

## EDITOR'S COMMENTS

### The Ions of Theory Construction

By: **Suzanne Rivard**  
**Senior Editor, Theory and Review Department, *MIS Quarterly***  
**HEC Montreal**  
**3000 Chemin de la Côte-Sainte-Catherine**  
**Montreal, Quebec**  
**CANADA**  
**suzanne.rivard@hec.ca**

As I finish writing a letter that invites authors to revise the manuscript they submitted to the *MISQ* Theory and Review Department, I realize that the comments and recommendations I make about this manuscript would also apply to many other manuscript proposals or manuscripts I have received. Make no mistake! I deem each manuscript or manuscript proposal I receive unique; I read, assess, and comment on each as if it were the sole piece I had to evaluate for its potential contribution to the department. Nonetheless, I cannot stop the researcher in me from seeing patterns emerge regarding what is contained in—and missing from—many of the proposals or manuscripts, which determine whether or not they make a theoretical contribution.

These general considerations are the result of reading and analyzing a few thousand pages of manuscript proposals or complete manuscripts and several hundred pages of comments from a few dozen experienced associate editors and more than a hundred expert reviewers. Given the richness of the material, I deemed it essential to extract snippets and share them with the *MISQ* Theory and Review Department's potential authors, reviewers, and readers.

I call these general considerations “ions,” as I see them as small elemental particles that can be assembled into a compound that has specific, unique, properties. I wish to remain modest, however, in terms of my contribution. Indeed, a number of excellent pieces have been published on theory construction, and I can only urge readers to be attentive to these sources when they undertake theory building. Some sources focus on what theory is and what it is not (Sutton and Staw 1995; Whetten 1989), on the types of theories that exist (Gregor 2006; Poole et al. 2000), or on the process of theory building (Dubin 1979; Jaccard and Jacoby 2010; Weick 1989), while others propose key criteria to use when developing or assessing theory (Bacharach 1989; Weber 2012). By no means do I imply that the general considerations I put forth spare theory builders from the responsibility of paying careful attention to sources such as those cited above.

Before presenting the ions of theory construction, I will make a few remarks on what the department is NOT seeking in terms of manuscripts and on the types of manuscripts it welcomes.

#### ***What Is the Genre of My Manuscript? – Or, What the *MISQ* Theory and Review Department Does NOT Publish***

Although the vast majority of the manuscript proposals or complete manuscripts I receive pertain to endeavors that require extreme minutiae and consume vast amounts of brainpower, a number of them seem—borrowing from an anonymous reviewer—“to confuse hard work with hard thinking. There’s a lot of reading, and a lot of attempted organizing,” but there is little in terms of new ideas and theoretical development.

The first type of review manuscript that the department does not publish is surveys of the literature. The abstract of a fictitious example would be as follows:

*This study is an in-depth review of the literature on IT adoption. The results are based on the analysis of 98 articles selected from 15 journals, which include all AIS basket-of-eight journals. A first finding is that although IT adoption has been studied at different levels, researchers have favored a single-level approach. Indeed, 20 studies were conducted at the organizational level, 35 at the group level, 40 at the individual level, with only three being multilevel studies. However, of the 40 individual-level studies, 36 mentioned organizational-level variables as antecedents of IT adoption. Top management support was the most used dimension (30 studies), followed by power structure (23), organization size (16), and centralization (14). Also, the studies used a wide range of research methods, including single (2) and multiple case studies (5), surveys (10), multimethod studies (2), grounded theory (2), and laboratory experiments (3).*

There is no doubt that the authors of this fictitious example would have devoted much effort to their work. Yet, although the reader undeniably learns something from this study—for instance, that little multilevel research has been conducted on IT adoption—the paper does not make a contribution of the type sought in an *MISQ* Theory and Review manuscript.

The second type of manuscript goes one step further and maps the territory. This would be the case of the fictitious example above if it also classified the antecedents of IT adoption into broad categories within each level. For instance, one can imagine that some antecedents would facilitate and others would hinder adoption, at each level of analysis. The authors might have done a more in-depth analysis and drawn a more finely grained portrait of how IT adoption has been conceptualized, once again at each level of analysis. Again, readers would learn from this type of work. However, this is still not what is expected from a Theory and Review manuscript.

The third type of manuscript moves forward and identifies gaps in the literature. For instance, after mapping extant literature, authors would identify neglected areas, areas where conflicting results exist, areas that have been studied with a variance approach but never with a process approach, or vice versa. Such a manuscript would be useful to readers in identifying research areas and avenues. But, this is still not what is expected from a Theory and Review manuscript.

### ***The Types of Manuscripts that the MISQ Theory and Review Department Welcomes***

Indeed, while these efforts have merit and might be required steps in a theory building process, they merely constitute the raw material for a Theory and Review manuscript. Past senior editors of the department have emphasized the importance of theoretical contribution as a criterion for accepting a manuscript. In fact, the *MISQ* Review department was created to advance the state of theory in the IS field (Webster and Watson 2002). Later, the “criticality of conceptualization and theory development” (Markus and Saunders 2007, p. iv) was emphasized by adding “pure theory articles” to the review articles published in the department, which then became *MISQ* Theory and Review.

