



The Social Life of Information Systems Research*

A Response to Benbasat and Zmud's Call for Returning to the IT Artifact

Gerardine DeSanctis
Fuqua School of Business
Duke University
gd@duke.edu

Abstract

Benbasat and Zmud (2003) argue that there is an identity crisis within the Information Systems discipline and, as a solution to the crisis, propose a focus on “the IT artifact and its immediate nomological net” (p. 186). Using Aldrich’s (1999) articulation of organizational evolution, they note the need for greater cognitive legitimacy as a driving force for sustainability of the discipline. They recommend that researchers and journal editors set the boundaries of the field more firmly so that greater attention is given to the IT artifact rather than to structure, context, or other phenomena that lie distant from the artifact.

An alternative analysis of the IS field can be made through the lens of community of practice. Here the indicators suggest more positive progress toward legitimacy of the IS field and a path toward improvement via boundary enhancement rather than constraint. Other recommendations for improving the sustainability of the discipline include greater attention to research questions of current interest, even if they are peripheral to the artifact, greater communication of theory and empirical research results, and continued attempts to build and sustain active membership.

* Detmar Straub was the accepting senior editor for this paper.

Since its inception the 1970s, the field of Information Systems (IS) has devoted significant effort to defining its domain, establishing its legitimacy, reflecting and critiquing its contributions, and tracking its progress as an academic discipline. Benbasat and Zmud's (2003) recent reflection and call for greater focus on the information technology (IT) artifact is within this genre. They laud the progress of the IS field in developing sociopolitical legitimacy through its journals, degree programs, and academic departments; but they lament the dilution of attention to the IT artifact itself and point to the corresponding poor progress in establishing the cognitive legitimacy of the field—especially in the minds of outsiders (i.e., non members).

No doubt the IS field lacks the legitimacy of disciplines more routinely found in business schools (such as marketing, accounting, and finance), engineering (e.g., electrical engineering) or the liberal arts and sciences (e.g., math and computer science). But such a situation is far from unique. Fields such as operations, decision science, strategy, and management science have murky identities as well, with wide-ranging topics of study, variant types of members, and mixed representation within universities.

Regardless, the issue at hand is legitimacy, and the question is how to sustain the IS discipline in the face of threats to such legitimacy. As a contribution to the debate, I offer three observations in this essay. First, that the legitimacy of the IS field is impressively high if it is viewed as a community of practice rather than as a formal organization; second, that shifting boundaries in the field may be associated with its maturing and the inclusion of a new generation of members and leaders; and third, that two related trends are jointly drawing the field away from the study of IT as artifact. These are technological transformation within industry and institutional changes within universities. Rather than resist the drift away from IT as artifact, I suggest that we move to embrace it.

Research is an enacted process within a community of practice, so leaders and pundits have limited influence. Research practices matter much more than dictates or directives. Nonetheless, this essay concludes with recommendations for improving the sustainability of the discipline, some of which are consistent with Benbasat and Zmud's recommendations and some of which are opposing.

The IS Community of Practice

Viewed as action more than as domain, research is the process of systematic inquiry, and coherence among researchers emerges as they interact with one another in the ongoing process of inquiry (Aldrich, 1999, p. 142). To understand the state or progress of a discipline, therefore, is to understand the social dynamics of the research community (Price, 1986). The measure of a discipline lies less in its outputs or artifacts than in the interactions of scholars. Scientific papers or other outputs (such as technology designs) are interesting insofar as they are reflective of these interactions (Sandstrom, 2001). The research process is inherently social—the joint processes by which scientists undertake their work. The active and changing nature of the scientific community, its membership and activities, represent its life. Communication is in the form of the discourse that takes place in journals and at conferences, and is reflective of the progress of the discipline, but it is not the whole story. An understanding of the discipline comes from a broad examination of its social life—of the characteristics of the scholarly community and of the communications among scholars over time.

Several approaches to understanding the social life of IS research are possible. For example, social network analysis could be used to map communication relationships among scholars, (e.g., Chin, Myers, & Hoyt, 2002); or citation analysis might be used to study the development of collaborations within the discipline (e.g., Price, 1986). For purposes of this essay, I take another approach, which is to apply a community of practice perspective. I identify the major attributes of a community of practice and then comment on whether these exist within the field of IS. The community of practice perspective is consistent with recent advances in the knowledge-processing view of the firm; it emphasizes social interaction as the process through which knowledge is exchanged and created in an enterprise (Spender, 1996; Leonard, 1995; Nonaka & Takeuchi, 1995). Further, it allows us to examine the organizational attributes of the IS community and to consider how these have changed in the 30 years since the field's founding.

A community of practice view regards "the discipline" to be more akin to a voluntary association (Knoke & Prenskey, 1984) than a formal organization. As such, traditional organization theory tends to be less applicable in the evaluation of the field's progress than concepts drawn from the theories of community. Unlike more formal organizations, voluntary associations typically do not have economic interests per se; instead they promote the concerns of their members. Their boundaries are often fuzzy and porous and include "episodic supporters and passively interested constituents" (Aldrich, 1971, p. 3-4). The primary resources of a voluntary association are its members and the knowledge (especially the procedural knowledge) that they share (Argote, 1999; Kogut & Zander, 1996). The development of a community of practice occurs through the mutual engagement of members, the negotiation of a joint enterprise, and the creation of a shared repertoire (Wenger, 1998), resulting in an emergent, patterned form of social interaction among the participants (Wittgenstein, 1958).

