchased software (81.3%). The responding companies *with* a library also purchase Wall Street Analyst reports and benchmarking studies.

Table 1

Content Use By Companies With And Without Libraries Or Information Centers

Type of Content		<u>Organizations w/no Library</u>	<u>Organizations w/ a Library</u>
Analyst (Wall Street)Reports	YES	68.8	85.7
	NO	31.3	14.3
Benchmarking Studies	YES	37.5	71.4
	NO	62.5	28.6
Business/Management Resources	YES	81.3	85.7
	NO	18.0	14.3
Books/CDs/DVDs	YES	68.8	71.4
	NO	31.3	28.6
Conference Proceedings	YES	56.3	57.1
	NO	43.8	42.9
Directories	YES	75.0	85.7
	NO	25.0	14.3
Documentation	YES	50.0	42.9
	NO	50.0	57.1
e-Based Subscriptions (such as eZines)	YES	56.3	71.4
	NO	43.8	28.6
Journals/Magazines	YES	93.8	85.7
	NO	6.3	14.3
Market Research Reports	YES	87.5	100.0
	NO	12.5	00.0
Newspapers	YES	56.3	85.7
	NO	43.8	14.3
Online Services (e.g. Dow Jones, Bloomberg)	YES	75.0	85.7
	NO	25.0	14.3
Software	YES	81.3	42.9
	NO	18.8	57.1
Standards	YES	31.3	42.9
	NO	68.8	57.1
Technical Reports or White Papers	YES	75.0	57.1
	NO	25.0	42.9
Technical Certification Practice Exams	YES	18.8	28.6
	NO	81.3	71.4

The software and services companies *without* a library or formal information provider find and retrieve their information from the internet (82.4%), market research companies (88.2%), professional or industry associations (88.2), and

from e-based content vendors (70.6%). Although they do not have a traditional corporate library or information center or a trained librarian, these companies are able to meet their information needs. Much of the critical information content used in the software business is available on the Internet, through online vendors, and through other digital technologies. A great deal of this information is available instantaneously through digital transmission.

It is interesting that only slightly more than one-half of these companies use a formalized information system or intermediary such as a consultant (62.5%) or information broker (52.9%). Online access to new and more sophisticated information technologies, the internet, databases, and other digitally published resources is advantageous for an organization without a library or information intermediary, enabling them to meet the business information needs of these users.

Table 2

Where do organizations without libraries get information content?

Content Organizations (n = 17)	Yes	No
Consultants	62.5	37.5
e-Based Online Content Vendors (e.g., Dunn & Bradstreet, Dow Jones, etc.)	70.6	29.4
Information Broker or Independent Researcher/Research Firm	52.9	47.1
Internet	82.4	17.6
Market Research Companies (e.g., Gartner, IDC, Giga)	88.2	11.8
Professional or Industry Association	88.2	11.8
Standards Organization	52.9	47.1

Preliminary findings from the survey show that 30.4% of the responding twenty-three companies have a library or information center. Five of the seven libraries noted that their senior information professional reports to administrators in the marketing departments of their companies. Little has changed in this aspect of a library or information center manager’s reporting structure. Only three out of one hundred sixty-four librarians participating in a 1990 survey reported to someone with a library or information center background. (Matarazzo et al., 1999). Almost half (42.9%) of the library and information centers are funded as part of the operations budget of the company, while two (28.6%) are considered corporate overhead.

Respondents from companies with libraries or information centers report offering many services to their customers. Table 3 lists services cited. The majority of noted services provide access to information resources or content such as company information (85.7%), journals and newspapers (71.4%), information services such as conducting business or corporate intelligence research (71.4%), researching special projects (71.4), or providing instruction on use of information resources (71.4). As a result of the introduction of digital information technologies and web-based information resources, the information professional's role as intermediary has become more important. Training users on information tools and their use has become an important service. Information professionals now find themselves playing the role of facilitator and trainer as opposed to the past emphasis of information provider. (Strouse, et al, 2001) The librarians also report providing more in depth research services, including primary research and quantitative analysis as a result of more accessibility to information resources through online technologies.

Services offered by a librarian, library or information centers were most valuable to company executives and to employees in the marketing, consulting, and sales departments. Products and services most requested were market analyst research, financial reports or company information and competitor tracking.

Table 3

Services Offered By The Library Or Information Center

<u>Services</u>	<u>Percentage</u>
Circulation – Content	
Journals	71.4
Newspapers	71.4
Content Management	
Develop and/or manage internally developed databases such as technical reports or training materials	57.1
Manage journal subscription for the library or information center	57.1
Purchase content held or managed by the library or information center	57.1
Reference / Research	
Conduct business or competitive intelligence to support strategic/tactical decision making	71.4
Company information – public and private – national and international	85.7
Maintain general overall awareness (e.g. market conditions, customer needs, etc.)	71.4
On demand research including searching online databases, the Internet or other specialized resources	71.4

Research to support special project assignments such as competitive reviews	71.4
Targeted news services (selective dissemination of information) that distributes or circulates (electronically or in hard copy) articles, market research or other focused content	71.4
Ready reference	71.4
Services	
Reading Room	57.1
Technology / Tools	
Develop and/or maintain an information portal on the organization's intranet	57.1
Training	
General instruction on selection and use of appropriate library or information center managed information resources	71.4
Instruction on use of targeted resources for specific end results (e.g., use of market research to build on competitive advantage)	57.1

The companies with libraries do report participation in the development and maintenance of their firm's intranet. Developing, creating, and managing information content for the company intranet allows information professionals to bring information closer to the point of need of users. With intranet access more relevant information is delivered to company users at their convenience, which potentially can be 24 hours a day, seven days of the week 365 days a year. Access to information on the intranet makes resources accessible to formerly underserved and remote users.

Table 4 lists services or content that these libraries offer on the company intranet.

Table 4

Information Services Or Content On The Library Or Information Center Intranet

Services or Content	
Access to external information databases (e.g. Factiva.com)	85.7
Analyst (Wall Street) Reports	57.1
Company/Industry information (companies outside of organization)	71.4
Links or pointers to selected Internet sites	71.4
Links or pointers to other internal intranet sites (e.g. product group sites)	71.4
Market research reports	71.4
Reference or research request forms	71.4
Topic pages aggregating resources for a specific audience	71.4

Information and services accessible from the company intranet include access to external information databases, company and industry information, links to other internet and intranet sites, and market research reports. The intranet also serves as a two-way communication link with the library or information center's customers.

71.4% of the respondents report a form to request research is also accessible from their firm’s intranet.

Preliminary findings reported in Table 5 indicate that demonstrating return on investment (ROI) continues to be a challenge for libraries and information centers. The measurement of ROI is something that corporate executive use to determine the value of any business segment to the organization. Demonstrating ROI allows information center customers and corporate management to understand the benefits received from the corporate library or information centers staff, resources, and services. Respondents most frequently (71.4%) report a traditional measure, collecting and reporting customer and staff interactions, to upper management to demonstrate return on investment to upper management. While this metric demonstrates usage, it does not serve as an indicator of the *value* of library or information center services. Other traditional measures used somewhat frequently (42.9%), are customer circulation statistics and savings from consolidated purchasing. User time saved, which can be converted to a dollar savings to illustrate a bottom line contribution, are also used only somewhat frequently (42.9%) while a measure with great impact, sales attributed to library services, is used infrequently (28.6%).

Table 5

How Libraries Demonstrate Return On Investment To Upper Management

<u>ROI Data</u>	Yes	No
Organizations (n=7)		
Customer circulation statistics	42.9	57.1
Customer & staff interactions	71.4	28.6
Sales attributed to library services	28.6	71.4
Savings in consolidated buying	42.9	57.1
User time saved	42.9	57.1
Other (Intranet usage & customer Satisfaction survey)	8.7	82.6

SUMMARY, MAJOR FINDINGS, AND RECOMMENDATIONS FOR FURTHER RESEARCH

Summary

A body of research across several disciplines firmly establishes a relationship between corporate productivity and information services. Access to information and the flow of information positively impacts productivity, even though most corporations historically underinvest in their information environment.

The more egalitarian the culture, the greater the sharing of information and knowledge. In fact, emphasizing the proprietary nature of information tends to be counterproductive. This is especially true in more information-intensive industries.

A review of the characteristics of knowledge workers tells us that the way to increase their productivity is to increase the effectiveness of their information and knowledge seeking. Also, the degree to which information systems are used directly correlates with organizational productivity.

Little recent research has been done on the relationship of productivity and libraries and librarians, and nothing of consequence since the rise of the World Wide Web (WWW) and intranets. Preliminary findings from this study do not reveal specific services unique to highly productive companies. They do show that new technologies such as the internet, the prevalence of sophisticated information systems, and the ready availability of the information needed by software and services company employees in e-format have enabled direct access to the information required in software and services companies.

Larger companies with higher revenue per employee rates are making the investment in formal information services organizations but smaller companies can produce high revenue per employee rates without formal information services. Information professionals in company libraries are utilizing their company's intranet to deliver resources and to communicate with their customers.

“The only irreplaceable capital an organization possesses is the knowledge and ability of its people. The productivity of that capital depends on how effectively people share their competence with those who can use it.”

Andrew Carnegie
Source: Stewart (1997 p. 128)

Recommendations for Further Research

Based on preliminary findings, an alternative measure of productivity, profit per employee, should be the measure of productivity in future studies to account for the wide range of the variable, number of employees. Median revenue per employee among private software firms under \$25 million revenue is \$108,173 vs. \$207,290 for the top eleven software companies, a 92% difference (Hadley, 2002). Yet a comparison of the under \$25 million firms' profit per employee of \$7,979 to the \$9,009 profit per employee of the top eleven software companies produces only a 13% delta. The profit per employee would produce a more succinct peer to peer company comparison.

Reproduction of this study in a second information intensive industry segment such as the legal profession could produce additional data. The data could be compared to, and possibly aggregated with, the software and services industry data to develop operational models and optimum services that would yield the greatest productivity gains for companies.

Final recommendations will be presented at the 2002 Special Libraries Association Annual Conference in Los Angeles, California.