The general considerations I offer here pertain to two ideal types. The first is a *review* article, described by Webster and Watson (2002, p. xxi) as a paper that

- motivates the research topic and explains the review’s contributions;
- describes the key concepts;
- delineates the boundaries of the research;
- reviews relevant prior literature in IS and related areas;
- develops a model to guide future research;
- justifies propositions by presenting theoretical explanations, past empirical findings, and practical examples;
- presents concluding implications for researchers and managers.

And on top of this, the exemplary review article should be explanatory and creative!

The second ideal type is that of a *theory* manuscript. Broadly speaking, a theory manuscript differs from a review manuscript by putting somewhat less emphasis on the synthesis of prior literature and more emphasis on theoretical development. I will

borrow here from Lynne Markus who, when she was senior editor of the *MISQ* Theory and Review Department, suggested the following outline for a theory manuscript:

- Introduction
- Major section 1: Why is new theory needed, based on in-depth exploration of the philosophical and/or theoretical issues in existing theory? This develops the set of conditions that new theoretical development should satisfy and should be roughly equal in length and importance to major section 2.
- Major section 2: New theoretical development
- Major section 3: Implications of new theoretical development
- Conclusions

Here, I adopt Bacharach's (1989) definition of theory as "a statement of relations among concepts within a boundary set of assumptions and constraints" (p. 496). This definition encompasses two types of theories from the taxonomy of IS theories proposed by Gregor (2006): (1) theories for explanation, which provide "an explanation of how, why, and when things happened, relying on varying views of causality and methods for argumentation" (p. 619); (2) theories for explanation and prediction, which, in addition to explanation, state "what will happen in the future if certain preconditions hold" (p. 619).

Obviously, there are many types of contributions that would be welcome in the Theory and Review Department that lie between, or are close to, these two ideal types. The editorial by Markus and Saunders (2007) inviting contributions to the Theory and Review Department listed a number of "welcomed contributions," from essays examining the theoretical implications of key IS concepts, essays on the philosophical foundations of IS theory and research, to critical research essays with clear theoretical implications.

### ***The Ions of Theory Construction***

Without meaning to sound presumptuous, I hope that the eight ions that I introduce below will be useful in the preparation of any manuscript that aims at making a theoretical contribution.

#### **Motivation**

I know of many researchers who, if asked why they spend so much time and effort studying a particular topic, would respond like George Herbert Leigh Mallory did when asked why he wanted to climb Mount Everest: "Because it's there." Although it is a sufficient reason to motivate one to study a phenomenon, most readers need more convincing arguments if they are to devote time to reading a manuscript.

One of the preferred motivations I observed among the manuscripts and proposals I have received is that of identifying gaps in extant research. A similar observation was made by Sandberg and Alvesson (2011), who analyzed 52 published articles in premier organization studies journals and found that gap-spotting was the prevalent way of constructing research questions. Sandberg and Alvesson further identified three modes of gap-spotting: confusion spotting, when evidence from extant research is contradictory; neglect spotting, when a phenomenon is deemed an overlooked area or an under-researched topic; and application spotting, when extant literature needs to be extended or complemented. Gap-spotting is indeed a legitimate and often fruitful approach to motivate the undertaking of a theory development effort. Yet, one must be careful when using it—it is not only because few people have studied a topic that the topic ought to be researched. It is very well possible that nobody ever researched it because it is not interesting! Authors ought to demonstrate that the gap they have spotted is important and that filling it will make a true contribution to the advancement of knowledge.

Another motivation is to conceptually clarify a construct. Although it has not often been used in the manuscripts and proposals I have received, this approach can lead to important contributions. An example of note (although not in the IS field) is that of Ajzen and Fishbein, who endeavored to clarify the attitude construct and ended up with the theory of planned behavior (Ajzen and Fishbein 1977; Jaccard and Jacoby 2010). In the IS domain, some strong theoretical contributions have been made by authors

with this motivation. For instance, after observing confusion in the use of the terms “participation” and “involvement” in IS research, Barki and Hartwick (1989) argued for the separation of the two constructs, with participation being a set of behaviors and involvement a psychological state. Another example is that of Markus and Silver (2008), who addressed several criticisms about the original conceptualizations of structural features and spirit proposed by DeSanctis and Poole (1994), and redefined these two concepts into three new ones: technical objects, functional affordances, and symbolic expressions. Although constructs in and of themselves do not constitute theory (Sutton and Staw 1995), I would argue that a manuscript that aims at providing construct clarity, as illustrated by the above examples, would indeed make a theoretical contribution.

A third and ostensibly powerful way of motivating a theory development effort is problematization. Going from “‘making changes at the boundaries’ of our theories, in the sense of modifying accepted scholarly explanations by relaxing their assumptions” (Whetten 2002, p. 59) to challenging the assumptions underlying existing theories (Alvesson and Sandberg 2011), and even denying some assumptions (Davis 1971), problematization is said to be a “central ingredient in the development of more interesting and influential theories” (Alvesson and Sandberg 2011, p. 247). For instance, Simon (1972) proposed to construct a theory of bounded rationality by modifying the assumptions of the classical theory of the firm, such as assuming that decision makers have only incomplete information about their choice of alternatives, and altering the nature of decision makers’ goals, from maximizing to satisficing. In IS, Markus and Mao (2004) adopted an approach akin to problematization and argued that the novel context of IS implementation—user populations much larger than when IS participation theory was first proposed, ERP implementation, outsourcing—made necessary the revisiting of some of the assumptions of participation research. For example, they challenged the assumption that the participants are the intended hands-on users. They relaxed this assumption and offered a number of theoretical propositions that encompassed a larger set of project stakeholders.