Communities of practice are extremely difficult to develop and maintain precisely because they do not control formal authority, institutional boundaries, and other mechanisms of influence. Most important, they do not manage worker incentives and rewards; their influence is indirect, if at all. Within academe, where skilled researchers have the opportunity to join in and migrate to multiple communities, developing a new community from scratch is no easy feat. The fact that academic researchers have moved to establish a thriving community of practice around IS-related questions is impressive. Success in building this or other communities of practice lies more in efforts to build social identity among participants than in developing the cognitive legitimacy afforded by outsiders (see Wenger, 1998). It follows that – and here is where my argument differs with Benbasat and Zmud – maintaining the success of the community will require greater focus on internal matters than on external legitimacy. This is because, for a community of practice, formal organizational structure is more likely to result from participants' actions than be dictated by it. These arguments are further developed in the following sections.

Evidence of Legitimacy

Evidence of legitimacy of the IS field lies not so much in the establishment of organizations such as the Association for Information Systems (AIS), schools of information science, and university departments; instead, the evidence of legitimacy lies in the actions of people within and between these organizations as they pursue their

scholarly work. Benbasat and Zmud (2003) acknowledge this point when they say that formal organizations can aid in sociopolitical legitimacy but not other forms of legitimacy. But whereas Benbasat and Zmud point to the need for *cognitive legitimacy* in the IS field, here I take a look at *behavioral legitimacy* and find the picture to be not so bleak. Whereas cognitive legitimacy is rooted in the mindset of outsiders, behavioral legitimacy is rooted in the actions of insiders (and those who choose to move from outside to inside).

Behavioral legitimacy refers to the following kinds of social interactions. These (and other) properties have been articulated by Wittgenstein (1958), Brown and Duguid (1991), Wenger (1998) and others (Brown & Duguid, 2001; Lave & Wenger, 1991; Scott, 1995) who have combined concepts of community with concepts of learning and knowledge exchange to describe the evolution of communities of practice.

Frequent interaction among members. Frequent interaction increases opportunities for knowledge exchange and development of shared mental models. Interaction helps the community to build coherence and common practices.

Routines of interaction. Communities of practice develop patterns, or rhythms of knowledge exchange, that facilitate effective participation in the community by the participants (Pentland, 1992). Routines also facilitate successful entry into the community by newcomers as they engage in meaningful interaction with others by joining in ongoing routines.

Evolution of a core group. Communities of practice tend to be inclusive and their members active. This is not to say that there is no turnover, but turnover is secondary to community growth. Over time, a core group emerges—i.e., the critical mass of active members who sustain the network (Wasko & Faraj, 2003).

Ability to absorb newcomers. Communities of practice are not insular. They selectively absorb some (though not all) newcomers. In this way the community is able to import external information and practices (Lave & Wenger, 1991). Newcomers may operate in concert with existing routines; but they also retain some uniqueness in their interactions such that they are able to influence others. So, despite established routines of interaction, the community tolerates a range of interaction patterns and avoids becoming unitary.

Boundary formation. Over time, communities of practice form boundaries that distinguish them from other communities and their surrounding context (Aldrich, 1999). These boundaries are porous such that the community of practice is separate from other communities yet operates with connection to them. Boundary formation is evident in networking behavior; there are higher levels of interaction within the community group than between insiders and outsiders. At the same time “visits” (interactions) between the community and outsiders assures that external information is imported into the community and helps to prevent insularity.

If we cast these criteria against the behavior of IS scholars, evidence of the field's legitimacy is plentiful. Frequent interaction is evidenced in participation in conferences, list-serves, special interest groups (SIGs), and forums by researchers who identify with the IS field. In addition, small collections of scholars create informal gatherings for

sharing of research findings.¹ It is notable that AIS recently has increased the number of conferences for participants through the creation of the worldwide CIS series of meetings (AMCIS, PACIS, ECIS, etc.). These forums provide extensive opportunity for newcomers to join the IS social network and influence its development. Most important, the forums provide opportunity for many types of members to become involved in the IS community and shape its evolution.

Newcomer absorption and retention within IS are likewise impressively high. Consider the fact that in 1980 there were only 35 researchers contributing to the program of the *International Conference on Information Systems* (ICIS), presenting a total of 25 papers. In 2002 the ICIS program included 205 researchers presenting a total of 93 papers.² This represents a 486% increase in conference participation. Further, ICIS attendance has been steady or growing over the past decade, making the gathering a going concern, so to speak, within the discipline. There are also much newer CIS conference venues. Other indicators of successful newcomer entrance into IS abound. For example, the *IS World Faculty Directory* lists a total of 6,736 researchers, reflecting a growth of more than 60% from 3-4 years earlier.³ Overall, the field has grown at a rate far above the more typical doubling-per-decade rate of growth observed by Price (1986) for many scientific disciplines.

Newcomers are not only participating in the field, they are active in shaping its future. There is evidence that the core group of the community is expanding to accommodate its growing size. A review of the mastheads of leading journals such as *MIS Quarterly* and *Information Systems Research* shows that the new Ph.D.s and budding researchers of a decade ago are now serving as editorial board members, associate editors, and the like. More importantly, the breadth of schools and disciplinary backgrounds of people on the boards of the major journals has grown over time. Consider the following. At the time of its founding (1977), the *MIS Quarterly* review board consisted of 10 people. By 1990 both *MIS Quarterly* and *Information Systems Research* had 24 people on their review boards. In 2002 the numbers had more than doubled again; *MIS Quarterly* listed 41 review board members and *Information Systems Research* listed 58.⁴ With very little exception, board members are from widely divergent schools. They are globally located, from universities of various levels of size and academic prestige, and positioned in various departments in their host institutions. (Most are located in information systems departments, but some are in computer science and others in communications, strategy, organization studies, and a variety of other disciplinary areas.) In sum, the IS

¹ An example of a smaller, informally organized conference is the Knowledge Management Symposium organized by Mani Subramani of the University of Minnesota and V. Sambamurthy of Michigan State University in March 2003. The symposium included approximately 100 participants and was held at the University of Minnesota.