References

- Bearman, T. C., Guynup, P. & Milevski, S. N. (1985). Information and productivity. *Journal of the American Society for Information Science* 36(6), 369-375.
- Buderi, R. (1999). In search of innovation. *Technology Review* 102(6), 42-49.
- Davidow, W. H. & Malone, M. S. (1999). Powers of information. In J. M. Matarazzo & S. D. Connolly (Eds.), Knowledge and special Libraries (pp. 49-67).
- Drucker, P. F. (1994). The age of social transformation. *The Atlantic Monthly*, 274 (5), 53-80.
- From the middleton group (1997, July). Forum, 182, 9.*
- Frye, C. (2001). New economy goes back to basics. *Software Magazine*, 21 (3), 48-76.
- Griffiths, J. M. (1982). The value of information and related systems, products and services. In M. E. Williams (Ed.). *Annual review of information science and technology*, 17, 269-284.

Griffiths, J. M. & King, D. W. (1993). *Special libraries: increasing the information edge*. Washington, D. C.: Special Libraries Association.

Hadley, B. (2002, Jan. 23). Revenue per employee. Retrieved March 14, 2002 from http://www.softwareceo.com/tip_archive/com012202.php.

Harris, S. E. & Katz, J. L. (1991) Firm size and the information technology investment intensity of life insurers. *MIS Quarterly*, 15, 333-52.

Koenig, M. E. D. (1990). The information and library environment and the productivity of research. *Inspel*, 24(4), 157-167.

Koenig, M. (1999). The importance of information services for productivity under-recognized and under-invested. In J. M. Matarazzo & S. D. Connolly (Eds.), *Knowledge and special libraries* (pp. 69-83). Boston: Butterworth-Heinemann.

Koenig, M. E. D. (2000). Information services and productivity: A backgrounder. In T. K. Srikantaiah & M. E. D. Koenig (Eds.), *Knowledge management for the information professional* (pp. 77-97). Medford, NJ: Information Today, Inc.

Matarazzo, J. M. & Prusak, L. (1999). The value of corporate libraries: Findings from a 1995 survey of senior management. In J. M. Matarazzo & S. D. Connolly (Eds.),

Knowledge and special libraries (pp. 141-156). Boston: Butterworth-Heinemann.

Matarazzo, J. M., Prusak, L. & Gauthier, M. R. (1999). Valuing corporate libraries: A survey of senior managers. In J. M. Matarazzo & S. D. Connolly (Eds.), *Knowledge and special libraries* (pp. 125-140). Boston: Butterworth-Heinemann.

Olson, M. H. & Weill, P. (1989). Managing investment in information technology: mini case examples and implications. *MIS Quarterly*, 13, 3-17.

Owens, I. & Wilson, T. D. [with assistance from Abell, A.] (1997, March). Information and business performance: a study of information systems and services in high-performing companies. *Journal of Librarianship and Information Science*, 29(1), 19-28.

Software Magazine (2001). The Software 500. Retrieved November 16, 2001, from: <http://www.softwaremag.com/L.cfm?Doc=SW500/index.html>.

Software Success (2002, Jan 15). Retrieved March 12, 2002, from: <http://www.softwareuccess.com/ssjsp/index.jsp>.

Stewart, T. A. (1997). *Intellectual Capital: The new wealth of organization*. New York: Doubleday.

Strouse, R. (2001). The Value of libraries: Justifying corporate information centers in the year of accountability. *Information About Information Briefing*, 4(10), 1-21.

Yvonne J. Chandler and Margaret Aby Carroll
University of North Texas
School of Library and Information Sciences
Post Office Box 311068
Denton, Texas 76203-1068
USA
(940) 565-3777 Office
(940) 566-4830 Home
chandler@lis.admin.unt.edu

APPENDIX A – SURVEY QUESTIONNAIRE

Introduction

My name is Margaret Carroll and I am a student in the Interdisciplinary Ph.D. Program in Information Science at the University of North Texas.

My research interest is the contribution information centers, libraries, and information professionals make to their organization's productivity. Objective of this survey is to construct profiles of these categories of information resources in Software Magazine's 2001 Software 500. It forms the basis of deeper research which will ultimately focus on causality factors influencing degree of contribution to productivity. Research in these areas could be used to develop staffing and resource allocation guidelines, services selection, and return on investment models.

While this survey is not anonymous to the researcher, findings will be presented in **aggregate form only** with individual responses not attributed to any named individual or organization. If you complete this survey, you are implying consent for the information to be used in aggregate form. You are free to withdraw your consent and cease participation at any time. Participants will receive a blind partner summary of findings.

If you have any questions you may contact me via email (mc0010@unt.edu) or by phone 817-797-3919. You can also ask questions of my faculty advisor, Dr. Yvonne Chandler, via email to chandler.lis.admin@unt.edu.

Submit the completed survey via email to mc0010@unt.edu. Reply within 1 week of receipt of the survey would greatly facilitate this project. Your contribution to this research is very much appreciated.

=====

General Information (001):

What is your title and area of responsibility?

Name/Title:	Primary area of responsibility:
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Does your organization have a Library or Information Center?

Yes:	Don't know:
No:	Other (specify): (Skip to Part A: Question #1 – you may forward survey to library info. Ctr. Director to complete.)

Does your organization have information professionals, individuals with Masters of Library Science, Masters of Information Science, or Masters of Library and Information Science, performing duties usually associated with librarians or research analysts?

Yes:	Don't know:
No:	Other (specify): (Skip to Part A: Question #1 – you may forward survey to library info. Ctr. Director to complete.)

What kind of content is purchased by your organization? **Check all that apply.**

Sources	Sources
Analyst (Wall St.) Reports	Online services (e.g. D & B, Dow Jones Interactive, NewsEdge, Lexis-Nexis)
Benchmarking studies	Software
Business / Management resources	Standards
Books / CDs / DVDs	Journals / Magazines
Conference Proceedings	Market Research Reports
Directories	Newspapers
Documentation	Technical Reports or White Papers
e-based subscriptions such as eZines	Technical certification practice exams
Other (specify):	

Where does your organization get the content it uses? **Check all that apply.**

Author	Internet
Bookstore	Market Research Co (e.g. Gartner, IDC)
Colleagues outside of your organization	Professional Associations
Consultants	Standards Organizations
ebased Online Content vendor (e.g., D & B, Dow Jones, etc.)	Subscription Service(s)
Governmental or Municipal Agency or Government Publishing Office	Training vendors
Information Broker or Independent Researcher / Research firm	Other (specify):

END OF SURVEY UNLESS YOU HAVE BEEN RE-DIRECTED TO QUESTION #1.

Thank you for your participation!

Part A: The Parent Organization

1) Indicate library or information center location(s) in the organization’s hierarchy:

Your library or information center’s Location in the organization	No. and location of other libraries &/or information centers in the organization	Organization unit to which a library or information center reports
		Corporate Support Services
		Consulting / Professional Services
		Education and Training
		IT / IS (technology) group
		Legal / Regulatory Compliance
		Library / Information Center
		Planning – Business Group
		Planning – Corporate Group
		Planning – Division Group
		Research & Development / Technology
		Sales / Marketing
		Sales / Business Development
		Other (specify):

2) If you are not located in the library or information center, indicate your location in the organization.

Your location in the organization	Organization unit to which YOU report
	Competitor Intelligence
	Corporate Support Services
	Consulting / Professional Services
	Education and Training
	IT / IS (technology) group
	Legal / Regulatory Compliance
	Library / Information Center
	Planning – Business Group
	Planning – Corporate Group
	Planning – Division Group
	Research & Development / Technology
	Sales / Marketing
	Sales / Business Development
	Other (specify):

- 3) Indicate no. and location in organization of any information center **staff** not house in the library or information center?

<i>Number of Professional or Technical</i>	<i>No. of Para-professional or clerical</i>	<i>Location of staff</i>
		Competitor Intelligence
		Corporate Support Services
		Consulting / Professional Services
		Education and Training
		IT / IS (technology) group
		Legal / Regulatory Compliance
		Library / Information Center
		Planning – Business Group
		Planning – Corporate Group
		Planning – Division Group
		Research & Development / Technology
		Sales / Marketing
		Sales / Business Development
Other (specify):		

- 4) To whom does the highest-ranking information center or library center staff person report?

Title:	Primary area of responsibility:
--------	---------------------------------

Part B: The Information Staff

(If known, answer for all libraries or information centers in the organization.)

- 5) List the *number of library or information center(s) staff* next to the category that best describes the primary tasks on which the majority of their time is spent. Count an employee only once.

Employees Categories	# of Full Time	# of Pt. Time	Contractors /Outsource Personnel
Information Professional(s) - IP (Performing duties usually assigned to individuals with an MLS, MIS, MLIS, MBA Degree or equivalent experience)			
Para-professional(s) - PP (Performing duties usually assigned to individuals with a Bachelors degree, a specialized information skill such as acquisitions or circulation or 1+ years information center experience)			
Clerical - C (Performing duties usually assigned to individuals with no degree or IS experience)			
Technical - T (Primarily performing duties involving software development / intranet or web work or database administration involving hardware or networks)			

- 6) What *library or information center experience does your staff have?* Account for employees in the same category assigned in question #5 by placing them in the number of years experience range. **Count an employee only once.**

Experience in your organization	<1 year	1-3 years	4-5 years	6-10 years	11-15 years	15+ years
Information Professionals - IP						
Para-professionals - PP						
Clerical - C						
Technical - T						

Previous experience in library or information center	<1 year	1-3 years	4-5 years	6-10 years	11-15 years	15+ years
Information Professionals - IP						
Para-professionals - PP						
Clerical - C						
Technical - T						

- 7) What are the job titles of the IS staff? Note number of staff holding each title, counting an employee only once. Categorize each title selected as IP, PP, C or T as listed in question #5.

<i>Title</i>	<i># of staff</i>	<i>Segment</i>	<i>Title</i>	<i># of staff</i>	<i>Segment</i>
Administrator			Library Assistant		
Analyst			Library Technician		
Assistant			Manager or Supervisor		
Cataloger			Programmer		
Clerk			Project Manager		
Consultant			Reference		
Content Manager			Researcher		
Database Administrator			Supervisor		
Director			Systems Librarian		
Editor			Team Lead		
Knowledge Architect			Web Master / Editor		
Knowledge Manager			Web Designer		
Other (specify):					

- 8) What is the IS staff's educational background? Note number of staff next to highest level they have achieved. **Count each employee only once.**

	<i>Associates Degree</i>	<i>Bachelors Degree</i>	<i>Masters</i>	<i>2nd Masters</i>	<i>Ph. D.</i>	<i>Other</i>
Information Professionals - IP						
Para-professionals - PP						
Clerical - C						
Technical - T						

9) Do you require a 2nd subject specific Masters for **ANY** information center staff position?

