

Beyond Rigor and Relevance: Producing Consumable Research about Information Systems

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Since the field Information Systems (IS) originated, researchers have faced apparently contradictory pressures. On the one hand, we are exhorted to generate scholarly articles that are academically rigorous; on the other, we are urged to make our research more relevant to practice. In this paper, we argue that there is no inherent conflict between these two pressures; it is not only possible, but also desirable, for IS research to fulfill both directives. We present four major strategies for conducting research that is both rigorous and relevant: cultivating practitioner sponsorship, adopting new research models, producing consumable research reports, and supporting nontraditional research outlets.

Since the origins of the academic field of information systems (IS) in the 1970s, researchers have faced apparently contradictory pressures to produce research that is both *academically rigorous* and *relevant to practice*.¹ On the one hand, we are trained to conduct research that conforms to the norms of scientific rigor and scholarship so intimately associated with our institutions of higher education. On the other hand, the domain of our research lies in the realm of practice, which values knowledge that can be directly applied to business and professional practice. Like so many of our colleagues in other business school disciplines, IS academics have treated these opposing pressures as irreconcilable and chosen the academic path. We quickly learned that the respect of our colleagues and the rewards of academic life would come to those whose work was viewed as rigorous. Our collective choice has allowed our field to grow and prosper in many universities. Today, we prepare a large proportion of the new entrants to IS professional and consulting careers, and we have become less self-conscious about our scholarship and journals. We have gained respectability within many business schools by emulating our

colleagues' rigorous research and publication standards.

In many ways, this choice was a foregone conclusion. Throughout the 1950s, business schools were an embarrassment to their academic peers in more fundamental disciplines. Management education was derided as too vocational and devoid of intellectual content. In 1959, the Ford Foundation's Gordon/Howell Report argued that the solution lay in promoting rigorous research that would form an intellectual foundation for the education of future managers. However, critics are quick to count the costs of choosing rigor over relevance. Our research, like that of our business school colleagues, has grown increasingly irrelevant to practice. We became widely self-conscious of this problem during the 1980s, when the Porter-McKibbin report criticized U.S. business schools for their complacent response to global competition. Among other conclusions, the report warned the research community that executives paid little attention to the research that we produce. This lack or loss of practitioner respect has important implications for the academic community, such as the reduction of its credibility and withdrawal of financial support for

our educational and research activities.

Caught in the horns of this dilemma, IS researchers have self-consciously wondered how their efforts could be both rigorous and relevant. Realistically, how could this be done? Would not a bow to relevance be tantamount to disciplinary suicide? Couldn't we just ignore the practitioners and hope they go away? In one form or another, questions like these confront IS researchers on a regular basis.

In this paper we offer guidance to researchers wishing to produce research that is useful for practicing managers without sacrificing the rigor demanded by the academic community. We argue that IS research can be made *consumable* by practitioners if we adjust the way we undertake, present, disseminate and evaluate IS research. We argue that consumable IS research can and should be both rigorous and relevant. Indeed, research would cease to be relevant if it were not rigorous in conception and execution. However, rigorous research that is prepared for practical consumption differs markedly from the articles that have traditionally graced our field's premier research journals.

The Relevance Crisis in IS Research

Academic researchers are motivated by incentives to produce "high science" theory and empirical research for respected academic journals. Academics are evaluated according to the standards of the academy, which, stated bluntly, means that junior faculty in research schools will lose their jobs unless they publish in the premier peer-refereed journals in their fields.² When IS researchers faced a shortage of journals that would publish their research, we began founding our own. Our first — *MIS Quarterly* — began its existence in 1977, positioned as a journal that could serve both academic and practitioner audiences. Since then, many new journals have been recognized as desirable outlets for academic IS research, but few have adopted *MISQ*'s dual-audience strategy. *Information Systems Research* began publication in 1990 with a clear mission to serve academic readers, and it maintains a highly legitimate affiliation with INFORMS. Sadly, the dual-audience strategy has declined even at *MISQ*; non-academic subscribers have dropped from over 2,000 to less than 800.

By focusing their work on outlets targeted to other academics, academic writers have effectively abandoned the practitioner audience. A casual perusal of any issue of any leading journal reveals the source of the problem: arcane explanations, advanced statistical analyses, extensive mathematical notation, excessive references to other published work, and a shortage of practical advice. From a practitioner's perspective, academic writings are literally unreadable.