² Includes 33 “research-in-progress” papers.

³ The assistance of Professor J. David Naumann, University of Minnesota, in providing these statistics, is gratefully acknowledged. The value for the period 1999-2000 is 4000, a rounded estimate. Personal correspondence dated October 3, 2003.

⁴ Counts of board members include Editors-in-Chief, Senior Editors, Associate Editors, Editorial Board members, and, in the case of the founding year of the *MISQ*, “Consulting Editors” who presumably helped with paper reviewing.

community has demonstrated great success in attracting newcomers, retaining their participation, and providing opportunity for them to join core groups of influence. The discipline is impressively comprehensive and inclusive in its membership participation patterns. Dominant board participation by scholars within the discipline suggests boundary formation, but inclusion of scholars from other, related fields suggests porous boundaries associated with a viable community of practice.

Routines of interaction are subtler and so are more difficult to observe. They are found, for example, in repeat visits to conferences, ongoing conversations among members, and development of joint, repeated research projects among members with otherwise variant organizational ties. All of these kinds of behaviors are found within the IS research community and, one could argue, have grown over time as the field has matured. ICIS and the CIS-series of meetings, for example, attract a regular set of attendees. Further, these have spawned other venues for interaction, such as the Diffusion Interest Group in Information Systems (DIGIT), the Information Systems and Economics group (WISE), the Information Technology and Systems group (WITS), and the Cross-cultural Research Meeting in Information Systems (CCRIS).⁵ Members converse with one another in formal and informal venues and, over time, many of these gatherings become institutionalized while still others blossom as a result of new interactions.⁶ The extent of repeated collaboration among scholars in the field likely matches that found in other disciplines.⁷

To the extent that new entrants continue to enter and be active in their participation, and the community successfully absorbs newcomers within its core group(s), the field should continue to thrive. Over time, some routines of interaction will persist, but new entrants will also bring new routines, and the practices of the field will inevitably change. Boundary shift is inevitable within this dynamic. To return to the issue that Benbasat and Zmud raise, we can ask the following question. If there is a shift away from the field's roots in the IT artifact, should influential leaders then act to set the boundaries of the field more firmly, and call on scholars to return their attention to the IT artifact? Benbasat and Zmud define the IT artifact as "the application of IT to enable or support some task(s) embedded within a structure(s) that itself is embedded within a context(s)" (p. 186). IT is at the core of the discipline, and as one moves to the study of task, structure, and context, the movement is away from IT and toward the periphery of the field's nomological net. Too many studies, they lament, study the periphery without the core. So, for example, studies of software development teams that examine task, understanding, and satisfaction, but exclude the IT artifact, do not belong within the

⁵ These are just a few of the many workshop and ancillary meetings associated with the ICIS and/or CIS-series of meetings.

⁶ For example, the DIGIT, WITS, and WISE groups were spawned as informal venues ahead of the ICIS meeting. Ten or 15 years ago, these three groups became institutionalized around the ICIS, and newer informal groups were spawned. For example, the CCRIS group is relatively new, and more of these groups are spawned every few years as a result of researchers' interests and desire to informally interact around the larger, more formalized ICIS venue.

⁷ This observation could be empirically verified by counting the number of co-authors in IS journals who have different institutional affiliations and no prior affiliate contact (to verify collaboration based on informal, non-institutional ties), tracking co-authorships over time, and then comparing the results to a similar count made in another field of study.

domain of the field (and so should not be published in IS journals). From the perspective of the community of practice as described above, a call to include IT in all IS studies is unlikely to bring the desired result. Indeed, it may be that the shift away from the IT artifact as the focus of study is adaptive and important for the maintenance and growth of the community. Let us consider the forces that may be moving the field away from the IT artifact.

Differentiation and Shifting Boundaries – Maturity Effects?

The shifting boundaries of scholarly attention away from the IT artifact may be reflective of the field's maturing and the inclusion of a new generation of members and leaders whose interests center on topics that differ somewhat from those of the original founders. New generations bring new research practices; this is inevitable in the evolution of a community and a signal of its vibrancy. Many young scholars are deeply interested in interdisciplinary research, and so they may act to push the boundaries of the IS field (or other fields for that matter) away from its core roots. Further, absorption into the community of scholars with interests tangential to IS increases the likelihood that attention will shift to matters other than the IT artifact. Such a trend is not necessarily disturbing. There is value in the shifting of boundaries as the field opens up and seeks new grounds with a new generation of members and leaders. And there is value in a diverse set of participants in the field who bring variability of interests and practice. These trends make the community vibrant and lead it into new directions (Aldrich, 1999, p. 162).

Benbasat and Zmud undoubtedly appreciate these member and leadership shifts. They could reasonably counter argue that, despite benefits, the issue remains that the shift away from IT might lead the discipline toward submergence into another research community, where it might be absorbed forever, thus losing its IS identity. Clearly “technology” is at the core of the IS field (just as “behavior” is at the core of the organizational behavior field). But it does not follow that distance from the core is necessarily a worrisome state of affairs. As just one example, consider the fact that studies of emotion and cognition are currently very popular among OB scholars—more so than observable behavior it seems. But the field OB is not threatened with extinction. A scholarly field of study will ebb and flow toward and away from its core over time as part of the natural evolution of scholars' interests. The IS field is by definition broad and encompassing; Benbasat and Zmud's definition (2003, p. 186) reflects this inclusive view. I would argue that so long as scholars continue to participate in IS conferences, contribute to IS journals, and engage in other forms of ongoing interaction with one another, the field will retain its legitimacy—regardless of what scholars actually study. The field will sustain itself through the ongoing interaction of its participants. In this way, the social life of the community keeps the field alive and assures its future.

