

4-2007

Looking Forward: Toward an Understanding of the Nature and Definition of IT Acceptance

Andrew Schwarz
Louisiana State University

Wynn Chin
University of Houston

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

Recommended Citation

Schwarz, Andrew and Chin, Wynn (2007) "Looking Forward: Toward an Understanding of the Nature and Definition of IT Acceptance," *Journal of the Association for Information Systems*, 8(4), .

DOI: 10.17705/1jais.00123

Available at: <https://aisel.aisnet.org/jais/vol8/iss4/13>

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

Journal of the Association for Information Systems

JAIS 

Looking Forward: Toward an Understanding of the Nature and Definition of IT Acceptance.

Andrew Schwarz
Louisiana State University

Wynn Chin
University of Houston

Abstract:

In the past two decades the Technology Acceptance Model (TAM) has successfully catalyzed a large number of studies related to IT usage or intentions toward that usage. However, we argue that the focus of these studies has been on a narrow aspect of usage (typically, extent or frequency of use). Moreover, we suggest that, these studies implicitly include the notion that "IT acceptance" be construed as simply the relationship between antecedent factors such as perceived usefulness and ease of use that target or predict that particular type of intention connected to amount of IT usage. Rather than continuing studies for additional antecedents or contexts that moderate this particular mode of use, we suggest a reflexive pause regarding the notion of IT acceptance itself. Specifically, we encourage broadening our understanding of IT acceptance toward a wider constellation of behavioral usage and its psychological counterparts. Other aspects of usage behavior or post hoc usage evaluation such as infusion, routinization, substantive use, exploitive usage, or faithfulness of appropriation have recently emerged and will likely require/involve other psychological notions of acceptance (Sundaram et al, forthcoming; Jones et al. 2002; Jasperson et al. 2005; Burton-Jones and Straub, 2006; Chin, et al. 1997). The call for this expansion is only made more salient by recent studies that indicate that the traditional TAM antecedents do not necessarily relate to these other forms of usage (Jones et al. 2002) and, furthermore, that these alternative notions of usage such as routinization or infusion may have stronger connection to performance outcomes (Sundaram et al., forthcoming).

Volume 8, Issue 4, Article 6, pp. 230-243, April 2007

Therefore, this commentary encourages researchers to investigate other psychological notions of IT acceptance (i.e., besides intention or attitude directed primarily at extent of use) that may in turn be more strongly connected to alternative modes of IT use. Such a perspective expands the view of IT acceptance as not only occurring during the initial adoption stage, but throughout the lifecycle of usage where other forms of acceptance may predominate as other goals such as learning, adaptation, and optimization of IT become the central thrust. To highlight our perspective of the complexity and multidimensionality of psychological acceptance, we draw from the field of etymology as a means of exploration and uncover six different notions of acceptance (five being facet-based and one process-based) that may prove fruitful for future studies.

Key Words: IT Acceptance, IT Usage, Cognition, Etymology

Introduction

Ensuring end user acceptance of information technology (IT) is a significant, enduring challenge for IT management. With the importance of the topic, a significant body of research has evolved to investigate why end users elect to accept IT and how to facilitate acceptance, with the Technology Acceptance Model (TAM) being among the most influential. However, surprisingly, since the origins of the Technology Acceptance Model, researchers have not explicitly addressed the connection between the general concept (i.e., label) of IT acceptance and IT usage. We suggest that this connection originated in the original development of the TAM, where Davis (1989) remarks, "One of the most significant findings is the relative strength of the usefulness-usage relationship . . . Thus, a major conclusion of this study is that perceived usefulness is a strong correlate of user acceptance and should not be ignored by those attempting to design or implement successful systems" (p. 333-334). Thus, from that beginning, IT acceptance was viewed in terms of usage, and researchers focused on finding the antecedent factors that most highly related to the use-based view of acceptance.

In a similar vein, extant Perceived Characteristics of Innovations (PCI) studies have moved in the same direction. Although based upon the Moore and Benbasat (1991) study, which was not about acceptance *per se* (the paper focused on "adopters" versus "non-adopters"), researchers subsequently began to compare the TAM to PCI models (Plouffe et al. 2001; Chin, et al. 2002), with some researchers concluding that the diffusion of innovations theory and the TAM are linked (Gagliardi and Compeau 1995). For example, Agarwal and Prasad (1997), using the PCI model as a theoretical lens, concluded that: "The results for current usage suggest that, for this sample, the innovation characteristics of visibility, compatibility, and trialability are relevant in explaining acceptance."

Besides stipulating that usage is the final indicator for acceptance in both PCI and TAM studies, IT acceptance research has implicitly follow a perception-intention-usage lens (P-I-U) to portray the phenomenon of IT acceptance, with perceptions covering appraisals of the IT, abilities of the user, and/or external factors such as resources or social pressure. As a result, models in this tradition have relied heavily upon the Theory of Reasoned Action or the Theory of Planned Behavior to justify the constructs. After developing UTAUT (which was able to explain over 75 percent of the variance in intention and 50 percent in usage), Venkatesh et al (2003) note that we may be reaching the practical limits of our ability to explain individual acceptance and usage decisions in organizations.