To make matters worse, the domain of IS practice is changing at an accelerating rate, spurred on by rapid technological developments. This makes the establishment of a

traditional "program of research" about any particular technology a questionable enterprise. For example, although the IS field has amassed an impressive body of knowledge about group support technologies over the span of ten years, one wonders whether this body of knowledge can be applied to the technologies that are emerging now. Moreover, few practitioners can sustain their interest in a given topic long enough to accommodate the academic calendar and the customary delays in the publishing cycle. Managers need to know most about a technology when it is new, yet the academic world produces results only after practical interest has cooled. Viewed from this perspective, the presumed benefits of the revered "cumulative tradition" in IS research are potentially valueless to the practitioner.³ No matter how thorough and conclusive the research findings, they may have little relevance once the technology studied has disappeared from practice. Because IS researchers often define their interests around particular information technologies, we may ironically be ensuring irrelevance by targeting our work at traditional academic publication outlets.

Meanwhile, consultants and the practitioner media (e.g., *Computerworld* and *CIO Magazine*) have stepped in with timely reports on the practical implications of numerous emerging technologies. Virtually every topic of recent importance in IS — reengineering, mass customization, intranets/extranets, enterprise models and software packages, electronic commerce, and virtual organizations — has been tackled by consultants, vendors, and journalists before the academics even got started. They, not we, are shaping the way that practitioners think about these important new technologies and applications. Writing by consultants is both innovative and practical, and the market for their writing and advisory services has grown enormously. Academics who are not consultants are characteristically skeptical of the superficiality of consulting work, but it is obvious that academics have a hard time competing for practitioners' attention.

Ironically, we disparage articles in *Harvard Business Review*, *Sloan Management Review*, *CIO Magazine*, and *Computerworld* when they appear in tenure and promotion dossiers, yet we value these sources as teaching materials more than we value our own papers in leading academic journals. We are exposing our students to the more appealing writing of the consultants who author these articles, while our own research is directed toward our fellow researchers. In the eyes of those denizens of the "real world," practitioners and our students, academia hypocritically pursues "rigorous research" that is curiously unknown in corporate boardrooms and in university classrooms. Our credibility is damaged because we fail to practice what we preach. Unlike Microsoft Corporation, whose associates delight in using the software products they build, academics do not "eat our own dog food." Rather, we consistently send signals that our research is irrelevant to practice by keeping it away from the professional students we serve.

Combining Relevance and Rigor: Consumable IS Research

The relationship between academic rigor and practical relevance is widely believed to be inverse: the greater the rigor, the less the relevance; and the greater the relevance, the less the rigor. This conception has serious consequences for IS researchers. It deceives us into believing that we have to choose between rigor and relevance. We think that by choosing academic rigor, we must employ the symbols of rigor: copious references, formal notation, detailed statistical analyses, and theoretical abstractions. Naturally, these aspects of academic IS research drive away the practitioner audience. Conversely, we think that choosing relevance requires us to incorporate the symbols of relevance: simple graphs, 2x2 typologies, "bulleted" summaries, and punchy anecdotes. Naturally, these aspects of practitioner research provoke collegial scorn and loss of academic respect. Curve A in Figure 1 suggests that we can only obtain greater rigor by sacrificing relevance, and that we can only increase relevance by sacrificing rigor. Clearly, as long as curve A describes our assumptions, IS researchers will be unable to resolve the relevance crisis.

Curve B in Figure 1 presents an alternative relationship that allows for the combination of rigor and relevance. Here, researchers can increase rigor and relevance simultaneously, producing rigorous academic research that is *consumable* by practitioners. Consumable research is both rigorous *and* relevant, and it rejects the tradeoff suggested by curve A as a dangerous and limited conception.

In the interests of achieving the objective of rigorous, consumable research in IS, we make four specific recommendations. First, researchers may pursue sponsorship of their work from practitioners. Second, IS researchers may employ alternative models for research. Third, researchers may craft their research reports in ways that will satisfy both academic critics and practitioners. Finally, the IS field can support nontraditional publication outlets, including select journals that are directed toward practitioner audiences and more popular print and electronic media.

1. Pursue Practitioner Sponsorship

The most straightforward way to produce research that practitioners will consume is to do the research *for* them, with their financial support. Currently, there are a limited number of sponsors for practical IS research. However, there are signs that this may be changing. Vendors, consulting firms, and the media are beginning to recognize the value of partnerships with academics. In part, this recognition is an outgrowth of venture-related partnerships in industry; in part, it is an outgrowth of downsizing and outsourcing in corporate R&D. Whatever the reason, practitioner sponsorship is a welcome and influential source of funding for IS research.

