

EDITOR'S COMMENTS

Theoretically Speaking¹

The *MIS Quarterly* has always had a strong focus on building and testing theory. In this regard, most research articles published in the *MIS Quarterly* have proposed a theory and then tested it either in whole or in part. In the June 1998 issue of the *MIS Quarterly*, however, Bob Zmud as then Editor-in-Chief issued a call for pure-theory submissions: research article submissions that had the sole purpose of articulating a theory of some information systems- or information technology-related phenomena (<http://www.misq.org/archivist/vol/no22/issue2/edstat.html#pure>). Empirical research would not be a feature of such submissions. As a model for theory-only submissions, Bob pointed to articles published in the *Academy of Management Review*, a management journal devoted solely to publishing pure-theory papers. Implicit in Bob's editorial comments was the need for theory-only submissions to relate to the *MIS Quarterly's* mission—namely, publication of high-quality research about “both the management of information technology and the use of information technology for managerial and organizational purposes” (<http://www.misq.org/>).

In these editorial comments, I address the topic of theory building. My motivation is fourfold. First, as I indicated in my March 2003 editorial comments, I believe that, as members of a discipline, we still need to improve our theory-building skills. In my view, we still rely too much on theories borrowed and adapted from other disciplines—perhaps a manifestation of our need to build theories in domains where no prior theory exists. Second, much more has been written about theory testing than theory building. I hope these editorial comments might help by providing some useful pointers on how to build high-quality theory. Third, I want to reiterate Bob Zmud's call for more theory-only submissions to the *MIS Quarterly*. Via these editorial comments, I hope to illustrate the ways in which such submissions might be crafted and the types of contributions to knowledge that theory-only submissions might seek to make. Finally, I want to canvass briefly some controversial issues relating to theory building—for example, whether theory building is even a meaningful activity to undertake within our discipline and, if so, what forms it should take. My hope is that my comments will motivate more discussion and debate on these issues—issues that perhaps some of us would prefer to shun because of the challenges they present to our long-held beliefs about theory.

At the outset, I need to make clear that my intent is not to consider theory building purely from an objectivist, realist perspective. Rather, I hope my views will apply equally to both objectivist and subjectivist philosophies (at least some forms of these philosophies, if not all). I have to make choices about the *language* I use, however, and these choices might imply I have a particular, perhaps narrow view of theory building. Again, this is not my intent, and I hope the broader issues I am canvassing will still surface.

Nature of Theory

What is a theory? It is notoriously difficult to answer this question. Moreover, my experience is that any definition proposed is sure to evoke disagreement among scholars. Indeed, some even see the notion of

¹I am indebted to Jörgen Sandberg, Allen Lee, and Cynthia Beath for helpful discussions on the ideas that underlie these editorial comments. Of course, they bear no responsibility for the content and views I have expressed.

theory as an anachronism—an idea that reflects earlier, naïve notions about our abilities to understand the world (the so-called “modernist” view of the world). I will comment further on these matters below.

My own view is that a theory is an *account* that is intended to explain or predict some *phenomena* that we perceive in the world. The terms *account* and *phenomena*, however, have particular meanings. I will explain the latter first and then the former.

To understand the meaning of the term *phenomena*, we first need to cover some basic ontology. For me, the two fundamental (atomic) constructs we need to be able to describe anything we perceive in the world are *things* and *properties of things*. The values of the properties of some thing at a point in space-time are its *state*. Changes of state (changes that occur in the values of properties) are *events* that occur to a thing. Perhaps a counterintuitive idea, however, is that the states of and events that occur to a thing are also properties of the *thing*. States and events do not exist in the ether. They “belong to” some thing. Thus, they are properties of the thing.

