June 2006

The Market of Ideas as the Center of the IS Field

John L. King

University of Michigan, jlking@umich.edu

Kalle J. Lyytinen

Case Western Reserve University, kalle@po.cwru.edu

Follow this and additional works at: <https://aisel.aisnet.org/cais>

Recommended Citation

King, John L. and Lyytinen, Kalle J. (2006) "The Market of Ideas as the Center of the IS Field," *Communications of the Association for Information Systems*: Vol. 17 , Article 38.

DOI: 10.17705/1CAIS.01738

Available at: <https://aisel.aisnet.org/cais/vol17/iss1/38>

This material is brought to you by the AIS Journals at AIS Electronic Library (AISeL). It has been accepted for inclusion in Communications of the Association for Information Systems by an authorized administrator of AIS Electronic Library (AISeL). For more information, please contact elibrary@aisnet.org.

THE MARKET OF IDEAS AS THE CENTER OF THE IS FIELD

John Leslie King
University of Michigan

Kalle Lyytinen
Case Western Reserve University
kalle@cwru.edu

ABSTRACT

The center of the IS field is presented as a market of ideas, an intellectual exchange related to the design and management of information technologies in organized human enterprise. In this view, the IS field is a loosely coupled system operating through weak social ties across intellectual communities. A loosely coupled system can operate towards contradictory goals of both plasticity and stability in the search for new research opportunities and generation of valid knowledge. The market of ideas allows reconciliation of rigor and relevance, technical and social, design and explanation. It lowers the barriers of established disciplinary regimes and institutions, and facilitates scholarship in fields where conditions change quickly. It helps to balance exploration and exploitation in an effort to avoid competency traps. Limitations of the metaphor are considered.

Keywords: information systems, identity, legitimacy, theoretic core, discipline, disciplinary, academic politics, market of ideas, public sphere, loosely coupled system, structural holes, weak ties, learning theory

I. INTRODUCTION

The debate over the best way to obtain academic legitimacy for the Information Systems (IS) field was captured in a recent book (King and Lyytinen, 2006). The debate is likely to continue for some time to come. In the meantime, the IS field should continue to innovate in ways that build legitimacy. We argue elsewhere that legitimacy is the consequence of a field's salience, strong results, and plasticity (Lyytinen and King 2004). However, we have not explained how a rapidly moving field such as IS can attain these attributes. This paper suggests that, rather than postulating an end state that carries legitimacy (e.g., the presence of unique theory), a more practical strategy is to focus on the process of legitimation. Toward that end, we offer the concept of a market of ideas, a loosely coupled system that increases intellectual value by forging new connections across the boundaries of established disciplinary regimes. This market promotes interpretation and re-interpretation of data and experience in an ongoing, competitive search for understanding among people connected through weak social ties. The outcome of the process is to improve the utility of information technology in human enterprise. The market of ideas embodies a set of effective learning mechanisms that enable the field as a whole to balance exploration and exploitation in theory and practice.

II. A MARKET OF IDEAS

It has been suggested that the center of the IS field should be robust theory. We believe robust theory would be helpful for establishing legitimacy, but this is not a practical goal in the short run. The IS field draws upon multiple theoretical perspectives, none of which hold privileged access to the nature or causes of the phenomena studied by the field. For the time being, it is more sensible to think of the center of the field as the activity by which scholars create and stabilize understanding (Boland and Lyytinen 2004).¹ This free flowing give-and-take is a market of ideas, in which scholars and practitioners exchange intellectual contributions regarding the design and management of information and associated technologies in organized human enterprise.² We build on the market of ideas as a constructive metaphor for thinking about improving the legitimacy of the IS field.