<input type="checkbox"/> yes	Subject(s):
<input type="checkbox"/> no	<input type="checkbox"/> don't know

10) Does your organization have a minimum number of training hours information center staff must complete annually for professional development?

<input type="checkbox"/> yes	Numbers of hours:
<input type="checkbox"/> no	<input type="checkbox"/> don't know

11) How does the staff obtain professional development training? (Check all that apply.)

- Conference attendance
- Continuing education classes at a college or university
- Continuing education classes sponsored by a Professional Assn
- In-house training classes
- Tuition reimbursement for coursework leading to a degree
- Vendor instruction
- Other (specify): _____
- Do not know: _____

Part C: The Library or Information Center Organization

(If known, answer for all libraries and information centers in the organization.)

12) How is the library or information center function funded? (Check all that apply.)

- Allocation to departments based on a formula
- Allocation to departments based on usage
- As part of the operations budget of its owning unit
- Costs are covered through charge backs - (% if less than 100%)
- Library or information center budget is funded as corporate overhead
- Per charge head across the enterprise
- Other (specify): _____

- 13) Can you provide a dollar range representing the organization's total library or information center budget?

Estimate:
Don't know:

- 14) List budget allocation **percentage to total 100%**:

Percentage	Allocation
	Depreciation
	Equipment / Hardware / Software
	Information Resource acquisitions (e.g. books, serials, videos, CDs, software)
	Online Information Resource Acquisition Accessible only by IS Staff (e.g. Dialog, LexisNexis)
	Online Information Resource Acquisition Accessible across the enterprise (e.g. Factiva.com)
	Operational overhead (facilities, etc)
	Rewards / Recognition / Morale
	Staff salaries & Benefits
	Professional Development (e.g. Association memberships, training)
	Travel
	Other (specify):

- 15) What services are offered by *all of your organization's* library or information centers or by information professionals based in other areas of your organization? **Check all that apply.**

<p>Circulation - Content: Audios/Videos/DVDs ___ Books ___ CDs ___ Conference Proceedings ___ Journals ___ Market Research ___ Newspapers ___ Patents ___ Software ___ Standards ___</p> <p>Other (specify):</p>
<p>Circulation - Hardware: PC ___ Digital Camera ___ Scanner ___ TV ___ VCR/DVD players ___ Other (specify):</p>
<p>Content Management:</p> <p>___ Evaluation</p> <p>___ Develop and/or manage internally developed databases such as technical reports or training materials</p> <p>___ Negotiate/enforce electronic licensing contracts</p> <p>___ Manage journal subscriptions for the library or information center</p> <p>___ Manage journal subscriptions for customers</p>

<input type="checkbox"/> Manage market research and analyst relations <input type="checkbox"/> Purchase content housed in or managed by the library or information center <input type="checkbox"/> Purchase content housed in or managed by an organizational customer group
Knowledge Management: <input type="checkbox"/> Knowledge architecture consulting (e.g. search structure strategies, taxonomy or meta-data/thesaurus development) <input type="checkbox"/> Integrate internal and external content databases <input type="checkbox"/> Manage internally generated proprietary content <input type="checkbox"/> Other knowledge management initiatives (specify) _____
Records Management: <input type="checkbox"/> Archives <input type="checkbox"/> Engineering notebooks or other technical logs or maps <input type="checkbox"/> Manage an organizational museum <input type="checkbox"/> Capture oral histories <input type="checkbox"/> Preservation <input type="checkbox"/> Records access, storage and retention
Reference / Research: <input type="checkbox"/> Business or Competitive Intelligence to support strategic/tactical decision making <input type="checkbox"/> Company information – Public and private – national and international <input type="checkbox"/> Data analysis as part of a research deliverable <input type="checkbox"/> Maintain general overall awareness (e.g., market conditions, customer needs, etc.) <input type="checkbox"/> On demand research including searching online databases, the internet or other specialized resources <input type="checkbox"/> Patent research and analysis <input type="checkbox"/> Research to support special project assignments such as competitive reviews <input type="checkbox"/> Targeted news services (selective dissemination of information) that distributes or circulates (electronically or in hard copy) articles, market research or other focused content <input type="checkbox"/> Ready reference <input type="checkbox"/> Other (specify):
Miscellaneous Services: <input type="checkbox"/> Book club with regular discussion sessions (technical _____ or business _____) <input type="checkbox"/> PC access <input type="checkbox"/> Photocopier / printer <input type="checkbox"/> Proctor exams (e.g. technical certifications, university qualifying exams, etc.) <input type="checkbox"/> Site or branch libraries with highly target collections in strategic locations <input type="checkbox"/> Study carrels <input type="checkbox"/> TV / VCR
Technical Services: <input type="checkbox"/> Accept donations or gifts

<input type="checkbox"/> Cataloging / classification of collection <input type="checkbox"/> Document delivery <input type="checkbox"/> Inter-library loan <input type="checkbox"/> Journal/Serials management <input type="checkbox"/> Standing order management
Technology/Tools: <input type="checkbox"/> Develop and/or maintain an information portal on the organization's <i>intranet</i> <input type="checkbox"/> Develop and/or maintain the organization's <i>internet</i> <input type="checkbox"/> Develop and/or maintain access to external databases <input type="checkbox"/> Develop and/or maintain the library or information center's administration system (e.g. online catalog)
User Training: <input type="checkbox"/> General instruction on selection and use of appropriate library or information center managed information resources <input type="checkbox"/> Instruction on use of the Online catalog <input type="checkbox"/> Instruction on use of targeted resources for specific end results (e.g. use of market research to build competitive advantage)
Other (specify):

16) What information services or content is offered on the library or information center's *INTRANET* portal? **Check all that apply.**

	<i>Content or Service</i>
	Access to external information databases (e.g. Factiva.com)
	Analyst (Wall St.) Reports
	Company / Industry information (companies outside of organization)
	Document delivery request
	Documentation / standards
	eZines / eBooks
	Links or pointers to selected <i>internet</i> sites
	Links or pointers to other internal <i>intranet</i> sites (e.g. product group sites)
	Market Research Reports
	Online catalog of library or information center holdings
	Online training on selection and use of information resources
	Reference or research request
	Targeted new services (Selective Dissemination of Information)
	Topic pages aggregating resources for a specific audience
	Other (specify):

- 17) What kind of content is purchased by your organization? **Check all that apply.**

	Sources		Sources
	Analyst (Wall St.) Reports		Online services (e.g. D & B, Dow Jones Interactive, NewsEdge, Lexis-Nexis)
	Benchmarking studies		Software
	Business / Management resources		Standards
	Books / CDs / DVDs		Journals / Magazines
	Conference Proceedings		Market Research Reports
	Directories		Newspapers
	Documentation		Technical Reports or White Papers
	e-based subscriptions such as Zines		Technical certification practice exams

Part D: Company Return on Investment and Customers

- 18) Rank the strategic value to the parent organization of library or information center services major customer groups with one (1) being most important. Which service(s) does each use most frequently?

Group / Unit	Ranking	Service(s) most frequently used
Company Executives		
Sales		
Consulting		
Manufacturing		
Human Resources		
Manufacturing		
Operations		
R & D		
Product Development		
Finance		
Operations		
Product Support		
Legal		
Training / Education		
Marketing		
Public / Investor Relations		
Other (specify):		

19) What is the ratio of library or information center staff to customers?

Number of actual customers vs. staff:	
Number of potential customers vs. staff:	
Don't know:	

20) What data do you collect to illustrate return on investment to upper management?

___ Customer circulation statistics

___ Customer testimonials as to library and/or information center contributions

___ Direct savings attributed to library and/or information center contributions

___ Sales attributed to library and/or information center services or deliverables

___ Savings in consolidated buying

___ User time saved

___ Other (specify): _____

Comments:

----- **END OF SURVEY** -----

Thank you for your participation!

Margaret Carroll
Mc0010@unt.edu
817-797-3919

PUTTING KNOWLEDGE TO WORK EFFECTIVELY: ASSESSING INFORMATION NEEDS THROUGH FOCUS GROUPS*

By Valerie E. Perry

To improve customer service, organizations require information about their users' needs and expectations. Any organization can implement focus groups, allow clients to share knowledge about their needs, and use this information to improve customer service. This paper describes how focus groups were used to assess the effectiveness of the University of Kentucky's Agricultural Information Center (AIC) in providing patron services. It is hoped that the experiences described here will help other organizations gather data, assess performance and use the resulting information to improve customer service.

The Agricultural Information Center serves 1100 undergraduate students, 370 graduate and postdoctoral students, and 1700 faculty and staff in the College of Agriculture. In August 2000, the AIC conducted 9 focus groups consisting of 36 faculty, staff, graduate students and postdoctoral students. The feedback shared by these focus group participants was instrumental in redefining our immediate goals and developing the Five-Year Strategic Plan of this service center. These immediate goals included creating an effective marketing plan, redesigning the library instruction seminars and improving other public services offered. The data gained from these focus groups gave the AIC a clear picture of how these goals could best be achieved. The focus groups provided more helpful information than any single evaluation tool used previously.

This paper will discuss the purpose of focus groups and describe the process of planning focus groups, implementing them, and analyzing the resulting data to improve customer service. To illustrate the process, the specific steps taken by the AIC will be described at each stage.

PURPOSE OF FOCUS GROUPS

Krueger and Casey succinctly state the purpose of focus groups:

* Paper presented at the Special Libraries Association 93rd Annual Conference Los Angeles California USA June 8 - 13, 2002

“Focus groups have been found useful prior to, during, and after programs, events or experiences. They have been helpful in assessing needs, generating information for constructing questionnaires, developing plans, recruiting new clientele, finding out how customers make decisions to use or not use a product or service, testing new programs and ideas, improving existing programs, and evaluating outcomes.” (Krueger and Casey 2000, 19)

All organizations should regularly assess the services and products they provide to help determine their future direction and identify areas requiring improvement. Focus groups are one of many methods that can be used to collect the specific and detailed data necessary for this analysis. They can be effective tools for gathering information from both internal and external customers to assess specific services and overall performance of the organization. Unlike surveys, focus groups develop responses through synergy and group interactions. Moreover, focus groups can be used to follow up on previous survey data or to identify topics for a large user survey.