Phenomena are the states of things or events that occur to things. When we build a theory, therefore, we are seeking to account for the state(s) of some thing (or things) or an event(s) that occurs to some thing (or things). For instance, we might wish to build a theory about a user's perceptions of the quality of data in an information system and the user's perceptions of the effectiveness of the system. Both perceptions are components of the state of a single thing—namely, the user. The theory we seek to build in essence is an attempt to articulate a *law* (or less formally an association or statement) that relates the value of two components of the user's state. For example, our theory might provide arguments to support the proposition that a user's perception of the quality of data in an information system is high when the user's perception of the effectiveness of the information system is high (however we might define high). We might have articulated this theory at the outset of our research on the basis of prior research and our own knowledge and experience. Alternatively, we might have articulated it only in light of insights we have obtained after a long period of intensive data gathering in the field. Whatever the scenario, the phenomenon we are seeking to explain or predict is the relationship among values of various components of the state of a particular thing.

The phenomena we are seeking to explain or predict might apply to states of or events that occur to multiple things. For instance, we might seek to build a theory to account for the relationship among changes in the response time of an information system and changes in the decision-making accuracy of a user. Here we have two things: the information system and the user. We are interested in events in the two things: changes in the response time in the information system, and changes in the decision-making accuracy of the user. Of course, how we define response time and decision-making accuracy are critical matters. For example, we might be able to define decision-making accuracy in an *objective* way. Alternatively, we might have to define decision accuracy in a *subjective* way (e.g., whether a decision is accurate is the outcome of negotiations between key stakeholders in the decision). Nonetheless, presumably our theory again will attempt to articulate a law that governs relationships between these two types of events.

In light of my experience as a researcher and a supervisor of a fairly large number of Ph.D. students, I believe that the choice of and articulation of the phenomena we are seeking to explain or predict via our theories are the two most-critical tasks we undertake as researchers. In my March 2003 editorial statement, I characterized the *choice* of the phenomena we were seeking to explain or predict as the “problem of the problem.”

Having chosen the phenomena we are seeking to explain or predict, however, we then need to articulate them precisely. (In practice, I understand fully that the choice of and articulation of the phenomena often

occur concurrently rather than as discrete, sequenced events.) Achieving clarity about the phenomena we are seeking to explain or predict is often a time-consuming, difficult task. Unless we achieve this clarity, however, we cannot build high-quality theory. We may have to engage in a lengthy research process like a grounded-theory exercise to reach this point. Alternatively, we may have to reflect hard at the outset of, say, an experiment or survey to reach this point.

Achieving clarity about the phenomena we are seeking to explain or predict also necessitates that we reflect deeply on and understand the ontological and epistemological assumptions (the meta-theoretical assumptions) we hold about the phenomena. For instance, using the simple example I employed above, we might view decision-making accuracy as an outcome that can be determined independently of key stakeholders in the decision. Alternatively, we might view decision-making accuracy as the negotiated outcome of a complex social process among key stakeholders in the decision. These metatheoretical assumptions affect whether we “see” certain phenomena in the first place and, if so, how we conceive them and ultimately research them. Given the nature of the phenomena that are our focus, we need to consider the strengths and limitations of the metatheoretical assumptions we have either explicitly or implicitly adopted. Again, these reflections are critical to our achieving clarity about the nature of the phenomena that are our focus and thus our ability to define them precisely.

The *account* of the phenomena is the explanation of the laws that are hypothesized to relate them—laws that specify the relationship between the values of different properties of a single thing, or laws that specify the relationship between the values of properties of different things. Often an account is couched using the terms *construct* and *association* among constructs. A construct is simply a property of a thing (either a simple thing or a composite thing). An association is simply a law (formal statement of some kind) that is hypothesized to govern the values of different properties (properties of the same thing or different things) or changes to the value of properties of a thing.

The Tenuous Nature of Theory

As I indicated above, scholars often disagree on the nature of theory. Some even argue that the notion of theory is vacuous. Several deep philosophical differences underlie the debates that arise. To illustrate the nature of these differences, I will touch briefly on three contentious issues that are enduring among scholars who address philosophical issues associated with the conduct of research in the social sciences.