We have previously referred obliquely to the market of ideas by citing Daniel Webster's description of "... a vast commerce of ideas" consisting of "... marts and exchanges for intellectual discoveries" bringing great improvements in human welfare.³ The idea is also seen in Habermas' "public sphere," wherein critical discourse advances technology, politics, and society (Habermas 1991). Similar ideas can be found in Toulmin (1972) and Rorty (1978). The market of ideas involves physical and virtual places in which intellectual exchange occurs (i.e., academic institutions, think tanks), rules govern exchange (e.g., editorial policies), and things are traded (e.g. particular theories or results). Most important, the market of ideas entails the empowerment of the participants, working through due process, to place their own values on the things being traded, and learn the intellectual value of their own ideas as they move ahead. The power of the market of ideas lies in the flexibility and sustainability of a loosely coupled system.

III. A LOOSELY COUPLED SYSTEM

Established academic fields vacillate between the stability of established knowledge and the need to challenge that knowledge as new ideas and discoveries appear. Kuhn (1996) has characterized these cycles as paradigm formation and decay that destabilizes previously stable "disciplinary matrices," producing scientific revolutions. Between revolutions, academic communities conduct 'normal science,' in which rival theoretical rigidities lead to creation of homogenous sub-fields. These sub-fields slowly stop talking to one another, become decoupled, and settle into an efficient division of labor. As long as the sub-fields obtain strong results while addressing salient problems, this model is sustainable. Physics is a case in point (*c.f.*, Galison 1997).

The IS field is young and dynamic, a "pre-paradigmatic" field, in Kuhn's parlance. Such fields normally grow by loosening the *status quo* of prevailing intellectual structure, exercising what Whinston and Geng (2004) call *strategic ambiguity*. They suspend judgment about orthodoxy of theory or findings, and attempt to coalesce around broad intellectual missions that forge solidarity among their members. An attempt at this appears just above, in our description of the IS field's concern as "...the design and management of information and associated technologies in organized human enterprise." Such fields resemble what Orton and Weick (2001) call *loosely*

¹ Keen (1987 p. 3) foreshadowed this idea: "Our backgrounds, training and interests are very different. We must take that as strength, not a cause of argument."

² This is similar to DeSanctis' (2003) statement that a field achieves legitimacy by enabling specific types of interactions around a set of chosen topics that lock in interested participants. We argue that our dynamic, diverse and heterogeneous community of inquiry "locks in" through the market of ideas.

³ The quote is from Webster's speech dedicating the Bunker Hill monument in 1825; we cited it in Lyytinen and King, 2004.

coupled systems, in that they exhibit dialectical tensions, are simultaneously open and closed, and are spontaneous and deliberate in research and teaching related to their broad intellectual mission.

The loosely coupled system of the IS field exhibits indeterminacy in theories and interpreting data (Robey and Boudreau 1999). It lacks a theoretical center (Benbasat and Weber 1996, Lyytinen and King 2004, Robey 1996). It produces varying and selective observations and data (Kling 1980, Attewell and Rule 1984). It engenders fragmented expectations arising from its stakeholders (Klein and Hirschheim 2003). It is embedded in institutional environments that pull the discipline in multiple directions (DeSanctis 2003, King and Lyytinen 2004).

Loose coupling is accompanied by tension. It facilitates change and plasticity, but brings the threat of fragmentation, lack of intellectual coherence, and the danger of splintering into a cacophony of fads, theories, data and research methods (Klein and Hirschheim 2003). The establishment of core theories to which everyone adheres might make the field more tightly coupled and distinct (Benbasat and Zmud 2003), but it could also produce hierarchical authority structures for coordination and increasingly rigid systems of interpretation (Whitley 1984). It is desirable to dampen these tensions by strengthening the beneficial mechanisms of loosely coupled systems, but how is this to be done? The mechanisms of loosely coupled systems are more difficult to grasp than those of tightly coupled systems, as they are dependent on multiple, interrelated schemes of interpretation (e.g., theories and methods) in their struggle to balance stability and change (Orton and Weick, 2001).