Focus Groups at the AIC

In 1998, the University of Kentucky Agriculture Library went through a dramatic transformation as the majority of the monograph and serial collections moved to the new William T. Young Library building on campus. The remaining reference materials, current periodicals, computers and staff became an electronic information center and was renamed the Agricultural Information Center. The AIC retained control of collection development and other major collection decisions. The resulting space was re-engineered and staff effort redirected to meet the growing technological demands of the students, faculty, staff and Kentucky citizens. The staff began to place a greater emphasis on providing electronic access to as many products and services as possible.

In 2000, the AIC’s Public Service Librarian realized that an assessment of services was needed to help determine the direction of the many public services offered, especially the library instruction seminars for faculty, staff, graduate students and postdoctoral students. At the same time, the University Libraries were updating their Five-Year Strategic Plan. The AIC personnel quickly determined that an analysis of all services offered would generate useful feedback for the strategic plan. The AIC staff had data from the biennial User Satisfaction Surveys conducted by the University Libraries, but decided they needed more specific information. In addition, the survey included only library users. They identified focus groups as a better method for reaching their non-library users and to receive detailed responses from participants.

PLANNING FOR FOCUS GROUPS

We spent several months planning for the focus groups. This is in line with assessment research. In fact, Judy Sharken Simon recommends the following:

“Start planning at least four weeks ahead of the focus group session date. Six to eight weeks is probably more realistic. It takes time to identify your participants, develop and test the questions, locate a site, invite and follow up with participants, and gather materials for the sessions. You must have all the pieces in place if you are going to have a successful focus group.” (Simon 1999, 40)

Goals

Setting clearly-defined, reasonable goals is a crucial step since this creates the framework for all future actions. The AIC set several goals. The main goal was to discover whether the AIC adequately met the information needs of the faculty, staff, graduate students and postdoctoral students in the College of Agriculture. More specifically, we wanted:

- To determine the direction needed for the library instruction programs offered to these patron groups.
- To learn more about the information-seeking behavior of these patron groups.
- To see if the AIC’s strategic plan is in line with patrons’ needs.

After clarifying these goals, they were communicated to the College of Agriculture and University Libraries in order to gain their support.

Locations, Dates and Times

The AIC planned its focus groups in accordance with the recommendations of Krueger and Casey:

“Small focus groups, or mini-focus groups, with four to six participants are becoming increasingly popular because the smaller groups are easier to recruit and host, and they are more comfortable for participants.... Also, smaller groups are preferable when the participants have a great deal to share about the topic or have had intense or lengthy experiences with the topic of discussion.” (Krueger and Casey 2000, 73-4)

We decided to offer twelve possible sessions of four to six participants each within a two-week period. Although this was a demanding schedule for AIC staff, we believed that the smaller groups would be more dynamic and generate more

helpful data. Moreover, conducting all sessions within a short period of time ensured that the responses would be based on the same type of services and products. Sessions were scheduled for ninety minutes to allow time for introductions, discussion and summary statements. We used two locations: both were familiar to most participants, provided ample parking, and were located on the main campus in Lexington. One location had teleconference capability for off-campus employees located in the two research stations.

Participants

The project goals listed above determined the type of participants (College of Agriculture faculty, staff, graduate students and postdoctoral students), but many questions still remained. What criteria would be used to choose participants, how would they be recruited and how could attendance be maximized? Krueger and Casey stress the importance of homogeneity and variety of focus group participants:

“The focus group is characterized by homogeneity but with sufficient variation among participants to allow for contrasting opinions. By homogeneity, we mean participants have something in common that you are interested in There are at least two reasons we are concerned about homogeneity. One is for analysis purposes. The other is for the participants’ comfort—the degree to which sharing will be influenced by differences in participants’ characteristics.” (Krueger and Casey 2000, 71-2)

It was clear from the literature that homogeneity and variety were both necessary ingredients to maximize effectiveness. To achieve homogeneity, the AIC selected two sets of focus groups based on patron categories: one for faculty and staff and the other for graduate students and postdoctoral students. To address the need for variety, the AIC drew from all departments across the College of Agriculture. These decisions were especially important for the data analysis phase. Conclusions drawn from the participants’ responses could predict the information-seeking behavior of most patrons in each of the above categories since participants were not limited to a particular department. In addition, since all participants in a particular session were from the same patron category, this was expected to increase the group interaction and thereby stimulate the discussion. A small-group format was deemed best to allow more time for in-depth discussions.

The next step was recruitment. Since the AIC wanted feedback from both library users and non-library users, we requested lists of potential participants from Department Chairpersons within the college. Each Chairperson was asked to submit names of three employees and three graduate or postdoctoral students

including both library users and non-library users. The selection was not truly random, but on the other hand was not made by library staff. The Public Services Librarian contacted each potential participant. She explained the purpose and process of the focus groups and asked for date and time preferences. Fortunately, we were able to accommodate most participants in one of their first two preferences. More potential participants were invited than needed to allow for possible declines. Of the twelve possible sessions, nine were chosen by three or more participants each, and three sessions were cancelled.

Questions

Simon aptly describes how focus group questions must be chosen to stimulate useful discussion and feedback:

“The questions posed in a focus group are critical.... The sequence and tone of the questions are as significant as the questions themselves. To be effective, focus group questions should be open-ended, focused, and move from general to more specific.... a series [of questions] will move participants to a point where they feel comfortable discussing negative issues.” (Simon 1999, 41-42)

The AIC based its questions (see Figure 1) on the goals set in the beginning. Six basic questions were asked in each session to allow plenty of time for responses and discussion among the groups. In addition, probing questions were sometimes used to generate more specific information as a follow-up question to a particular remark or to encourage more participation. The questions were open-ended and not leading to help eliminate possible bias due to expected answers. The participants' comfort level was respected in the simplicity of the questions, the absence of library jargon and the avoidance of highly controversial issues. The same set of questions was given to all sessions to allow comparison of answers.

Figure 1 – Questions

1. What are your greatest information needs?
2. How do you usually find this information?
3. What types of information do you have trouble finding?
4. How has the AIC helped you?
5. Ideally, what services would satisfy your information needs?
6. What types of library instruction would be most helpful?

Moderator

The pivotal role of the focus group moderator is well-described by Hernon and Altman:

“The moderator conducts the session, explains the purpose of the session, helps participants to feel at ease and willing to contribute, asks the questions, and maintains the constant flow of the conversation. A good moderator, however, blends into the background and lets the dialogue develop among the participants.... The moderator does not become defensive if customers criticize library policies or services.” (Hernon and Altman 1998, 141-2)

The Public Services Librarian served as the Moderator for all sessions. She had the appropriate facilitation training background, she was new to the AIC and therefore did not know most of the potential participants, and there were no funds to hire a professional facilitator or moderator. Although this was not ideal, it did work well since she was familiar with the desired goals, library products and services, and the overall library system. Given the small number of participants in each session and the previous experience with meeting facilitation, the Moderator also agreed to record all comments on flipcharts and on audiocassettes. This provided assurance to the participants that their comments were heard correctly.

IMPLEMENTING FOCUS GROUPS

Hernon and Altman describe the importance of a friendly, informal setting which stimulates positive interaction:

“The meeting area should be inviting, some refreshments provided, and participants given an opportunity to visit briefly and get acquainted, if they do not know one another. An informal setting may help the participants relax. Arranging the furniture so that participants face one another reinforces a positive, friendly atmosphere.” (Hernon and Altman 1999, 141)

Environment

Signs were strategically placed in both locations to give directions to anyone who might need extra assistance. The primary location for the focus group sessions had one table in the middle of the room with eight chairs arranged for optimum communication. The space was appropriately sized and shaped to provide good acoustics and a comfortable environment. The second location had several tables and was a bit large, but was chosen for its teleconference capabilities. Participation was open to all employees located in the two research stations (in Princeton and Quicksand, Kentucky). Unfortunately, no one from either site chose

to participate remotely via the teleconference equipment. However, at least one employee did commute to Lexington. In both locations, participants were able to choose where they preferred to sit and by whom. Blank nametags were provided and self-service light refreshments (coffee, soft drinks, water, cookies, doughnuts and candy) were available throughout each session.

Moderator

The Moderator plays an important role in keeping discussion on-track and insuring that all participants have an opportunity to express their views:

“The facilitator [or moderator] should be able to deal tactfully with outspoken group members, keep the discussion on course, and make sure every participant is heard.... A facilitator must also head off arguments or public speeches about individual items and steer the group back on track.” (Simon 1999, 42)

The Public Services Librarian, who served as Moderator and Recorder, welcomed all participants as they arrived. She encouraged each person to fill out a nametag with his or her preferred name for the session. It was important for participants to feel relaxed and comfortable so a few minutes of mingling was encouraged, as well as partaking of refreshments, before each session began. At the beginning of each session, the Moderator asked participants to introduce themselves, explained the purpose of the focus groups and how the data will be used, assured the participants of confidentiality and anonymity. The Moderator was aware of the importance of nonverbal communication, especially in these sessions. She made eye contact with everyone throughout each session. All participants were addressed equally using the names they had written on their nametags. The Moderator tried to foster the atmosphere of participant-led discussion as much as possible. Only when points needed to be clarified, particular persons needed to be encouraged to participate, or they needed to go on the next question did she retake control of the session.

Participants

Attendance was excellent. Of those invited to participate, seventeen out of twenty-five graduate and postdoctoral students attended, and all nineteen faculty and staff attended. This yielded over eighty percent participation from seven different departments within the college, not counting the remote sites that chose not to participate. Part of the success may be due to the strong support of Department Chairs for the focus groups, but quite a few attendees expressed curiosity about what the library had to offer and wanting to learn more. Each session had its own character and specific topics that were covered, even though the same questions

were asked each time. All attendees participated fully in the discussions, with very little encouragement necessary. This may have been due in part to the ground rules (see Figure 2) set at the beginning of each session.