Indeed, a strong case for tolerance in the stretching of the field's boundaries can be made based on the view that growth through absorption and retention of newcomers—whatever they study—is the key to the field's survival. But before moving to this recommendation, it is useful to further consider the possible forces that are driving the shift in research focus among current, active participants in the IS field.

IT Transformations and Institutional Changes

A reasonable argument can be made that technological transformation within industry, along with institutional changes within universities, are jointly drawing the field away from primary attention to the IT artifact.

Technology transformations. In the 1970s and 1980s, when the IS field was blossoming, business organizations were struggling with immense and fundamental technology issues. IT design, development, and adoption issues pervaded the organizational landscape; there was a race to informate the organization, and IT was central to firms' ability to compete in the new information age (Zuboff, 1988). The IS function was formed to address and manage specialized, technology-centric challenges that could not be addressed by other areas of the firm because they lacked necessary expertise. Today the situation is quite different. Corporations have downsized and outsourced their IT staffs. IT artifacts are largely the concern of hardware and software vendors, system developers, and other industry specialists. Cadres of backroom specialists have been replaced by standardized hardware and packaged software. The transformation is that IT knowledge and creative use are pervasive—no longer the sole domain of specialists.

Within this context, the IS functional role has shifted primarily to one of leadership and support, not development. Markets care more about ability to manage IT than the technology itself (Chatterjee, Richardson, & Zmud, 2001). Some research even reports that the IT knowledge of business executives is not a significant factor in a firm's ability to successfully adopt and use the technology (Armstrong & Sambamurthy, 1999). More important than the IT artifact are matters such as the capability to transfer information to particular constituencies inside and outside the firm (Broadbent & Weill, 1999), IT governance, and the complexities of managing software implementation (Sambamurthy & Zmud, 1999; Ravichandran & Rai, 2000).

Mainstream managers increasingly view technology as a commodity whose value lies less in the specifics of design than in the ingenuity of its use. In a recent review of technology in our information age, *The Economist* put it this way:

“The engineers of Silicon Valley may still cling to the hope of finding, at long last, the Next Big Thing—a technology so whizzy it makes all those share options valuable again. But what if tech's next big thing turns out not to be a technology at all, but a better way to make it work?” (*The Economist*, June 21, 2003, p. 56).

Within the current context, is it not surprising that the IT artifact has moved off center stage in IS research?

Institutional changes. The transformation of IT from a back-office development role to a strategic business partner requires new roles and competencies for IT leaders and professionals, and the challenges are largely human and organizational rather than technical (Roepke, 2000). For educational institutions, especially business schools, this can result in renewed interest in basic business training, driving more hard-technology pursuits back to their roots in engineering and computer science, or into new, specialized schools for information studies.

Although IS has made significant inroads into business schools and formalized its presence in the form of faculties, journals, and the like, it has been a niche area of study for many years and is likely to remain so. Indeed, the institutional paradox for IS is that the domain has become of interest to many faculty groups yet the sole purview of none. With the artifact no longer in the foreground, and IT knowledge and interests pervasive, many disciplines have taken on the study of IT-related phenomena. At the same time, an IS specialty function may not be viewed as needed, since most business students do not require the kinds of technical knowledge offered by the IT groups of the past. The implication is that IS is likely to remain a niche area of study—a luxury that is formally institutionalized (as a designated department or group) in a relatively small number of business schools. The more core disciplines of marketing, finance, and management constitute the pillars of the modern business enterprise and are likely to dominate business education and research for the foreseeable future.

But this is not to say that the IS community of practice cannot continue to thrive. On the contrary. As the concerns of the field broaden to consider matters of more general managerial interest, there is the opportunity to expand the discipline and entice the participation of those with more distant core pursuits. In an age of interdisciplinary research, the boundaries of many disciplines are blurring. For example, the fields of management and economics are extremely broad and overlapping. But the scholarship in both disciplines is vibrant nonetheless, because community participants pursue interesting questions and sustain identity through ongoing social interaction and growth.⁸ There is no reason why the IS field cannot follow a similar path.

Recommendations

Assuming that the IS field is a vibrant community of practice adrift from its roots in the IT artifact, how shall we proceed? We are no doubt witness to boundary shift and expansion within the field. Rather than resist this movement, we should anticipate it, embrace it, and let the field move in new directions. Maintenance of a research community of practice relies more on the interactions of participants than on core topics of study. As such, the emphasis should be on attracting and retaining newcomers and enhancing the interactions of all participants. Legitimacy will result from the community's ability to do these things well and, hence, sustain itself over time.

To date, the IS community has exhibited growth, institutionalization, and resilience despite forces that have shifted attention away from the IT artifact. To add further vibrancy to the field, recommendations such as the following might be considered:

(1) Focus on the questions not the domain. A vast number of questions can take on an IT perspective, and science revolves around important questions, not technology per se. Rather than focus on the IT artifact, or any other set topic for that matter, scholars would do well to identify the important, fascinating questions of the day and pursue those. IS has a history of doing this well. For example, the field in the past has generated excitement and impact in studies of decision support, user satisfaction, computer-mediated communication, and e-commerce. Streams of research in these

⁸ The odds of an organization disbanding are strongly linked to its size and moderately related to its age (Baum, 1996). Hence, growth is a path to organizational survival.

areas have been spurred by the actions of researchers who articulated questions and rallied scholars to engage in their pursuit. Research questions serve to shape the discourse of the community and engage research energies.

We will do well to let the field migrate to the interesting questions with high potential impact in the eyes of interested researchers, whatever their discipline. If our journals publish the best research available, regardless of its “core properties,” the effect will be to attract readers and spawn high quality work. These will help to sustain researcher interest in the community so that new members join, newcomers stay, and those at the core are energized to continue the field’s development. Of course, journal editors and reviewers control the possibility for opening up and closing the gates of what readers see. But such gatekeeping should not be done on strict, nonchanging boundaries of the discipline. Otherwise, the community members will migrate elsewhere and the vibrancy of the discipline will be threatened. If the best research is on the periphery of the nomological net (and it is of interest to reviewers, etc.) then let the field (or segments of it) migrate there. We should take a chance on moving in varied directions and breaking new, exciting ground.

