Information Systems as a Reference Discipline

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INFORMATION SYSTEMS AS A REFERENCE DISCIPLINE[1]

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Abstract

The conventional wisdom amongst information systems (IS) researchers is that information systems is an applied discipline drawing upon other, more fundamental, reference disciplines. These reference disciplines are seen as having foundational value for IS. We believe that it is time to question the conventional wisdom. We agree that

many disciplines are relevant for IS researchers, but we suggest a re-think of the idea of "reference disciplines" for IS. In a sense, IS has come of age. Perhaps the time has come for IS to become a reference discipline for others.

Keywords: Computing reference disciplines, research tradition, knowledge networks, diffusion of research, IS research agenda, IS research issues, future of IS

ISRL Categories: AI05, IB03, IB04, ID05

Introduction

In the past, information systems (IS) researchers have taken for granted the idea that the emerging IS discipline has "reference disciplines." IS researchers have assumed that the theories and methods of these disciplines serve to set the standards by which the quality and maturity of IS research should be measured. In this article, we offer a new opinion: The IS discipline is no longer just emerging, but has fully emerged as a discipline in its own right. We suggest the intriguing scenario that IS can now serve as a reference discipline for others, even for those fields that previously served as reference disciplines for IS. In a sense, the tables have turned. This opinion raises a number of issues that we examine in this article.

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[1]Allen S. Lee was the accepting senior editor for this paper.

The Conventional Wisdom ▬▬

For the past two decades, information systems scholars have thought of the IS field as an applied discipline drawing upon other, more fundamental, reference disciplines. Peter Keen, at the first International Conference on Information Systems (ICIS) in 1980, argued that IS was an "applied" discipline drawing upon other reference disciplines. Since these reference disciplines were more mature, IS researchers could borrow and learn from the theories, methods and exemplars of good research in these reference disciplines (Keen 1980). The reification of the concept of reference disciplines for IS research was one of the lasting outcomes of the first ICIS (Benbasat and Weber 1996).

Since that time, IS scholars have spent much time and effort debating which disciplines have foundational value for information systems. In the early days, IS research drew primarily upon engineering, computer science, cybernetic systems theory, mathematics, management science, and behavioral decision theory. Many IS scholars were originally trained in these other fields, and so, not surprisingly, these disciplines were seen as having foundational value for IS (Hamilton and Ives 1983; Keen 1980; Mendelson et al. 1987). More recently, the list of reference disciplines has expanded considerably. Culnan (1987) classified IS reference disciplines into three categories: fundamental theory (e.g., systems science), underlying disciplines (e.g., political science, psychology, and sociology), and related applied disciplines (e.g., computer science, accounting, finance, management, and management science). Subsequently, arguments have been made in favor of yet other disciplines being added to the list of reference disciplines for IS, such as architecture (Lee 1991), economics (Bakos and Kemerer 1992), and anthropology (Avison and Myers 1997).

Considerable discussion has also taken place about the nature of the IS discipline (Banville and Landry 1989; Galliers 1992; Landry and Banville 1992; Lucas 1999; Mingers and Stowell 1997), what it means to be counted as a discipline in the first place (Jones 1997), and what the appropriate subject matter of the field should be (Mingers and Stowell 1997; Walsham 1993). Some find the "confused" state of the field unsatisfactory, lament the lack of a cohesive, accepted conceptual framework or paradigm for IS research, and argue the need for some consensus on fundamental concepts (Benbasat and Weber 1996; Checkland and Holwell 1998; Davis 2000). Others believe that IS is a "heterogeneous yet congenial community" (Swanson and Ramiller 1993), argue that diversity in IS research is a good thing (Banville and Landry 1989), and suggest that the current diversity in theoretical foundations and research methods is a cause for celebration (Robey 1996).

What we find surprising about the debate so far is that very few IS scholars seem to have questioned one particular assumption about the IS field. This assumption holds that information systems draws upon other, more fundamental, reference disciplines, but IS does not have any research tradition of its own. Also integral to this assumption is that IS researchers borrow and learn from the theories, methods, and exemplars of good research in other fields, but these other fields do not borrow and learn from the theories, methods, and exemplars of good research in IS. What is more, the flow of knowledge and information is also assumed to be entirely one way. Since IS was defined early on as an applied discipline, the conventional wisdom has held that our research is targeted primarily at IS researchers and practitioners—indeed, many IS journals explicitly require authors to discuss the implications of their work for these two audiences. That our research might be of interest to researchers or practitioners in other fields seems not to have been considered.