Figure 2 – Ground Rules

- | |
|---|
| <ol style="list-style-type: none">1. All ideas are important2. Everyone should participate3. Audio taping by permission only4. All sessions end within 90 minutes. |
|---|

Data Collection

Data collection must be done carefully and with the full awareness of focus group participants:

“Focus groups are typically recorded in two ways: by a tape recorder and with written notes. Written notes are essential [and] should be as complete as possible in case the tape recorder doesn’t work.... Set up the tape-recording equipment and remote microphone before the meeting begins and in plain sight of participants.” (Krueger and Casey 2000, 105)

The Moderator recorded all comments both in written form and by a tape recorder. The written comments were logged on a flipchart in plain view of everyone. Participants were encouraged to speak up if the Moderator logged their responses incorrectly. The Moderator asked permission before shortening or otherwise changing any wording from the actual comments. Typical facilitation techniques were employed including use of multiple appropriate ink colors, questions preprinted on each page and adequate space provided to encourage maximum feedback. The tape recorder was set up ahead of time, but the microphone was located in the middle of the table for everyone to see. Permission to use the tape recorder was requested after the introductions were made and the purpose was explained. All sessions were taped. These tape recordings were heard only by the Moderator and used for clarification purposes if a written response was not clear.

ANALYZING FOCUS GROUP DATA

It is important that focus group data be analyzed systematically, and preferably by someone who was present during the focus group discussion:

“Focus group analysis is a deliberate, purposeful process. It is systematic, uses verifiable procedures, is done in a sequential manner, and is a continuing process.” (Krueger and Casey 2000, 141)

“We highly encourage that analysis be done by someone who was physically present in the room when the focus group was conducted. It’s been estimated that 80% of the content is found in the transcript, and the remaining 20% are all the other things that occur in the room. In some groups, the environment must be sensed and felt.” (Krueger and Casey 2000, 139)

After the focus group sessions concluded, the Moderator listened to each of the tape recordings and edited the flipchart notations as needed. A Student Assistant typed all of the data into a Microsoft Word document by. All of the replies were grouped together by question. Different types of bullets were used to indicate which session each comment came from, and a “F/S” (Faculty/Staff) or “GS” (Graduate Student) was used to note the user group. After basic analysis of the data, six major topics emerged: collections, communication, electronic access, facilities, library instruction and library services. The data was transferred to a spreadsheet and rearranged into each of these major categories, retaining both the session and user group designations. Additional columns included the number of the question that elicited the response, what the AIC was already doing, recent improvements that have occurred since the focus groups were held, and the next steps needed to address the concerns raised.

The Moderator determined that the AIC needed to promote more of its services and products already offered, continue enhancing electronic access to many of its products and patron services, and explore some new areas not yet offered. Most of the information was welcome news and fell in line with the strategic plan. Some of the suggestions for exploration had never been considered before, such as creating a software technology webpage that listed various types of software training available all over campus as well as links to tutorials and university licensing information.

In all, the data has been very informative and helpful in understanding the information needs of these user groups. The volume of data, however, was much more than expected due to the high response rates to the questions. The AIC personnel continue to work on addressing the issues raised and to incorporate the new ideas into the current strategic plan. We have made marketing patron services and products a major priority. We will offer new seminars targeting information needs identified by both user groups this year. And we have enhanced our website to provide the types of information requested by the focus group participants (see Figure 3).

FUTURE PLANS

The AIC's focus group experience was so successful that the AIC plans to use this assessment tool on a regular basis. For very little cost (less than \$100 for refreshments and supplies), the library was able to gain a large amount of valuable information that has been quite helpful in evaluating the information needs of two large user groups and providing feedback on our current services and resources. Future plans may include electronic surveys, online focus groups and offsite focus groups for off-campus user groups. Information needs of other patron groups, such as undergraduate students and internal customers, also need to be assessed. A slight increase in the number of participants per session would also be helpful. A longer recruitment period and follow-up reminders sent immediately prior to the sessions are possible ways to achieve this. Additionally, future focus group participants should receive a timely follow-up report in addition to the thank-you letter.

PUTTING KNOWLEDGE TO WORK

In conclusion, the resulting information from the focus groups has helped improve public service in many ways (see Figure 3).

Figure 3 – Resulting Actions

- Scheduled email message highlighting new and enhanced services and products with archive webpage of past messages
- Placed New Materials list on website and advertised via email
- Updated Reference Tools webpage
- Added more electronic journals, including more JSTOR titles
- Improved access to several databases, including deduping in AGRICOLA
- Created Virtual Biology Library website
- Expanded webpage on proxy access instructions
- Enhanced training webpage including links to other training offered on campus
- Redesigned seminar series for faculty, staff, graduate students and doctoral students
- Initiated new In-Service workshops for cooperative extension personnel
- Offered circulation of Microsoft Office software licensed by the university
- Added more direct links to articles from databases
- Expanded journals holdings information in library catalog
- Presented information to Department Chairs about library services and resources
- Designed a new training room available for university groups
- Provided links to database tip sheets on website
- Improved copy card service

The focus groups provided a wealth of detailed ideas for the AIC to explore. They are an excellent example of using the knowledge that patrons have to assess and improve the services and resources offered by an organization, and have enabled the AIC to respond directly to user needs and desires.

REFERENCES

Hernon, Peter, and Ellen Altman. 1998. Listening to customers through focus group interviews. Chap. 8 in *Assessing service quality: satisfying expectations of library customers*. Chicago and London: American Library Association.

Krueger, Richard A., and Mary Anne Casey. 2000. *Focus groups: a practical guide for applied research*. 3d ed. Thousand Oaks, Calif.: Sage Publications, Inc.

Simon, Judy Sharken. 1999. How to Conduct Focus Groups: Here's a practical, effective way to connect with the people your organization serves. *Nonprofit World* 17 (5): 40-3

SUGGESTED READINGS

Glitz, Beryl. 1997. The focus group technique in library research: an introduction. *Bulletin of the Medical Library Association* 85 (4): 385-90.

Goulding, Anne. 1997. Joking, being aggressive and shutting people up: the use of focus groups in LIS research. *Education for Information* 15 (4): 331-41.

Johnson, Debra Wilcox. 1996. Focus groups. Chap. 16 in *The TELL IT manual: the complete program for evaluating library performance* by Douglas Zweizig et al. Chicago and London: American Library Association.

Kerslake, Evelyn, and Anne Goulding. 1996. Focus groups: their use in LIS research data collection. *Education for Information* 14 (October): 225-32.

Massey-Burzio, Virginia. 1998. From the other side of the reference desk: a focus group study. *The Journal of Academic Librarianship* 24 (3): 208-15.

Meltzer, Ellen, Patricia Davitt Maughan, and Thomas K. Fry. 1995. Undergraduate in focus: can student input lead to new directions in planning undergraduate library services? *Library Trends* 44 (2): 400-22.

Mielke, Linda. 1995. Short-range planning for turbulent times; in an era of rapid change, more responsive techniques must replace traditional methods. *American Libraries* 26 (9): 905-6

Morgan, David L. 1997. *Focus groups as qualitative research*. 2d ed., vol. 16 of *Qualitative research methods series*. Thousand Oaks, Calif.: Sage Publications, Inc.

Parang, Elizabeth. 1997. Using focus groups to match user expectations with library constraints. *The Serials Librarian* 31 (1-2): 335-9.

Starkweather, Wendy M., and Camille Clark Wallin. 1999. Faculty response to library technology: insights on attitudes. *Library Trends* 47 (4): 640-68

Young, Nancy J., and Marilyn Von Seggern. 2001. General information seeking in changing times: a focus group study. *Reference and User Services Quarterly* 41 (2): 159-69

Valerie Perry
Public Services Librarian
Agricultural Information Center
N24 Agricultural Science Bldg North
University of Kentucky
Lexington, KY 40546-0091
vperry@uky.edu
859-257-2758
859-323-4719 (fax)

**COMPROMISES ALONG THE WAY:
BALANCING SPEED TO MARKET WITH
SUSTAINABILITY WHILE DELIVERING KNOWLEDGE
MANAGEMENT SERVICES***

By Martha K Heyman

Abstract: Knowledge management in a consulting firm is where the rubber meets the road. It is where information science standards and guidelines are compromised in favor of business processes and requirements. The challenge is 'exasperated' by the use of a single, shared knowledge asset repository across the firm. The needs and work processes of each practice area within a consulting firm vary greatly. The common technology platform and repository require that compromises be reached between not just information science standards and day-to-day business operations, but also between the different knowledge managers who support the firm's different practice areas. This paper will discuss some of the compromises, and the path to those compromises, which must be made while implementing a successful knowledge management program within a for-profit enterprise. The paper will also briefly contrast the structure of a successful knowledge management program within a consulting firm versus one within a commodities business, specifically a global chemical manufacturing company.

Why Knowledge Management?

There is a temptation to assume business value for knowledge management exists just because it has become a business buzzword, as if the presence of a slick term makes business value a fore-gone conclusion. Remember the old adage from your mother: "Just because the other kids are doing it, does not mean you should"? Every organization, whether it is a for-profit enterprise or a not-for-profit organization, must take the time to think for itself. Is there a business case for us to manage our knowledge? That said, however, I would venture to say that if the conclusion from the self-assessment is no, then either the assessment or the thinking is flawed. Certainly no enterprise involving people can be successful, let alone competitive and sustainable, if no attention is given to fostering the knowledge life-cycle. I would argue that that is true whether the enterprise is or is not for-profit. All organizations face competition, unless they are a monopoly. Not-for-profit organizations face competition from other service providers, as well as from the possibility the individual will choose not to use the services. This

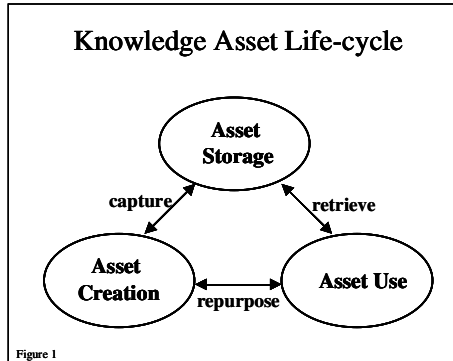
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paper, however, will only discuss knowledge management in the context of a for-profit enterprise.