As an example, consider the argument that the nature of work that surrounds IT is center stage for much of organizational life today—not the IT itself. Some IT scholars (e.g., Brown & Duguid, 2000) have argued that designers and researchers of technology have paid far too little attention to the role played by social systems in technology and cannot afford to leave such research solely in the hands of those in other disciplines. Following this reasoning, research on the periphery of the nomological net is legitimate for the IS field. Relevant questions surround the study of practices and communities, organizations and institutions, family and everyday life: What makes distributed teams effective? What are the coordination struggles of global corporations? How can software implementation teams improve client satisfaction? What can home-based workers do to overcome the isolationism of work away from a central office? These may be important questions to IS researchers, even if some or all studies do not incorporate the IT artifact. The “errors of exclusion,” as Benbasat and Zmud put it, may inform the understanding of IT in vital ways and so attract IS researchers. Indeed, if IT researchers don’t ponder questions at the periphery of the nomological net, we risk building and implementing less than adequate IT!

(2) Embrace interdisciplinary participation. Some of the most exciting science going on today is profoundly interdisciplinary. For example, research in genomics is attracting decision scientists, ethicists, legal scholars, engineers, and statisticians into the field of genetics; research in behavioral finance is attracting the interests of psychologists and economists; and research on customer relationship management is attracting database specialists and decision analysts into the field of marketing. Interdisciplinary research creates migration across field boundaries and spurs opportunity for journals in multiple disciplines to address similar research questions.

If IS researchers and their journals focus closely on the IT artifact and its immediate nomological net, the field is less likely to attract the interests of those outside of the community—especially those with diminished technological concerns. It is important that IS research attracts the attention of those outside the field, especially within business schools, if it is to thrive. Since the IT artifact is not in the spotlight of managerial attention today, a retreat to this corner of concern could prove ruinous. The less relevant our research is to those in other fields, the less visible our scholarship will be, and the more

isolated the field will become. We should conceive of the IS domain broadly, as Benbasat and Zmud (2003) have done so well, and keep it broad, erring on the side of inclusion rather than exclusion. We should invite and seek interdisciplinary involvement, stretching the boundaries of the community to show how we can contribute to, and draw in, research on important questions of the day.

(3) Continue to develop forums for interaction and debate. A sustainable community of practice offers multiple, informal opportunities for researcher interaction and debate (Wenger, 1998; Lave & Wenger, 1991). Learning occurs as people jointly develop ideas, interpret events, build relationships, resolve conflicts, produce tools, and invent processes (Wong, 2002). The IS community has done well over the years in offering conferences, journals, and informal gatherings within and across universities to promote shared scholarship. Indeed, increases in the numbers of journals, special interest groups, consortia, and the like have been critical to supporting the growth (and hence the legitimacy and survivability) of the discipline.⁹ For the future, it is vital that these kinds of venues continue and expand their reach. Informal forums for idea exchange are particularly valuable for absorption of newcomers seeking knowledge exchange and opportunity to gain status and reputation within the community (Wasko & Faraj, 2003). As the field grows, a wider set of opportunities for networking and recognition are needed.

Essays and general commentaries can be provocative outlets for researcher interaction, and the IS community has used these extensively over the years.¹⁰ But as the field grows, more focused forums are likely to be more productive. For example, several years ago the *MIS Quarterly* promoted debate surrounding specific research questions and findings via publication of Notes and Replies to specific published articles. *Information Systems Research* has likewise conducted a series of discussions and debates on various topics and subfields, especially the relationship between IS research and research in other disciplines. As the field grows and become more multifaceted, forums for discussion of opposing models and paradigms related to specific, hot areas of research are needed.

(4) Increase communication of theory and research results. The publications within academic journals constitute an important layer of communication within a discipline (Heimeriks, Horlesberger, & Van den Besselaar, 2003). Scholarly articles can be viewed both as knowledge goods (outputs of the community of practice) and as inputs to the future social life of the community (Van Den Besselaar, 2001). Scholarly publication is a jointly constructed process, reflective of dialogue among researchers, reviewers, editors, and readers. How can we assess the scholarly communication of the IS field? There is no standard procedure for such an analysis; indeed, multiple approaches are possible (Rousseau, 2002). One simple approach is to categorize the kinds of discourse found in top journals and compare the results to discourse found in

⁹ To illustrate growth in exchange forums, consider the following. The Association of Information Systems reports 7 chapters, 2 affiliates and 13 Special Interest Groups (SIGs). New Chapters have been established in Italy, Morocco, Slovenia, and the Chinese-speaking world. There is a new affiliate in France, and a 13th SIG (Source: AIS Newsletter, October 2003, <http://www.aisnet.org>)

¹⁰ The current paper is illustrative, as is the series of Research Commentaries hosted by Izak Benbasat during his tenure as Editor-in-Chief of *Information Systems Research*.

the top journals of other, related communities of practice (Garfield, 1996).¹¹ A thoroughgoing analysis would inventory many journals to which IS scholars contribute, both within and outside the IS community. But a more limited investigation may also be insightful. To illustrate, let us compare a sample of communication within IS journals to a sample of communication in the related discipline of organization studies. IS and organization studies share many common interests, theoretical bases, methodologies. These two fields often reside side by side in business schools. They both pursue questions related to human behavior, groups, networks, organizations, and strategy (among other topics). They attract many of the same scholars to their communities of practice and, to some extent, compete for membership and legitimacy within academe.