The market of ideas embraces multiple interpretations through rule-governed, enacted activities of learning and inquiry. Rules guide the things to be exchanged, the modes of exchange, and the valuation of exchanges in different contexts. The market connects the system's separate parts and activities when appropriate but does not enforce rigid constraints upon inquiry or seek to unify interpretation. The rules in the market of ideas facilitate new couplings between sub-communities, responding to new intellectual pursuits and challenges. Couplings in the market of ideas are not calibrated by an expected uniformity of experience and interpretation, but by the potential of novelty, curiosity, and alien meanings that arise in such inquiries. New couplings emerge and old couplings are dissolved during exchange and re-interpretation of experience among the participants. Competitive rivalry among theories in the market regulates stability and change, encouraging distinctiveness and responsiveness. The field remains loosely coupled as long as the rules promote diversity and rivalry, while maintaining a sense of common purpose in inquiry.

These characteristics can be seen in Mark Granovetter's (1973, 2002) work on the sociology of economic institutions. Granovetter suggests that processes of rational exchange and interest optimization take place through social interactions that, over time, build social institutions. This process draws upon and enables activities that eventually move beyond narrow models of rational exchange and interest optimization. For example, trust is essential to most economic exchanges, but trust cannot be explained by or reduced to purely rational economic calculus. Markets operate through social networks defined by kinship, ethnicity, worldview, and other social constructs. They are tied together by the arcane and capricious connections of weak social ties, where moral obligation, trust, and solidarity are essential. Exchanges in markets take place within "spheres of exchange" corresponding to the boundaries of particular weak tie social networks, governed by relevant social constructs.

Academic fields correspond to Granovetter's spheres of exchange, in which ideas and findings are commensurable with one another. Strong ties prevail in methodologically and theoretically unified fields. In extreme cases, these fields become isolated islands, disengaged from other spheres of exchange. As long as their internal exchanges offer sufficient value to members of the field, and the field generates sufficient social welfare to garner support, this condition is sustainable. However, if a field becomes too narrow and rigid, it will lose its plasticity and its ability to exploit new opportunities. The history of science and scholarship is full of examples of both kinds.

This is not a prescription. We suggest that the IS field already *is* a loosely coupled system exploiting weak social ties in a market of ideas. In this market, IS scholars are able to breach previously separated spheres of intellectual exchange, and exploit “structural holes” by forging connections among new spheres of inquiry. Connections are continually restructured, creating new exchanges of ideas. Unforeseen but valuable regimes of ideas and results follow. To cite just a few examples from our past:

- The emergence of socio-technical thinking as a marriage of old socio-technical ideas and the new merging technological opportunity (Enid Mumford).
- The combination of system engineering principles and information theories in system design and infological theory (Borje Langefors).
- The integration of psychometric techniques and experimentation with technology supported decision-making (Gordon Davis and Gary Dickson).
- The integration of computerization with institutional analyses (Rob Kling, Ken Kraemer, John King).
- The modeling of systems as semiotic communication systems and speech act based discourses (Kalle Lyytinen, Goran Goldkuhl).
- The integration of technology acceptance with different theoretical bodies of marketing literature (Fred Davis, Izak Benbasat).
- The analysis of IT adoption as a diffusion process (Bob Zmud).
- The broad integration of computer support and coordination theory (Tom Malone).

These connections often arise in haphazard ways through bold action by individuals trying to exploit new intellectual opportunities. These individuals are not always members of the field when they present their ideas; they might be outsiders. Whether inside or outside, the connections forged are frequently fragile until social resources of solidarity and moral obligation establish stable spheres of exchange. Over time, this process shapes the field.

IV. EXPLORATION AND EXPLOITATION IN THE MARKET OF IDEAS

The connections within academic spheres of exchange moderate the allocation of resources between exploration and exploitation (March, 1991). Exploration is the search for new problems, new theories, and new data that can be compared and juxtaposed with existing theories, in what Popper (1968) called the context of discovery. It might include searching, theorizing, technology development, risk taking, generative learning, flexibility, plasticity, novel experimentation, discovery, and architectural innovation. Exploitation involves the validation, refinement and replacement of existing findings and theories, as well as the generation of new data that can be compared and juxtaposed with existing findings and theories, all in what Popper (1968) called the context of justification. It might include trial and error learning, vicarious learning, replication, and implementation.