Perhaps even more important, practitioner sponsorship

is a valuable mechanism to ensure that the research output meets practitioners' needs. In our own experience with practice-oriented research, we have enjoyed our contemplation of the intellectual issues underlying the sponsor's practical interests. However, when the report or presentation must be prepared, we confront a moment of truth. Is this issue something that the funding group can actually do something about? If not, it probably doesn't belong in the report. For instance, reports to general executives about Internet technology should probably focus on financial justifications relative to alternative strategic ventures. Reports to CIOs, by contrast, must focus on the standards, policies, and governance issues appropriate to their organizational roles and responsibilities. Neither report should contain speculations on the socio-economic consequences of time/space discontinuities for the evolution of late modern society!

Prominent among the organizations supporting academic IS research is the Society for Information Management (SIM). SIM was an early sponsor of the doctoral consortium at the International Conference on Information Systems (ICIS) and currently sponsors a workshop preceding ICIS in which researchers present practice-oriented research and discuss the challenges of doing so. SIM's Advanced Practices Council (APC) has supported numerous academic research teams throughout the 1990s, funding projects up to \$50,000. Researchers who are awarded SIM/APC funding meet with Council members periodically, making interim presentations and attuning the research process to the needs and interests of the members.

University centers have also become important sponsors of IS research. Supported by private contributions, such centers typically focus upon a narrow theme of interest to the sponsoring corporations or agencies. For example, the Cycle Time Research Center at the University of Memphis (sup-

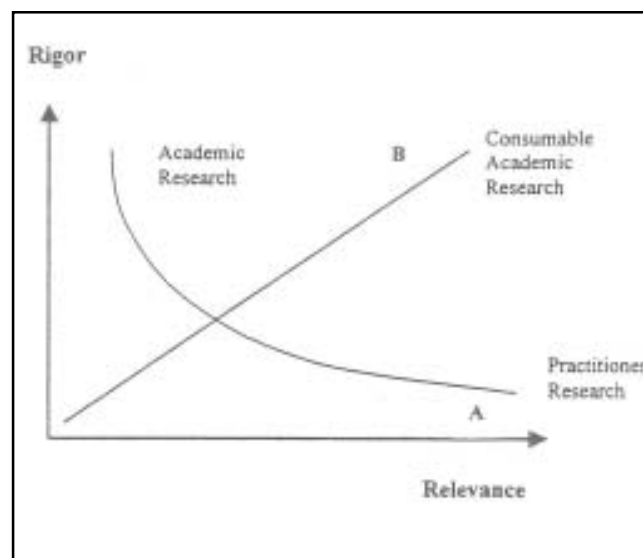


Figure 1: The Rigor / Relevance Curves

ported by Federal Express) sponsors research into cycle time reduction and encourages the integration of information technology with other perspectives such as industrial engineering and operations management. Other examples include the Center for Digital Commerce at Georgia State University (which draws both public and private funding), the Center for Innovation Management Studies at Lehigh University, and the David D. Lattanze Center for Executive Studies in Information Systems at Loyola College in Baltimore, Maryland.

Many university centers engage in training and education as well as research. Some, like the Lattanze Center, invite proposals from researchers unaffiliated with the host university; others serve as clearing houses for faculty at host and neighboring institutions but typically cut across multiple disciplines. University-based research centers yield many benefits for their hosts as well as relevant contributions to knowledge, and expansion of these centers will clearly advance the rigor and relevance of IS research.

2. Adopt New Models of Research

Much contemporary IS research emulates the traditional social science research practices in fields like organizational behavior and applied psychology. In this model, emphasis is placed on testing narrowly circumscribed theoretical propositions, and quantitative rigor tends to be valued over relevance to practice. However, IS can also learn from research models from other professional fields, such as policy studies and education, that simultaneously value rigor and relevance. Here, we consider three approaches: applied theory, evaluation research, and policy research.⁴

Applied Theory

The applied theory approach involves the use of appropriate academic theory to guide research on practical problems in IS.⁵ In applied theory research, the researcher takes a real problem that is relevant to practitioners and examines it in light of a rigorously developed and validated theory. The criteria for evaluating applied research include the standard norms of theory-testing research, as well as practical norms of problem solution. Thus, if theory is found to explain and predict the phenomenon under study, but the motivating problem remains unsolved, the research has not succeeded. Likewise, solving the problem is insufficient if the reasons why a particular solution works cannot be explained by theory. Applied theory has an intended audience of practically minded academics, consultants, and managers who read beyond the trade publications in their areas.

