

SAIR 2000 Conference Paper
“A Vision of IR for Y2K”

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Abstract

This paper presents a vision of IR for the beginning of the 21st century in which institutional researches learn to see themselves as the critical knowledge workers in the higher education industry. To take on this role, IR needs to: (1) understand the concepts of knowledge management (KM); (2) use new tools and the web to meet the onslaught of information demands; (3) understand changes in mandated reporting; (4) take advantage of unprecedented access to data; (5) view networking & participating in the IR community as a way of life; (6) learn to manage the politics of data; and (7) take risks and become data entrepreneurs.

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Introduction

This paper shares a vision of the future of institutional research (IR) for the 21st century, in which institutional researchers learn to see themselves as the critical knowledge workers in the higher education industry. To take on this role, IR needs to: (1) understand the concepts of knowledge management (KM); (2) use new tools and the web to meet the onslaught of information demands; (3) understand changes in mandated reporting; (4) take advantage of unprecedented access to data; (5) view networking & participating in the IR community as a way of life; (6) learn to manage the politics of data; and (7) take risks and become data entrepreneurs.

Understanding Knowledge Management

The emerging study of Knowledge Management (or KM) has much to offer institutional research. KM principles recognize that it is important for organizations to “know what they know.” This knowledge:

resides in many different places such as: databases, knowledge bases, filing cabinets and peoples' heads and are distributed right across the enterprise. All too often one part of an enterprise repeats work of another part simply because it is impossible to keep track of, and make use of, knowledge in other parts. Enterprises need to know: what their knowledge assets are; how to manage and make use of these assets to get maximum return (AIAI, 1999, <http://www.aii.ed.ac.uk/~alm/kamlnks.html>).

KM projects are not always called KM. “Knowledge management done well is good business, regardless of what it is called” (Kay, 2000, p. 8). Knowledge assets within an organization are not measured by individual employee’s skills, knowledge, education, and experience, but by their “capitalization as members of an organization” (Strassman, 1999, p. 14). It is this “organized complexity” of collaborative work to share and use information across all aspects of an institution which marks the effective use of knowledge and which KM tries to promote.

All institutions inherently store, access, and deliver knowledge in some manner. They could not exist without it in the marketplace. The question is what value is added to the products and services they deliver by the effective use of that knowledge capital. Two organizations with identical numbers of employees and financial assets may vary widely in how successful they are in the same industry. The difference is often intangible value that is added by effective knowledge management. Peter Drucker explains that “Knowledge has become the key economic resource and the dominant - and perhaps even the only source of competitive advantage” (1999).

Companies with a focus on KM pay close attention to issues of collaboration, organizational learning, best practices, workflow, intellectual property management, document management; customer-centric focus, and using data effectively. KM initiatives include portals that use the web to span communication across an entire enterprise and to promote business to

business relationships (Roberts-Witt, 1999; Ruber, 2000). The Internet is also used intensely for team collaboration and groupware; natural language queries of data; sharing information on best practices; and anytime/anywhere online learning (Delio, 1999; Sherman, 2000).

Data warehouses, data mining, and virtual reality modeling are used as new ways to visualize and transcend extraordinarily complex, transaction-based data (Knowledge Integrity, 2000; Nylund, 2000). The concept of Executive Information System is taken much further with the use of digital dashboards for monitoring critical processes and performance measures (Angus, 1999a; Karlenzig, 1999). Attention management tools address the problem of information overload and help executives focus with personalized web portals to monitor their unique priorities and mission.