We can summarize the conventional wisdom as conceiving of IS as being near the end of an intellectual food chain. In other words, the conventional wisdom imagines that IS has many reference disciplines, but does not have its own research tradition and has few, if any, referring disciplines. In this view, IS consumes theories and discoveries from other disciplines, but IS research is of little interest to those outside (see Figure 1). Our argument is that this view of the nature of our field is now outdated.
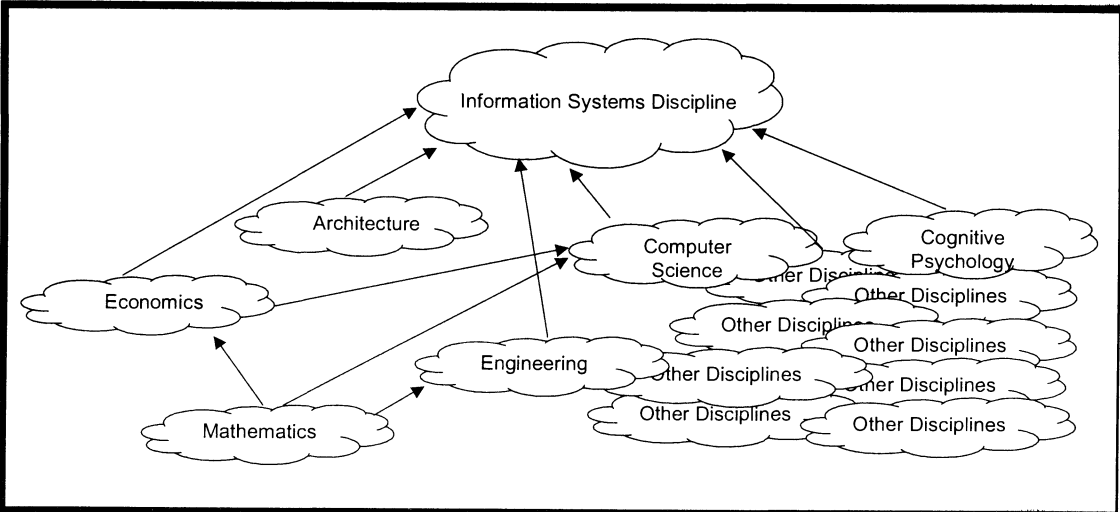
Figure 1. Conventional Viewpoint, with Information Systems as a Consumer of Concepts at the End of an Intellectual Food Chain

The Emergence of a Research Tradition in Information Systems ■

Is the discipline of IS simply a net importer of knowledge from other disciplines? Does IS not have any research tradition of its own?

It is our opinion that IS has been singularly successful in developing its own research perspective and its own research tradition. We base this opinion on a number of factors: at least one major journal (*MIS Quarterly*) was established more than 25 years ago, the field's major international conference (ICIS) is more than 20 years old, and most major universities have IS departments. As well as having its own international society (the Association for Information Systems), the field has a distinct subject matter, a distinct research perspective, and a well-developed communication system that includes respected journals.

Many articles have contributed to defining the distinct subject matter of IS (e.g., Alavi and Carlson 1992; Culnan 1987; Culnan and Swanson 1986). Lee describes the distinctive subject matter and research perspective of IS as follows

research in the information systems field examines more than just the technological system, or just the social system, or even the two side by side; in addition, it investigates the phenomena that emerge when the two interact. This embodies both a research perspective and a subject matter that differentiate the academic field of information systems from other disciplines. In this regard, our field's so-called "reference disciplines" are actually poor models for our own field. They focus on the behavioral or the technological, but not on the emergent socio-technical phenomena that set our field apart. For this reason, I no longer refer to them as reference disciplines, but as "contributing disciplines" at best (Lee 2001, p. iii).

Davis (2000) reviewed articles from ICIS and *MIS Quarterly* in an analysis of bodies of concepts, theories, processes, and application systems unique or somewhat unique to IS. He identifies five bodies of knowledge that have developed in the IS tradition (see Table 1). Moreover, there are good exemplars of substantive IS research, for example, Markus' (1983) article on IS implementation, Delone and McLean's (1992) analysis of IS

Table 1. Bodies of Knowledge: Concepts, Theories, Processes, and Applications Unique or Somewhat Unique to Information Systems (Adapted from Davis 2000)	
Bodies of Knowledge Unique or Somewhat Unique to Information Systems	**Examples of Concepts, Theories, Processes, and Applications**
Information systems management processes	• Strategic planning for infrastructure and applications • Evaluation of IS in the organization • Management of IS personnel • Management of IS function and operations
Information systems development processes	• IS project management • IS project risk management • Project organization and participation • Technical and social requirements • Application acquisition • Systems implementation • Training, acceptance and use
Information systems development concepts	• Methods concepts • Socio-technical concepts • Speech act theory for collaborative development • Rational decomposition concepts for requirements • Social construction for requirements • Error and error detection concepts • Testing concepts for complex socio-technical systems • Quality concepts for IS
Representations in information systems	• Database, knowledge base concepts • Representations of the "real world" • Coding • Storage, retrieval, and transmission • Tracking events • Representing event changes • Representing system structure
Application systems	• Knowledge management • Expert systems • Decision support systems (DSS) and Group DSS • Collaborative work and virtual team systems • Telecommuting and distributed work systems • Supply chain systems • Enterprise resource planning systems • Intra- and interorganizational systems • Training systems • Electronic commerce systems • Customer support systems

success measures, and the Minnesota experiments of Dickson, Senn and Chervany (1977). Other examples can be found in the form of special issues of top journals that focus research attention on important problems within the IS domain, for example, the *Information Systems Research* special issue (Volume 7, Issue 1, 1996) on information technology and organizational transformation.