Evaluation Research

A second model of research that combines rigor and relevance is evaluation research, which is strongly established in professional schools of education, social work, and public health. In evaluation research, one starts by enumerating the objectives for a particular intervention, such as a new drug

regimen, a new educational program, or a new clinical treatment plan. In addition, the researcher identifies a possible set of intended and unintended consequences (along with reasons they might have occurred), derived from various sources including theory, empirical research on comparable interventions, and anecdotes drawn from practice. Research questions are then formulated with these anticipated consequences in mind, and a research design is developed to answer the research questions. For example, research questions might ask: Did the expected positive results occur? Were there any unforeseen positive or negative effects? Why did the expected results not occur? Why did unexpected results occur? Based on the findings of the evaluation, the researchers are well positioned to recommend actions for improving the intervention. The results of an evaluation study can be targeted to different stakeholder groups, such as the intervention's sponsor, its developer, its adopter, its implementer, or its users (since these are not always the same individuals or organizations).

Although rarely used in IS, evaluation research could be used to evaluate an existing information system or implementation effort against a set of criteria of goodness or success. One example of such research would be to assess a software development project against criteria such as those established by the Software Engineering Institute's Capability Maturity Model. Another would be to evaluate the results of a beta test of an application based on an emerging technology. The criteria used in evaluation research are often derived from prior research, but they are not necessarily grounded in theory. They could just as validly be derived from documented experience. However, evaluation research adheres to rigorous standards in sampling, measurement, and analysis. Like applied theory, evaluation research is undertaken with both academics and practitioners in mind.

Policy Research

A third model for combining rigor and relevance is policy research, most commonly found in schools of political science and government. Unlike evaluation research, which focuses on determining the success of a concrete development or event, policy research focuses on a broader problem area that requires resolution. The research may identify and evaluate alternative solutions with respect to their cost, efficacy, practicality, or some other criteria. Examples in IS include evaluating the appropriateness of alternative pricing policies for Internet-based services, establishing criteria for deciding how a company's web sites should be hosted, and examining policies on regulating employees' access to and use of the Internet and other on-line services.

A key step in policy research is to understand the process by which policy decisions related to the policy issue are actually made. This includes identifying the stakeholders and the scope of their decision authority and influence. As with evaluation research, prospective solutions and evaluation criteria may be drawn from prior research, but theory is not

commonly used in policy research. Rather, policy research frequently departs from conventional theories in purposive search for new concepts that can solve practical problems. Like applied theory and evaluation research, policy research is directed toward both academics and practitioners, especially those engaged in the policy-making process.

3. Produce Consumable Research Reports

Our first two recommendations affect the way that research is supported and conducted. The potential advantages of these alternative funding sources and research models can, however, be wiped away if the resulting research reports are written for an all-academic audience. When we acknowledge the value of addressing an audience composed of both academics and practitioners, we must also commit to effective communication with that audience. How does one proceed? Here, we argue that consumable academic research reports have four key characteristics: an accessible style; a story line that is novel and critical, yet constructive; a credible evidential base; and support from useful (and usable) logic and theory.

Accessible Style

Earlier, we claimed that academic journals are unreadable to people outside of a relatively small community.⁶ However, there is nothing inherent in research itself that renders it incomprehensible. Stripped to its essentials, all research is an attempt to communicate ideas, observations, and claims about knowledge to an audience. Research can be made accessible to a wider audience, and style is the place to begin.

Research appeals to a wider spectrum of academic and practitioners when certain stylistic features are present and when other features are absent. Appealing stylistic attributes are:

- the use of a first-person perspective
- active versus passive verb constructions
- judicious use of graphics
- bulleted lists
- summary tables
- common but vivid examples of abstract concepts
- clear, simple writing
- a direct focus on practical implications.

Moreover, research methods can be explained in simpler language than is normally used, and results can be presented and discussed concisely.⁷

Unappealing attributes of style include:

- obscure jargon
- obsessive statistical or mathematical detail
- excessive length
- frequent citations in the text.

Jargon is a particularly interesting issue in IS because it

seems almost unavoidable where information technologies are described. However, greater sensitivity to changing practitioner jargon is needed if our intent is to communicate effectively to the world of practice. For instance, most academics are comfortable with the label of “information systems,” or some close variant thereof, to describe our field.⁸ Unfortunately, the “IS” unit in business organizations is now commonly referred to as the “IT” unit. For another example, academics continue to focus research on executive and group support systems while practitioners now speak of data mining and groupware. Moreover, our morbid fascination with business process reengineering has been trumped by keen practitioner interest in business transformation.⁹ Academic failure to use terms that communicate to an intended audience may result in our work being inappropriately rejected as irrelevant when it may actually be quite germane.