The Knowledge Worker Initiative at Xerox is an example of how companies are embracing KM, recognizing that “knowledge is our lifeblood” (Barth, 2000, p. 33). This Initiative identified ten domains in which organizations can leverage knowledge concepts:

- Sharing knowledge and best practices
- Instilling responsibility for sharing knowledge
- Capturing and reusing best practices
- Embedding knowledge in products, services and processes
- Producing knowledge as a product
- Driving knowledge generation for innovation
- Mapping networks of experts
- Building and mining customer knowledge bases
- Understanding and measuring the value of knowledge
- Leveraging intellectual assets

By leveraging knowledge capital, the nature of organizations changes as they become more effective. A new dynamic of information versus data comes into play. This is possible in even the most traditional and hierarchical of institutions, as describes Richard Danzig, Secretary of the Navy:

One of the attractions of the information revolution is that it moves us away from a top-heavy structure... Information acts like a force of gravity that pulls the decision-making power lower into the organization, so it has more freedom, flexibility and vibrancy. The gravitational pull is toward greater freedom and flexibility for junior personnel, and I think that's very healthy (Delio, 2000, p. 50).

In her analysis of grassroots initiatives for KM, Delio found that even when there is support in top management for a project, the KM leader is “not a top dog in the organization.” Of 3,500 IT executives surveyed, only a small fraction (7%) had CEOs who support KM. Most of the companies implementing KM do it at a grassroots level, with only 8% driven from the top (Delio, 2000).

Of those companies that adopt KM, the top reasons are to:

- Increase profits or revenues
- Retain key talent and expertise
- Improve customer retention and/or satisfaction
- Defend market share against new entrants
- Accelerate time to market with products
- Penetrate new market segments
- Reduce costs
- Develop new products and services

In her article “KM Pays Off,” Delio explains that while “knowledge does not result in a physical product... it can yield demonstrable results” (2000b, p. 36). These include increased speed of processes, improved quality, better customer service, and rapid innovation. Using new types of metrics to measure the impact of KM, former MIT/Sloan professor John Vardon argues that “Enterprises have the proof that these new technologies are improving their bottom line” (Delio, 2000b, p. 38).

One of the most widely cited examples of KM in business is Cisco Systems, sustaining double digit growth for years by “extending knowledge-sharing beyond the enterprise to customers, partners and suppliers” (Sherman, 2000, p. 42). “While other companies talk about knowledge management, Cisco has turned theory into practice without adopting KM jargon. Its success speaks volumes about the importance of knowledge initiatives to a company’s bottom line” (p. 47).

As public, private, and for-profit higher education institutions alike respond to the phenomenal growth of online courses, cybercolleges, and virtual universities, these same reasons to adopt KM apply. It is in the application of KM principles that colleges will be better able to increase student retention and graduation rates; retain a technology workforce in the face of severe employee shortages; expand new web-based offerings; work to analyze the cost effective use of technology to meet more enrollment; transform existing transaction-based systems to provide information, not just data, for management; and compete in an environment where institutions cross state and national borders to meet student needs anytime/anywhere.

Many of the roles, responsibilities, and tools of KM are those of IR. Institutional research is found everywhere in the higher education enterprise, from student affairs to parking. It is a mindset about data, regardless of the topic. Institutional researchers are the knowledge workers that KM leaders in business and industry are talking about. IR professionals are tasked to respond to any and all information needs; collecting, extracting, editing, analyzing, and presenting enrollment, finance, course, admissions, facilities, human resource, assessment, and other types of complex historical and current data for management decision-making.

However, institutional researchers cannot sit waiting for top down leadership that will value the IR function because it is at the heart of organizational knowledge. IR has always been somewhat at odds in the power hierarchy, regardless of reporting relationships. Since most KM initiatives do not start at the top anyway, IR professionals are uniquely positioned to be

grassroots leaders in KM. While other mid-level managers are bogged down in operations and day to day crises, institutional researchers should see themselves as having the experience, knowledge, and vision to help transform their institutions through KM.

Using New Tools to Meet the Onslaught of Requests

It is impossible to keep up with the onslaught of data requests and needs by doing things the same old way. The number of admissions guides, state and federally mandated reports, and ad hoc queries which IR offices must respond to is at an all time high and this reporting burden will not diminish, only grow larger.