The business case for formally managing the knowledge life-cycle (i.e. knowledge management) has gotten easier to make, for all types of firms, as the understanding of core competencies has grown. It is generally accepted today that a firm competes and gains competitive advantage based on its core competencies. Core competencies represent the firm's capacity to create new businesses by creatively combining core skills with new knowledge to form new "knowledge streams".¹ For example, chemical firms need to blend chemistry and chemical engineering with software engineering and electronics so as to automate production operations, while consulting firms must effectively combine classic management consulting with the delivery of cutting edge information technology solutions. Competitive advantage is gained by the ability to become competent in doing this in an environment of dynamic change. To become competent, the organization has to be able to repeatedly learn and transfer the learning to new team members. The ability of the competence to be shared, therefore, is as critical as the other components of a true core competency. A firm must be agile in developing and repurposing core competencies as new business opportunities present themselves. This requires the ability to transfer tacit and explicit knowledge (people-embodied knowledge), and skills (capital-embodied knowledge). "It is the combination of people-embodied and capital-embodied knowledge that represents the totality of the competence base within an organization." (Prahalad p. 241) Classic examples of core competencies include miniaturization at Sony, network management at AT&T, chemical engineering at DuPont, and user-friendliness at Apple.

The business case for knowledge management, therefore, rests entirely on the assertion that purposefully managing the knowledge life-cycle within an enterprise is the critical enabler in fostering the development of new core competencies as well as sustaining existing ones. Without core competencies, a firm has no ability to differentiate itself in the marketplace and will not be viable. For simplicity, this paper will only address the narrow portion of KM that is the management of knowledge assets (i.e. the acquisition and handling of explicit knowledge).

¹ Prahalad, C. K.; Fahey, Liam, and Randall, Robert M. *Creating and Leveraging Core Competencies*. Fahey, Liam and Randall, Robert M., Editors. *The Portable MBA in Strategy*. 2nd ed. New York: John Wiley & Sons, Inc.; 2001; pp. 236-252.

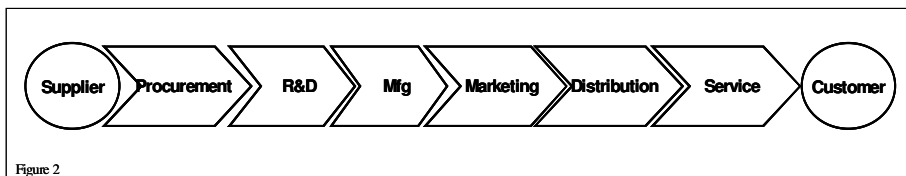


Context Matters

While all enterprises must have core competencies to successfully compete in the marketplace and all enterprises must formally manage their knowledge in order to support the creation and maintenance of those core competencies, there are subtle, yet distinct, differences in the resulting knowledge assets. These differences result in different requirements with regard to standards, methods, and processes for the management of the assets. For example, what makes a consulting firm different from a chemical manufacturing firm? Without going through the tedium of analyzing the different business models, the difference ultimately is embodied in the difference of the primary knowledge base supporting their core competencies. As Prahalad aptly emphasized, core competencies are derived from the combination of people-embodied and capital-embodied knowledge available to the enterprise. I would argue that the different industries within which firms compete define the viable business models available to the firms, and those business models express the constraints which drive the differences between how knowledge assets are managed in a manufacturing company versus a consulting firm. Not surprising, it is ultimately the distinctly different business drivers that define the look, feel and operability of the knowledge asset management system; form follows function. After all, knowledge management must be targeted to meet business needs, which requires it reflect the manner in which the business operates.

People-embodied knowledge includes tacit and explicit knowledge. Tacit is the elusive, not yet articulated wisdom and knowledge we all have, which has been shaped by our experiences, learning, understanding and intellectual capabilities.

Explicit knowledge is articulated and codified understanding in a form capable of being shared and transferred. The life-blood of consulting firms is the exchange between tacit and explicit knowledge. Capital-embodied knowledge is explicit knowledge which may be either internally generated or purchased from external resources. It is a combination of knowledge and skills made explicit to only those within the enterprise (proprietary), and purchased knowledge and skills from external experts. Chemical manufacturing companies rely heavily on capital-embodied knowledge. Patents, trade secrets, technical skills, research & development and strategic partnerships are all critical to the sustainable competitive advantages of chemical companies. So while the chemical manufacturer and the consulting firm each have some degree of business reliance on both people-embodied and capital-embodied knowledge, value-creation by the enterprise depends differently on each type of knowledge.



In addition to the differences in the extent of dependence on the two types of knowledge, different types of firms apply knowledge at different points in the process of value creation. Michael Porter's value chain model maps the creation of value by the firm, starting with suppliers and ending with customers. A typical chemical manufacturing firm creates value as a result of its relationships with suppliers, its raw material procurement efficiencies, the depth and breadth of its R&D (future product pipelines and support of existing product lines), and its manufacturing competencies. On the other hand, and at the other extreme, a consulting firm creates value primarily as a result of the quality of its relationships with its customers. Those relationships are highly dependent upon the firm's marketing skills (proposal development), the ease of service distribution via local offices located globally, and the overall competitive quality of the delivered services. The two types of firms create value at different ends of the value chain. As a result, the firms rely on different types of knowledge to different degrees (people-embodied vs. capital-embodied), and they create different types of knowledge assets. As a result, the firms have very different system requirements for the creation, capture, storage, retrieval, use and repurposing of those assets; form follows function.

In theory, there are standards

Any building can house thousands of books and journals, and any computer can house gigabytes of digitized content, but it is the core competencies of the information science profession that enable users to make sense out of the jumble of information and data. In an ideal world, it is the core competencies of the information science profession that enable users to precisely retrieve the right knowledge for the competitive advantage of the business.

Information Science Core Competencies: Sense-Making Tools

1. Expert knowledge of information resources (content and use)
2. Conceptual analysis (indexing, abstracting)
3. Ability to structure and organize content (information management)
4. Ability to synthesize and customize (information relevancy)

We all learned in library school about the standards and guidelines of collection management, cataloging and classification schemes, as well as the creation and use of thesauri and authority lists. Whether the knowledge assets are in microform, print or digital format, there are standardized work processes to be established and followed with regards to collection management and classification. The intent of the standards is to ensure *sustainability and consistency* of access to the knowledge assets *over time and across disciplines*. The standards are intended to ensure the right content is collected, at the right time, in the right format and stored in a manner facilitating fast and accurate retrieval at the right time. Striking a balance between relevancy and recall during the retrieval process is the ultimate goal. It is as equally damaging for an information seeker to miss critical content because the retrieval set is too narrow, as it is for them to lose precious time sifting through too much content because the retrieval set is too broad. As important as that balance is in an academic or public library, it is that much more important in a corporate setting, where *speed to market* is critical for survival.

For the sake of brevity, we will look at just two of the standardized information processes; content management and content classification. Content management includes defining the scope of the collection, establishing the acquisition guidelines, identifying storage and retrieval mechanisms, and determining retention policies.

- Step 1: Define the Scope of the Collection.
 - Based on business need, what are the primary and secondary subject areas?
 - Do certain topics require greater depth than others?
 - Do certain topics require greater breadth than others?
 - What are the characteristics that make objects within those topic areas attractive to collect? In other words, how is quality defined and assessed?

- Step 2: Establish Content Acquisition Guidelines
 - Where is the content generated, in what format, and by whom?
 - Will content be purchased, generated internally or both?
 - How will the selected materials be obtained? What processes are required to support the acquisition?

- Step 3: Create Storage and Retrieval Mechanisms
 - Based on expected user access points, where will the collection be stored? Electronic repository, physical library, a combination?
 - What are the various formats for the content? All digital? All print? All microform? A combination?
 - What will the search and retrieval mechanisms be? How will the content be catalogued or indexed? What processes and technologies are required to support storage and retrieval?
 - How will end-users be educated to effectively use the tools?

- Step 4: Determine the Retention Policies
 - Does retention vary by content type? By topic? By author?
 - Do different topic areas have different currency life-spans?
 - If the material is removed from the active collection, is it kept accessible in an “archive” collection?

All of these aspects of content management are relatively straightforward when the collection is associated with an established and relatively static discipline or topic area. Keeping with our comparison, if we consider the collection within a chemical manufacturing firm, we see that the standards and guidelines easily

apply with minimal adjustment to business needs. In fact, the print/microform collection at a chemical manufacturing firm looks and operates much the same as a library at a university. The print collection is catalogued using Library of Congress classification scheme. The OPAC follows standard MARC record format. Proprietary research literature is indexed and abstracted. The abstracts are stored in a citation database and searchable at every employee's desktop using Boolean logic. The scope of the collection is defined by the nature of the business: polymer chemistry, chemical engineering, physics, etc. Some sub-disciplines may be more important to the firm, and so may have greater depth in the collection. The knowledge assets in the collection are both internally generated and purchased from external vendors. Retention policies vary based on content type. Proprietary content is permanent, as are the majority of the purchased monographs and reference materials. Periodicals have various retention periods, as determined by the currency of their content. Peer-reviewed technical journals are kept permanently if space is available. Newsletters and trade journals are kept as short as 3 months and up to 24 months as defined by frequency of publication and currency of content. As will be seen later, none of the four steps enumerated above are easily applied "as is" to knowledge asset collections in a consulting firm.

The second standardized process considered here is the classification of content and the subsequent cataloguing or indexing of the material. Conceptual analysis, one of the core competencies of information science, is the process of determining the primary topic(s) embodied in a knowledge asset and then applying the appropriate Library of Congress call number, controlled term, or subject heading. The processes of cataloguing and indexing are intended to ensure the content is stored in a manner facilitating fast and accurate retrieval when the material is needed. The use of standardized classification schemes (e.g. LOC), controlled terms from a thesaurus (built to ANSI/NISO Z39.19-199x specifications), or standardized subject headings (e.g. MESH) ensures consistent ability to precisely and comprehensively retrieve content across repositories. The consistent application of classification standards across repositories enables information seekers to apply existing understanding of the scheme to efficiently retrieve content across time and disciplines. Without standards, information seekers would be lost in the unique processes required to retrieve content from each different repository.

Classification standards are relatively straightforward to apply to the collections of knowledge assets at the chemical manufacturing firm. The various branch libraries all use LOC call numbers to catalogue monographs and reference collections. The OPAC, using MARC format, contains LOC subject headings and

adheres to AACR. The proprietary document collection is indexed using controlled terms from an evergreen thesaurus. Because the volume of new knowledge assets added to the collection is comparatively low, the conceptual analysis of the documents is efficiently done by information professionals with appropriate scientific domain knowledge. As will be seen shortly, significant compromises must be made in the consulting firm with respect to classification standards and conceptual analysis processes.