The first is the notion of what we mean by the phenomena we are trying to explain or predict via theory. Here the debate is sometimes characterized by comparing and contrasting the so-called realist view of the world with the so-called social-constructivist view of the world. Realists supposedly are seeking to attain ultimate truth (whatever that might mean) via their theories—that is, they want to explain or predict an objective world that exists independently of our senses. Social constructivists supposedly are seeking to explain socially constructed worlds—worlds that we *create* as humans by virtue of our living in the world (e.g., via discourse and acculturation). As an aside, my view is that at best much of the debate involves straw-man issues; at worst, it verges on arrant nonsense. In a nutshell, irrespective of whether we consider phenomena to be real or socially constructed (or in some cases socially constructed realities), we might still subscribe to the view that we want to build theories about them. Moreover, whether we are a realist or a social constructivist, clearly theories are social constructions.

The second issue of contention pertains to the level of formality we should seek to attain in the theories we articulate. Some scholars argue we need to define the constructs and associations we use in theories with a high level of precision. As a result, they often represent their theories in diagrammatic (or

mathematical) form. Constructs are shown via rectangles or circles; associations between constructs are shown via lines between the rectangles or circles. Other scholars argue we should strive to articulate theories as plausible *stories*—textual explanations of the phenomena (although the text might manifest some type of structure that is congruent with the tradition in which the researcher is operating). They believe we need to acknowledge that any account of patterns among phenomena is always contextually driven. It ought to reflect the time, the place, the observer, the observed, and so on. To believe we can give precise accounts of phenomena is naïve. The best we can achieve is a contextually bound, somewhat-informal textual description of the phenomena that others will find plausible.

The third issue of contention is whether the very concept of theory is meaningless. Extreme post-modernists, for example, might argue that all phenomena are transient and that stable patterns of phenomena (at least in relation to social phenomena) do not exist. Also, the phenomena being studied will reflect the unique characteristics of the researcher's intervention. Thus, generalization from one context to another context is impossible. Instead, any description of phenomena is fragmented and temporary. Moreover, even if stable patterns of phenomena exist, these patterns can be described via many *voices*. One person's voice (e.g., the researcher's) is unlikely to be the same as another person's voice (e.g., the participant's). Also, the same person can describe phenomena from multiple perspectives using different voices. No voice has priority over another. In short, they claim the notion of theory is a debunked modernist idea.

The Status of and Characteristics of Good Theory: A Personal View

Because in the next section I will be prescriptive in laying out ways to make theoretical contributions to our discipline, I ought to make clear my own views in relation to each of the philosophical issues I have canvassed briefly in the previous section. As always, let me underscore that my personal views will *not* be the standard by which manuscripts are deemed suitable or unsuitable for the *MIS Quarterly*. Rather, authors need to be true to the philosophical position they adopt in relation to theory. If this position is not widely known and accepted, they may need to explain this position at the outset of their papers and then show a review team how they have complied with the underlying precepts of this philosophical position.

First, I have never been enamored with extreme postmodernism. In my view, ultimately extreme post-modernism leads to nihilism. If there are no stable patterns of phenomena in the world and there are no ways of describing phenomena that enable at least some groups of humans to reach a shared understanding about the phenomena, what is the point of doing research? Moreover, what is the point to having journals that publish research papers? For extreme postmodernists to even seek publication of their ideas somehow seems hypocritical. As a scholar, why should I be interested in some phenomenon that someone claims is unique? In short, I subscribe to the belief that there are stable patterns of phenomena in the world and that there are ways that at least some groups of humans can reach a shared understanding about these phenomena. As a scholar, I believe in and am interested in phenomena that have generalizable characteristics. Nonetheless, as an aside let me underscore that I believe post-modernism provides us with valuable research lessons—for example, that we need to attend carefully to the deep assumptions that underlie our research.