Exploration or exploitation, if pursued alone, can be detrimental to the viability of any academic field due to the risk of competency traps in which embedded patterns of behavior blind participants to alternatives (Levitt and March 1988). Excessive exploration leads to random idea generation, speculation, and theoretical discourses that go nowhere and contribute little to reliable knowledge. Excessive exploitation leads to decreasing relevance in ideas, myopic learning patterns, and insignificant incremental contributions to knowledge. The evolution of appropriate social conventions can help guard against the Charybdis of exploration and the Skylla

of exploitation, but it is no simple task to guide this evolution in the rapidly changing, practice-oriented IS field.

The natural inclination of scholars in a rapidly changing field is to pursue the frontier, which encourages or even requires exploration. However, many IS programs are located in schools of business and management, and are thus surrounded by fields of inquiry that do not change as quickly as the IS field does. Such fields favor exploitation, and are particularly partial to the idea that academic legitimacy requires robust theory (King and Lyytinen 2004). Institutional isomorphism creates pressures to conform, and the IS field has been in search of grounding theory since Peter Keen (1980) called for conformance with “reference disciplines.” This strategy of vicarious learning has taken IS researchers into a variety of disciplinary traditions, incorporating among others, computational theories derived from mathematics, economics, and computer science, and social theories of cognition, behavior (especially decision making) and organizational change. The strategy has produced strong results, and it has also built valuable methodological competencies within the IS field (Benbasat and Zmud, 2003). Yet, the reference discipline strategy has recently been overshadowed by a desire to create theories distinctive to the IS field, particularly theories focused on the “IT artifact” (Benbasat and Zmud 2003, Weber 2003, Orlowski and Iacono 2001). It is too early to tell whether this strategy will be successful.

The intense focus on exploitation embodied in the search for theory might be counter-productive for the IS field due to timing among the objectives of salience and strong results. When the process of building solid theory progresses slowly, but fundamental aspects of the topic being studied change rapidly, there is the risk that theories produced by slow processes will no longer be salient by the time they are validated. For example, research on management of large-scale, shared computing resources during the mainframe era was marginalized when distributed and client-server computing architectures became common. This does not mean that the knowledge gained was worthless, but the initial reasons for doing the research were no longer compelling after the conditions in the computing world changed. In such a situation, a concentration on exploitation can result in overproduction of intellectually interesting results of marginal practical utility, a serious problem in a practice-oriented field such as IS.

Fields that focus on phenomena that change rapidly must allocate more resources to exploration to avoid a competency trap in which the prevailing research practices are inadequate to grasp the emerging realities of the domain. However, excessive exploration has proved to be a slippery slope for the IS field. The excitement of the new can easily blur the focus of the field and generate a risky positive feedback loop, in which researchers under-invest in systematic development of knowledge that will be useful over time. This arguably happened to the IS field during the dot.com boom. The energy of the boom pulled the field away from sober reflection that might have reduced speculation and encouraged a more critical view of what was happening. Had the IS field been more cautious, it might not have expanded so quickly in course offerings and faculty hiring, and thus would have encountered a less jarring deflationary period when the boom collapsed.

The learning dynamic of any field depends on the rate of change in the environment, the learning capabilities of the field's members, and the “code” of the field (key concepts, methods and theories). These determine how a field should allocate its resources between exploration and exploitation at a given time under particular circumstances. Too much emphasis on exploitation in rapidly changing fields yields good theories about realities that no longer exist, and subsequent work on those theories is little more than ritual. This causes insightful exploratory work to be weeded out through the publication review system on the grounds that it is too speculative and insufficiently attentive to existing theory. Too much emphasis on exploration in a field that changes rapidly produces putative theories that cannot be proved reliable or accurate using the customary mechanisms for ensuring academic rigor. This causes solid work to be weeded out through the publication review process on the grounds of insufficient contribution.