As well as a distinctive subject matter, there is a distinct research perspective that embraces both qualitative and quantitative research. Positivist, interpretive, and critical research articles are welcome in our top journals as long as the research itself is of high quality. This recognition of the importance of diverse paradigms is certainly not a strength that is found in many other fields. IS journals have published articles which can be regarded as methodological "exemplars." Examples include Baroudi and Orlikowski (1989), Lee (1989), and Straub (1989). *MIS Quarterly* published a Special Issue on intensive research in information systems over three volumes (Markus and Lee 1999, 2000a, 2000b). The explicit purpose of the special issue was to publish exemplars of intensive research in IS.

The field has developed an excellent scholarly communication network. This network includes journals, international and regional conferences such as ICIS, the Americas Conference on IS (AMCIS), the European Conference on IS (ECIS) and the Pacific Asia Conference on IS (PACIS). There are also specialist conferences such as those associated with working groups in the International Federation for Information Processing (IFIP). Further, there are on-line periodicals such as *Communications of the AIS*, newsletters and online discussion groups such as the ISWorld listserve, and ISWorld itself, a single entry point to online resources related to the information systems field.

The reputation of the top scholarly journals, such as *MIS Quarterly* and *Information Systems Research,* is well established. This reputation is founded on studies that have compared and/or ranked the journals (Lending and Wetherbe 1992;

Mylonopoulos and Theoharakis 2001; Nord and Nord 1995; Straub et al. 1994; Vogel and Wetherbe 1984; Whitman et al. 1999). These rankings are almost always done by IS faculty, and not by academics in other fields. Interestingly, at least among the highly ranked journals, "there is a fairly high level of consensus as to what constitutes journal quality" within the IS research community (Whitman et al. 1999, p. 108). These journal rankings are used by universities in tenure and promotion decisions. This means that most universities now accept the judgment of the IS community as to what counts as excellent research. In other words, IS faculty performance on research is measured by the standards that the IS community has set for itself.

The ability of IS research to serve as a foundation for further IS research is evidence of the maturing of the field. It is not always necessary to refer to the research literature of the so-called reference disciplines. Research manuscripts submitted for publication consideration to our journals are evaluated primarily on their contribution (or potential contribution) to the IS research literature. And in order to demonstrate this, it is imperative that the authors provide a good review of the IS research literature. There is nothing to stop authors from reviewing the research literature in another discipline, but as editors and reviewers, our experience is that the IS literature review is of most importance. In our editorial and reviewing practices, we stopped considering other disciplines as models some time ago.

Hence, in our opinion, IS has developed its own subject matter, a distinctive research perspective, and an excellent scholarly communication system. These developments clearly demonstrate the emergence of a research tradition in IS.

The New Reality ▬▬▬▬▬▬

Given that IS has developed its own research tradition and perspective, the next question becomes: How does IS research have any interest and value for researchers in other fields?

We are of the opinion that IS has much to offer researchers in many other disciplines. This is especially so given that information technology and systems have become ubiquitous in the industrialized world. Information systems are important to both the private and public sectors, to individuals, organizations, nations, and trans-national organizations. Information systems now pervade such diverse areas as agriculture, manu-facturing, services, education, medicine, defense, and government. At this juncture, where infor-mation technology is rapidly becoming pervasive throughout society, many fields have developed a research interest in information and communi-cations technologies. Researchers working in many of these areas have realized that the phenomena of interest are now mediated by information technology (IT).

Two examples will suffice to show how earlier IS research has proved to be of value to others. The first is Markus' (1983) classic article in the study of information technology and organizations. The second is the IS research literature on business process reengineering.

Markus' article has been cited over 200 times since 1993 (Lee et al. 2000). Markus compared three theories on resistance to IS implementation. She showed that her case study data best supported one of these theories, which she described as an interaction theory. Resistance was explained "as a product of the interaction of systems design features with the intraorgani-zational distribution of power" (p. 432). Prior to this work, resistance to technological change had been seen as dysfunctional, but her work demon-strated that resistance to change is neither good nor bad in itself. Rather, it is labeled as good or bad depending on

> the vested interests of the person or group doing the labeling. Resistance can be an important, even organizationally healthy, phenomenon by signaling that an information system is altering the balance of power in ways that might cause organizational dysfunctions (pp. 442-443).

Markus' findings have impacted research in many disciplines outside of IS because resistance to new technologies is a recurring problem in many fields. The citation pattern for Markus' article reveals that it has been cited in such diverse disci-plines as communication (Lewis 2000), education (Telem 1997), human resources (Fincham 1994), manufacturing (Guimaraes et al. 1995), medical informatics (Kaplan 1997), organizational behavior (Singh and Ginzberg 1996), organizational change management (Kaarst-Brown 1999), sociology (Rachel and Woolgar 1995), and urban planning (Budic and Godschalk 1994).

As another example, IS researchers have studied business process reengineering (BPR) quite extensively. Although the proponents of BPR have now distanced themselves from how BPR principles have been implemented, the underlying theme of BPR remains: how business processes can and must be re-engineered with the help of IT. Researchers in the traditional functional areas of business need to understand how IT can be used in their own particular area. Davenport and Short's (1990) original article on BPR has been used extensively in this way. The ISI Web of Science citation index shows that it has been cited more than 250 times in support of further work in computer science, business, and management. This work has also been cited in fields such as behavioral science (Paul et al. 1999), systems science (Gross and Traunmuller 1996), govern-ment (Caudle 1996), manufacturing and engi-neering (Harris 1996; Li 1996), and medical informatics (Buetow and Roland 1999).