Being an “endeavour to know how and to what extent it might be possible to think differently, instead of what is already known” (Foucault 1985, quoted in Alvesson and Sandberg 2011, p. 253), problematization “does not primarily question how well some constructs or relationships between constructs represent a particular subject matter....Instead, it questions the necessary presuppositions researchers make about a subject matter in order to develop the specific theory about it.”

## Definition

Definitional clarity is indispensable for authors to convey the meaning of their theory. In addition, poor definitional clarity hampers the contribution of a theory to cumulative research. Yet, definitional clarity is often lacking in the proposals and manuscripts I receive. Indeed, in many of my letters to authors, the first issue to which I attract their attention is that of definitional clarity—or lack thereof. Although construct definition comes immediately to mind when one talks about definitional clarity, it is not the only element that requires the authors’ careful attention. The phenomenon of interest, the boundary of the theory and its underlying assumptions, and the type of theory one aims to develop also ought to be clearly defined.

Although the phenomenon under study may be obvious to the authors themselves, it is not always so for the readers who, if they are confused, will either miss the explanation provided by the theory or misinterpret it. Consider the following example: The introduction of a manuscript announced that the authors’ aim was to propose a model of information systems implementation. When reading this, an image formed in my mind that the paper would deal with the implementation—including initiation, adoption, adaptation, acceptance, routinization, and infusion, as per Kwon and Zmud (1987)—of any type of information system, be it a custom-developed system or configurable software such as ERP. Yet, several pages into the manuscript, I realized that the paper dealt with configurable software only and was solely interested in its configuration, not in the whole implementation process; the phenomenon under study was no longer the same. And, it changed again later in the model itself, which pertained essentially to user–analyst interactions during configuration.

It is also essential that authors specify the boundary of their theory, which is shaped by the theory’s underlying assumptions (Bacharach 1989). I will borrow from Whetten (2002), who defines two types of assumptions that contribute to specifying the boundary of a theory. The first type is that of conceptual assumptions, which “can be thought of as ‘second order explanations’—the implicit whys underlying an explicit answer to a specific why question [and] are often articulated using the language of foundational theories” (p. 58). For instance, when researchers adopt institutional theory as a foundational theory, they make—or espouse—the assumption that actors “accept and follow social norms unquestioningly, without any real reflection” (Tolbert and

Zucker 1996, p. 176) and that they seek legitimacy rather than efficiency. Similarly, adopting the theory of reasoned action (TRA) as a foundational theory implies that one assumes that “most human social behavior is under volitional control and, hence, can be predicted from intentions alone” (Ajzen 2002, p. 666). It is important that such conceptual assumptions are made clear in a manuscript so that the reader is able to accompany the authors in their theoretical explanation.

The second type of assumption that helps to specify the boundary of a theory is the set of contextual assumptions which determines the conditions that circumscribe the explanation proposed by the theory (Whetten 2002). According to Whetten, failing to specify the contextual assumptions reduces the “power” of explanations. On this issue, Whetten cites Sutton and Staw (1995, p. 376), who posit that “one indication that a strong theory has been proposed is that it is possible to discern conditions in which the major proposition or hypothesis is most and least likely to hold.” Contextual assumptions pertain to when, where, and for whom the theory is assumed to hold (Whetten 2002). For instance, Kappos and Rivard (2008) proposed a culture-based theoretical model of information systems development and use. They specified that the contextual boundary of their model comprises the processes of developing and using an information system, the information system itself, and the environments in which the system is developed and used.

Although much has been said about the importance of providing clear conceptual definitions for constructs (Barki 2008; Weber 2012), many submissions still lack them. This deficiency can be particularly harmful because readers will themselves ascribe meanings to constructs, with the risk of ending up with as many meanings as there are readers. A good construct definition is said to be “a concise, clear verbal expression of a unique concept” (Wacker 2004, p. 631). In contrast, a “bad” construct definition is “any verbal explanation that does not lead to a unique concept” (Wacker 2004, p. 631). According to Suddaby (2010, p. 347), a construct definition should accomplish three main tasks. First, it ought to capture the essential properties and characteristics of the concept under consideration. Second, it should avoid tautology or circularity. Tautology refers to construct elements as part of the definition, such as defining user resistance to IT implementation as “users who resist the implementation of a new IT.” Circularity is present when the antecedents or outcome variables are part of the definition, such as defining IT strategic capability as “the capacity to use IT in a manner that leads to sustained competitive advantage.” The third task of a good construct definition is to be parsimonious. Indeed, it has been suggested that “[construct] definitions should have as few terms as possible in the conceptual definition to avoid violating the parsimony virtue of ‘good’ theory” (Wacker 2004, p. 638).