The market of ideas provides a fast response mechanism for adjusting the allocation of resources between exploration and exploitation. The market, with its loosely coupled social networks

among researchers, allows rapid exchange of conjecture, theory, and data, without constraining the flow. Determination of value is the responsibility of participants in the market, and behavior in the market is governed by the incentive to exchange and the prudence enforced by *caveat vendor* and *caveat emptor*. The code of the field is written by the patterns of exchange over time, and members are socialized in the emerging code as they attempt to exploit it more effectively. Renegade contributions are allowed because the market imposes no *a priori* restrictions on participation, but such contributions must prove themselves through engagement, consideration, and reaction among participants.

As long as the IS field avoids efforts by interest groups to rig the market in ways that constrain entry of new ideas, the competency trap of myopic learning with its barriers to entry is avoided. The ideal of the market permits the condition articulated by physicist Michael Polanyi (1963): "I would never have conceived my own theory, let alone have made great effort to verify it, if I had been more familiar with major developments in physics that were taking place. Moreover, my initial ignorance for the powerful, false objections that were raised against my ideas protected those ideas from being nipped in the bud." The market of ideas allows unrestricted entry, and leaves the valuation of contributions to the participants, but it does not compel contributors to stop working simply because early returns are negative.

The IS field needs mechanisms that foster fast learning, especially if ideas are diverse and contradictory. The market of ideas meets this specification. It allows for fair exchange, invites open-ended criticisms, creates new connections, keeps entry barriers low, and executes exchanges based on intellectual value. Over time, the behavior of the market of ideas helps to generate the field's "code," stimulating variance in theory, interpretation, methods, and results. The IS field already has the mechanism it needs; the challenge is to recognize and strengthen that mechanism.

A FEW CONSIDERATIONS

This paper is part of an ongoing discussion, much of which is captured in King and Lyytinen (2006). The purpose of this paper is to push that discussion away from destination and toward process.

This paper lives or dies on the success of the metaphor of the market as applied to exchange ideas. Metaphor is a particular form of rhetorical trope that depends on transference, shifting meaning from one context to another. A metaphor defines the essential attributes of a target by imposing upon it the essential attributes of a source.⁴ Its basic mechanism is reasoning by analogy. To be successful, there must be close correspondence between the essential attributes of the source and the target. Is there sufficient correspondence in the example of the market of ideas? The answer depends on how precisely the comparison is drawn.

The argument here adopts a broad concept of market, in which the only essential requirements are a seller, a buyer, things of value to be exchanged, and knowledge among the buyer and seller regarding what is possible in the market. The metaphor assumes that the seller is bringing ideas to the market, that the buyer might choose to take those ideas in exchange for something (e.g., a reaction to the ideas, or incorporation of the ideas in the buyer's own work), and that both the seller and the buyer know how to execute the exchange. The details of how the exchange might work are left open and are immaterial for the purposes of this discussion. They might include oral discourse between colleagues at a meeting, or submission of and response to academic papers or research proposals in review. This market of ideas is not instantaneous. It is protracted, with exchange taking place over long periods of time. One should assume that archival scholarly literature should play a role, but extended discussion over successive meetings might suffice. This discussion sees nothing essential in particular modes of scholarly communication.

⁴ In literary parlance, the source is the *vehicle*, and the target is the *tenor*.

It also might be asked whether the market of ideas is a single market, or a host of markets that do or do not interact with one another. As a practical matter, a field such as IS with so many different participants, drawing from so many reference disciplines, must be thought of in terms of a host of markets interacting with one another. This raises the question of whether the IS field is unique in having as its center a market of ideas. In principle, any academic field can revolve around a market of ideas, and many are probably so centered. The point of the argument is neither to make the market of ideas the unique province of the IS field, nor to argue that the IS field should be seen as special because it is centered by a market of ideas. The whole point of the argument is to suggest that the metaphor of the market is useful in moving the discussion about legitimacy away from objective and toward process and conditions that define the process quality and outcomes. The idea is intended to be of use only to the IS field, but if other fields find it useful, that is perfectly agreeable with the authors.