Given the rapid and unrelenting digitization of business and society as a whole, what about the future? As we have said, many fields have started to recognize the importance of information technology and information systems. Researchers in these fields are now starting to teach and do research on the development, use, and impact of information technology and systems in their parti-cular area. New sub-disciplines are rapidly emerging.

For example, many researchers in marketing have turned their attention to electronic commerce,

electronic marketplaces, and the impact of new technologies on consumer behavior, advertising, and so forth. In education, researchers have started to conduct research on topics such as multimedia in education and the use of the Internet in distance education. Other areas that have a major interest in IS include international business, communications and media studies, human resource management, and operations management.

Not only are new sub-disciplines being created, but IT is stimulating the formation of entirely new disciplines. Bio-informatics, biotechnology, and geographical information systems are fields of research that depend entirely upon information technology and systems.

Of course, not all of these are new fields. Some, like accounting information systems and medical informatics, are well established. Medical informatics is a field that addresses key research areas including computer-based medical records, distributed data systems, standards for sharing of data and knowledge, information-retrieval, mobile computing, wireless networking, human-computer interaction, clinical decision support systems, and psycho-social barriers to computer use by medical personnel. The American Medical Informatics Association recently celebrated the 25th anniversary of its first conference in medical informatics. MedInfo, the triennial world conference, was established in the 1970s.

Clearly, whether the disciplines are new or more established, we are seeing an explosion of interest in the development, use, and application of information systems and technologies. These developments represent a tremendous opportunity for IS researchers and the field as a whole.

Our view holds that IS should grasp the opportunity which presents itself at this time by shifting its orientation from that of a primarily applied, referring discipline, to that of both a referring and a reference discipline. According to the conventional wisdom, the IS field is primarily a consumer of intellectual ideas that came from elsewhere (at the end of an intellectual food chain). But IS actually has an opportunity to become a reference

discipline for other research fields (see Figure 2). This opportunity arises because almost every other human discipline is now a potential consumer of IS research discoveries.

From Reference Disciplines to Knowledge Networks ■■■■■

We can summarize our argument so far by saying that the idea of reference disciplines for IS is now outdated. We agree wholeheartedly that we should continue to learn from research in other fields, but we do not agree that we should continue to regard these other fields as models for our own. In fact, if we are going to continue to use the term reference discipline, then we should start to use it in a different sense. Rather than conceptualizing the process of knowledge creation as unidirectional (being part of a food chain with IS at one end), we can conceptualize this process as multidirectional. IS scholars along with scholars in other fields can be seen as part of many knowledge creation networks throughout the world. The focus then shifts to the linkages between the networks.

Seen in this way, IS ceases to be a referring discipline with many reference disciplines, but it becomes one of many reference disciplines exchanging ideas in an intellectual discourse with other disciplines. Information systems takes its place as one reference discipline or contributing discipline amongst others.

Instead of "importing knowledge" from the so-called reference disciplines (the old unidirectional model), IS scholars should consider where there might be opportunities for collaboration with scholars in other fields (the new model). There are many such opportunities in areas such as medical informatics or electronic commerce. Potentially these areas can make great intellectual progress because they are able to exploit the interstices between disciplines.

If we start to think of IS as a reference discipline in its own right, this does not mean that we should

Figure 2. Revised Viewpoint, with IS as a Reference Discipline in a Discourse with Other Reference Disciplines
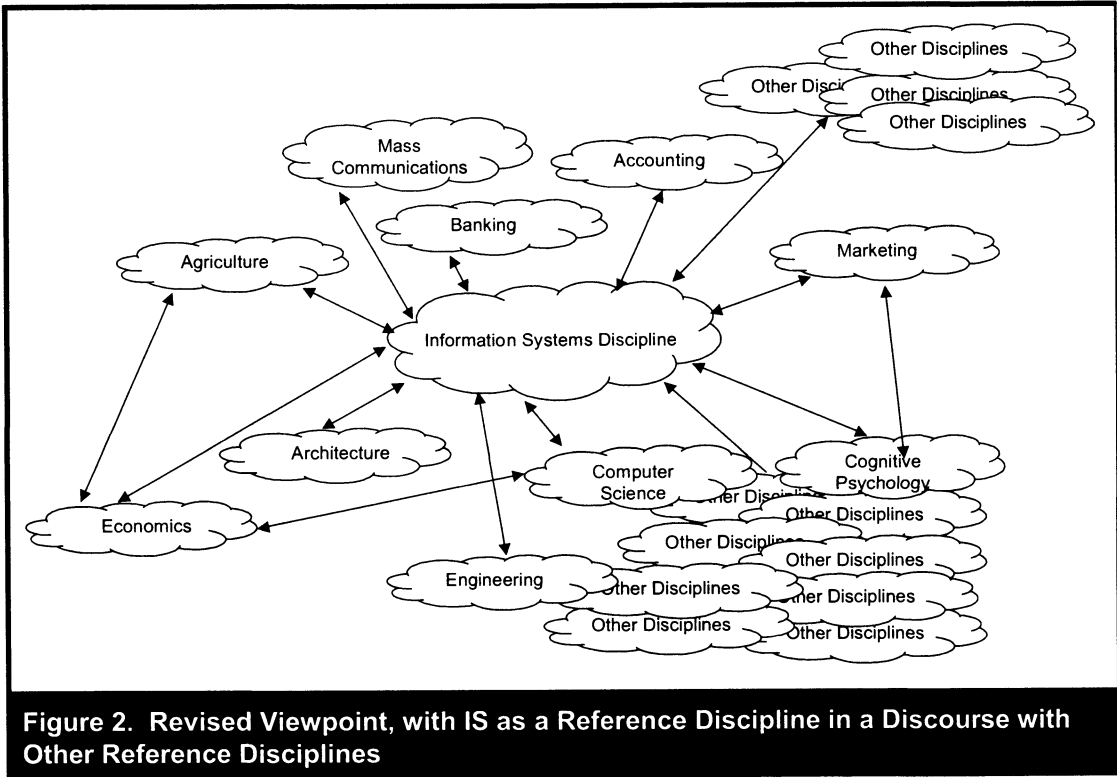
ignore our traditional audiences of IS scholars and practitioners. It also does not mean that IS has to abandon its current applied focus and become a pure science. But it does mean that we have a tremendous opportunity to take a more prominent, leading role within the larger community of scholars interested in the development, use, and impact of information technology and systems in broadly defined social and organizational settings.