Second, to be forthright, I find many of the debates about realism versus social constructivism tedious and misplaced. In my view, some sort of reality exists independently of our senses. For instance, I have been unable to persuade any of my colleagues (even those who subscribe to extreme postmodernism) to step off the ledge outside the window of my office (which is on the third floor of my building). They seem reluctant to accept that the phenomena that will occur once they take the step (they will fall to the ground!)

are socially constructed. Of course, the theories we use to describe the stable pattern of phenomena that seem to arise if we step off the ledge *are* socially constructed. In this regard, witness the ways in which the theories we have used to account for the phenomena have changed over time (Newton's versus Einstein's views on gravity). Similarly, when I converse with a colleague in my office, I believe that some sort of reality is occurring. Relative to any dalliance that we might have with stepping off the ledge outside my office, however, I fully accept that there are many more ways in which we might perceive and interpret the conversation between my colleague and me. In other words, as we move from physical phenomena to social phenomena, we seem to have many more degrees of freedom in the ways we understand phenomena in the first place and then construct theories about them. Nonetheless, in my view whether we are a realist or a social constructionist is irrelevant. We build theories about phenomena we believe are stable in some sense (if only in the ways we construe them in our minds).

Third, I believe we should always aspire to articulate our theories more precisely—that is, toward greater formalism. Precision makes our theories more transparent. Our colleagues are then better placed to evaluate them and to enter into productive discourse with us. Moreover, perhaps surprisingly, I believe precision makes our values, biases, and prejudices more apparent. They lay exposed for our colleagues to scrutinize and evaluate. I recognize and accept that stories are often an important (and difficult) first step in theory building, especially when we are attempting to articulate *process* theories—theories that describe how a thing changes over time. Dynamics can be formalized, however, albeit sometimes with difficulty. In short, my argument is that we should not use stories to espouse our theories as a cop-out from forcing ourselves to be precise about our theories. Otherwise we have thrown responsibility onto our colleagues to discern exactly what we are saying and to uncover the values and beliefs that underlie our interpretation of the world.

How Do We Make Theoretical Contributions?

Building good theories is in part an art—an activity that requires creative insights on the part of the theory builder. Broadly, however, there are procedures we can follow. Below I have provided a brief description of four major steps associated with theory-building endeavors. For each step, I have also indicated how as scholars we might make theoretical contributions to our discipline. Also, while my comments below imply that scholars follow the steps sequentially, clearly the process of building theory is iterative.

Step 1: Articulate the Constructs of a Theory

The most-fundamental components of a theory are its constructs. Recall, the constructs represent properties of things. A theory seeks to explain or predict the values of or changes in the values of these properties. Often some subset of these properties is likely to have a special status in our theory building. They represent the so-called dependent variable (or variables) that we are seeking to explain or predict. They are the focal construct (or constructs) in our theory. The other properties are of interest to us because we believe they are associated in some way with changes in the value of our dependent variable(s). They are the ancillary constructs in our theory. In some cases, however, there is no focal construct *per se*. For instance, we might be building a theory of how some equilibrium arises between constructs. Thus, all constructs in our theory are focal constructs.

Our choice of the constructs to include in a theory is a critical decision. As I indicated earlier, I spoke about this matter in my March 2003 editorial comments on “the problem of the problem.” The focal constructs we “see” in the world and the ways we conceptualize them are likely to have an important impact on the

contribution to knowledge we make via our theory. Furthermore, in our choice of ancillary constructs, we have to make important trade-offs between richness and parsimony in our theory.

In the context of this first step, there are five ways in which we might seek to make a theoretical contribution:

- We can articulate new constructs as the basis for building a new theory about some phenomena. We might have identified phenomena that have not been the focus of prior theories. Alternatively, we might have conceived phenomena that have been the focus of prior theories in a different way. As a result, we need to build a new theory of the phenomena that reflects this conception.
- We can introduce new constructs into an existing theory because we believe they will enable us to account better for the phenomena that are the focus of the theory.
- We can delete constructs from an existing theory. In essence, we believe we can provide a more-parsimonious account of the phenomena that are the focus of the theory.
- We can add and delete constructs from an existing theory. In essence, we believe we can provide a different, hopefully better account of the phenomena that are the focus of the theory.
- We can define the constructs of an existing theory more precisely or perhaps conceptualize them in somewhat different ways.