Yet, the preceding conclusion is mostly acceptable if the interest is on a narrow aspect of usage. And yes, most studies to date typically measure usage as extent or frequency of use (Burton-Jones and Straub 2006). Also implicit in these studies is the notion that "IT acceptance" be construed as simply the relationships between antecedent factors such as perceived usefulness and ease of use that target or predict that particular type of intention connected to amount of IT usage. But rather than continuing studies for additional antecedents or contexts that moderate this particular mode of use, we suggest a reflexive pause regarding the notion of IT acceptance itself. Specifically, we encourage broadening our understanding of IT acceptance toward a wider constellation of behavioral usage and its psychological counterparts.

In our view, IT acceptance should not be construed as simply the relationships of antecedent factors that predict a narrow mode of IT use. Essentially, our concern here is the potential for both a naming and reification fallacy occurring within our field, where the term "IT Acceptance" is predominately about predicting a particular mode of use (i.e., degree or amount of use). Rather, we believe that acceptance involves a holistic conjunction of a user's behavioral interaction with the IT over time and his or her psychological understanding/willingness or resistance/acceptance that develops within a specific

social/environmental/organizational setting. Furthermore, we submit that psychological acceptance is likely multidimensional in nature -- including specific dimensions salient in certain temporal usage contexts--and not necessarily the same as an attitude or intention to use an IT extensively.

As a case in point, other aspects of usage behavior or post hoc usage evaluation such as infusion, routinization, substantive use, exploitive usage, or faithfulness of appropriation have recently appeared (Sundaram et al, forthcoming; Jones et al. 2002; Jaspersen et al. 2005; Burton-Jones and Straub, 2006; Chin, et al. 1997) and understanding these usage assessments would likely require/involve other psychological notions of acceptance. Our call for this expansion is only made more salient by recent studies that indicate that the traditional TAM antecedents do not necessarily predict these other aspects of usage (Jones et al. 2002) and, furthermore, that these alternative notions of usage, such as routinization or infusion, may have stronger connections to performance outcome (Sundaram et al. forthcoming).

Therefore, this commentary encourages researchers to investigate other psychological notions of IT acceptance (i.e., besides intention or attitude directed primarily at extent of use) that may in turn be more strongly connected to alternative modes of IT use. Rather than continuing to rely on the notion of acceptance-as-extensive usage and chip away at the amount of usage variance explained, we believe that our field might want to consider alternative notions of acceptance where we find new opportunities to develop new models to explore other focal concepts of acceptance. This is akin to the expectations that models can differ in consumer marketing if the focal phenomenon is repeat purchase versus brand loyalty. In both instances, these concepts represent consumer brand acceptance—but the models developed have both some shared and some different factors and processes. Such a perspective expands the view of IT acceptance as not only occurring during the initial adoption stage, but throughout the lifecycle of usage, where other forms of acceptance may predominate as other usage goals such as learning, adaptation, and optimization of IT become the central thrust. To highlight our perspective of the complexity and multidimensionality of psychological acceptance, we draw from the field of etymology.

At the expense of sounding repetitive, we wish to emphasize that our attempt at suggesting new psychological notions of acceptance should not be confused with current cognitive/attitudinal models that focus on explaining degree of IT use as depicted in TAM and PCI. In those models, the psychological measures of affective attitudinal perceptions and conative intention are typically targeted at IT usage. Specifically, attitude is measured as the affective evaluation toward IT use (e.g., whether the act of using of an IT frequently is perceived as positive or negative), and intention is correspondingly measured as the extent an individual plans to use an IT in the future. While antecedent factors, of course, can be about perceptions of the IT (e.g., ease of use or relative advantage) or other conditions (e.g., social norms), the focal object constituting psychological acceptance in IT research to date has been consistently the attitude: intention toward the degree of IT usage.

In summary, we ask what other psychological notions of acceptance might individuals go through as they encounter an IT? Furthermore, consistent with the temporal nature inherent in acceptance, we also wish to understand the dynamic, evolutionary process of how these various dimensions of acceptance can change over time. As an exploration of the term “acceptance,” we have selected the methodology of etymology as a starting point. Etymology, or tracing the history of words, allows us to potentially find new factors and concepts that have not previously been uncovered through our prior theoretical development approaches. Through the etymological approach, we can discover concepts that, when coupled with our current substantive knowledge and theories, can be recognized as potentially new insights into end user acceptance. While we acknowledge that we can expect to find many concepts that might not be useful within the context of IT, our application of the etymology approach did find new notions of acceptance and corroborated many of our current understandings. In this way, the etymological approach can be compared to traditional grounded theory, where the approach can both corroborate the current received view and augment our current understandings.