Becoming A Reference Discipline ■■■■■■■■■■

In order for IS to take its place as one reference discipline amongst others, then we suggest there are at least two arenas for concentrated improvement.

The first arena regards a change in our own mindset as to the audience for IS research. We

agree that the IS field needs to keep its existing constituency (i.e., IS researchers and IS practitioners, and in particular IS managers and executives), but our audience is now potentially much larger. Our potential audience includes scholars in any field that is vitally concerned with the development, use, and application of information technology and systems. Given the pervasiveness of IT and IS in contemporary society, this audience must include, at a minimum, all of the disciplines in business schools and almost all of the social sciences. In fact, it would be more compendious to specify the disciplines that should be excluded from our potential audience than to specify the opposite. We need to start addressing this broader audience in our work.

One problem here is that all too often IS scholars study very narrow issues and do not see IS phenomena within a wider context. If some IS scholars conceived of their audience more

broadly, however, then the phenomena of interest might also be defined more appropriately.

One way for individual IS researchers to address this broader audience directly would be for them to publish their work in the leading journals in these other fields. Of course, IS researchers have regularly published their work in the best practitioner journals such *Harvard Business Review* and the *Sloan Management Review*, and some researchers have also published their work in *Management Science* and *Organization Science*. But we suggest that there are many other scholarly journals besides these that might welcome contributions from IS scholars. One way for IS researchers to succeed in this arena might be for them to coauthor articles with researchers from these other fields. Also, wider participation of IS researchers in research conferences sponsored by other disciplines might facilitate the building of knowledge networks across disciplinary boundaries. We are aware of a few of our IS colleagues who regularly participate in some of these conferences (e.g., medical informatics), but we have tended to treat these as being exceptions and not the rule.

Another important element here is the support of our own institutions. IS researchers often do not receive appropriate recognition for publishing in non-IS outlets. In our view, the incentive and reward structures, which primarily reward the publication of research results within the confines of one's own discipline, need to change. We should reward IS scholars for publishing their research in the best journals, regardless of the field within which they are published.

Of course, making our ideas readily accessible to scholars in other fields does not mean that they will like them! Different disciplines apply different research paradigms and they have distinct value systems as regards scholarly publication. In some cases there may be a good a "fit" between the research work being done in IS and that being done in another discipline, but in other cases the fit may be tenuous at best. Journal editors and reviewers in other fields may well reject some

contributions from IS scholars for this reason. On the other hand, it is also possible that some of these disciplines are themselves too inwardly focused and the "not invented here" syndrome will prevail. Obviously, we cannot guarantee that what we are suggesting will be welcomed by others, but we should at least try to give them the option. Otherwise, they will be even more likely to end up repeating many of the lessons that we ourselves have learned.

The second arena involves making sure that our research is readily accessible to researchers in other fields. This means that our research articles need to be visible, readily available, and understandable.

While many of our top journals are available through bibliographic databases such as ABI/Inform, one problem is that not all scholars have access to these databases, especially full-image versions. The databases themselves tend to focus on specific disciplines. Many IS journals are included in ABI/Inform and some of the social science databases, but tend not to be included in many other databases (e.g., no IS journals are listed in Medline, widely recognized as the premier source for bibliographic coverage of biomedical literature). It is potentially more difficult for researchers in these other fields to access our work if their institutions do not subscribe to a database that includes IS journals. We believe that the IS field should encourage journal publishers to have IS journals indexed in a wider range of bibliographic databases.

Making the full-image version of IS journals freely available via the Internet would improve the accessibility of IS research, however, this is not always practical. The development of ISWorld and the recent establishment of two new electronic journals by the Association for Information Systems (AIS) illustrate some of the issues involved. The content of ISWorld is freely available on the Internet, but very little in the way of infrastructure support is provided by ISWorld. Contributors to ISWorld must publish and maintain their articles on the Internet themselves.