V. CONCLUSION

The IS field still searches for a strong center, capable of yielding academic legitimacy. Academic legitimacy comes with the salience of the subjects studied, the strength of the results obtained, and the plasticity of the field in responding to new challenges. The development of one or more central theories might help legitimate the field, but it seems foolish to place all the field's bets on this hope. Theory development takes a long time, but the field needs legitimacy today. The immediate challenge is to establish mechanisms for the effective management of tension between exploitation of existing knowledge and exploration to discover new knowledge. The market of ideas is a reasonable organizing rubric for this purpose, and we believe it will also support generation of stronger theory that overcomes the tendency to conform to mimetic forces in our environment.

The strongest element of the IS field remains its salience. IT is constantly evolving, major areas of human endeavor await IT support, and a huge portion of the global village has yet to reap the benefits of IT. The project of improving IT in human enterprise is far from finished. Fast learning in the IS field enables the field's members to surf with technological tides. A market of ideas where intellectual values align, fair transactions take place, and new connections are built, increases the speed of learning. The market of ideas accommodates theory and praxis with equal respect, reinforcing the idea that strong theory and strong practice are complementary. It also provides low barriers to entry, encouraging variance in participation, ideas, and methods. Finally, the market encourages trust, solidarity, and obligation among members of the field.

ACKNOWLEDGEMENT

¹Earlier versions of this paper were presented at ECIS'04 at Turku, Finland, LSU in February 2005, and at Gordon B. Davis Symposium in Minneapolis, May 2005. We are grateful to several people who provided feedback including Heinz Klein, Rudi Hirschheim, John Henderson, Gordon Davis, and Steve Alter.

Editor's Note: This article was received on November 30, 2005 and was published on May __, 2006. It was with the authors for one revision.

REFERENCES

- Attewell P. and J. Rule. (1984): Computing and organizations: what we know and what we don't know, *Communications of the ACM*, 27, 12, pp. 1184-1192.
- Benbasat I. and R. Weber. (1996): Research commentary: Rethinking "diversity" in information systems research, *Information Systems Research*, 7, 4, pp. 389-399.
- Benbasat I., Zmud R. (2003): The identity crisis within the IS discipline: Defining and communicating the disciplines' core properties, *MIS Quarterly*, 27, 2, pp. 183-194.