To explore the relative communication patterns of these disciplines, I reviewed the articles of the last four years (1998-2002) for two leading IS journals, *MIS Quarterly* and *Information Systems Research*, and two leading OS journals, *Administrative Science Quarterly* and *Organization Science*. In the case of *MIS Quarterly*, I also reviewed the articles in the first four years following its founding (1977-1980). As Garfield (1996) notes, the significant scientific literature appears in a small fraction of journals—those routinely regarded as “top” by the scientific community. These elite journals generate the majority of what is cited and so act as drivers to future scholarly discourse. *MISQ* and *ISR* have been regarded as top journals in IS for many years. *ASQ* and *OS* likewise are recognized for their top-tier status in the field of organization studies. The four journals represent “matched pairs,” in the sense that *MISQ* and *ASQ* are both over 25 years old, rooted in university sponsorship, and published quarterly. *ISR* and *OS*, on the other hand, were started in 1990 and are sponsored by the INFORMS professional society; originally, both were quarterly publications, although *OS* recently moved to producing six issues per year. For each journal, I counted the total number of articles published and classified each article based on its primary contribution to the literature. Raw counts per category were converted to percentages in order to allow comparisons across journals and, in the case of *MISQ*, across time periods. I summarize the results in Table 1.

Note that the purpose of Table 1 is not to present a scientometric analysis, but rather to present simple points of contrast that can illustrate similarities and differences in the dialogue of IS scholars relative to organization studies, and to highlight changes in IS scholarly communication over time.¹² The field of organization studies is substantially larger than IS. It is difficult to estimate the size of a community of practice, but as a surrogate we can use membership in the field’s dominant professional society. For organization studies the participant base is estimated as 13,478, and for IS the estimate is 3,400 members.¹³ To compare across fields, we can use the total number of

¹¹ Garfield (1996) describes this approach as a “differentiated audit of each category of editorial material” (p. 2).

¹² I do not intend my coding and analyses of these journals to meet the standards of rigorous quantitative work; rather, my goal is to gain some perspective on IS vis-à-vis a related field. Other researchers could followup with carefully wrought studies to see what these trends, if confirmed, might portend.

¹³ There are 13478 members in the Academy of Management Academy (<http://www.aomonline.org/aom.asp?ID=1>; Dec 8, 2003) and 3400 members of the Association for Information Systems (personal correspondence from Professor Dennis F. Galletta, University of Pittsburgh, November 5, 2003).

publications per journal as the relative base. Publications per person in a given locale or community is frequently used to compare productivity of scientists across disciplines, informal research groups, and even nations (e.g., see Inonu, 2003). A few interesting observations are as follows.

Table 1 Comparison of Journal Articles by Category for Two Leading Journals in IS and Organizational Studies										
	<i>MIS Quarterly</i>				<i>Information Systems Research</i>	<i>Administrative Science Quarterly</i>	<i>Organization Science</i>			
Journal articles by category ¹	1978-1980		1998-2002		1998-2002		1998-2002		1998-2002	
	total	%	total	%	total	%	total	%	total	%
Research ²	19	21.30%	75	63.00%	55	44.40%	101	31.70%	118	52.50%
Theory ³	32	36.00%	7	5.90%	25	20.20%	12	3.80%	71	31.40%
Method ⁴	4	4.50%	12	10.10%	22	17.70%	0	0.00%	3	1.30%
Commentary	13	14.60%	25	21.00%	22	17.70%	7	2.20%	28	12.40%
Book Reviews	0	0.00%	0	0%	0	0%	199	62.40%	0	0%
Executive Interviews	14	15.70%	0	0%	0	0%	0	0%	0	0%
System or case description ⁵	7	7.90%	0	0%	0	0%	0	0%	6	2.70%
Total articles	89		119		124		319		226	

¹ Categorization is based on review of Abstracts for each issue of each journal for the periods indicated. Articles are categorized according to their dominant contribution to the literature, as claimed by the author(s) in the Abstract.

² The paper is empirically based.

³ The paper expounds either a conceptual or mathematical model, or both.

⁴ The paper contributes a technique(s) for measuring variables or assessing a system or set of variables.

⁵ The paper offers insight based in a system or case example but without theoretical exposition.

First, overall volume of publication per community member is slightly less in the IS journals, with papers per member at 3.6% for IS and 4.0% for OS. Second, research and theory contributions in IS have grown considerably over years; 68.9% of *MIQ* contributions during the past four years were to research and theory, compared to 57.3% during the *MISQ*'s first four years. Empirical research contributions in IS now surpass those in organization studies. (*MISQ* and *ISR* average 53.7% of papers devoted to

research, compared to 42% in ASQ and OS.) Third, the IS field lags the organization studies field considerably in theory production. Twenty-three percent of journal space in IS is devoted to theory, with no book reviews. In contrast, OS devotes 31.4% of papers to theory, and ASQ devotes more than half its journal space to reviews of books that are largely theoretical exposition. Finally, it is notable that, overall, IS scholars devote considerably more attention to method and commentary than to research and theory. (Excluding book reviews, for the period 1998-2002, 94% of ASQ articles and 83.6% of articles in OS provided empirical research or theory contributions; this compares to 69% and 65% in *MISQ* and *ISR* respectively.)

The pipeline of scholarly communication in IS is strong. In the September 2000 issue of *ISR*, Benbasat (2000, p. i) reported 150 new submissions per year with a trend toward “steady increase.” During the three years 1999-2001, submissions to *ISR* increased by 25% (Benbasat, 2001a), and all indications are the conference submissions and other venues are experiencing regular increases in paper submissions. Clearly, the IS community is not only active but productive. This said, it appears that greater page space in top journals is needed to accommodate the field’s growth and increasing diversity. More theory contributions are needed (Benbasat, 2001b), and we would do well to devote less attention to method and commentary and more attention to substantive research output. Ultimately, the advance of the discipline depends more on discourse devoted to empirical results than commentary. Production of scientific output is not only the product of the community but the nourishment that sustains it. Compelling ideas and discoveries will serve to attract the outsider, retain the insider, and assure the future of the discipline.