On the other hand, AIS provides the editorial and delivery infrastructure for two electronic journals. This financial support assures quality and copyright protection. But the necessary revenue to support this infrastructure is only obtained by restricting access to paid subscribers.

This problem of limited access could be reduced if IS professional organizations were to take the lead in making full-image versions as freely available to everyone as possible. One strategy might be to bundle low cost journal subscriptions for members of professional associations. Another strategy might be to package groups of IS journal subscriptions for university and public libraries.

Other issues include the social, psychological, philosophical, and political barriers to IS communication with people in other fields. These barriers include jargon, embedded cultural and philosophical assumptions, shared values and a shared social history (e.g., many IS professionals attend the same IS conferences). These barriers subtly block access to the IS body of knowledge because it is coded in language that may seem foreign to members of other disciplines. These barriers may prove to be far more difficult to overcome than simple electronic accessibility.

Clearly, some of the key issues with dissemination of IS research are not technical, but economic, legal, and social. Publishers need to find ways to maintain a revenue stream while making their publications as freely available as possible. Electronic publishing needs to be done is such a way as to preserve intellectual property rights. Researchers need to develop relationships with people in other disciplines such that shared understandings can emerge. Shared understanding can overcome many of the barriers mentioned above.

In addition to making research results available and building effective communications, more IS researchers can also collaborate with members of other fields (as a few are now doing). For the individual researcher, this collaboration could be at the level of coauthoring of papers with col-

leagues in other fields. Reports of such research could be targeted for outlets in multiple disciplines, reporting the relevant findings in the context of the disciplines concerned. Such collaboration could be institutional as well as individual. For example, a special issue of the *Communications of the ACM* (March 1998) was concerned with the subject "Marketing and the Net." Some of the articles in this issue were co-authored by both marketing and IS scholars.

That such joint-publication efforts with scholars from other disciplines are relatively rare is probably due to the incentives and rewards systems within institutions. Most research universities reward faculty for publishing their research in specified first- and second-tier journals within their own particular field. If a professor publishes his or her work in a journal in another field, however, this does not always count to the same extent.

We suggest that this institutional problem could be overcome in two ways. The most obvious way is to modify how research publications are assessed. Deans and committees might be persuaded to accept articles published in other disciplines, particularly if the faculty member concerned could show that the journal in question was ranked highly by scholars in that other discipline.

Another institutional way to overcome this problem would be for IS journal editors to collaborate with journal editors in other disciplines for special "joint" issues of their respective journals. In other words, two leading journals (one from IS, the other from a different discipline) might agree to produce one joint special issue. There could be collaboration at various levels, from the initial call for papers, to the reviewing and editing of papers, right through to publication. We see no reason why such a collaborative effort might not result in one set of papers, published under the auspices of two different journals. Of course, such an initiative would raise difficulties, such as incompatible journal policies and procedures, standards, and so forth. But we are

confident such difficulties could be overcome if there were sufficient momentum behind such an idea. Ideally, such joint special issues, once published, would become a standard reference point for scholars in both disciplines.

IS Comes of Age ■■■■■■■■■

In this article, we have explored the scenario of IS as a reference discipline. While this scenario might be seen as mostly a provocative, rhetorical device, we have learned from using this device that there is increasing interest in the development, use, and application of information technology and systems by scholars in many different fields. We see a clear opportunity for IS scholars to take a more visible and active leadership role within this larger community of scholars. This is not to say that IS scholars should seek to take over or dominate the research agendas of other fields. The domain defined by *the development, use and application of information systems by individuals, organizations and society as a whole* is far too large for the IS research community alone. But we believe that IS can take a leadership role within this domain. Taking a position of leadership means transforming our research agendas and clearly explaining the broad value of our research discoveries. It means working toward the situation where scholars from many other fields look to our top journals for leadership and guidance. It means that our research articles need to be of sufficient quality, substance, and depth that scholars in other fields will find IS research increasingly useful.

Two trends suitably position the field of IS for this transition. First, the IS field has made remarkable progress as a discipline in a relatively short period. There has been a steady shift within IS from what was a techno-centric focus to a better balanced technology/organizational/management/ social focus. Wand and Weber (1986) argued the inevitability of this shift on the basis of the law of requisite variety. Evidence of this shift in focus is found in the increasing acceptance of articles using qualitative and intensive research methods

and attention to ethical responsibilities. Second, a strong orthodoxy has never fully gripped our discipline. The IS discipline has been characterized as a fragmented adhocracy (Banville and Landry 1989), a strength when a field needs flexibility to adapt to a changing environment. The emergence of new tracks at our conferences, such as the "Marketing and Consumer Behavior in Electronic Markets Mini-Track" at the Americas Conference on Information Systems, gives us cause for optimism. We believe that the information systems discipline is well-positioned to re-invent and transform itself.

To a certain degree, what we are suggesting signals a paradigm shift that will affect practically every member of the IS research community. There are many opportunities to redirect IS research. This redirection may include the activities of our institutional leadership in making IS research more widely available, of editorial boards in changing the target audience of journals, of authors in writing journal articles and books for this new audience, and of researchers in seeking insights that researchers in other fields find useful. We are confident that, given strong leadership, such a reorientation and reinvention of the discipline of information systems is eminently achievable.