- Boland R. and K. Lyytinen. (2004): Information systems research as design: identity, process and narrative, in Kaplan, Truex, Wastell and Woodharper (eds): *Relevant Theory and Informed Practice: Looking Forward from a 20 Year Perspective on IS Research*, Kluver, Amsterdam.
- DeSanctis, G. (2003): The social life of information systems research: A response to Benbasat and Zmud's call for returning to the IT artifact, *Journal of AIS*, 4, 16, December.
- Galison, P., (1997): *Image and Logic: A Material Culture of Microphysics*, Chicago: University of Chicago Press.
- [Galliers R. \(2003\): Change as crisis or growth? Toward a trans-disciplinary view of information systems as a field of study: A response to Benbasat and Zmud's call for returning to the IT artifact, *Journal of AIS*, 4, 13](#)
- Granovetter M (1973): The strength of weak ties, *The American Journal of Sociology*, 78, 6, pp. 1360-1380.
- Granovetter M. (2002): A theoretical agenda for economic sociology, in Mauro E. Guillen et al (eds) *The New Economic Sociology: Developments in an Emerging Field*, Russell Sage Foundation, pp. 35-60.
- Habermas J., (1991): *The Transformation of the Public Sphere*, Boston: MIT Press.
- Keen, P. G. W. (1980): MIS research: Reference disciplines and a cumulative tradition, *Proceedings of the First International Conference on Information Systems*, pp 9-18.
- Keen P. (1987): MIS research: current status, trends and needs, in Buckingham, R.A., Hirschheim R., Land F., Tully C (eds), *Information Systems Education: Recommendation and Implementation*, British Computer Society Monographs in Informatics. Cambridge: Cambridge University press, 1-13.
- King J.L. and K. Lyytinen. (2004): Grasp and reach, *MIS Quarterly*, 28, 4, pp. 539-551.
- King, J.L. and K. Lyytinen. (Eds.) (2006): *Information Systems: The State of the Field*. London: John Wiley and Sons.
- Kling R. (1980): Social analyses of computing: Theoretical perspectives in recent empirical research, *Computing Surveys*, 12,1, 61-110.
- Klein H. and R. Hirschheim. (2003): Crisis in the IS field? A critical reflection on the state of the discipline, *Journal of AIS*, 4, 9.
- Kuhn, T. (1996): *The Structure of Scientific Revolutions*, 3rd Edition, Chicago: Chicago University Press.
- Levitt B. and J. March. (1988): Organizational learning, *Annual Review of Sociology*, 14, pp. 319-340
- Lyytinen K. and J.L. King . (2004): Nothing at the center?: Academic legitimacy in the information systems field, *Journal of AIS*, 5, 6.
- March J. (1991): Exploration and exploitation in organizational learning,"*Organization Science*, 2, 1, pp. 71-87.
- Orlikowski W. and S. Iacono. (2001): Desperately seeking the "IT" in IT research- a call to theorizing the IT artifact, *Information Systems Research*, 12, 2, pp. 121-134.
- Orton J. and K. Weick.. (2001): Loosely coupled systems: A re-conceptualization, *Academy of Management Review*, 15, 2, pp. 203-223.

- Polanyi M. (1963): The potential theory of absorption: Authority in science has its uses and its dangers, *Science*, 141, pp. 1010-1013.
- Popper K. (1968): *Conjectures and Refutations*, New York: Harper&Row, 1968.
- Robey D. (1996): Research commentary: Diversity in information systems research: Threat, promise and responsibility, *Information Systems Research*, 7, 4, pp. 400-408.
- Robey D. and M. Boudreau. (1999): Accounting for the contradictory organizational consequences of information technology: Theoretical directions and methodological implications, *Information Systems Research*, 10, 2, pp. 167-185.
- Rorty A. (1978): *Philosophy and the Mirror of Nature*, Princeton: Princeton University Press.
- Toulmin S. (1972), *Human Understanding*, Oxford: Clarendon Press.
- Weber R. (2003): Still desperately seeking the IT artifact, Editors Comments *MIS Quarterly*, 27, 2, pp. iii-xi.
- Whinston A. and X. Geng. (2004): Operationalizing the essential role of the information technology artifact in information systems research: gray area, pitfalls and the importance of strategic ambiguity, *MIS Quarterly*, 28, 2, pp. 149-160.
- Whitley R. (1984): *The Intellectual and Social Organization of Sciences*, Oxford: Clarendon Press.

ABOUT THE AUTHORS

John Leslie King is Dean and Professor in the School of Information at the University of Michigan. His research concerns development of high-level requirements for information systems design, and implementation in institutionalized production sectors such as common carrier communications, logistics and transport, health care, criminal courts, electric power, and electronic commerce. He is on the Advisory Committee for the Directorate for Computer and Information Science and Engineering of the National Science Foundation and the board of the Computing Research Association, and served as Editor-in-Chief of the INFORMS journal *Information Systems Research* from 1993-1998. Prior to coming to Michigan, he was Professor of Information and Computer Science and Management at UC Irvine, as well as Marvin Bower Fellow and Visiting Professor at the Harvard Business School in 1990. He holds a Ph.D. from the University of California, Irvine.