Conclusion

Innovation processes are increasingly knowledge based and social, bringing matters such as relationship management, task sequencing, coordination, team building, conflict, project management, and so on, to the foreground. Indeed, “communal activities surround and steer any technological innovation” (Brown and Duguid, 2000). Within this context, it is no wonder that significant research energies in the IS community are migrating to focus on matters peripheral to the IT artifact. The IT artifact may be a concern of the IS community for a long time to come, but it may not remain at the core of the discipline as the technology evolves and as the community grows and becomes more diverse.

The call for research in important areas of study, artifact or otherwise, can trigger attention and suggest possible directions for scholars. But thoughtful leaders such as Benbasat and Zmud have historically weighed – and no doubt will continue to weigh – their influence more in the research that they practice than in the guidelines they articulate.¹⁵ Researcher actions cannot be fully determined, nor should they be.

¹⁵ The ongoing research contributions of Izak Benbasat and Bob Zmud have been enormous. As just one indicator, consider the following. At the dawn of the field, during the period 1977-1980, Benbasat and Zmud collectively contributed 6.74% of all articles published in the *MIS Quarterly*. Two decades later, with the field now in its maturity in terms of membership size and intense competitive access to journal space, these two scholars continue to be prolific. During the period 1998-2002, they collectively contributed 4.53% of articles published in the *MIS Quarterly* and *Information Systems Research*. (Note - These counts exclude editorial comments and reviews.)

Researchers are actors in the fundamentally social process of research creation. The social life of the IS research community is its future. How we attract and retain members, and the nature of our scholarly discourse with one another, will be the ultimate determinants of the legitimacy of the field.

Acknowledgement

The comments of Detmar Straub, Sirkka Jarvenpaa, and Cecil Chua are gratefully acknowledged.

References

- Aldrich, H. E. (1971), Organizational boundaries and interorganizational conflict. *Human Relations*, 24, 279-287.
- Argote, L. (1999), *Organizational Learning: Creating, Retaining and Transferring Knowledge*, Boston: Kluwer Academic Publishers.
- Aldrich, H. (1999), *Organizations evolving*. Thousand Oaks, CA: Sage.
- Armstrong, C. P., & Sambamurthy V. (1999), Information technology assimilation in Firms: The influence of senior leadership and IT infrastructures. *Information Systems Research*, 10(4), 328-342.
- Baum, J. A. C. (1996), Organizational ecology. In S. R. Clegg, C. Hardy, and W. Nord (Eds.), *Handbook of Organization Studies* (pp. 77-114). London: Sage.
- Benbasat, I. Editorial Notes. (2000), *Information Systems Research*, 11(3), i-ii.
- Benbasat, I. Editorial Notes. (2001a), *Information Systems Research*, 12(2), iii-iv.
- Benbasat, I., Editorial Notes. (2001b), *Information Systems Research*, 12(4), iii-iv.
- Benbasat, I., & Zmud, R. W. (2003), The identity crisis within the IS discipline: Defining and communicating the discipline's core properties. *MIS Quarterly*, 29(2), 183-194.
- Broadbent, M., & Weill, P. (1999), The implications of information technology infrastructure for business process redesign. *MIS Quarterly*, 23(2), 159-183.
- Brown, J.S. and Duguid, P. (1991), Organizational learning and communities-of-practice: Toward a unified view of working, learning, and innovation. *Organization Science*, 2, 40-57.
- Brown, J. S., & Duguid, P. (2000), *The social life of information*. Harvard Business School Press.
- Brown, J. S., & Duguid, P. (2001), Knowledge and organization: A social-practice perspective. *Organization Science*, 12(2), 198-213.
- Chatterjee, D., Richardson, V. J, & Zmud, R.W. (2001), Examining the shareholder wealth effects of announcements of newly created CIO positions. *MIS Quarterly*, 25(1),43-60.
- Chin, G., Myers, J., & Hoyt, D. (2002), Social networks in the virtual science laboratory. *Communications of the ACM*, 45(8), 87-02.
- Garfield, E. (1996), The significant scientific literature appears in a small core of journals. *The Scientist*, 10(17), 13-15.
- Heimeriks, G., Horlesberger, M., & Van den Besselaar, P. (2003), Mapping communication and collaboration in heterogeneous research networks. *Scientometrics*, 58(2), 391-413.