Step 2: Articulate the Laws of Interaction (Relationships) Among the Constructs of a Theory

Once we have chosen our constructs, we then need to explain how they are related to one another—in other words, how their values change in concert according to some sort of *law*. Again, like all elements of our theory, these laws of interaction or relationships are social constructions.

Our laws of interaction can be specified with varying levels of precision. For instance, all we might be able to say is that the values of our constructs are associated with one another (high values of one construct are associated with high or low values of another construct, or the existence of one value of a construct will signal the existence of a certain value of another construct). Alternatively, we might be able to specify precisely the functional relationship between the values of different constructs. Specifying laws of interaction precisely can be difficult. Often we have to broach difficult issues like mediation and moderation among constructs (see the research essay by Carte and Russell in this issue of the *MIS Quarterly*).

In the context of this second step, there are four ways in which we might seek to make a theoretical contribution:

- We can propose new laws of interaction among existing or new constructs in a theory because we believe they will enable us to account better for the phenomena that are the focus of the theory.
- We can delete laws of interaction among the constructs of an existing theory. As with the deletion of constructs from a theory, presumably we believe we can provide a more-parsimonious account of the phenomena that are the focus of the theory.

- We can add and delete laws of interaction among the constructs of an existing theory. As with the addition and deletion of constructs in a theory, presumably we believe we can provide a different, hopefully better account of the phenomena that are the focus of the theory.
- We can define the laws of interaction in an existing theory more precisely or perhaps conceptualize them in somewhat different ways. For example, we might be able to specify the functional form of a law of interaction previously conceived as a simple association between two constructs.

Step 3: Articulate the Lawful State Space of a Theory

The notion of the lawful state space of a theory is somewhat abstruse. Basically, it is the set of combinations of construct values for which the theory is expected to hold. It is one element of the *boundary conditions* of a theory.

We begin to specify the lawful state space of our theory when we select the constructs to include in our theory. Our choice of constructs dictates the *things* in the world to which our theory applies. For instance, we might be building a theory about how experienced users of computer systems employ a particular kind of human-computer interface to accomplish their work. One of the *things* in our theory is "experienced users of computer systems." Thus, our theory is not intended to predict or explain the behavior manifested by inexperienced users of computer systems. In other words, the states of inexperienced users of the human-computer interface will not be part of the lawful state space of our theory.

Given our choice of constructs, our theory might apply only for certain values of each of our constructs. Continuing with our example, one construct in our theory might be the number of hours in a day that experienced users of computer systems employ the type of human-computer interface that is our focus. We might argue that our theory will hold only for a range of use between two and six hours per day. Values of the construct outside this range will not be in the lawful state space of our theory. A different theory will be needed.

In principle, we also need to consider all combinations of values of our constructs. Again, continuing with our example, another construct in our theory might be the level of work interaction of experienced users of computer systems with each other as they employ the type of human-computer interface that is our focus. Individually, six hours of daily use and extremely high levels of interaction with others may be lawful values in our theory. The *combination* of these two values, however, might not be lawful. In other words, our theory will not account for the phenomena that are our focus under the circumstance of users employing the interface for six hours per day with extremely high levels of interaction with others.

In the context of this third step, there are two ways in which we might seek to make a theoretical contribution:

- We can specify more precisely the values of a construct in our theory for which our theory will hold. Conversely, we can specify more precisely the values of a construct in our theory for which our theory will *not* hold.
- We can specify more precisely the combinations of values of the constructs in our theory for which our theory will hold. Conversely, we can specify more precisely the combinations of values of the constructs in our theory for which our theory will *not* hold.