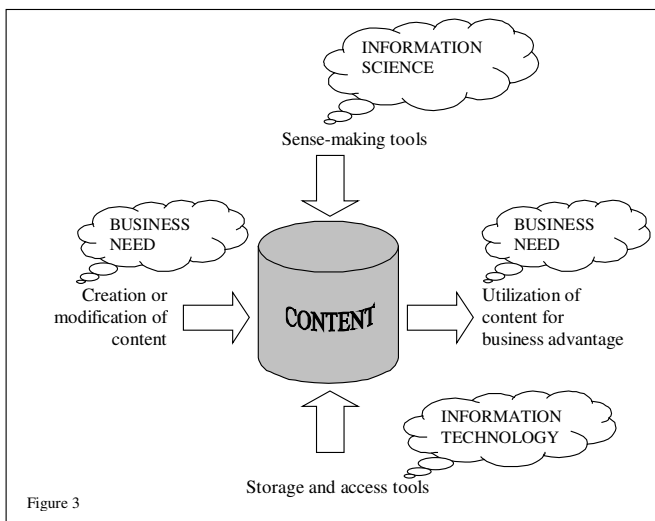
In practice, there are compromises

We expect businesses to have an appreciation for the sense-making tools of information science, but the fact is that they seldom do. To be heard, we need to do more than just assert that our tools transform jumbles of information into usable repositories of knowledge assets. Information scientists must have an appreciation for when standards are called for and when compromises are called for. The first step in generating the business's appreciation for information science core competencies is to demonstrate an understanding of the needs of the business. Applying standards for the sake of applying standards, with no adjustment for business needs, will drastically reduce the ability of the knowledge management system to provide business value. Corporate knowledge bases do not exist just to exist. They exist to meet business needs, and therefore, must be adjusted to ensure reliability, relevance and business value. In a consulting firm environment, this means many compromises are called for.

Despite having extensive experience applying information science standards and guidelines in a corporate environment, to both a digital knowledge base of proprietary research and a multitude of special print & microform collections of published literature, the reality of doing so in a consulting firm environment has been one long lesson in compromising. The chronic, yet welcome, challenge is to find the balance between the standards which will ensure consistent retrieval of content across time and disciplines, and the needs of the business. How to adjust form to follow function? The standardized process and guidelines that work well in a comparatively slow moving business environment (chemical manufacturing) simply can not be applied in their native format in a fast paced consulting environment. The challenge is in finding a way to apply them so that business processes are supported and not hindered.

As in any corporation, the intent of a consulting firm's knowledge asset repository is to capture the explicit firm knowledge generated during the course of business operations and make it available to support additional revenue generation. The assets are stored in the repository, where information science's "sense-making"

tools are applied so as to ensure the content can be retrieved and utilized for the competitive advantage of the business. (Figure 3) In most corporate environments, the standards and guidelines associated with content management and classification can be applied to the knowledge asset repositories with little or no adjustments. For example, a polymer chemist writes a research report discussing their work on a research program, and contributes the document to the repository. The information scientist with polymer chemistry domain knowledge scans the document, indexes it appropriately with controlled terms from the thesaurus, writes an abstract, submits the citation with indexing and abstract to the citation database and finally sends the report to the physical central repository. The indexing will have captured the essence of the content. It will not take into account how someone might utilize the content, what business implications might be inferred, or anything else. As per standardized cataloguing rules, the indexing reflects precisely what is inherent in the document: standard bibliographic citation fields plus the major concepts. In this case, this is primarily because knowledge assets in the manufacturing firm are frequently re-used but rarely repurposed. They are used in the same manner they are created. This polymer chemistry research report will be pulled and reread when it is time to build on the research discussed in the document.



In a consulting firm, however, knowledge assets are repurposed far more often than reused in their native form. Most practitioners take components from various assets in order to synthesize new ideas, which are then captured within new knowledge assets. The knowledge asset is rarely valuable in its entirety “as is”. Rather, its value stems from the many ways the knowledge in the asset can be repurposed. Portions of the material can be extracted and used in a marketing piece (“we did this sort of work for so-and-so”). Other portions can be combined with bits from other assets to capture the firm’s thinking on a specific business issue. There are an endless number of possibilities. In addition, the content generated by one practice area of the consultancy may be of direct relevance and import to one or more other practice areas. However, what creates that value may vary between the practice areas. For example, a sample piece of content may address strategic redesign of the supply chain and implementation of an IT-based solution for a client operating in the aerospace & defense industry. There are a minimum of at least three practice areas (disciplines) to which this content would have direct relevance: strategy, supply chain, and aerospace & defense. Each practice area has “ownership” of the content, has their own spin on it (resulting in different abstracts) and has different retention policies for this single piece of content. The content may be critical to a new service offering in one practice area, and old hat in another. Also, each practice area may repurpose the material in one of three different ways over time. It could be used for project support, research, or sales & marketing. The point is that the knowledge management team for each of the different practice areas could be applying different cataloging and indexing rules, following different retention policies, and writing different abstracts all for the same knowledge asset with a single database record in the central repository. Each team will emphasize the aspect of the content which has the greatest relevance to their constituency group. In the process of entering the asset into the collection, the knowledge managers appear to have compromised on nearly every aspect of collection management and classification standards and guidelines. The standards and guidelines are adjusted to reflect the nature of the content for the practice area, the use of that content, the extent of churn, the level of participation from the practitioners, the level of user sophistication, etc.

COMPROMISE 1: Manage knowledge where it’s created, but do that within a global system.

Stewart emphasized that knowledge must be managed within the context where value is created.² In a consulting firm, knowledge and value are created

² Stewart, Thomas A.; *The Wealth of Knowledge*. New York: Currency; 2001; ISBN: 0-385-50071-8, p 180.

at the practice area level. Yet, if the firm's knowledge was literally managed at the practice area level, the firm would be at a tremendous disadvantage in the marketplace. There would be multiple silos of knowledge in the firm with no cross-fertilization between practice areas. One way to avoid silos is to have a single firm-wide repository for the knowledge assets. This first compromise then triggers the subsequent compromises because of the differing business requirements of the various practice areas within the firm.

COMPROMISE 2: No single scope defined for the mega-collection within the repository, but clear scopes defined within practice area collections.

The scope of the collection (content type and topic) is an aggregated scope determined by the business needs of the various specific practice areas. Acquisition guidelines and processes are established based on consideration of the knowledge asset creation rate, the workload of practitioners, their ability to access the firm's intranet from remote locations, etc. All of these aspects differ substantially across the practice areas. One area may focus on collecting only proposals while another may focus primarily on collecting completed project deliverables. One collection is focused on supporting sales efforts while the other is focused on supporting service delivery.

COMPROMISE 3: Inconsistently index content across the entire repository but consistently within a "practice area".

Storage is dictated by the firm requirement that ALL knowledge assets are to be stored in a single firm-wide repository, and so, to some degree the retrieval mechanism, is also predetermined. Practitioners can either use the full-text search engine, or use the handful of captured attributes of the content to browse their way to the knowledge assets. These attributes include client, client industry, document type, geographic region, etc. While conceptual analysis for concept indexing is not done across all practice areas, it is done within some of the areas. For example, the manufacturing practice area periodically generate lists of controlled terms, no more than 5 to 6 "topics of lasting value", and assign those keywords against the content. This additional, consistently applied indexing significantly enhances the precision of content retrieval for the practitioners.

COMPROMISE 4: Follow the money, regardless of the 'true' nature of the asset.

One would expect that at least there would be no need for compromises with respect to the core attributes of the knowledge asset. However, compromises are made here too. One attribute used to index the content is the client for whom the work is done. All clients operate in a primary industry. Yet, the

client may not be indexed by their true primary industry. They are in fact indexed by which industry practice is credited with the revenue from that client. For example, a large pharmaceuticals firm may be indexed with the chemical manufacturing industry because the *revenue* from the client is realized by the manufacturing practice area, even though a much more appropriate tag to assign would be ‘pharmaceutical manufacturing firm’ in the ‘healthcare industry’.

COMPROMISE 5: The sky is not always blue, even when it is blue.

Cataloguing and indexing standards require that nothing be inferred about the item being classified. If the project work was done in the manufacturing industry, then it is indexed with ‘manufacturing’. It is left to the end-users to have enough domain knowledge to understand that there may be content of equal interest and applicability to their query in the consumer business or health care industries. However, in the consulting firm’s repository, this domain knowledge is not presumed. Content is indexed based on not only its inherent characteristics but also based on what might be inferred about the material. So, while the client work was done for a manufacturing client, the industry tags would include all related industries.

COMPROMISE 6: Retain dated content because it is fresh content for other repository constituencies.

Finally, as could be predicted, the retention policies of one practice area often come into conflict with those from another practice area. The content type or the business issue addressed or the client for whom the work was done could be insignificant for the industry practice area, but for the involved competency or service practice area, it may represent either their core competency, a best practice or be cutting edge service delivery. The industry practice area would not want to keep the content long, while the service area may want to keep it for years. The industry practitioners get frustrated because this “bad” hit continues to be returned in their query answer sets, and if it were archived, then the competency practice area would be missing a vital knowledge asset.

Through a consensus process, chronic trade-offs between aspects of information architecture and design, information storage and retrieval, collection development and management, standards and guidelines, and virtual community development are settled upon by the knowledge management teams within practice areas and across the firm. The result is a form of contained chaos that succeeds at supporting business objectives across the firm. In fact, the management of knowledge assets models how the practice areas create, use and repurpose

knowledge; form follows function. Almost all client service projects are bid on, won, and completed by multi-practice area teams, with each practice area delivering its own twist to the work.

Conclusions

I no longer believe that compromising information science standards and guidelines is by definition bad implementation of information science. The success of a knowledge management program in a for-profit setting is determined by the extent to which the program supports and even enhances the firm's ability to go to market (i.e. generate revenue). Success is not determined by the extent to which the system adheres to information science standards and guidelines. Those standards and guidelines have value only to the extent they do not hinder the firm's operations while they ensure the sustainability of the knowledge management system. I would challenge, in fact, that the six compromises noted above are not really even compromises. Instead they represent an iterative process of determining a finer level of granularity against which the standards can be consistently *applied*. Perhaps the only compromises are:

- first recognizing that what we learned in graduate school needs to be applied at the molecular level rather than the level of the organism;
- and second, working across practice area boundaries to find the lowest common denominator against which to apply standards.