In addition, authors ought to define the type of theory they are offering. Although there is general agreement about what a theory is (e.g., “a statement of relations among concepts within a boundary set of assumptions and constraints” [Bacharach 1989, p. 496]), a theory may have different purposes, as suggested by Gregor (2006). It is important to tell the reader whether one wants to explain a phenomenon or explain and predict some outcome. Also, because the phenomena we study may vary as to whether they are static or dynamic, authors ought to state whether they are proposing a variance or process type of theory (Poole et al. 2000).

## Erudition

Erudition is a must when writing a theory piece. Generally defined as “profound scholarly knowledge,” erudition refers to the breadth and depth of one’s knowledge of a particular topic, “acquired by study, research, etc.” (*The Random House Dictionary* 1980). Constructing a theory requires this kind of deep and broad knowledge. Indeed, one must ensure broad coverage of the literature, both geographical and epistemological (Webster and Watson 2002). Moreover, one must have internalized the content of the literature in order to *juggle* concepts and organize them into a coherent whole that provides a sound explanation of a phenomenon.

In order to arrive at this level of understanding and mastery of the literature, one must go through the steps required to produce papers of the *genres*—NOT published in the *MISQ* Theory and Review department—described above: One must identify the relevant literature; classify it according to various schemes, such as levels of analysis, antecedent variables, and foundational theories; construct descriptive tables that summarize this accumulated information; map the territory; and identify gaps. Yet, these elements do not constitute a theory; they provide the raw materials from which a researcher can build his/her theory. This material may constitute the front end of the paper, as is the case in some review articles published in *MISQ* Theory and Review (e.g., Bélanger and Crossier 2011; Leidner and Kayworth 2006; Roberts et al. 2012). However, as these articles illustrate, this

front end needs to be followed by a theoretical development. Some authors choose to put this material in an appendix, the body of the manuscript focusing on theory building (e.g., Kappos and Rivard 2008). In a theory article, although authors are likely to have performed such a minute analysis of the literature, these details might not even be presented (e.g., Xiao and Benbasat 2011). In all cases, once this material has been gathered, read, classified, organized, and reread, the researcher is ready to start a theory development exercise. And, to quote an expert anonymous reviewer: “A theoretical paper needs well developed new ideas. These might be triggered by reading, but are more likely to be triggered by a cup of coffee in a relaxed environment.”

## Imagination

As suggested by the above quote, theory construction is a highly creative endeavor, which Weick (1989) has likened to disciplined imagination. Yet, many reviewers have described the theoretical propositions offered in manuscripts submitted to the Theory and Review department as not being insightful or particularly meaningful and seeming rather obvious. Furthermore, as epitomized by the following reviewer's comment, they often deplore that not only the propositions, but also “the arguments supporting them seem to be too simplistic or underdeveloped and could have been justified more strongly. In many cases, the arguments supporting the propositions are based on what seems to be a simple translation or rephrasing of arguments drawn mainly from [the foundational theory or extant literature].” In a nutshell, reviewers appear to deplore a lack of creativity in the theoretical explanation of the phenomenon of interest.

Although we all wish to find sudden inspiration, a *eureka* moment, as great minds such as Archimedes, Newton, and Einstein are said to have experienced (Falk 2005), the creative process that most of us go through in our theory development efforts is somewhat more arduous, and I know of many researchers who would welcome actionable suggestions on this aspect. In their book on theory construction, Jaccard and Jacoby (2010) offer such suggestions. Although they argue that “there is no simple strategy for generating good ideas or good explanations [and that] it is a creative process that is difficult to articulate, describe and teach” (p. 40), Jaccard and Jacoby nevertheless offer heuristics—from conducting thought experiments to shifting the unit of analysis—that can help generate ideas about the phenomenon one aims to explain. I do not intend to review all 26 of the heuristics they propose. Instead, I will introduce two of them as illustrations and invite authors to consult Jaccard and Jacoby's work when developing their theories.

*Alternate between abstractions and specific instances of the explanation of the phenomenon under study.* Here, Jaccard and Jacoby suggest that “theory is developed by thinking about concrete instantiations of concepts and then abstracting upward to more general constructs that allow us to make theoretical propositions” (p. 56). In my view, this heuristic is readily applicable and useful, notwithstanding the preferred mode of thinking of the researcher. For example, some minds work better at the level of concrete instantiations. Remaining at this level, however, may lead to propositions that seem obvious. When trying to explain why software project managers adopt risk management practices, for instance, one may identify the following antecedents from a literature review: project size, technological newness, lack of user support, project manager's training, and practices advocated by the project manager's professional association. Propositions developed directly from these antecedents would resemble the following: project size (or project manager's training) will have an effect on software project managers' choice of project risk management practices. If the researcher moves to a more abstract level, project size, technological newness and lack of user support may become risk sources, while project manager's training and practices advocated by the project manager's professional association may become institutional norms. The researcher might then come up with a more interesting proposition: software project managers' choice of project management practices will be influenced by project risk sources and institutional norms. It is when one purposefully makes the effort of thinking in terms of more general constructs that more interesting theoretical explanations seem to emerge.