My experience is that few scholars articulate precisely the lawful state space of the theories they build. Instead, their focus is on precise specification of the constructs in their theory and the laws of interaction among constructs in their theory. Discussions about the generality of a theory in effect are canvassing the question of what constitutes the lawful state space of the theory. For the most part, however, my experience is that discussions about the generality of a theory lack rigor. In any event, I suspect that as a discipline we would benefit from paying more attention to articulating more precisely the lawful state spaces of the theories that interest us. Both our theoretical work and our empirical work would be better directed and more insightful.

Step 4: Articulate the Lawful Event Space of a Theory

The notion of the lawful event space of a theory is also somewhat abstruse. Basically, it is the set of changes of state of the constructs for which the theory is expected to hold. As with the lawful state space, the lawful event space is an important element of the boundary conditions of a theory.

In some cases, an event is unlawful because either the prior state or the subsequent state is unlawful. In some circumstances, however, both the prior state and the subsequent state are lawful but the transition between them is unlawful. For instance, in a theory about human life, the states *alive* and *dead* are likely to be lawful, but the transition from the state *dead* to the state *alive* is likely to be deemed an unlawful event. Similarly, in a theory about escalation of commitment to information systems projects, *in control* and *out of control* might be lawful states in the theory. The theory might purport to explain and predict the transition from *in control* to *out of control* for an information systems project. It might not provide an explanation or prediction, however, for the transition between *out of control* to *in control*. In other words, this event is unlawful within the theory; the theory is not intended to account for de-escalation phenomena.

In the context of this fourth step, there are two ways in which we might seek to make a theoretical contribution:

- We can identify events for which either the initial state or the subsequent state is unlawful in our theory.
- We can identify events for which both the initial state and the subsequent state are lawful in our theory but the transition between them is unlawful.

As with lawful state spaces, my experience is that few scholars articulate precisely the lawful event space of theories they build. Again, I suspect that as a discipline we would benefit from paying more attention to articulating more precisely the lawful event spaces of the theories that interest us.

A Note on Parsimony

Increasingly, I see colleagues arguing for “richer” theories. Usually the underlying message runs along the lines that context is important. Supposedly, grounding our theories in rich contextual tapestries will lead to important insights about phenomena associated with humans, information technology, information systems, and organizations.

Similarly, I often see review comments that admonish authors to include more constructs and more relationships among constructs in their theories. Authors are warned about problems with “omitted

variables," possible mediating or moderating relationships among constructs that need to be taken into account, and new direct associations among constructs that should be included in their theory.

Of course context is important in our theory-building efforts! Indeed, I suspect that we can always identify some additional aspect of context that might be relevant to the theories we build. Similarly, I suspect we can always conceive of new constructs and new patterns of relationships among constructs that are plausible in accounting for the phenomena that are our focus. In some respects, therefore, comments about taking context into account, including additional constructs, or reconfiguring patterns of relationships among constructs are gratuitous. We ought to exercise care when we make them.

One way to achieve more-parsimonious theories is to distinguish clearly between the constructs that are our primary focus and those that act as *controls* in our theory. If we first clarify the boundary conditions (the lawful state space and lawful event space) under which our theory holds, we might be better placed to capture the "essence" of the phenomena. As an aside, we might also be better placed to design and execute subsequent empirical work that evaluates or enables us to better articulate our theory.

Like many researchers, I value theories that are parsimonious, providing they have reasonable levels of predictive and/or explanatory power. Yet increasingly parsimony in theory building appears to be sacrificed when efforts are made to achieve the goal of accounting for rich, thick descriptions. Perhaps my ideas about parsimony are old-fashioned and even obsolete. If we were to correlate the citation counts associated with theories with the number of constructs and number of relationships included in them, however, I wonder what the sign of the correlation coefficient would be. If, as I suspect, it would be negative, then we have good reason to pause and reflect once again about the place of parsimony in our theory-building efforts.