- Inonu, E. (2003), The influence of cultural factors on scientific production. *Scientometrics*, 56(1), 137-146.
- Knoke, D., & Prenskey, D. (1984), What relevance do organizational theories have for voluntary organizations. *Social Science Quarterly*, 65(1), 3-20.
- Kogut, B., & Zander, U. (1996), What firms do? Coordination, identity, and learning. *Organization Science*, 7(5), 502-518.
- Lave, J. & Wenger, E. (1991), *Situated learning: Legitimate peripheral participation*. Cambridge: Cambridge University Press.
- Leonard, D. (1995), *Wellsprings of knowledge: Building and sustaining the sources of innovation*. Boston, Massachusetts: Harvard Business School Press.
- Nonaka, I. and Takeuchi, H. (1995), *The knowledge-creating company: How Japanese companies create the dynamics of innovation*. New York: Oxford University Press.
- Pentland, B. (1992), Organizing moves in software support hot lines. *Administrative Science Quarterly*, 37(4), 527-548.
- Price, D. J. deSolla. (1986), *Little science, big science...and beyond*. NY: Columbia University.
- Ravichandran, T., & Rai, A. (2000), Quality management in systems development: an organizational system perspective. *MIS Quarterly*, 24(3), 381-416.
- Roepke, R. (2000), Aligning the it human resource with business vision: the leadership initiative at 3M. *MIS Quarterly*, 24(2), 327-354.
- Rousseau, R. (2002), Lack of standardisation in informetric research. Comments on "Power laws of research output. Evidence for journals of economics" by Matthias Sutter and Martin G. Kocher. *Scientometrics*, 55(2), 317-327.
- Sambamurthy, V., & Zmud, R. W. (1999), Arrangements for information technology governance: A theory of multiple contingencies. *MIS Quarterly*, 23(2), 261-291.
- Sandstrom, P. E. (2001), *Scholarly communication as a socioecological system*. *Scientometrics*, 51(3), 573-605.
- Scott, W. R. (1995), *Institutions and organizations*. Thousand Oaks, CA: Sage.
- Spender, J.C. (1996), Making knowledge the basis of a dynamic theory of the firm. *Strategic Management Journal*, 17, 45-62.
- The Economist*. Is big blue the next big thing? (June 21, 2003), vol. 367, no. 8329, p.56.
- Van Den Besselaar, P. (2001), The cognitive and the social structure of STS. *Scientometrics*, 51(2), 441-460.
- Wasko, S. & Faraj, M. M. (2003), Why should I share? Examining knowledge contribution in networks of practice. Paper presented at the *KM Symposium, University of Minnesota, Mar 14-15, 2003*.
- Wenger, E. (1998), *Communities of practice: Learning, meaning, and identity*. Cambridge, UK: Cambridge University Press.
- Wittgenstein, L. (1958), *Philosophical investigations*. NY: MacMillan.
- Wong, S. S. (2002), Investigating collective learning in teams: The context in which it occurs and the collective knowledge that emerges from it. Unpublished Ph.D. dissertation, Duke University.
- Zuboff, S. (1988), *In the age of the smart machine: The future of work and power*. Oxford: Oxford University Press.

About the authors

Gerardine DeSanctis is a Thomas F. Keller Professor of Business Administration, Duke University. Her interests are in the general areas of computer-mediated work and management of information technology. Most of her research has examined the impacts of electronic communication systems on teams and organizations. She serves as Associate Editor for *Management Science*, is a member of the advisory board for *Information Systems Research*, and is a member of the editorial board for the *Journal of Organizational Behavior*. In the past, she has served as a Senior Editor for both *Organization Science* and *MIS Quarterly*.

Copyright © 2003 by the **Association for Information Systems**. Permission to make digital or hard copies of all or part of this work for personal or classroom use is granted without fee provided that copies are not made or distributed for profit or commercial advantage and that copies bear this notice and full citation on the first page. Copyright for components of this work owned by others than the Association for Information Systems must be honored. Abstracting with credit is permitted. To copy otherwise, to republish, to post on servers, or to redistribute to lists requires prior specific permission and/or fee. Request permission to publish from: AIS Administrative Office, PO Box 2712 Atlanta, GA, 30301-2712, Attn: Reprints, or via e-mail from ais@aisnet.org.



EDITOR
Sirkka L. Jarvenpaa
University of Texas at Austin

JAIS SENIOR EDITORS

Soon Ang Nanyang Technological University	Izak Benbasat University of British Columbia	Matthias Jarke Technical University of Aachen
Kalle Lyytinen Case Western Reserve University	Tridas Mukhopadhyay Carnegie Mellon University	Robert Zmud University of Oklahoma

JAIS EDITORIAL BOARD

Ritu Agarwal University of Maryland	Paul Alpar University of Marburg	Anandhi S. Bharadwaj Emory University	Yolande E. Chan Queen's University
Alok R. Chaturvedi Purdue University	Roger H.L. Chiang University of Cincinnati	Wynne Chin University of Houston	Ellen Christiaanse University of Amsterdam
Alan Dennis Indiana University	Amitava Dutta George Mason University	Robert Fichman Boston College	Henrique Freitas Universidade Federal do Rio Grande do Sul
Guy G. Gable Queensland University of Technology	Rudy Hirschheim Louisiana State University	Juhani Iivari University of Oulu	Matthew R. Jones University of Cambridge
Elena Karahanna University of Georgia	Robert J. Kauffman University of Minnesota	Prabhudev Konana University of Texas at Austin	Kai H. Lim City University of Hong Kong
Claudia Loebbecke University of Cologne	Mats Lundeberg Stockholm School of Economics	Stuart E. Madnick Massachusetts Institute of Technology	Ann Majchrzak University of Southern California
Ryutaro Manabe Bunkyo University	Anne Massey Indiana University	Eric Monteiro Norwegian University of Science and Technology	B. Jeffrey Parsons Memorial University of Newfoundland
Nava Pliskin Ben-Gurion University of the Negev	Jan Pries-Heje Copenhagen Business School	Arun Rai Georgia State University	Sudha Ram University of Arizona
Suzanne Rivard Ecole des Hautes Etudes Commerciales	Rajiv Sabherwal University of Missouri – St. Louis	Christopher Sauer Oxford University	Peretz Shoval Ben-Gurion University
Sandra A. Slaughter Carnegie Mellon University	Christina Soh Nanyang Technological University	Ananth Srinivasan University of Auckland	Kar Yan Tam Hong Kong University of Science and Technology
Bernard C.Y. Tan National University of Singapore	Dov Te'eni Bar-Ilan University	Yair Wand University of British Columbia	Richard T. Watson University of Georgia
Gillian Yeo Nanyang Business School	Youngjin Yoo Case Western Reserve University		

ADMINISTRATIVE PERSONNEL

Eph McLean AIS, Executive Director Georgia State University	Samantha Spears Subscriptions Manager Georgia State University	Reagan Ramsower Publisher, JAIS Baylor University
---	--	---