In contrast, some people think at very abstract levels. According to Jaccard and Jacoby, remaining at abstract levels may “obscure important distinctions that should be made” (p. 56), distinctions that can be identified when the researcher moves from abstractions to specific instances of the phenomenon under study. This would be the case of a researcher who would theorize that institutional pressures (Scott 2008) explain software project managers' enactment of project risk management practices. Although this is an interesting proposition, it is too general. Moving to the concrete level might help the researcher draw a finer-grained portrait of institutional pressures, which might include practices advocated by project management professional associations, practices that are enforced by quasi-laws (such as the project risk management practices that are enforced by the Basel agreements), and

practices that have been developed within an organization and that are now part of the organization's culture. Moving back to an abstract level would result in proposing that institutional pressures emerging from the three main institutional pillars—normative, regulative, and cultural-cognitive (Scott 2008)—may influence project managers' enactment of risk management practices, hence providing a richer and more convincing explanation.

*Focus on processes or focus on variables.* Most theoretical models that are developed in the IS domain are either variance or process models. In order to foster the imagination of variance researchers, Jaccard and Jacoby suggest that they think about their phenomena of interest in terms of processes rather than variables. They suggest a strategy for invoking process perspectives by changing nouns into verbs. This would be the case, for instance, for a researcher who might start thinking about IT adoption in terms of adopting IT. Instead of theorizing on user, technology, or environment attributes that can lead to a certain degree of adoption, the researcher might theorize about the events or stages that would constitute adopting a technology. Conversely, Jaccard and Jacoby suggest that for those who are used to thinking in terms of processes, thinking in terms of variables might be fruitful. They refer to Abbot and Alexander (2004), who proposed the heuristic of “‘stopping the clock.’ The idea is to ‘freeze’ the process at a given point in time and then describe the system in detail at the frozen moment” (p. 55).

## Explanation

I was recently discussing with a Ph.D. student the theoretical model he was developing. He had used a figure—boxes and arrows—to synthesize the model. At one point in the discussion, I mentioned that a change in an endogenous construct was caused by change in one of the antecedent constructs. The student became quite flustered and told me that he did not imply causality at all by drawing an arrow between the two constructs; rather, he was essentially proposing that the two constructs were correlated.

In her discussion of the nature of theory in information systems, Gregor (2006) sees this avoidance of the causality concept by positivist researchers as being associated with a perspective that considers causality as not being directly observable, “a mental construct that is not well-defined, preferring to deal only with correlations and contingency tables” (p. 617). Interpretive researchers also hesitate to refer to causality, for other reasons. Advocating for more complete and novel causal explanations of IS phenomena, Avgerou (2013) suggests that “one reason for interpretive researchers' reluctance to refer to their explanatory concepts as causes of the phenomena they study is their awareness that these particular concepts never fully capture the way socio-technical phenomena are brought about” (p. 403). However, a key goal of theory is to answer the question of why (Bacharach 1989), which often requires the theory builder to offer explanations in terms of causal relationships (Sutton and Staw 1989).

There exist several different views of causality that may be espoused by researchers who want to explore the nature of causal relationships. For instance, based on Kim's (1999) discussion of causation, Gregor describes four approaches to the analysis of event causation: regularity analysis, counterfactual analysis, probabilistic causal analysis, and manipulation or teleological analysis (p. 616). Similarly, Bacharach (1989) suggests that four types of causal linkages exist that explain the substantive nature of the relationship between an antecedent and its consequence: recursive, teleological, dialectical, and reciprocal (p. 508).

A particularly illuminating discussion of the nature of causal relationships is offered by Poole et al. (2000) and Van de Ven and Poole (2005), who contrast and compare variance and process explanations in terms of their assumptions about causality. They first introduce Aristotle's four types of causes: material, formal, efficient, and final. They further explain that these four types of causes indicate, respectively, “that from which something was made (material cause); the pattern by which it is made (formal cause); that from which comes the immediate origin of movement or rest (efficient cause); and the end for which it is made (final cause)” (Van de Ven and Poole 2005, p. 1396). In variance theories, explanations utilize efficient causality and variance theorists endeavor to identify conditions, or antecedents, which are necessary and sufficient for the outcome (Poole et al. 2000). In process theories, explanations are based on necessary causality. In contrast to causality in variance explanations, in process theories, “because causal influences come to bear ‘eventwise’—through one or more events—rather than continuously, it is rare for a cause to be sufficient in narrative explanation. Only the entire set of forces that influence the developmental span, in the particular order and combinations in which they occur, are necessary and sufficient to explain a narrative” (Poole et al. 2000, p. 42). In addition to efficient causality, process explanations may involve final causality and formal causality. Final causality is at play when an end or a goal guides the unfolding of a phenomenon. Formal causality refers to “a pattern that informs change; the pattern must

be applied to the developing entity somehow, either through plan or through some other governing mechanism” (Poole et al. 2000, p. 42).

## Presentation

An explanation that is clear in an author's mind does not automatically become so in the reader's mind. The presentation of the theory, which includes the structure of the manuscript, the syntax, the vocabulary, and sometimes a graphical representation are powerful tools for authors to use to convey their novel explanation. These elements must be put together very carefully and be fully exploited for demanding readers like those of a first-tier journal to be able to embrace the author's theoretical explanation.