We believe that most researchers could easily adopt a more appealing writing style, without sacrificing essential content. If more accessible writing actually reveals flaws in the research (e.g., its basic assumptions or logic), so much the better. In fact, we urge reviewers of all IS research reports to encourage clear and simple writing even when the intended audience is entirely academic. Doing so will enhance our collective ability to engage the practitioner community.

Novel, Critical, Constructive Story Lines

One of the great academic myths is that science succeeds by replacing “rhetoric” with dispassionately reported “evidence.” Yet, all writing is necessarily rhetorical, and all writing needs to develop a story line.¹⁰ In conventional academic IS research, the almost invariant story line conforms to the standard “journal article” format, which academics struggle to master as part of their doctoral training and later refine through feedback from journals on unacceptable manuscript submissions. The story line in the standard article invariably turns on the identification of serious gaps in our knowledge about a particular issue or problem. The unfilled-gap rhetoric, in effect, justifies the research on grounds that the needed knowledge is not available elsewhere. Characteristically, the research results or theoretical arguments presented do not completely fill the gap, providing the finishing touch on the story line. Thus, future research is needed to confirm, complete, or contradict the conclusions of the standard academic article.¹¹

While the standard story line appeals to academics, it does not appeal to practitioners. Practitioners are motivated to read by a belief that they will learn something useful — specifically, to them. For example, practitioner readers expect an author to resolve an unresolved practical problem, rather than fill a gap in some theoretical body of knowledge. Moreover, the practitioner expects research to be unambiguously connected to the practical problem. This need reinforces our suggestion that IS researchers undertake evaluation research, in which the criteria for evaluation must be clearly linked to a

proposed intervention. Without a direct connection between the research itself and the usefulness of the findings, the researcher's gap-filling story line will not be trusted.

Another rhetorical strategy that appeals to practitioners is to summarize and synthesize a larger number of studies on a particular subject. The genre of "review paper" actually has an honored place in academia, and some fields devote entire journals to review articles. For example, *The Academy of Management Review* publishes no empirical articles, only conceptual and review articles that contribute to theory. In the IS field, *ACM Computing Surveys* provides comprehensive reviews of research on various aspects of computing practice, although most articles bear only indirect relevance to IS research. Normally, however, review articles compete with empirical articles for space in academic IS journals, potentially confusing a practitioner audience that is accustomed to more specialized publications.

Consumable research also needs novel and critical story lines. Practitioners generally have less appreciation for the incremental contributions to scientific knowledge; they prefer novel findings — things that neither they nor anyone else already knows. Indeed, the disconfirmation strategy employed in "normal science," in which advances occur only when null hypotheses fail to be rejected, incorporates an inherently conservative and paradoxical story line. By contrast, the demonstration that a new software development methodology really works is a novel story line with greater appeal. Likewise, story lines that are critical of conventional wisdom or current practice make good reading, but they make better reading if the story provides constructive advice on how to overcome the limits of current practice.

Producers of consumable IS research should be conscious of how they craft story lines. Ironically, the academic article format insidiously masks story lines by employing citations as a form of linguistic shorthand that summarizes entire arguments in a name and a date. Without prior knowledge of the arguments made by cited authors, a reader will have little chance of filling in important details that explain why the research being reported was undertaken. For example, reference to the "implementation puzzle," followed by a reference to "(Swanson, 1988)" does little more than infuriate practitioner readers who may be insulted by a knowing aside to the arguments in a book published a decade ago.¹² By obscuring such details of argument with citations, academic authors unwittingly alienate uninitiated practitioners. This is not a simple matter of style that can be corrected by removing the clutter of sequenced names and dates. We should learn to replace handy citations with simple logic or clear summaries and analyses, in lay terms, of the prior research that is most relevant to practitioners.

A Credible Evidential Base

Our emphasis on style and story line should not divert attention from the core requirement of all research writing —

the presentation of credible evidence to support the researcher's knowledge claims. Academics are highly trained in strategies for acquiring and analyzing evidence. We must recognize, however, that practitioners often neither understand nor respect the scientific method. Therefore, without sacrificing rigor, we must find ways to describe our evidence and the procedures for generating it in ways that can be believed by intelligent lay persons, as well as our colleagues.¹³

Making our evidence credible does not preclude sophisticated quantitative analysis; indeed, practitioners are often more respectful of the "numbers" than are academics. We do advise, however, that all quantitative evidence be clearly relevant, simply displayed, and properly interpreted. Case studies and other qualitative research strategies, which afford a wider range of interpretation than quantitative studies, must also be presented in credible fashion. One of the failings of anecdotal reports in trade magazines is the lack of attention to detail and interpretation that characterizes the best qualitative research in IS. We should not sell our audience short by skimping on the presentation of evidence.