The Etymological Approach

There are certainly many options that can help make sense of a specific concept like psychological acceptance of IT. Methodologies range from using prior literature to grounded theory (a data-centric approach) to other structured approaches. In our case, with an objective of seeking potentially fresh perspectives and heretofore novel techniques in the IS field, we have selected the science of etymology to assist us in defining “acceptance.” Before articulating the six notions of acceptance we found, due to its novelty, we begin with a brief introduction to the approach and its methodology.¹

Etymology is a branch of linguistics that studies the history of words, tracing a word from its earliest recorded occurrence in a language to the common form of its current use. Etymology, while new to the IS discipline, has been employed in other

¹ Needless to say, this would require more pages than available to provide an adequate pedagogical introduction. Nonetheless, the key references are provided for those desiring more detailed knowledge.

areas to explore concepts that have exhibited contradicting definitions within the literature (e.g. psychomotor agitation (Day 1999) and schizophrenia (Gilman 1983)), as well as constructs that have not necessarily been adequately defined. As such, we believe it is an overlooked reference discipline and thus represents a useful new approach to creating, extending, or clarifying theory in the IS field.

Within the etymological approach are multiple techniques. Semantic researchers have identified up to twenty-six distinct techniques to establish a definition of a word (Borsodi 1967), with each approach using its own methodology. This paper will use the derivative definition methodology, where the "definition of the word (is found) by reference to its derivation; in English, usually by its derivation from Anglo Saxon, from Latin, and from Greek" (Borsodi 1967, p. 25). As one of the most common approaches, it calls for the researcher to determine the original root for the target word and utilize the original language to derive the current definition.

Despite the novelty of the approach, one immediate question might be the benefits that the derivative definition approach offers over using a simple English dictionary. As Saussure (1986) explains, "etymology is first and foremost the explanation of (one) word by means of investigating its connection with (another) word," (p. 259) an emphasis not found when using a dictionary of the English language. Thus, while etymology "does not resolve conflicts of meaning through the appeal to an external (and therefore irrelevant) standard," it does provide "a means to explore word-based problems from within word-born disciplines" (Morse 1993). A derived definition, specifically, is not subject to the jargon commonly used in the English today and can be used as a basis to help explore concepts prior to their adoption and adaptation in the English language. In other words, this approach provides a unique means for researchers interested in exploring the potential multidimensional meanings of the notion of acceptance and, by explicit elaboration, provides an opportunity for reflexive consideration toward establishing a more detailed definition.

While we draw upon this approach to uncover new ideas or dimensions of IT acceptance, we should not be surprised that previously explored concepts may also appear; nor would we suggest that our dimensions are a comprehensive set. Rather, we believe that etymology as an exploratory methodology may bring out new ways of thinking about the domain of IT acceptance that have not been discussed to date. It is also important to note that the dimensions elicited by this process are not necessarily IT-focused and likely require coupling to domain-specific knowledge of the IT acceptance literature. Nevertheless, we believe the insights offered from this methodology can complement other traditional approaches, and researchers in other areas of IT research wishing to delve deeper into specific meanings of concepts in their areas of study may find this approach of value.

When applying the derivative definition methodology to obtain a derived definition, Borsodi (1967) argues that there are four dimensions that should be used to assess definitional "accuracy": (1) Adequacy, or "the definition must make it possible to avoid confusing the referent of the word being defined with other things" (p. 32); (2) Differentiation, or "the definition must enumerate enough specific and significant attributes and properties peculiar to the word's referent to make it impossible (or nearly impossible) to confuse it with anything else" (p. 32); (3) Impartiality, or "that no part or aspect of the referent of the word being defined should be enumerated or described so as to give a partial and therefore a false, or biased, or a distorted conception of the referent" (p. 33); and (4) Completeness, or "the definition must be complete enough to make recognition—and cognition—of the referent possible" (p. 33). The overarching principle that Borsodi uses is the recognition that (p. 32):

"No definition will ever be perfect, but absolute perfection is not essential. All that is essential is that it be adequate—adequate enough to enable man to ratiocinate and to communicate with other men as rational and humane beings."

Using the etymological approach, we will now use the derivative definition methodology to find the meaning of acceptance.

The Derivative Definition of Acceptance

To arrive at the derivative definition methodology, we first used a convergence of three etymological dictionaries to discover the roots of the word. Drawing upon *Harper's Latin Dictionary*, *Oxford Latin Dictionary*, and *Cassell's New Latin Dictionary*, we discovered that the word "acceptance" comes from the Latin word *accepto* or *acceptio* (Barnhart, 1988), which means "the action or result of the action of the verbs" *acceptare*, *accepto*, *acceptavi*, or *acceptatus*. These three dictionaries provided us with the Latin words having two components: "the verbs" and "the action or result of the action."

Component 1 of Definition: "Of the verbs."