This problem is described in KM as “quaquaversality.” Quaquaversal motion occurs “when matter radiates out in all directions simultaneously,” such as what occurred in the “Big Bang” theory of how the universe was started. Angus expects that this “coming-apart-in-all-directions force is certain to grow more extreme” in organizations (1999b, p. 17). Too often, the work of IR feels as if requests and demands are coming from all directions at once.

While the typical response to overload is to request more staff, resources, software, and training – these solutions will never be enough because they do not address the fundamental nature of the problem – information processing and the need for better knowledge management.

What do IR professionals need to do instead? They need to think about the entire IR function as an example of KM.

Questioning Assumptions

Many will argue that their offices do not have the luxury of taking on another task, even one that is expected to work at such a high level to transform the organization. It is at this point that institutional researchers must question their most fundamental assumptions about what is important and begin to look at new tools as a way to redistribute work. What business are we in? Is it completing surveys for admission guide vendors to make money with new publications or helping to improve and guide our institutions?

If it is impossible to respond to all admission guides and ad hoc queries, an alternative is to complete the Common Data Set (CDS) and put this on the web. When someone calls for information, give them the URL. If they are unable to get access to the web, offer to print it out and have them come pick it up. Consider the option of not providing any additional data to vendors unless the publication they produce is somehow critical to the mission of your institution.

If the cycle of annual factbook production is taking longer and longer, consider making the factbook a database-driven web product. With clean extracts of unit record reports and relatively free web database software such as ColdFusion and ASP, it is possible to dynamically generate factbook tables and charts on the web when new data become available (Milam, 1999). Use the cost savings of not printing a factbook to purchase a web server.

If a new round of assessment surveys are needed to address some issue facing the institution, such as freshmen retention, consider collecting these online. Web database applications may be created to collect, clean/edit, analyze, and display survey responses as they are completed.

If the data integrity of extracts is a problem, consider rebuilding the information landscape of the institution with an online data dictionary from your office's perspective. This web application could allow users to post notes and even code to explain problems and changes in data entry, value labels, editing, lookup codes, and table entity relationships.

The tools of IR have never been more plentiful or cheaper. Cross-tabs originally done with SPSS or SAS may now be done as Excel pivot tables that allow users to "paint" a report by playing with different fields in columns and rows and different levels of aggregation, grouping, and sorting. Access, with its built-in structured query language (SQL) feature allows for complex reporting with merges between tables, recodes, and referential integrity between fields maintained in different tables.

Many IR offices have moved beyond static HTML pages for factbooks and online versions of reports to dynamically creating pages "on-the-fly" with web database tools. An excellent example of this approach is now open to the public at George Mason University (see <https://data.gmu.edu/cfm/openinfo.cfm>).

It is possible to webify almost everything that an IR office does with inexpensive and user-friendly solutions such as Internet Information Server and Microsoft Office 2000. Paper and pencil instruments are no longer needed as the collection, analysis, and distribution of data on the web becomes standard. Offices that still maintain a large code base are able to use open database connectivity (ODBC) and OLE drivers to go against Access, Excel, and SQL Server databases with SAS and SPSS to have the best of both programming worlds.

Similarly, the advent of the web has provided unprecedented access to every state, national, public, and private entity with which an institution interacts. Institutional research, budget, assessment, student affairs, and state higher education executive (SHEEO) offices on the web provide invaluable models for sharing data and for collecting peer comparison information and ideas for best practices. The ERIC Clearinghouses for Higher Education; Assessment and Evaluation; Community Colleges; Adult, Career, and Vocational Education; Counseling and Student Services; and Information & Technology are invaluable online resources that now contain much more than bibliographic information.

IR has access with the cost of a subscription to the full-text, full-search site of the *Chronicle of Higher Education*, invaluable if only for its data almanac and job listings. The Association for Institutional Research (AIR), Society for College and University Planning (SCUP), National Center for Education Statistics, IPEDS, and National Science Foundation sites have never been more integral or accessible to the knowledge management of higher education. These sites provide numerous web applications, such as membership directories for networking, full-text documents, data analysis systems (DAS), and peer analysis tools. The members only

services of association sites, especially that of AIR, are well worth it just for the online resources.