Support from Useful Logic and Theory

There is no doubting the value of theory in academic research, and there is little debate about the potential value of good theory to practitioners. Theory is a way of organizing and simplifying experience, and conceptual clarity can be tremendously sharpened by a theory that resonates with experience. However, simple theories can be dangerous guides to practice, and complex theories will probably be ignored or misunderstood. A *useful* theory strikes a balance between being simple and complex.

For example, practitioners are repeatedly led to believe that information technology is capable of transforming organizational structures and processes. This is a consistent message that can be distilled from popular writings about technology over the past 40 years. While it is undeniable that information technology is an essential ingredient in the process of organizational renewal, and sometimes may appear to account for remarkable transformations, the imperative logic connecting technology with social organization is overly simple and therefore not useful in practice. However, a more complicated theory that incorporates dozens of moderator and intervening variables to account for organizational change is not useful either.

We have two recommendations for shaping theory to the requirements of practice. Our first recommendation concerns the use of non-deterministic theories of the outcomes of using IT in organizations. The history of computing is littered with the fallout of simplistic cause-effect thinking that simply hasn't worked. Elsewhere, we have directed attention to theoretical forms that depart from deterministic assumptions and discussed the merits of theories using emergent causal logic.¹⁴ We do not regard deterministic theory, particular the well-known "technological imperative," to be useful because

it is too simple. Elaborated versions of the imperative, in which additional explanatory variables are loaded in, are not useful because they are too complex. A more useful conception of the relationship between information technology and organizational form may involve a different logic altogether — a contradictory logic, in which forces for change are countered by forces for persistence.¹⁵ Understanding organizational change as a dialectical and emergent process, we have argued, is more useful than thinking about IT as an autonomous force effecting complex changes in organizations.

Second, academics should remember that research will have useful implications for practitioners if the theory used to guide the research contains “action levers.” Action levers are factors that decision-makers can influence through direct action, example, or policy. For instance, “length and content of user training” is an easily manipulable factor whereas “user cognitive style” is not. Thus, a theory relating user training to performance is inherently more useful than a theory showing how cognitive style affects performance. Academic theories that emphasize intra-psychic concepts or macro historical forces may help us understand the universe in an intellectually stimulating way, but they are not as useful to practitioners as theories that focus on things that can be controlled.

Support Non-traditional Publication Outlets

We have previously discussed the reluctance of premier academic journals to publish research that appeals to practitioners. Given the institutional incentives connected with publication in such journals, we do not expect our premier journals to change their editorial policies. However, several other appealing outlets for consumable research can be identified. Their appeal includes one reason that academics might not normally consider important: big circulation.

Sloan Management Review

Sloan Management Review is an especially important journal for the IS field. It has over four times the circulation of *MIS Quarterly*, it is peer-reviewed, and its editors have demonstrated a strong interest in IS-related articles through their frequent publication (in almost every issue). Moreover, as a journal addressed to the more general topic of “management,” *SMR* allows readers interested in other topics to gain access to IS research. This not only gives greater exposure to IS researchers but also advances the interests of IS practitioners within general management ranks. Most articles in *SMR* meet our other criteria for consumable academic research by combining rigor and relevance.

Communications of the ACM

Recent editorial changes at *Communications of the ACM* have made it a valuable outlet for consumable IS research. Directed primarily toward computer professionals, *Communications of the ACM* was an influential outlet for purely aca-

dem research in IS between 1980 and 1995. It currently reaches 83,000 subscribers and strives to publish articles of general interest to professional readers. Interestingly, *Communications of the ACM* accomplishes this aim by limiting the length of articles (4,000 words) and the number of cited references (12). These rules force authors to write concisely without links to many other works, consistent with our criteria for consumable academic research. It is conceivable that university departments might “downgrade” *Communications of the ACM*’s academic rating because of these changes in editorial policy. However, the appearance of research articles that conform to the new style, written by both junior and senior IS academics, may conversely signal a higher value placed upon consumable work in IS.