Kalle Lyytinen is Iris S. Wolstein professor at Case Western Reserve University in Information Systems and an adjunct professor at the University of Jyväskylä, Finland. He currently serves on the editorial boards of several leading IS journals including being the Editor-in-chief for *Journal of the Association for Information Systems*, *Journal of Strategic Information Systems*, *Information & Organization*, *Requirements Engineering Journal*, and *Information Systems Journal*. He is the author of over 150 scientific articles and conference papers and has edited or written ten books on topics related to system design, method engineering, implementation, software risk assessment, computer-supported cooperative work, standardization, and ubiquitous computing. He is currently involved in research projects examining IT-induced innovation in software development, architecture and construction industries, and is developing a high-level requirements model for large-scale systems. His research interests include information system theories, computer aided system design, method engineering, system failures and risk assessment, computer supported cooperative work, nomadic computing, the innovation and diffusion of complex technologies, and the role of institutions in such processes.

Copyright © 2006 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, P.O. Box 2712 Atlanta, GA, 30301-2712 Attn: Reprints or via e-mail from ais@aisnet.org

Communications of the Association for Information Systems

ISSN: 1529-3181

EDITOR-IN-CHIEF

Joey F. George
Florida State University

CAIS SENIOR EDITORIAL BOARD

Jane Webster Vice President Publications Queen's University	Joey F. George Editor, CAIS Florida State University	Kalle Lyytinen Editor, JAIS Case Western Reserve University
Edward A. Stohr Editor-at-Large Stevens Inst. of Technology	Blake Ives Editor, Electronic Publications University of Houston	Paul Gray Founding Editor, CAIS Claremont Graduate University

CAIS ADVISORY BOARD

Gordon Davis University of Minnesota	Ken Kraemer Univ. of Calif. at Irvine	M. Lynne Markus Bentley College	Richard Mason Southern Methodist Univ.
Jay Nunamaker University of Arizona	Henk Sol Delft University	Ralph Sprague University of Hawaii	Hugh J. Watson University of Georgia

CAIS SENIOR EDITORS

Steve Alter U. of San Francisco	Chris Holland Manchester Bus. School	Jerry Luftman Stevens Inst. of Technology
------------------------------------	---	--

CAIS EDITORIAL BOARD

Erran Carmel American University	Fred Davis Uof Arkansas, Fayetteville	Gurpreet Dhillon Virginia Commonwealth U	Evan Duggan U of Alabama
Ali Farhoomand University of Hong Kong	Jane Fedorowicz Bentley College	Robert L. Glass Computing Trends	Sy Goodman Ga. Inst. of Technology
Ake Gronlund University of Umea	Ruth Guthrie California State Univ.	Alan Hevner Univ. of South Florida	Juhani Iivari Univ. of Oulu
K.D. Joshi Washington St Univ.	Michel Kalika U. of Paris Dauphine	Jae-Nam Lee Korea University	Claudia Loebbecke University of Cologne
Sal March Vanderbilt University	Don McCubbrey University of Denver	Michael Myers University of Auckland	Dan Power University of No. Iowa
Kelley Rainer Auburn University	Paul Tallon Boston College	Thompson Teo Natl. U. of Singapore	Craig Tyran W Washington Univ.
Upkar Varshney Georgia State Univ.	Chelley Vician Michigan Tech Univ.	Doug Vogel City Univ. of Hong Kong	Rolf Wigand U. Arkansas, Little Rock
Vance Wilson U. Wisconsin, Milwaukee	Peter Wolcott U. of Nebraska-Omaha	Ping Zhang Syracuse University	

DEPARTMENTS

Global Diffusion of the Internet. Editors: Peter Wolcott and Sy Goodman	Information Technology and Systems. Editors: Alan Hevner and Sal March
Papers in French Editor: Michel Kalika	Information Systems and Healthcare Editor: Vance Wilson

ADMINISTRATIVE PERSONNEL

Eph McLean AIS, Executive Director Georgia State University	Reagan Ramsower Publisher, CAIS Baylor University	Chris Furner CAIS Managing Editor Florida State Univ.	Cheri Paradise CAIS Copyeditor Tallahassee, FL
---	---	---	--