Changes in Mandated Reporting

One reason that reporting burden is at its highest level is that there are unprecedented changes in mandated reporting at the federal level. Institutional researchers need to be prepared to understand the effect of these changes on the nature of their work and on their institutions. They need to assess, long before a new report is due, whether they are prepared to collect, edit, aggregate, and analyze the necessary data. If new systems of data collection are required or new programs must be written to obtain extracts, IR must anticipate this in time to fight for this need in the competing priorities placed on central computing or their own staffs.

New coding schemes for existing data

These changes in reporting include new race/ethnicity codes. While there is still discussion and contention between federal agencies about the implementation of the new U.S. Office of Management and Budget (OMB) standard for collecting data on race and ethnicity, this new coding schema was implemented in the 2000 U.S. Census. Using a two-question format to encourage accurate reporting on multiple combinations of race and ethnicity, NCES has recommended that 16 possible categories be created for surveys. These would allow for the calculation of ranges of the minimum and maximum number of individuals in a category.

The U.S. Department of Education's Office of Civil Rights, the Equal Employment Opportunity Commission, NCES, NPEC, and NSF are still meeting to reach resolution about postsecondary data reporting, which will be required in 2003. NSF has already begun collecting data using the two question format. Numerous issues will arise about the comparability of data collected with new and old methods in the same survey and across surveys. It is expected that institutional researchers will encounter many problems in upgrading their systems and reports to meet this mandate.

Schools will need to survey their entire student body to meet reporting requirements and modify their data entry forms accordingly. It is very possible that schools will no longer know the exact number of students in certain combinations of race/ethnicity that they are used to analyzing for internal reports. Many trends in affirmative action statistics will need to be rethought in the light of these new data (NCES, 2000d; Westat, 2000).

New classification of instructional program or CIP codes are also being implemented. CIP 2000 is necessary to account for changes in the structure and nature of academic disciplines and programs which have taken place since the previous 1990 release of a classification manual. Crosswalks and taxonomies have been created to allow historical analysis of data by discipline and a website with translation between old and new codes is available. Some CIP codes are no longer used, especially if they are reported by only a few institutions. Canadian and U.S. CIP codes are merged into a single system so that there will now be greater comparability across countries. However, trends and analysis of enrollment patterns and degree productivity by discipline could be effected by this change and IR needs to anticipate how these will impact existing studies such as peer comparison (Morgan and Hunt, 2000).

Deletion of data collection

Due to a cut in appropriations for the U.S. Department of Education last year, NCES stopped the collection of two critical surveys – the IPEDS Faculty Salary Survey (SA) and the IPEDS Fall Staff Survey (S). Other survey data such as IPEDS Finance have been greatly curtailed as well. While some critical data elements from these surveys are included in the two web-based surveys that began in academic year 2000-01, this will have a major impact on institutional researchers who study faculty and staff.

Ironically, a multi-year effort was initiated by NCES through the National Postsecondary Education Cooperative (NPEC) to redesign the IPEDS surveys, with extensive focus on the S and SA. Despite recommendations to gather more data and improve current definitions and instruments, the S and SA have still been cut. NCES expects researchers to rely on AAUP for faculty salary data. However, Ernest Benjamin of AAUP reports that less than half of AAUP submissions come through its own instrument, the rest through shared submissions of the SA. Also, NCES is expecting the EEOC to collect the S, which it formally conducted until 1993 as the EEO-6 report.