Other Channels

Many other outlets for consumable IS research exist. Popular books are perhaps the most envied outlet for IS academics because they represent such a lucrative potential market. While books about IS rarely become best sellers, public awareness of information technology has received a boost from authors like Michael Hammer and Don Tapscott. These books seldom report on academic IS research, but they pave the way for public reception of more considered attempts to shape managerial thinking about IS. Other books, such as those published in John Wiley and Sons’ series on information systems (edited by Rudy Hirschheim and Dick Boland), are better examples of consumable IS research in book format.

The business and technology press has also become a viable outlet for consumable academic research. Several noted academics publish regular columns in practitioner-focused magazines: Jim Wetherbe in *ISWeek*, Tom Davenport in *CIO Magazine*, and Michael Dertouzos in *Wired*. *Computerworld* regularly publishes its Leadership Series to which some academics contribute. There are bound to be many other magazines and newsletters that offer opportunities for academics to share research results with practitioners.

Another popular format is edited volumes consisting of original contributions compiled around a particular theme, such as organizational transformation. Often, the chapters contributed to such volumes include empirical research originally reported elsewhere (in more academic journals), and often they are simply “thought pieces” instead of empirical studies. Edited volumes appear sporadically, depending on the initiatives of editors and publishing companies. They represent consumable outlets because they are aggressively marketed by the publishers and compile related papers on a particular theme.

One particular variation on the edited volume theme can be adopted by university departments or research centers intent on improving their outreach to the business community. Each year, the Stockholm School of Economics publishes an edited volume of faculty and doctoral student research written for practitioner “friends” of the school. A different academic

unit takes responsibility for the volume each year, so that annual volumes focus on marketing one year, IS another year, and so on. This idea, we believe, can easily be adopted in North American business schools, especially as the concept of Internet-based publication grows in popularity.

Internet distribution provides another outlet for consumable IS research. *MIS Quarterly* has created the electronic journal, *MISQ Discovery*, which hangs in cyberspace attracting search robots looking for key words and topics. For many IS executives and professionals, searching the World Wide Web has become a primary source of current information. Again, like popular books, little actual research is available in fully reported form, largely because the laws governing copyright do not allow it. Also, academic researchers gain little prestige from findings reported on personal web pages instead of in legitimate journals. But there is no denying the consumability of work made available on the Internet. Speed of access alone places such information in an advantageous position over bound journals and books. Internet technology also has the potential to speed the reviewing process and to bring all academic research into print sooner, thus making it more consumable.

Finally, there are new outlets for academic research yet to be created. New IS journals and conferences seem to start up every week. We'd encourage those with both an entrepreneurial and editorial bent to consider the arguments raised in this article. The IS field needs journals that target the reflective practitioner and academic readers, and it needs journals that summarize and synthesize research findings and their practical implications in the form of review articles.

Conclusions

We conclude with two important clarifications. First, we value academic work, and we are not advising academics to discard their talents in search of a larger practitioner audience. IS academics can bring tremendous value to the world of practice without sacrificing that which we hold most dear. Four characteristics distinguish academic work from that of untrained consultants and journalists.

Our most important advantage is our *rigorous training in research methods*, which enables us to scrutinize critically superficial arguments and self-serving claims. A second distinctive advantage is our *disinterested posture* with respect to individual vendors, technologies, and products. While IS academics widely advocate responsible uses of information technology, we have no vested interests in particular name brands. Readers are likely to be attracted to academic research reports because of this perceived neutrality, knowing that our results are more trustworthy than vendors' claims and promotional materials. Third, our *commitment is to disseminate our findings broadly in the public domain* rather than to conceal it for proprietary advantage. The results of academic research are consumable by everyone, not just for those who can pay to

fund their own research. Fourth, academic research requires a *commitment to scholarly values and ethical principles*, which are inconsistent with the crass commercialism and economic exploitation of knowledge.

These are distinctive characteristics of academic research, and nothing we do to improve the palatability of our product to practitioners should dilute our commitment to these principles. However, commitment to these lofty ideals does not entitle academics to obfuscate the knowledge we generate so severely that we prevent a potentially interested audience from reading it. To serve our practitioner stakeholders effectively, we must make it consumable. Through the strategies we have articulated in this paper, we intend to preserve what is best about academic research and overcome its worst tendencies.

Our second clarification concerns the obstacles that operate within the academic community to prevent implementation of many of our recommendations. Publications in accessible, practitioner journals have always been evaluated less highly in academic promotion and tenure reviews than articles in premier academic journals. Further, the IS field is not well enough positioned within the pecking order of business school disciplines to chart a course entirely on its own. Thus, we cannot in good conscience advise junior faculty at research institutions to focus one hundred percent of their efforts on producing consumable research.