Acknowledgements

References

Alavi, M., and Carlson, P. "A Review of MIS Research and Disciplinary Development," *Journal of Management Information Systems* (8:4), 1992, pp. 45-62.

Avison, D. E., and Myers, M. D. "Information Systems and Anthropology: An Anthropological Perspective on IT and Organizational Culture," *Information Technology & People* (10:3), 1997, pp. 43-56.

Bakos, J. Y., and Kemerer, C. F. "Recent Applications of Economic Theory in Information Technology Research," *Decision Support Systems* (8:5), 1992, pp. 365-386.

Banville, C., and Landry, M. "Can the Field of MIS Be Disciplined?," *Communications of the ACM* (32:1), 1989, pp. 48-60.

Baroudi, J., and Orlikowski, W. "The Problem of Statistical Power in MIS Research," *MIS Quarterly* (13:1), 1989, pp. 87-106.

Benbasat, I., and Weber, R. "Research Commentary: Rethinking "Diversity" in Information Systems Research," *Information Systems Research* (7:4), 1996, pp. 389-399.

Budic, Z. D., and Godschalk, D. R. "Implementation and Management Effectiveness in Adoption of GIS Technology in Local Governments," *Computers Environment and Urban Systems* (18:5), 1994, pp. 285-304.

Buetow, S. A., and Roland, M. "Clinical Governance: Bridging the Gap between Managerial and Clinical Approaches to Quality of Care," *Quality in Health Care* (8:3), 1999, pp. 184-190.

Caudle, S. L. "Strategic Information Resources Management: Fundamental Practices," *Government Information Quarterly* (13:1), 1996, pp. 83-97.

Checkland, P., and Holwell, S. *Information, Systems and Information Systems: Making Sense of the Field*, Wiley, Chichester, 1998.

Culnan, M. J. "Mapping the Intellectual Structure of MIS, 1980-1985: A Co-Citation Analysis," *MIS Quarterly*, 1987, pp. 341-353.

Culnan, M. J., and Swanson, E. B. "Research in Management Information Systems, 1980-1984: Points of Work and Reference," *MIS Quarterly*, 1986, pp. 289-302.

Davenport, T., and Short, J. "The New Industrial Engineering: Information Technology and Business Process Redesign," *Sloan Management Review* (31:4), 1990, pp. 11-27.

Davis, G. "Information Systems Conceptual Foundations: Looking Backward and Forward." in *Organizational and Social Perspectives on Information Technology*, R. Baskerville, J. Stage, and J. DeGross (eds.), Kluwer, Boston, 2000, pp. 61-82.

DeLone, W., and McLean, E. "Information Systems Success: The Quest for the Dependent Variable," *Information Systems Research* (3:1), 1992, pp. 60-95.

Dickson, G. W., Senn, J. A., and Chervany, N. L. "Research in Management Information Systems: The Minnesota Experiments," *Management Science* (23:9), 1977, pp. 913-23.

Fincham, R. "Computing Occupations—Organizational Power, Work Transition and Collective Mobility," *New Technology Work and Employment* (9:1), 1994, pp. 43-53.

Galliers, R. (ed.). *Information Systems Research: Issues, Methods and Practical Guidelines*, Blackwell Scientific Publications, Oxford, 1992.

Gross, T., and Traunmuller, R. "Methodological Considerations on the Design of Computer-Supported Cooperative Work," *Cybernetics and Systems* (27:3), 1996, pp. 279-302.

Guimaraes, T., Yoon, Y., and O'Neal, Q. "Success Factors for Manufacturing Expert-System Development," *Computers & Industrial Engineering* (28:3), 1995, pp. 545-559.

Hamilton, S., and Ives, B. "The Journal Communication System for MIS Research," *Database*, Winter 1983, pp. 3-14.

Harris, S. B. "Business Strategy and the Role of Engineering Product Data Management: A Literature Review and Summary of the Emerging Research Questions," in *Proceedings of the Institution of Mechanical Engineers Part B: Journal of Engineering Manufacture* (210:3), 1996, pp. 207-220.

Jones, M. "It All Depends on What You Mean by Discipline . . ." in *Information Systems: An Emerging Discipline?*, J. Mingers and F. Stowell (eds.), McGraw-Hill, London, 1997, pp. 97-112.

Kaarst-Brown, M. L. "Five Symbolic Roles of the External Consultant—Integrating Change, Power and Symbolism," *Journal of Organizational Change Management* (12:6), 1999, pp. 540-561.

Kaplan, B. "Addressing Organizational Issues into the Evaluation of Medical Systems," *Journal of the American Medical Informatics Association* (4:2), 1997, pp. 94-101.

Keen, P. G. W. "MIS Research: Reference Disciplines and A Cumulative Tradition," in *Proceedings of the First International Conference on Information Systems*, E. McLean (ed.), Philadelphia, PA, 1980, pp. 9-18.

Landry, M., and Banville, C. "A Disciplined Methodological Pluralism for MIS Research," *Accounting, Management and Information Technologies* (2:2), 1992, pp. 77-97.

Lee, A. "A Scientific Methodology for MIS Case Studies," *MIS Quarterly* (13:1), 1989, pp. 33-50.