New data for collection

The IPEDS Redesign effort recommended new data collection features for the S and SA, including detailed breakouts about faculty by type. NCES still intends to phase these new data tables into its web collections over time, with additional funding. These three critical cross-tabs of data will provide new insights into who teaches and into the make-up of the faculty population. Other sample surveys such as the National Study of Postsecondary Faculty (NSOPF) have been hampered by inadequate weighting and stratification techniques due to this lack of detailed faculty data. For many schools, it will be difficult to complete the new data tables for instructional, research, and service faculty by rank, tenure, teaching, and clinical status without surveying the existing workforce (NPEC, 1999; NPEC, 2000; Peng, 1999; Phillips, 1999; Sapp, 2000).

New methods for collection

Both NCES and NSF have implemented web-based data collections. After years of reliance on paper forms, NCES required that its August, 1999 IPSFA data collection be submitted via the web (Forgione, 1999). Edit checks and data cleanup/verification are also documented in this manner. This changed the state SHEEO role in review and analysis of data before submission to NCES. Beginning in Fall 2000, all surveys are being collected in two web-based collections, one in the Fall and the second in the Spring (NCES, 2000a; NCES, March 6, 2000; NCES, April 7, 2000).

The Fall 2000 collection did not go as planned, though, with major problems in the SQL Server and ASP web database programming that caused long processing delays on both ends. IPEDS is addressing these computing issues and states that the Spring 2001 collection will run more smoothly. A massive effort was undertaken in the Summer of 2000 by NCES in conjunction with AIR and regional and state groups to prepare IPEDS trainers who would then

go out and train cadres of IR staff in completing the new web collections and using the Peer Analysis System.

The Common Data Set (CDS), which is promoted by the four major admissions guide vendors, also continues to undergo yearly changes and additions. It appears that U.S. News will begin collecting its version of the CDS online at the end of this year. The other vendors, including the College Board, Peterson's, and Wintergreen/Orchard House, have not decided how they will respond. U.S. News will not share its CDS collection with anyone else, according to Bob Morse (2000). One possibility is that the other three vendors will allow the new VIOLIN project of NCES and AIR to become a repository for these data.

NCES and NSF funded through the Association for Institutional Research (AIR) grant program a pilot project called VIOLIN (Voluntary Institutional On-Line Information Network). VIOLIN emerged out of the recognition that IPEDS is inadequate for keeping up with the demands for policy data. Rather than continue to improve and expand IPEDS with limited funding, NCES plans to use VIOLIN for one-time and ongoing exchanges of data at the institutional level. Twenty-four pilot schools participated in the 1999-2000 pilot year, submitting data for a CDS repository. While funding was not available for 2000-01 implementation due to the across-the-board cuts, VIOLIN is in the NCES budget for the future. Numerous associations in the Council of Higher Education Management Associations (CHEMA) group and other policy-related associations such as the American Council on Education (ACE) are involved in promoting VIOLIN as an alternative to an ever-expanding IPEDS. One possibility which has been discussed recently is for VIOLIN to become a project of the National Postsecondary Education Cooperative (NPEC).

Unprecedented Access to Data

The web also provides multiple, new ways for institutional researchers to get access to data and information. Yet as unprecedented access to data moves forward, some of the old ways which IR staff rely on for peer comparisons are no longer offered.

Cutting old methods for dissemination

In the past, NCES provided data in compressed (zip) files for download via file transfer protocol (FTP) on its website. These files contain several different file formats and the record layout. While the historical FTP files are still available, NCES is releasing new data only through its new Peer Analysis System (PAS). For example, the Institutional Price and Student Financial Aid (IPSFA) data are only available through the PAS and IPEDS College Opportunities On-Line (COOL). Some files that were more recently collected, such as the final release of the IPEDS Fall Staff Survey for 1997, are made available as a zip file on the old website.

The zip files include record layouts in Excel and text format; documentation of value labels for critical institutional characteristics; SAS code and ASCII text files needed to import the data into SAS; an Access database structure and importing macro, and raw data files for importing. Now only comma delimited CSV file format data will be made available. These data are broken out into specific tables within a survey. All analysts and researchers who use the raw,

electronic IPEDS data will need to create new programs to access the data. Users must download, import, and merge these files to obtain data in a format comparable to what they are used to using, with conversion of existing SAS and SPSS programs to accommodate the changes in record layout.