The definition of acceptance includes four verbs: *acceptare*, *accepto*, *acceptavi*, or *acceptatus*, all derivatives of the same verb. Based upon our review of the three Latin dictionaries, we uncovered that the definition of this verb is indeed multifaceted and includes five facets and is therefore suggestive of potentially five psychological modes of acceptance: *to*

receive, to grasp the idea, to assess the worth, to be given, and to submit to an object. To further uncover the meaning of each of these facets of acceptance, we studied the definitions of these terms, cross-referenced from the definition of acceptance. The result was a convergence of the definitions provided next. As we consider each type of psychological acceptance, we also attempt to consider what might be the most likely associated outcome (ideally with some already established in the IS discipline). In other words, if a particular psychological acceptance exists strongly in an individual, what is the likely outcome (behavioral or otherwise) that this type of acceptance is most likely connected with? The rationale for this approach is that this may help further our understanding of the underlying meaning of a particular acceptance construct—not unlike extracting additional meaning for a particular construct by how it is embedded within a nomological network of other constructs.

Acceptance Dimension #1: To Receive

To receive comes from the Latin word *recipere*, which means to take what is offered. From a psychological perspective, this form of acceptance is not necessarily related to the behavior of use does not mean use. While use can occur after the object has been received, we consider this dimension more akin to the instinctual response one has toward an object being offered. The predominant question facing an individual is whether he or she is willing to *psychologically* receive what is being offered, or if he or she would prefer to return the object to the giver. Am I willing to psychologically take this object and no longer question my possession of it? The questioning here does not necessarily encompass how to use an object or its role in the life of the individual. Rather, the questioning is about the appropriateness regarding the decision to take possession over the object. At its ultimate state, the individual no longer questions his or her decision to take it and likely believes that the object in-hand is better than alternatives, whether perceived or real.

Acceptance Dimension #2: To Grasp The Idea

A second facet of acceptance involves *intellectually grasping* an object. We would consider grasping as connecting to task-oriented aspects of acceptance where the individual seeks to understand three basic elements: (1) Do I understand how to use the object? (2) Do I know why the object was given? and (3) Do I know how my life will now be different? *To grasp* thus includes three elements: to comprehend the appropriate use of the object and the motivation for why it is in the life of the individual, as well as an intellectual comprehension of how the life of the individual will now change. Clearly, the need for end users to understand the technological artifact has been previously argued by others. We suggest for the continuation of this train of thought by developing a mental model that fits within the context of the stage or process-based view of acceptance which may require understanding how this facet of acceptance relates and emerges vis-à-vis the other five acceptance dimensions being discussed. We will comment on this after presenting the remaining three dimensions.

Acceptance Dimension #3: To Assess The Worth

The third dimension of acceptance we found is *to assess the worth* of an object. Logically, an individual will only *psychologically* accept an object if he/she feels that the object is worthy to him/her, both initially and during the course of interactions with the object. If an object is deemed worthy, or valuable and desirable, the individual also, in a manner, has accepted the object. Thus, this facet of acceptance focuses on the individual's process of assessing the worth of an object.² Overall, the assessment of the value of IT has widely been debated within the IT discipline. However, the discussion has largely been focused upon the organizational, aggregate level of assessment and not on an individual assessment of value (e.g. Brynjolfsson and Hitt 1996; Kohli and Devaraj 2003; Mukhopadhyay et al. 1995). At the individual level, two similar concepts have been studied—relative advantage and perceived usefulness. Relative advantage, or the degree to which an innovation is perceived as being better than its precursor (Moore and Benbasat 1991), is related to assessing the worth, but focuses upon the rationale for the assessment—in other words, an IT is worthy due to its relative advantage. Our focus here is upon the overall valuation based on some form of assessment process, recognizing that relative advantage is one of the assessment criteria that an individual may consider. Similarly, in the case of TAM, perceived usefulness, which measures “the degree to which a person believes that using a particular IT will enhance his or her job performance” (Davis 1989), is another reason why the IT would be viewed as being worthy, but it is not the more global valuation.

Acceptance Dimension #4: To Be Given

The fourth element of acceptance we found is *to be given* an object. This dimension focuses on the individual's willingness to tolerate the change that the object requires. While this dimension appears to be similar to our preceding dimensions, there are important distinctions. For example, while grasping the idea means that the individual intellectually understands

² It is important to note that understanding the factors leading to *why* an object is valuable is not the focus here – we wish to constrain the criteria for judgment as beyond the scope of assessment for this context. We further believe that what makes a technology worthy can be different for individuals and organizations – and therefore argue it is more manageable to focus on the worth of the technology to the individual (i.e., the overall positive aspects, if perceived, of the information technology).

the IT, to be given an object is connected with the psychological willingness to change.³ We see this dimension as highlighting the volitional aspects of acceptance and how the user seeks to understand whether he/she is willing to change his or her routines to align with the IT artifact. If an individual views technology usage as volitional and understands the routines embedded in the IT object as “the way that it works,” then he or she has been given the object. Thus, this focuses on the psychological willingness/process of IT/work routine change as opposed to psychological willingness/process of intellectually comprehending the IT itself.