Nonetheless, we can work collectively to make the IS field more relevant to practice. If academics and practitioners go their separate ways, we anticipate an impoverished future for both parties. Practice will lose the benefits of our results, and academia will lose the benefits of the business community's economic and social support. If we simply pay lip service to an interest in professional practice while continuing to steer all of our research into journals that only academics can read, practitioners will see us for the hypocrites we'll be.

In our view, the responsibility for making IS research more consumable lies with the senior leadership of our profession, many of whom have stellar records of academic research and the skill to convert this work into consumable form in accessible outlets. Responsibility also falls upon the leadership of academic institutions directly engaged with practicing IS professionals to support the efforts of effective academics producing consumable IS research.

The challenges are great. We must preserve and expand our hard-won academic legitimacy by meeting the standards of "high science," however that is locally defined. We must also reach out to practice by producing consumable research and disseminating it through accessible channels. Now is the proper time to face these challenges. It is time for a bolder and more expansive vision of the IS research contribution. It is time to make IS research a boundaryless endeavor, one that transcends the limits of a single institution, be it university, consulting firm, vendor, or IT adopter. It is time to forge research partnerships and alliances in which academics and practitioners work together to realize collective aims. Perhaps

it is even time for IS researchers to lead the way for our colleagues in more entrenched disciplinary segments of the business school.

Endnotes

¹ In an effort to follow one of the suggestions made in this article, our writing contains few references to other work, either academic or practical. In consumable academic work, arguments should be made directly and invite evaluation on their own merits rather than hiding behind a mound of cited work. When used, references to other work follow the more consumer-friendly style of footnoting rather than this journal's "required APA style." We hope that readers will not judge our arguments as insubstantial because we use references sparsely, and we beg the indulgence of the journal's editors to depart from stylistic convention to make a point relevant to our argument.

² A prominent practitioner who holds a Ph.D. recently told us that his cynical view of the purpose of academic publication standards was to serve as a device for reallocating faculty talent across schools.

³ Peter Keen, an influential scholar and practitioner in IS, raised numerous questions about the academic legitimacy of the new IS field at the first Conference on Information Systems in 1980. His expressed concern for establishing a cumulative research tradition undoubtedly led IS scholars toward traditional academic programs of research.

⁴ We have not included action research as an alternative research model because its position in the IS field is well understood (although relatively insecure). In its more rigorous forms, action research certainly meets our criteria for being both rigorous and relevant.

⁵ See Robert W. Zmud, "Editor's Comments," *MIS Quarterly*, June and September 1996 for a more extensive description of applied theory.

⁶ The doubting IS scholar should try to read advanced contemporary research outside of IS to prove this simple point.

⁷ Of course, reviewers of academic manuscripts often discourage these and other appealing stylistic features.

⁸ The label "MIS" has all but disappeared, and "IS" and occasionally "CIS" (for Computer Information Systems) are now more common.

⁹ Even Michael Hammer, that most inveterate of social engineers, has titled his latest book *Beyond Reengineering*, in which he explores the concepts of process-centered organization and learning systems.

¹⁰ See, for example, Charles Bazerman, "Scientific Writing as a Social Act: A Review of the Literature of the Sociology of Science," in Anderson, Brockmann and Miller (eds.), *New Essays in Technical and Scientific Communication*, Farmingdale, NY: Baywood, 1983; Karen Golden-Biddle and Karen Locke, *Composing Qualitative Research*, Thousand Oaks, CA: Sage, 1997; and Laurel Richardson, *Writing Strategies: Reaching Diverse Audiences*, Newbury Park, CA: Sage, 1990.

¹¹ The authors confess to adopting a story line in this article that first portrays despair, then hope.

¹² Obviously, our dear friend Burt Swanson is not to blame for such oblique references to his wonderful book (E.B. Swanson, *Information System Implementation: Bridging the Gap between Design and Utilization*, Irwin, 1988). We would be happier if more academic writers explained the puzzle analogy that Swanson employs so skillfully.

¹³ This may have the desirable side effect of making our research more appealing to academic colleagues who do not share our enthusiasm for preferred research methods!

¹⁴ M. Lynne Markus and Daniel Robey, "Information Technology and Organizational Change: Causal Structure in Theory and Research," *Management Science*, 34, 5 (May 1988): 583-598.

¹⁵ Daniel Robey, "The Paradox of Transformation," in Sauer and Yetton (eds.), *Steps to the Future: Fresh Thinking on the Management of IT-Based Organizational Transformation*, San Francisco: Jossey-Bass, 1997, p.209-229.

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