For instance, referring to the structure of a paper, I recently commented to the authors of a manuscript that it was only when I had read half of the third section of their paper that I realized that the section was indeed their theoretical development. Why was it so? First, the authors had not announced that this section presented their theoretical development. Second, while the previous section had introduced their foundational theory, this section was still introducing new concepts from that theory. Third, the boundary of the theory and its underlying assumptions were never defined. Fourth, the key elements of their process theory, which comprised events, triggers, and subprocesses, were not introduced. Although the authors probably took my comments as petty details, as we all know, the devil *is* in the details!

In terms of presentation, what else might help to better convey the results of one's theorizing efforts? Regarding another manuscript, an associate editor's report mentioned that reviewers felt that the paper's elements were disconnected because the authors did not provide an integrated visual depiction of their model. Although a figure does not constitute a theoretical explanation (Sutton and Staw 1989), and is not always necessary for conveying an explanation, it often helps in clarifying it. I would go a bit further than that; I would suggest that developing such a depiction of one's model not only helps to better communicate one's ideas to the readers, it can also serve as a tool for theorizing and helping to enrich the explanation. I refer here to the notion of “modeling-as-theorizing,” described by Whetten (2002), which suggests that modeling—as in drawing a picture of one's model—is an intrinsic part of the theorizing process.

Propositions play an important role in the formulation of a theory, as they state the relations among the theory's constructs (Bacharach 1989). Here, Bacharach portrays a theory as a system of constructs—bounded by the theorist's assumptions—related to each other by propositions. Because a key goal of theory is to provide explanation, “to the extent the propositions imply causality either implicitly or explicitly, the predictive and explanatory power of [the] theory is enhanced further” (Weber 2012, p. 21). This implies that, when wording their propositions, authors should try to go beyond statements of correlation between constructs, and weave in explanation.

Should the formulation of a theory always be in the form of propositions? Maybe not. I remember a theoretical model I developed with a coauthor. We spent dozens of hours in “proposition formulation” to develop a crisp theoretical explanation of our phenomenon of interest. Nevertheless, the reviewers were somewhat unsatisfied with the explanation provided by these propositions, which they found limited. The associate editor made the following suggestion, which we applied: “It may be premature to lock into this form of theory before examining other more comprehensive forms. ...A better approach might be to consider this theoretical contribution not as a set of propositions but a set of insights and criteria that would set the stage for the development of a more comprehensive theory in the future. Over the long term, taking this approach may lead to a more significant contribution to theory development in this area.”

## Cohesion

In the first programming course I took, students would draw an algorithm on sheets of paper, code it in a programming language (say, COBOL), punch the program into cards, give the cards to a computer operator who would run our program overnight and next day give us a printout of our output. What's more, our instructor had devised a devilish grading scheme. Out of a maximum of ten points, he would subtract one point for every “program run” that came out with errors. Because I wanted to have a perfect mark, I had developed an approach for ensuring that my programs would be flawless when I submitted my deck of cards to the computer operator. I would spend hours drawing an algorithm and walking through it, testing it with different scenarios. I would



then write the program on coding sheets and make sure it corresponded precisely to my algorithm. I would walk through the code several times, using different scenarios, to make sure it had no errors. I would then punch the cards and compare them to the coding sheets. Finally, I would hand my punch cards to the computer operator. This approach worked so well—I got perfect marks for all the course assignments—that the instructor became suspicious. He summoned me to his office to enquire about whether I had any acquaintances in the computer science department who were testing my programs on my behalf! Although in later years—with less pressure to get error-free outputs and with technology that would instantaneously inform me of any errors I had made—I was less intense in walking through the algorithms I designed, this experience became most useful in my theory building efforts.

When authors set out to develop a theory, they create an artificial world that comprises constructs and their relationships, which they posit will hold within the boundaries of the theory. This artificial world is akin to the computer algorithms I refer to above. Its constitutive elements are the constructs, the assumptions, the boundary, and the relationships among the constructs. When they formulate their theory—write their program—authors ought to make sure that all of these elements form a cohesive whole, but they do not always do so.

It sometimes happens that the model proposed in a manuscript does not correspond exactly to the phenomenon initially declared as the phenomenon of interest (see my earlier example about system implementation versus software configuration). It also sometimes happens that the theoretical explanation does not remain within the boundaries authors initially set. This was the case for a manuscript which explicitly purported to provide an individual-level explanation of a phenomenon. However, its theoretical development proposed market-level explanations for the phenomenon of interest, thus moving outside the boundary originally set. The issue was not that the market-level explanation was irrelevant or problematic. Rather, it was the lack of coherence between the stated boundary and the *boundary-in-use*. Because theory building is a highly iterative process, it may happen that the contextual assumptions that specify the boundary of the explanation change, as in the example above. If this happens, authors ought to either revise their explanation or their contextual assumptions so that they fit the provided explanation. Authors also ought to ensure that their theoretical explanation is in line with the conceptual assumptions that contribute to specifying the boundary of their theory. For instance, if one develops a theory that has institutional theory as a foundational theory, one must remain faithful to its underlying assumption of actors seeking legitimacy.