Now, we are not suggesting that an individual must always use the object in a way that is faithful to the original design or spirit of the IT. While the individual does possess the knowledge to faithfully use it, this does not mean that the usage is always faithfully consistent. In fact, it is likely that some adaptation or creativity of use is likely to correspond with higher degrees of this form of acceptance, but it requires knowledge of what “appropriate use” is at that moment. In general, we suspect an individual who has expressed his/her willingness to compromise will likely enact some aspect of routinization of the IT object into his/her daily life. We must be careful with delineating the physical act of “to be given” with the psychological form we have discussed. An individual can take physical possession of an object (or be given it) without being willing to psychologically take possession of it and alter his/her life as a result of that physical ownership.

Thus, the question of whether or not an individual is willing to change his/her routines overlaps with the volitional aspects debated in both the TAM and PCI research streams. However, the difference between the conceptualization of volitional usage as described in research studies to date and the willingness to change in our psychological process-based view of acceptance is subtle. Volition is conceived as a perception that the user is acting on his or her own choice, while *being given* refers to a psychological willingness to change.

Acceptance Dimension #5: To Submit

The last dimension of acceptance we present is *to submit* to an object. While the previous dimension focuses on a willingness to alter routines to fit the IT, it does not necessarily imply that the individual psychologically attaches one’s self to the IT to the point where the IT becomes part of his/her identity. We consider this submit dimension as akin to yielding the authority of one’s self to the power of another. If an individual yields authority (or complies) to the IT object, that individual, in turn, identifies with that object. As such, we see compliance leading to identification and, ultimately, the internalization of that object. This conceptualization is closest to discussions in the mainstream acceptance literature surrounding image (Moore and Benbasat 1991), or, more broadly, social influence (Venkatesh et al. 2003). But rather than focus on external influence, we highlight another psychological dimension where the individual considers whether to surrender to an object to the point that it becomes part of his/her identity.

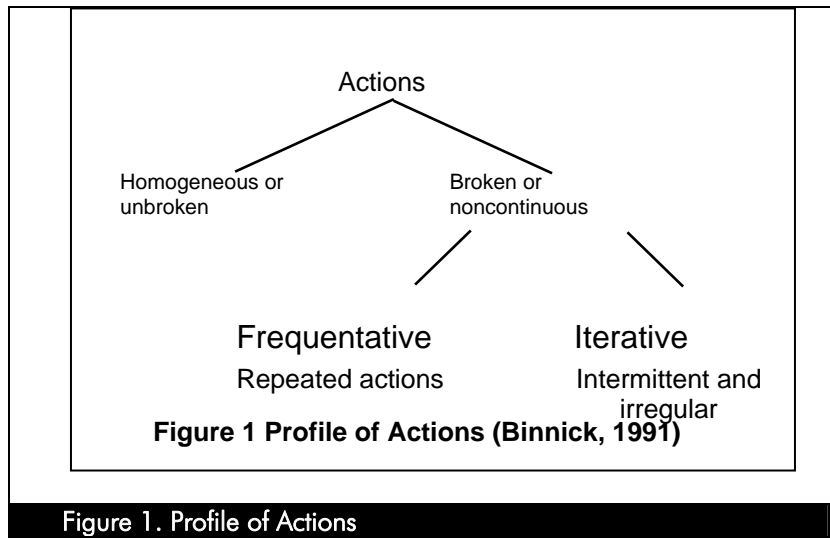
An extreme final state of psychological being occurs when an individual surrenders fully to the terms of an object such that the individual believes that the object is perfect as both the concept and its real world manifestation. We suggest that the more an individual psychologically submits himself/herself to this ultimate state, the more that he/she likely seeks alternative ways to use the object in his/her life and identify further with it. This represents a stark contrast with the previous psychological notion of acceptance. An individual can submit to the object, but not agree to the routinizations implied by the object. He/she may want to adapt to the object for an alternative and potentially deeper form of usage. As an example, a user provided with an ERP system might be willing to change how he/she works to be consistent with the requirements of the embedded processes (i.e., to be given); but this does not mean that he/she is leveraging the full potential of the technology, or using every element that could be used to lead to higher levels of IT-enabled value. The idea of deep usage has been presented previously in the literature as understanding “the specific instrumental goals and the processes that the usage behavior is meant to achieve” rather than simple models of usage (Chin and Marcolin 2001). But the underlying psychological state most associated with this has not been articulated. It would seem that our etymological uncovering of the “to submit” facet of acceptance may be a good starting point.