New methods for dissemination

NCES and NSF have both moved to primarily releasing data and publications on the web. NSF has since 1990 offered its CASPAR product with merged files suitable for many levels of analysis, most of them at the institutional level. An online WebCASPAR product allows historical analysis of data from NSF, NRC, IPEDS, and other survey sources in a useful and user-friendly format. The results may be displayed in HTML, Excel, Lotus, and SAS read formats (NSF, 2000).

The NCES Peer Analysis System accomplishes similar aims, making IPEDS data available online in a much more timely manner. Though the PAS and WebCASPAR systems are very different, they both allow users to select one or more institutions and to build an analysis or data file with elements and value labels from different surveys. Users do not need to understand the data dictionary of each survey or be concerned about unique identifiers for merging surveys and historical data. Researchers are well served with these tools, which continue to evolve and include new datasets when available.

A new version of the PAS is expected to be released in November, 2000. Unlike WebCASPAR, the PAS allows users to create calculated variables from different tables of data. While WebCASPAR allows various levels of aggregation in creating reports such as region or academic discipline, the basic approach of the PAS is at the institution level.

The most unique feature of the PAS is the availability of current data. After data submitted in the web collections have passed edits and been “locked” by the institution any SHEEO, NCES migrates the data to the PAS. This means that rather than waiting several years for current IPEDS data, institutions will, once they submit their own data, have access to all other current data. For peer comparisons, this is an unprecedented and much desired feature of the new IPEDS.

Finding the ANSWERS

Authorized by Congress in 1994, NPEC was established by NCES to promote “Better Decisions through Better Data.” NPEC’s “Accessing Survey Resources” project was begun in 1999-2000 to provide survey developers, policy analysts, and researchers with an online resource that identifies questions, best practices, and definitions from existing national surveys on subjects or and topics of interest. A website called ANSWERS (Accessing National Surveys With Electronic Resource Sources) has been developed with various web-based products to facilitate better understanding and greater use of the national datasets. The URL is: <http://nces.ed.gov/npec/answers>.

The purpose of the ANSWERS website is to:

- Describe and analyze information on frequently used surveys of higher education institutions
- Promote better use of the national datasets
- Provide a compendium of definitions and questions to promote best practices in survey development
- Reduce data collection burden on institutions
- Improve the comparability of data across surveys by promoting de facto standards
- Suggest data needs for possible inclusion in the NCES VIOLIN project, a new web-based voluntary data exchange designed to supplement IPEDS

ANSWERS includes a wide variety of online tools to help different types of users or audiences find the data and developer resources they need. These audience pages offer suggestions of how different types of users might find the data they're looking for. For example, survey developers may be interested in potential questions to use in an institutional questionnaire, using the Question Bank. Policy analysts may want to quickly locate existing data to respond to a request on a hot topic by using the Matrix of Data Elements. Search engines are also provided with each type of resource. A special audience page is provided for IR and Planning.

NCES has developed several other new tools for IR. Electronic Codebooks are available for IPEDS for the sample surveys such as the National Study of Postsecondary Faculty. The College Opportunities On-Line (IPEDS COOL) website is geared to the mainstream public, with three years of tuition and fees and financial aid data provided in response to Congressional mandate. Also, HTML/PDF versions of all current and many historical NCES publications are made available online (NCES, 200b). Other important publications such as *The Condition of Education* and *Education Digest* are available in multiple formats with full-text searching.

In addition to WebCASPAR, NSF offers an online tool that allows access to its three higher education sample surveys. The NSF SESTAT website offers the Survey of Doctorate Recipients, the National Survey of College Graduates (NSCG), and the National Survey of Recent College Graduates (NSRCG). See <http://srsstats.sbe.nsf.gov/> for more information. Historical data from the two NSF Surveys at the institution level, the Graduate Student Survey (GSS) and the Academic Research and Development Survey (R&D), are presented in up-to-date "Academic Institutional Profiles," along with other data such as federal obligations by agency and discipline. These datasets (especially the GSS) are available electronically for further analysis at the institution level (NSF, 1999; NSF, 2000).