Lee, A. S. "Architecture as A Reference Discipline for MIS," in *Information Systems Research: Contemporary Approaches and Emergent Traditions*, H.-E. Nissen, H. K. Klein, and R. A. Hirschheim (eds.), North-Holland, Amsterdam, 1991, pp. 573-592.

Lee, A. S. "Editorial," *MIS Quarterly* (25:1), 2001, pp. iii-vii.

Lee, A. S., Myers, M. D., Paré, G., and Urquhart, C. "Three Perspectives: If Markus' 1983 Classic Study, 'Power, Politics, and MIS Implementation,' Were Being Reviewed Today," in *Proceedings of the Twenty-First International Conference on Information Systems*, W. Orlikowski, S. Ang, P. Weill, H. Krcmar, and J. I. DeGross (eds.), Brisbane, 2000, pp. 724-726.

Lending, D., and Wetherbe, J. C. "Update on MIS Research: A Profile of Leading Journals and U.S. Universities," *Data Base*, 1992, pp. 5-11.

Lewis, L. K. "'Blindsided by That One' and 'I Saw That One Coming': the Relative Anticipation and Occurrence of Communication Problems and Other Problems in Implementers' Hindsight," *Journal of Applied Communication Research* (28:1), 2000, pp. 44-67.

Li, H. "The Role of IT Manager in Construction Process Re-engineering," *Building Research and Information* (24:2), 1996, pp. 124-127.

Lucas, H. C. "The State of the Information Systems Field," *Communications of the AIS* (1:5), 1999, pp. 1-6.

Markus, M. L. "Power, Politics, and MIS Implementation," *Communications of the ACM* (26:6), 1983, pp. 430-444.

Markus, M. L., and Lee, A. S. "Special Issue on Intensive Research in Information Systems: Using Qualitative, Interpretive, and Case Methods to Study Information Technology—Foreword," *MIS Quarterly* (23:1), 1999, pp. 35-38.

Markus, M. L., and Lee, A. S. "Special Issue on Intensive Research in Information Systems: Using Qualitative, Interpretive, and Case Methods to Study Information Technology—Second Installment—Foreword," *MIS Quarterly* (24:1), 2000a, pp. 1-2.

Markus, M. L., and Lee, A. S. "Special Issue on Intensive Research in Information Systems: Using Qualitative, Interpretive, and Case Methods to Study Information Technology—Third Installment—Foreword," *MIS Quarterly* (24:3), 2000b, pp. 473-474.

Mendelson, H., Ariav, G., DeSanctis, G., and Moore, J. "Competing Reference Disciplines for MIS Research," in *Proceedings of the Eighth International Conference on Information Systems*, J. I. DeGross and C. H. Kriebel (eds.), Pittsburgh, PA, 1987, pp. 455-458.

Mingers, J., and Stowell, F. (eds.). *Information Systems: An Emerging Discipline?*, McGraw-Hill, London, 1997.

Mylonopoulos, N. A., and Theoharakis, V. "Global Perceptions of IS Journals," *Communications of the ACM* (44:9), 2001, pp. 29-33.

Nord, J. H., and Nord, G. D. "MIS Research: Journal Status Assessment and Analysis," *Information & Management* (29), 1995, pp. 29-42.

Paul, R. J., Giaglis, G. M., and Hlupic, V. "Simulation of Business Processes," *American Behavioral Scientist* (42:10), 1999, pp. 1551-1576.

Rachel, J., and Woolgar, S. "The Discursive Structure of the Social-Technical Divide: The Example of Information Systems Development," *Sociological Review* (43:2), 1995, pp. 251-273.

Robey, D. "Diversity in Information Systems Research: Threat, Promise, and Responsibility," *Information Systems Research* (7:4), 1996, pp. 400-408.

Singh, D. T., and Ginzberg, M. J. "An Empirical Investigation of the Impact of Process Monitoring on Computer-Mediated Decision-Making Performance," *Organizational Behavior and Human Decision Processes* (67:2), 1996, pp. 156-169.

Straub, D. "Validating Instruments in MIS Research," *MIS Quarterly*, 1989, pp. 146-165.

Straub, D. W., Ang, S., and Evaristo, R. "Normative Standards for IS Research," *Data Base* (25:1), 1994, pp. 21-34.

Swanson, E. B., and Ramiller, N. C. "Information Systems Research Thematics: Submissions to A New Journal, 1987-1992," *Information Systems Research* (4:4), 1993, pp. 299-330.

Telem, M. "The School Computer Administrator's (New) Role Impact on Instruction Administration in A High-School: A Case Study," *Computers & Education* (28:4), 1997, pp. 213-221.

Vogel, D., and Wetherbe, J. C. "MIS Research: A Profile of Leading Journals and Universities," *Data Base*, 1984, pp. 3-14.

Walsham, G. *Interpreting Information Systems in Organizations*, John Wiley and Sons, Chichester, 1993.

Wand, Y., and Weber, R. "On Paradigms in the IS Discipline: The Problem of the Problem," *Proceedings of the Decision Sciences Institute Conference*, Honolulu, HI, 1986, pp. 566-568.

Whitman, M. E., Hendrickson, A. R., and Townsend, A. M. "Research Commentary: Academic Rewards for Teaching, Research, and Service: Data and Discourse," *Information Systems Research* (10:2), 1999, pp. 99-109.

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