Component 2 of definition: “The action or the result of the action”

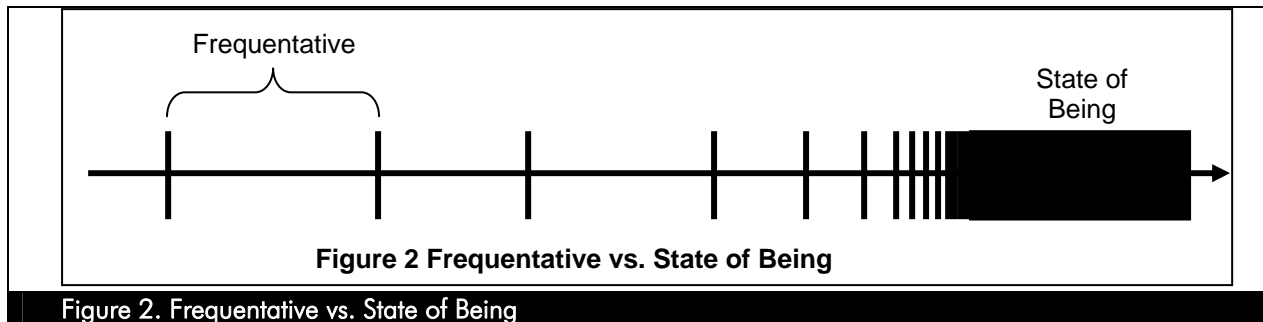
In addition to different facets/dimensions of acceptance, our etymological process also uncovered a process-based definition of acceptance. Specifically, we consider the psychological action of acceptance defined as “the action and the result of the action.” Here, acceptance embodies two interrelated components or notions: a *state of being* and a *frequentative action*. Both of these action types describe an aspect of the action, or designate the relation of the action to the passage of time.

³ As in the case of assessing, the motivation for *why* an individual is willing to change is beyond the scope of this approach – rather the focus of this dimension is upon the *psychological aspect of willingness itself*.

To understand frequentative, state of being, and other types of actions, consider the profile of actions in Figure 1. Generally, actions can be categorized into two types: homogenous actions and noncontinuous actions. In Latin, the frequentative verb type refers to actions that are not one-time events, but are repeated. To determine the extent of the frequentative action, an individual can examine two actions and the duration between those actions. The smaller the duration between the action, the more frequentative the action (Binnick 1991).



While a frequentative action is noncontinuous, a state of being describes an action that is outside of the conscious mind, without any reference to real perception. The duration of time between the actions has become so small that it has moved beyond continuous, habitual actions to unconscious ones. For example, in the sentence “Andy is tired,” the state of being verb would be “is.” The fact that Andy is tired is not perceptual—Andy does not perceive himself to be tired. Rather, the fact that Andy can state that he is tired exists without any reference to perception and is, instead an intuition, process, or pure fact. State of being verbs allow individuals to speak of actions that he/she intuitively feels to be true, but that he/she can never really “know” or have any empirical evidence to support their assertions (Binnick 1991). The state of being verbs have no end point, meaning the action continues interminably.



In Figure 2, we have depicted frequentative versus state of being verbs. Each vertical line depicts an action (i.e., psychological acceptance event). The action is frequentative, as it repeats itself (unlike an iterative action) and there is a gap between them. As the figure indicates, the gap between two frequentative actions in the present does not predict the future gap, as the gaps may alter in duration. The frequentative action is different from frequency, etymologically, for frequency is a noun, describing the property of an action, while frequentative is a verb, referring to the actions themselves. In contrast, a state of being describes how an individual is and there is no gap between the actions – a state of being refers to an action that is embedded within the individual such that the individual can not distinguish any gaps between the action to the point where it is outside of the perception of that individual.

While we have depicted an individual progressing from frequentative to state of being, this is not a *fait accompli* – an individual is not naturally dictated to make this progression. An individual can (and may) regress within the frequentative and/or can (and may) regress from state of being to frequentative. We suggest that this possibility is dependent upon



external factors already discussed within the UTAUT, as well as other facilitating conditions, and open this up to other researchers to explore.

Further, we suggest that the distinction between frequentative, frequency, and state of being are important in understanding how users accept new technology. From a cognitive perspective, the concept of frequency does not in and of itself indicate a pattern of behavior, but rather a rate. Expanding our view to include a pattern of actions allows a theoretician to gain insight into how the state of being materialized – in other words, how the technology came to be accepted within the cognition of the individual.

State of Being vs. Habit

At this point, we would like to clarify that state of being and habit are theoretically different concepts. Triandis (1980) describes habits as “situation-behavior sequences that are or have become automatic...the individual is usually not ‘conscious’ of these sequences” (p. 204). Within the IT domain, some researchers (e.g., Limayem et al. 1999 and 2001) have used habit to predict usage of a system, relying upon Triandis’ argument that past experiences have a direct and indirect effect upon behavior. However, while habit is similar to our discussion of state of being in that both indicate behaviors that are not in the conscious mind of the individual, we note that if a behavior has achieved a state of being, it is engrained within the cognitive structure deeper than the habit. When an individual has achieved an action that is a state of being, he/she has created an identity with that behavior such that it is engrained within his/her psyche. This requirement is not a component of habitual behavior and therefore reflects an opportunity for researchers to explore a deeper level of attachment between the individual and the object.