The lowest common denominator is not the knowledge asset, but the knowledge captured in that asset. The bits of knowledge embodied in the document are the molecules; the document is the organism.

At first blush, it looks as if there is no information science standards employed in the knowledge asset repository, when in fact there are multiple sets of standards cohabitating. Driving to the lowest common denominator of base standardization leads to the minimization of costs and maximizes flexibility. For example, the volatility of terminology in the consulting industry and the speed at which the business focus can change makes the indexing of knowledge assets in the manner which a chemical firm can, economically infeasible. Nor is there much of a business case for trying to. Unlike the terminology in scientific disciplines, consulting terminology is both a communications vehicle used to convey concepts and, probably more importantly, a sales and marketing tool. As a result, consulting language has a high churn rate. Supply chain management became value chain management which became vertical management which became collaborative commerce. The cost of re-indexing the material tagged with the

older concept would be prohibitive. Even managing a thesaurus that would educate the search engine as to the equivalency of those terms becomes prohibitive, especially when you look at the alternative of simply relying on free-text searching, the end-users' ability to use their domain knowledge to search effectively, and the relatively short life-span of a knowledge asset in a consulting firm (18 months on average), why bother spending the time and money? Consulting firms can not afford to use resources to re-index content and restructure keywords and subject headings when business service offerings and focus change as rapidly as they do in the consulting industry.

The standards and guidelines of information science, therefore, are not really compromised, but the core competencies of information science are challenged to truly demonstrate their value and adaptability. The successful application of information science standards and guidelines to ensure sustainability and consistency of such dynamic and evergreen knowledge bases in fact demonstrates the tremendous business value of such competencies. By implementing information science standards at the level of the lowest common denominator, the rich potential of the knowledge repository is significantly deepened. For example, the finer level of granularity allows the flexibility to selectively repackage individual pieces of content into hyperlinked collections of content that address a current "hot-topic" without disrupting any existing classification or indexing against the various component knowledge assets of this new virtual special collection. The knowledge assets in the virtual collection were not previously related to each other and the business value of the collection may be short lived. As critical focus areas for the firm change, content can be rapidly disassembled and reassembled as needed to assist practitioners in rapidly delivering results to the firm's clients.

Finally, form does follow function in a successful knowledge management system. The level of structure and the degree of constraints within the system mirror the business supported by the knowledge asset repository. The level of granularity against which the standards are applied is dependent upon the nature of the business.

Martha K Heyman
15 Randy Lane
Cochranville, PA
USA 19330
mheyman@dc.com

KEEPING KNOWLEDGE MANAGEMENT ALIVE*

By Beth C. Perell

Knowledge Management (KM) is commonly defined as the process for enabling individuals within an organization to effectively share information and knowledge to save time and make better decisions. KM has become a strategic initiative in many organizations, yet during difficult economic times, special libraries, information centers, or KM are often targeted as cost savings opportunities. Unfortunately, eliminating this function within organizations more often than not has a negative effect.

When organizations lose people, they lose a considerable amount of institutional knowledge. Capturing this information becomes even more important during economic downturns; however, it also becomes more difficult. Just as the library may be affected by downsizing, the knowledge workers of organizations are also potential victims. As a result, individuals are not as willing to share what they know. They feel if their insight is shared, their personal value is decreased. These attitudes can further cripple an already fragile organization. Despite these challenges, there are methods for keeping KM a viable function within an organization, including ways to encourage knowledge sharing when individuals may not be as willing.

The Role of Knowledge Management

Knowledge Management (KM) has been around long enough for it to achieve the latest business fad status. TQM and BPR and many other business acronyms were once popular trends, but have since been replaced by new management styles. KM is still on the rise and appears to be a sustainable trend. A recent study by Gartner Group estimates that more than half of the Fortune 1000 companies will implement a KM system by 2003. IDC adds that the KM marketplace will exceed \$12 billion by 2003.¹ These numbers are powerful enough for senior decision-

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¹ Johne, Marjo. "What Do You Know?" *CMA Management*. March 2001

makers to pay attention and foster a knowledge sharing culture within their organizations.

Knowledge Management has many definitions, but KM primarily deals with organizing and maintaining information and knowledge within an organization. Information professionals are best suited for these roles, and have been performing these tasks for decades. Some organizations have made this connection and rather than exploring what it might take to build up a knowledge management program, simply add managing organizational knowledge to the information professional's existing responsibilities. While KM is an excellent opportunity to elevate the library's position in the company and promote the staff's skills, it is often a daunting task.

KM realities

Many companies have been affected by the recession, which has resulted in cost-cutting measures. While KM revolves around people, unfortunately people are often let go when the economy weakens. Often these measures are shortsighted and can cost the organization more money in the long-term. Each employee that leaves through layoffs or attrition takes their institutional knowledge with them.² Gartner estimates that worker productivity can increase by as much as 30% when companies invest in KM systems. Other benefits include increased market shares, learning from previous mistakes, and having the accumulated knowledge of the enterprise at hand.³ Companies have touted that their true value is their human capital. However, when layoffs occur, employees begin to distrust their employers and protect their intellectual assets.

Knowledge Capture Techniques

During tight economic times it is important to focus on KM to retain institutional knowledge and share it more efficiently throughout the organization. Allowing employees to hoard information or leave the company with their knowledge negatively impacts the company. These hoarders are detrimental to fostering a knowledge sharing culture.⁴

Traditionally, workers have been rewarded by what they know and how they apply that knowledge to excel in their jobs. Workers can use their knowledge to

² Rasmus, Daniel W. "The Cost of Layoffs," *Knowledge Management*. June 2001.

³ Adams, Katherine C. "What Happens to Knowledge Workers when the Economy Heads South?" *KM World*. July 2001.

⁴ Angus, Jeff "Planning to Downsize," *Knowledge Management* July 2001.

establish power and prestige within their organizations. These leaders can be seen as someone who is effective in sharing applicable information with the right people. Corporate culture rewards these individuals. Encouraging these leaders to share their information can be difficult, but necessary. One way to help ease the transition is to offer team-based rewards. When appropriate incentives are offered, employees are more inclined to work collaboratively. This environment enables more knowledge sharing.

KM is commonly interpreted as writing everything down and storing it in a database. Not all knowledge needs to be codified. To have a successful KM program, the organization should decide what knowledge is critical and determine who knows this information. There must be senior management support for KM initiatives to garner attention from employees. Once KM is seen as a strategic initiative, some employees will be more willing to comply. While KM may be thought of as important, other tasks from their jobs take priority. Hiring or assigning someone with the relevant skills to interview and capture their information can help busy employees. This journalistic approach requires adding resources but most often yields good results.⁵

Information professionals are certainly capable of taking on these journalism roles. Where information professionals can add considerable value is in accessing tacit knowledge – the knowledge inside people’s heads that cannot easily be transcribed onto paper. In this “infomediary” role, information professionals can help foster a collaborative environment. Infomediaries can help users navigate KM systems and connect them to people who may have the answers they need. Users are often skeptical of information and need validation to trust the content and the author. Infomediaries are often successful at removing organizational barriers and can help in overcoming some of these challenges.⁶

Additionally, keeping statistics about the KM program and communicating metrics with senior management will improve chances for success. KM can be a difficult to quantify, but there are metrics to capture, like how many case studies have been developed or how many people are using the KM system. More importantly are the anecdotal stories. Telling the stories that are identifiable and have a memorable outcome are powerful tools that can prove the value of KM programs. For example, talking about how a company was able to land a \$5

⁵ “Knowledge Erosion Poses Risk,” American Productivity & Quality Center August 2001.

⁶ Lamb, Cheryl. “Creating a Collaborative Environment: The Human Element,”- *Information Outlook*. May 2001.

million contract because of the tools from the KM program has a strong impact on the organization that can be directly attributed to the bottom line.

Dealing with Downsizing

Despite the best efforts of cost cutting, companies may still need to conduct layoffs. Should layoffs need to happen, there are several things to consider in how the downsizing is handled in relation to KM. The “core assets” or the most valuable knowledge brokers must be retained and protected. Naturally, these employees would not make the short list to be downsized. However, some of their colleagues, assistants, or mentors may be included in a lay-off. To keep these valued employees, they need to understand the reasoning behind the downsizing and be reassured of their value.⁷

Another suggestion to help with capturing relevant knowledge is to encourage laid off employees with extra severance to document their special processes, social connections, and general know-how. Granted, not everything a person knows can be written down and used effectively by another person, but the transition will be less painful.⁸

Keeping employees in a tough economic climate can be challenging. More money is not always the driving factor in retention. In a recent survey, most respondents cited exciting work, recognition, and supportive management as some of the reasons that employees stay in their current positions. In order for companies to sustain a competitive advantage, their top talent must continue to produce more efficiently. KM processes can further improve how these key employees work and achieve results.⁹

Libraries can get involved with improving employee efficiency and contributing to profits. They are well equipped with the skills for eliciting information and synthesizing it. Additionally, cataloging and organizing information are core skills that are necessary for KM programs to succeed. Using their infomediary skills, information professionals can facilitate the transfer of tacit knowledge. Unfortunately, libraries are often short on resources to take on more responsibilities. Finding ways to streamline current processes and partner with other internal departments will help information professionals take on some of these roles.

⁷ Copeland, Jr. James E. “Intellectual Capital and Knowledge Management,” Chief Executive July 2001.

⁸ Rasmus

⁹ Kaye, Beverly and Sharon Jordan-Evans “Retention in Tough Times,” T+D January 2002.

Conclusion

When companies are having financial difficulties, often the areas that are deemed core to the business survive. KM is often seen as benefit, but not as a strategic advantage. Organizations that prescribe to the tenets of KM have benefited from the results by keeping critical people and information in house and available to other employees. There is an investment that needs to be made to start and maintain KM programs. The results of implementing a successful KM program can far outweigh these costs. Information professionals have the necessary skills to succeed in KM and when established correctly they will have senior management support. Continued communications of the successes of KM will help prove the programs value. Highlighting and improving these skills can help elevate the status of libraries, which may protect them during a repressed economy.

Beth Perell
US Information Research Center (IRC)
Mercer Human Resource Consulting
Washington, DC, US
phone +1 202 263 3983
fax +1 202 263 3998
mail to: beth.perell@mercer.com
www.mercerHR.com

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