The vocabulary also needs to belong to the theory and only to the theory. I once attended a presentation on theory building by Ajay K. Kohli, former editor of the *Journal of Marketing*. During his presentation, Kohli referred to “the synonym as the enemy of the theorist.” My reading of manuscripts and manuscript proposals strongly confirms this statement. What did Kohli mean? At the core of the artificial world that we build—our theory—stand our constructs, which we name and define. It often happens that authors, probably because they want to reduce repetitions, use a synonym to refer to a construct. For instance, I am currently writing a manuscript where my coauthor and I propose a process theory of a phenomenon related to software development. Two important concepts in our theory are the goals and the means of a software development project. Reading the manuscript for the  $n^{\text{th}}$  time, I just realized that, because of the multiple iterations we went through during our theory development work, we ended up using “objectives,” “outcomes,” and “ends” as synonyms for our concept of “goal”—all within a single page! As noted by a reviewer of a manuscript on IT adaptation by users, which had synonyms for “IT adaptation” including “IS change,” “user modifications,” and “alterations to system”: this “slippage in terms” can be quite confusing for the reader and undermines the manuscript.

To make sure that cohesion exists, it is also a good idea to walk through the theory using different scenarios, as one would walk through an algorithm and a program code, to make sure it works. Furthermore, authors should consider including such scenarios in the manuscript; they might help readers to better understand the proposed theory, thus adding clarity to the presentation of their theory and power to its explanation.

## Contribution

For one to spend months, sometimes years, on the development of a theoretical model, one must be convinced he/she is making a theoretical contribution. Often, this becomes so evident to the authors that they do not deem it essential to spell out the contribution they are making. Nevertheless, one should not expect that readers will see this contribution in reading the manuscript. Most often, they do not. Authors must explicitly state how their theory is novel and different from extant explanations of the

phenomenon of interest; what it can explain that other theoretical explanations have missed or ignored; how their theoretical explanation adds to extant knowledge about a phenomenon, to their field—and to other fields—of study; and how its use can change practice in the field of IS.

When the authors carefully reflect upon their motivation and provide strong and convincing arguments for undertaking their theory development, one way of presenting the proposed theory's contributions is to return to these motivating arguments and discuss how each gap was addressed, how each unclear construct was clarified, or how relaxing each assumption has contributed to moving the field forward.

## In Conclusion

To write these editorial notes I relied on my experience as a senior editor of the *MISQ* Theory and Review Department, which includes reading proposals whose authors ask whether their review or theory building efforts fit with the department's editorial policy, evaluating complete manuscripts, examining reviewer evaluations of manuscripts, and studying carefully crafted associate editor reports. I have also relied on my own—often arduous—efforts to develop theory. I hope that the ions I have gathered along the way can help theory and review authors in their theoretical developments, as well as reviewers and readers in their appreciation of the manuscripts and articles of this genre.

## Acknowledgments

I wish to thank Henri Barki, Liette Lapointe, Lynne Markus, and Frantz Rowe for their comments and insights.

## References

- Abbot, A., and Alexander, J. C. 2004. *Methods of Discovery: Heuristics for the Social Sciences*, New York: Norton.
- Ajzen, I. 2002. "Perceived Behavioral Control, Self-Efficacy, Locus of Control, and the Theory of Planned Behavior," *Journal of Applied Social Psychology* (32:4), pp. 665-683.
- Ajzen, I., and Fishbein, M. 1977. "Attitude-Behavior Relations: A Theoretical Analysis and Review of Empirical Research," *Psychological Bulletin* (84:5), pp. 888-918.
- Alvesson, M., and Sandberg, J. 2011. "Generating Research Questions through Problematicization," *Academy of Management Review* (36:2), pp. 247-271.
- Avgerou, C. 2013. "Social Mechanisms for Causal Explanation in Social Theory Based IS Research," *Journal of the Association for Information Systems* (14:8), pp. 399-419.
- Bacharach, S. B. 1989. "Organizational Theories: Some Criteria for Evaluation," *Academy of Management Review* (14:4), pp. 496-515.
- Barki, H. 2008. "Thar's Gold in Them Thar Constructs," *Database for Advance Information Systems* (39:3), pp. 9-20.
- Barki, H., and Hartwick, J. 1989. "Rethinking the Concept of User Involvement," *MIS Quarterly* (13:1), pp. 53-63.
- Bélanger, F., and Crossier, R. E. 2011. "Privacy in the Digital Age: A Review of Information Privacy Research in Information Systems," *MIS Quarterly* (35:4), pp. 1017-1041.
- Davis, M. S. 1971. "That's Interesting! Towards a Phenomenology of Sociology and a Sociology of Phenomenology," *Philosophy of the Social Sciences* (1), pp. 309-344.
- DeSanctis, G., and Poole, M. S. 1994. "Capturing the Complexity in Advanced Technology Use: Adaptive Structuration Theory," *Organization Science* (5:2), pp. 121-147.
- Dubin, R. 1978. *Theory Building*, New York: The Free Press.
- Falk, D. 2005. "Great Eureka Moments in History," *U of T Magazine* (<http://www.magazine.utoronto.ca/autumn-2005/great-eureka-moments-in-history-famous-inspirational-moments/>).
- Foucault, M. 1985. *The History of Sexuality, Volume 2: The Use of Pleasure*, New York: Vintage Books.
- Gregor, S. 2006. "The Nature of Theory in Information Systems," *MIS Quarterly* (30:3), pp. 611-642.
- Jaccard, J., and Jacoby, J. 2010. *Theory Construction and Model-Building Skills: A Practical Guide for the Social Scientist*, New York: The Guilford Press.