Networking as a Way of Life

By nature of being part of academic institutions, IR has had access to some of the Internet's most cutting edge tools. Email and listservs transformed networking years ago. Yet these tools are still growing in use, with an average of 10 billion emails per day in 2000,

expected to rise to 35 billion by 2005 (Levitt, 2000). Institutional researchers must take advantage of the web for everything they do. Other free, ubiquitous Internet tools such as chat rooms, threaded discussion groups, newsgroups, FTP, and instant messaging should not be ignored, but experimented with for a variety of daily communication purposes.

IR professionals need to keep up with changes on the NCES, NSF, SHEEO, and peer websites and there are dozens of free web tools to help them do this. In an age of shrinking travel budgets, there is no reason why IR cannot take advantage of the many virtual conference offerings which are available. Using RealPlayer and other media software, anytime/anywhere access is a reality with speeches and presentations on a myriad of topics of interest to IR, from learning to use a statistical technique to learning to run a web server. If a national association does not offer its conference proceedings online, be sure to check regional and state meetings. As institutional researchers find sites that are useful to their work, such as are listed in Internet Resources for Institutional Research, they should promote them and encourage others to make effective use of them. The capacity to stay in touch with colleagues, professionals, and organizations is expanding almost exponentially.

Back on campus, IR professionals need to force themselves to build the same kinds of networking relationships. It is important to befriend anyone who understands the data dictionary your office relies on, from fellow data users to the data entry managers who stand at the first line of cleanup and editing. The web has facilitated a mindset about sharing knowledge which crosses organizational boundaries and breaks apart hierarchical reporting. If you have questions about a new report or study conducted by a researcher at another university, send the person an email. Similarly, if central computing doesn't want to support your using a web server to serve databases, create an informal support or users group with several offices to help yourselves work through problems together. Long after AIR workshops and presentations are over, participants continue to email facilitators with questions and ideas. There is no reason to feel isolated or alone in facing a work problem when there are so many competent professionals at the end of an email or phone call who are glad to help. Use the national, regional, and state membership directories to find them or go to the institution's website and use the people lookup feature.

The threaded discussion groups which are available on the AIR, SAIR, and other association websites are, like many listservs and newsgroups, much underutilized. Yet this service is free, immediate, and works extremely well in some contexts. The key to success is the presence of a small group of institutional researchers who are committed to using technology for networking. Use these tools, promote their use at conferences, and you will be amazed at how much they can offer. Comparable arrangements are in place for sets of peer institutions such as Urban Universities, the AAU Data Exchange, and the Southern University Group for communicating about data issues and responding to ad hoc requests.

Managing the Politics of Data

As IR learns to facilitate KM in higher education, the ideal of "better data for better decisions" may, unfortunately, not meet the reality of the decision-making process. Too often, it is the politics of resource allocation and not the well-written analysis of an issue which guides major administrators.

While it is important to try anyway, the recommendation of this author is that IR professionals not be too idealistic about the appearance of rationality. There is much to be said for the organizational theories of ambiguous leadership, loosely coupled systems and sensemaking (Cohen and March, 1974; Weick, 1979). Rather than be discouraged that one's white papers and factbooks are not better used, try sensemaking instead. Tell stories with data that people want told. An example is freshmen retention, with a report that interweaves first person, qualitative narratives with tables and charts to dramatically tell the cost of attrition to an individual and to the institution.

In considering the politics of data, too often there is a "kill the messenger" syndrome at work in which IR is blamed for providing data about a problem. The issue is not that IR has uncovered a problem that the institution and administrators is concerned about, but that the data are somehow incorrect or inadequate for explaining the situation. No one likes to hear bad news and IR is somehow blamed as if it is its fault. The key is pushing data to executives so that they are enabled by tools such as digital dashboards and executive information systems to monitor critical performance indicators before they become a problem.