Theory Building: Some Brief Concluding Comments

I suspect that many of us avoid writing pure-theory papers because they are (1) difficult to craft, and (2) risky in terms of the likelihood of acceptance by major information systems journals. To some extent, we can mitigate concerns about difficulty by attending more to theory building in our discourse within our discipline, scrutinizing high-quality exemplars from other disciplines, and interacting with colleagues who are excellent theorists so we can learn from them and model how they work. Mitigating concerns about risk, however, is likely to be a thornier matter. As reviewers and editors, we need to be more accepting of and supportive of colleagues who work as theoreticians. Also, we need leadership from senior colleagues within our discipline. Relative to junior colleagues, they have less to lose if their theory-building papers undergo tortuous review processes, perhaps in the end to be rejected. Nonetheless, hopefully they can provide the important service of laying the foundation on which junior colleagues who aspire to work as theoreticians can build.

Cessation of Keyword Classification Scheme

Recently, Henri Barki, Suzanne Rivard, and Jean Talbot kindly asked whether the *MIS Quarterly* would be interested in their undertaking an update to the keyword classification scheme (ISRL categories) that we have asked authors to use over many years. The Senior Editors considered this matter at some length. Perhaps surprisingly, we have decided that effective with this issue of the *MIS Quarterly* we will no longer be using the keyword classification scheme.

Several factors underlie our decision. First, the keyword classification scheme was clearly useful as a means of signalling the topics covered by papers prior to the development of the full-text search engines now available with many electronic journal databases. However, it is now easy to choose any keyword and search many if not most electronic databases for any articles that contain the keyword. The problem with this approach, of course, is that any article that contains the keyword will be retrieved, even if the article has little to do with the keyword. Nonetheless, some electronic journal databases (e.g., ABI-Informs) allow a search of the abstract only. If the abstract is written carefully (please see my March 2003 editorial statement on the need for authors to craft abstracts carefully), hopefully only articles that have the keyword as a major topic focus will be retrieved (i.e., retrieval precision will be high).

Second, the database providers choose their own keyword terms, and they classify articles according to these terms. It is not clear to me why they persist with this practice, given the full text-search capabilities they often provide. If the database providers were to allow a search based on the keyword terms chosen by the author (like the abstract search), retrieval precision would be improved even more. In the meantime, presumably the keywords chosen by authors influence the keywords chosen by the database providers. Both now and in the future, therefore, the Senior Editors and I believe authors' choice of keywords will be important because it will affect retrieval precision (again, please see my March 2003 editorial on the need for authors to choose keywords carefully).

Third, a problem we face is that the information systems discipline evolves quickly, and many terms (keywords) are used now that were not used five years ago. Presumably this problem will become more acute as the rate of change of technology increases. Thus, more and more frequent updates will be needed if we are to keep the keyword classification scheme up to date. The Senior Editors and I feel it would be better for authors to choose their own keywords to reflect changes that are occurring in the topic area they are researching rather than being constrained by a keyword classification scheme that does not meet their needs because it is out of date.

On behalf of the *MIS Quarterly*, I would like to thank Henri, Suzanne, and Jean for the important service they have provided to the information systems discipline via the keyword classification scheme. We are most grateful for the work they have undertaken.

Of course, Henri, Suzanne, and Jean may choose to update the keyword classification scheme for other reasons. Our decision at the *MIS Quarterly* simply reflects our belief that the usefulness of standardized keywords as a means of indexing articles is diminishing in light of advances in technology.

Changes to the Editorial Board

On 30 June 2003, K. K. Wei (City University of Hong Kong) finished his term as a Senior Editor for the *MIS Quarterly*. On behalf of the *MIS Quarterly*, I thank K.K. for his contributions, and I wish him every success in his future endeavors.

It is my pleasure to welcome Veda Storey (Georgia State University) as a Senior Editor to the *MIS Quarterly*. Veda has been an outstanding Associate Editor and Reviewer for the *MIS Quarterly*. Her appointment as Senior Editor is thoroughly deserved. I congratulate Veda, wish her well in her new role, and look forward to working with her.

Ron Weber
Editor-in-Chief
weber@bel.uq.edu.au