- Kappos, A., and Rivard, S. 2008. "A Three-Perspective Model of Culture, Information Systems and their Development and Use," *MIS Quarterly* (32:3), pp.601-634.
- Kim, J. 1999. "Causation," in *The Cambridge Dictionary of Philosophy* (2<sup>nd</sup> ed.), R. Audi (ed.), Cambridge, England: Cambridge University Press, pp. 125-127.
- Kwon, T. H., Zmud, R. W. 1987. "Unifying the Fragmented Models of Information Systems Implementation," in *Critical Issues in Information Systems Research*, J. R. Boland, and R. Hirshheim (eds.), New York: John Wiley, pp. 227-251.
- Leidner, D. E., and Kayworth, T. 2006. "Review: A Review of Culture in Information Systems Research: Toward a Theory of IT-Culture Conflict," *MIS Quarterly* (30:2), pp. 357-399.
- Markus, M. L., and Mao, J. Y. 2004. "Participation in Development and Implementation—Updating An Old, Tired Concept for Today's IS Contexts," *Journal of the Association for Information Systems* (5:11/12), pp. 514-544.
- Markus, M. L., and Saunders, C. 2007. "Looking for a Few Good Concepts...and Theories... for the Information Systems Field," *MIS Quarterly* (31:1), pp. iii-vi.
- Markus, M. L., and Silver, M. S. 2008. "A Foundation for the Study of IT Effects: A New Look at DeSanctis and Poole's Concepts of Structural Features and Spirit," *Journal of the Association for Information Systems* (9:10/11), pp. 609-632.
- Poole, M. S., Van de Ven, A. H., Dooley, K., and Holmes, M. E. 2000. *Organizational Change and Innovation Processes*, New York: Oxford University Press.
- Roberts, N., Galluch, P. S., Dinger, M., and Grover, V. 2012. "Absorptive Capacity and Information Systems Research: Review, Synthesis, and Directions for Future Research," *MIS Quarterly* (36:2) pp. 625-648.
- Sandberg, J., and Alvesson, M. 2011. "Ways of Constructing Research Questions: Gap-Spotting or Problematization?," *Organization* (18:1), pp. 23-44.
- Scott, W. R. 2008. *Institutions and Organizations: Ideas and Interests*, Thousand Oaks: Sage Publications.
- Simon, H. A. 1972. "Theories of Bounded Rationality," in *Decision and Organization*, C. B. McGuire, and R. Radner (eds.), Amsterdam: North-Holland Publishing Company, pp. 161- 176.
- Suddaby, R. 2010. "Construct Clarity in Theories of Management and Organization," *Academy of Management Review* (35:3), pp. 346-357.
- Sutton, R. I., and Staw, B. M. 1995. "What Theory Is Not," *Administrative Science Quarterly* (40:3), pp. 371-384.
- Tolbert, P. S., and Zucker, L. G. 1996. "The Institutionalization of Institutional Theory," in *Handbook of Organization Studies*, S. Clegg, C. Hardy and W. R. Nord (eds.), Thousand Oaks, CA: Sage Publications, pp. 175-190.
- Van de Ven, A. H., and Poole, M. S. 2005. "Alternative Approaches for Studying Organizational Change," *Organization Studies* (26: 9), pp. 1377-1404.
- Wacker, J. G. 2004. "A Theory of Formal Conceptual Definitions: Developing Theory-Building Measurement Instruments," *Journal of Operations Management* (22:6), pp. 629-650.
- Weber, R. 2012. "Evaluating and Developing Theories in the Information Systems Discipline," *Journal of the Association for Information Systems* (13:1), pp. 1-30.
- Webster, J., and Watson, R. 2002. "Analyzing the Past to Prepare for the Future: Writing a Literature Review," *MIS Quarterly* (26:2), pp. xiii-xxiii.
- Weick, K. E. 1989. "Theory Construction as Disciplined Imagination," *Academy of Management Review* (14:4), pp. 516-531.
- Whetten, D. A. 1989. "What Constitutes a Theoretical Contribution?" *Academy of Management Review* (14:4), pp. 490-495.
- Whetten, D. A. 2002. "Modeling-as-Theorizing: A Systematic Methodology for Theory Development," in *Essential Skills for Management Research* (2<sup>nd</sup> ed.), D. Partington (ed.), Thousand Oaks, CA: Sage Publications, pp. 45-71.
- Xiao, B., and Benbasat, I. 2011. "Product-Related Deception in E-Commerce: A Theoretical Perspective," *MIS Quarterly* (35:1), pp. 169-195.