State of Being as Automaticity

As an individual engages in a series of actions, he/she will transition from non-frequentative actions to a final state of being (Binnick 1991). Adapted to the context of acceptance, an individual, when presented with an IT, is in the state of non-acceptance. Through a series of frequentative psychological actions, the individual moves to the state of being of acceptance. We term the actions that occur during this process to be controlled – that is, “some cue directs the individual’s attention to his or her attitude and induces him or her to access the attitude and to consider it in arriving at a behavioral decision” (Fazio 1986). However, once the individual has achieved a state of being, the resulting action can be deemed to be controlled by an automatic process within the cognition. This automatic action is uncontrollable and unconscious to the individual and is used to guide the behavior. Thus, the logical end of these actions will be an automaticity of the dimensions that is deeper than perceptions, beliefs, or values.

The theoretical roots for theories of automaticity derive from Hartley (1749) and James (1890), who argued that there are functions of our body that are beyond our control—for example, breathing. Psychologists advanced this notion to examine skill acquisition and understand the role of consciousness in behavior. Contemporary researchers have relied upon the work of Posner and Snyder (1975), Shiffrin and Schneider (1977), and Schneider and Shiffrin (1977), who proposed early models of automaticity. At the core of the theory is the belief that there are certain behaviors that are:

“autonomous in that, once started, it runs by itself and does not need conscious guidance or monitoring. In all cases, the process is very fast and efficient in that it uses only minimal attentional capacity. It also appears that all automatic processes...develop out of frequent and consistent experience in an environmental domain.” (Wegner and Bargh 1998)

So, as an individual has frequent and consistent experiences with an object, the behavior shifts from being guided by an inefficient cognitive process to one that can operate without awareness. Thus, the attitudes that the individual has are the *result* of the experiences and not a *predictor* of future behavior. The causality assumed by controlled processes between attitude and behavior are shifted toward a position that experience may or may not result in a shift in perceptions.

Not only does the role of perceptions differ in a controlled versus automatic context, so does conceptualization of the target behavior. While a controlled process seeks to predict the likelihood of the individual engaging in a behavior (e.g. predicting the frequency of usage of a technology), automaticity research seeks to understand how behaviors become more efficient with increased experiences. Thus, the focus is upon *efficiency* (i.e. the decrease in time to engage in a behavior) instead of the *frequency* of the behavior itself.

If the experience with the object (in this case technology) results in a change in the strength of an attitude, then it can be considered to have developed automatically. Wegner and Bargh (1998) explain, “because the individual did not intend to evaluate the object, the increasingly positive attitude that results from repeatedly encountering it did not require any conscious involvement in the process.” Thus, if there is a strengthening in perceptions, then the underlying attitude can be deemed to be automatic and is important in understanding the impact of the automatic process on behavior.

Now, in making these assertions, it is not our intention to imply that an individual will start to use a given information technology without conscious thought—that is, the behavior that he/she is engaging in is not goal directed. When an individual opens up a word processing system to create a document or uses an Enterprise System to create a voucher, he/she is engaging in goal-directed behavior. However, after this willful act, it is what happens after the system is engaged that is the focus of our efforts. As Bargh and Barndollar (1996) explain, “the environment can directly activate a goal, and this goal can then become operative and guide cognitive and behavioral processes within that environment, all without any need or role for conscious decision-making.”

Summary

In our attempt to reflect on what constitutes psychological acceptance of IT, we used the derivative definition from the field of etymology coupled with our own understanding of the extant IT acceptance literature to present new modes of acceptance. Specifically, we discussed five acceptance actions that an individual user may psychologically experience: receiving, grasping, assessing, being given, and submitting to an information technology application. Moreover, each of these dimensions can be considered relative to a process component—that is, an individual engages in a series of psychological actions that can (or cannot) increase in frequency over time and result in a state of being, and eventually, automaticity.

Yet, as we suggested in our introduction to etymology, each of the dimensions discussed may be similar to concepts that have already been discussed by prior acceptance researchers. Thus, it may be helpful to contrast the differences, especially highlighting areas not previously explored. In Table 1, we have summarized our definition of the dimensions, similar concepts, and insights gained from our approach.

To assess our success in etymology, we use Borsodi’s principles: (1) Adequacy: we have discussed the dimensions in a way so as not to allow the dimensions to be confused with other terms; (2) Differentiation: by defining the dimensions of acceptance, we have highlighted the constitution of acceptance as a psychological concept rather than adoption as a usage-based concept; (3) Impartiality: we have consulted multiple references/dictionaries to ensure that we have not given a partial, false, biased, or distorted conception; and (4) Completeness: while we are doubtful that we found all of the possible dimensions of acceptance (others may find additional dimensions by using an alternative approach to the derivative definition approach employed here), we do believe it represents a good beginning and reiterate Borsodi that our definition need “not (be) perfect, but absolute perfection is not essential.” As a starting point, we believe that these five dimensions represent a broader depiction of acceptance, and hopefully a more extensive theoretical framework can be developed to understand a cognitive, process-based view of acceptance.