As IR professionals move to promote knowledge management, there is a subtle restructuring of hierarchies. Information has the potential to completely change the power dynamics in an organization. Don't expect everyone to be pleased about this phenomenon, especially those who seem to currently wield the most power with data.

There are three ways to combat these problems of "kill the messenger" and organizational dynamics. The first is to move out of the role of "manager" into that of "knowledge worker." Managers will always be blamed when data do not work out the way other people intended them to, either because of missed deadlines or inadequate time to prepare complex analyses. The trick is for IR professionals to see themselves as knowledge workers who are valued because of the intellectual capital or knowledge assets they contribute to the institution. One must be involved in analyzing and presenting data to do this. It is not enough to supervise staff who do this function. Everyone must have unique skill sets, competencies, and topical areas in which they uniquely contribute to knowledge management.

A second way to combat these problems is to promote the use of teams. Very few organizations encourage teams, at least as more than an occasional exercise in brainstorming. Yet teams and collaborative arrangements are very successful in business and industry. What few people realize is that teams are very messy. There is a great investment required in promoting the kind of group process and work that will encourage true collaboration across titles and roles and position descriptions. Groupware software has much to offer in facilitating virtual teams, but requires the same type of commitment, sharing, openness, and built-in reward structure for participation and self-management.

Finally, IR professionals need to realize that there are fundamental political tensions inherent in getting access to data and sharing information. There are the obvious tensions – internal use versus external scrutiny and legislative accountability versus academic freedom and governance. The real issues involve power and sensemaking and telling the stories of the

institution. It is important not to get too attached to whether institutional research data appear to be used by major administrators in decision-making. There is a cumulative process at work. Deflect this traditional model with the concepts of knowledge management. Find ways to illustrate how institutions could better compete and address critical problems such as student retention and technology worker shortages by focusing on KM principles.

Taking Risks and Being a Data Entrepreneur

There is so much to balance in juggling competing priorities, moving forward with a KM approach, and learning to see the larger patterns in how an institution uses data and information. IR will not be able to take up these challenges if it remains in the box of existing expectations. It is important to take risks. Our work lives aren't usually that comfortable or settled anyway, with competing tensions and demands on time, staff turnover, and changing reporting relationships.

If you stick to your job description, it is only the lowest common denominator for performance. It is also probably wrong, written by people who barely understand what your predecessor or you actually do during the course of a day. IR must challenge all assumptions about the nature of the business it is in. What should you really be doing to serve the institution?

One way to look at this new institutional role is through the KM buzzword "infomediaries." The parallels to IR are obvious:

This demand for immediate access to relevant knowledge has given rise to a new business role: the internal infomediary, who creates or manages systems to connect employees with the knowledge they need. Infomediaries may bear any of a range of titles and may not be designated on the org chart as knowledge controllers; what matters is what they do. "Their responsibility is to keep their finger on the pulse of the knowledge flowing around the organization..." (Costello, 2000, p. 33).

During times of information overload, the last thing many professionals want to hear is that it is time for them to learn and implement something entirely new such as a web-based data mart or online surveys. Yet the web is transforming higher education and institutional research. Rather than be seen as one more item for the IR to-do list, effective leveraging of technology such as the web is the only way to keep up. The technology is so much cheaper and easier than most people think it is.

Businesses are learning that the next step in leveraging technology for KM is the use of internal infomediaries. "Anyone who can take and analyze, evaluate, package and disseminate information in this useful fashion is going to give somebody a business advantage" (Costello, 2000, p. 41). Institutional research professionals are already doing this.

What is needed for IR to take the next step into the 21st century is vision - the vision to explore and use the plethora of new and exciting tools; the vision to embrace knowledge management as a way to rethink what higher education organizations are all about; and the vision to accept change with all of the dissonance and rewards that it brings.

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