Table 1 Summary of Dimensions of Acceptance and Similar Concepts

Dimension	Dimension Definition	Similar concepts	Insights
Receive	The psychological state of taking the technology without question	Devotion	Dedication refers to attachment, but not necessarily to the questioning of the technology.
Grasp	The psychological state of fully comprehending the intentionality (e.g. functionality and design) of the technology	Faithfulness of appropriation	FOA is usage based – that is, to use the technology as it was intended. To grasp is the mental action associated with the technology and is not based on physical usage.
Assess	The psychological state of evaluating the value and desirability of the technology to me	Satisfaction and perceived IT value	While satisfaction refers to an affective evaluation, this does not focus upon the question of value, but rather on how the technology matches expectations or desires. Further, while perceived value is similar, this does not tap into the concept of desirability of the technology.
Be given	The psychological state of an individual willing to adapt his/her routines to what was required by the technology	Routinization	Routinization is usage based – that is, to integrate the technology into daily routines. Be given is the psychological willingness to adapt routines and is psychologically oriented.
Submit	The psychological state of the individual surrendering to the intentionality of the technology	Deep usage	Deep usage is usage oriented – focused upon the depth that the individual uses the technology, which may (or may not) be related to the individual's decision to surrender to the intentionality of the technology.

Concluding thoughts.

In this commentary, we ask for a reflexive pause in our field to consider what constitutes IT acceptance in the minds of users. With new measures of IT usage and post hoc evaluations of usage beginning to emerge in our field, we encourage others to explore alternative notions of a user's psychological acceptance. Drawing upon etymology, we uncovered the five dimensions of receive, grasp, assess, be given, and submit. These dimensions may prove fruitful in expanding our perspective of IT acceptance as we consider the lifecycle of usage beyond initial adoption, where other goals such as learning, adaptation, and optimization of IT may supersede a focus on simply using an IT extensively.

We believe the use of etymology is a new approach that other researchers in our field desiring to explore concepts for additional definitional clarity may find helpful. It is our belief that this approach can be used by other researchers to gain additional insights into, for example, concepts used in IT diffusion e.g. adoption, diffusion, or deployment. These terms are often used interchangeably. While there is almost certainly overlap, an etymological perspective as employed here may illuminate important distinctions among these central concepts, strengthen the theoretical potency of these concepts, and create a tighter nomological network for diffusion theory.

In our case, it provides a springboard to generate a number of new aspects of psychological acceptance, including the extent to which an individual questions the IT, has a mental model of the IT, examines the desirability of the IT, has a willingness to psychologically adapt, and can surrender to the intentionality of the IT. Beyond these specific insights, we have also offered some initial thoughts into the process of acceptance from frequentative to automaticity. Despite the

robust application of automaticity within the psychology literature, we are unaware of any prior work on IT acceptance that has examined automaticity of end users.

Our commentary does not come without limitations. First, we have assumed a positive bias within our work that is, based upon our employment of the derivative definition approach to etymology, the positive elements of acceptance have been developed. We suggest that other etymological approaches might yield additional insights that are not necessarily positive and suggest that other researchers take this initial work and extend it by exploring additional concepts around acceptance. Next, we have focused on acceptance as a psychological action and did not examine definitions of behavioral usage. While Burton-Jones and Straub (2006) have presented thoughts in this area, an etymological examination would seem worthwhile.

We acknowledge that others might disagree with our opinions and interpretation and hope that it does spark further debate into the psychological nature of IT acceptance. For example, in applying the derivative definition approach of etymology, our analysis led us to view acceptance as a frequentative, not iterative action. We suspect that other etymological approaches might discover alternate conceptualizations and encourage other researchers to expand upon these views of action. Further, while we have clearly articulated our perspective that acceptance is a process, we stopped short of (a) placing the concepts uncovered in a process view and (b) presenting more explicit relationships between these concepts and those found in our field.

Beyond the five acceptance dimensions presented, research has clearly identified the role of contextual factors on the IS acceptance process (e.g. facilitating conditions in the UTAUT), and the cognitive structures that occur during this process do not materialize in isolation. While it is outside the scope of this commentary to identify what these facilitating conditions are, we expect that user involvement/participation, resource availability, training, and other external factors likely play a role in the rate at which an individual progresses through these dimensions. Likewise, perceptions related to the IT (e.g., usefulness and subjective norm) likely occur simultaneously with the process of psychological acceptance and are a set of exogenous variables that also may inhibit or facilitate the progression of acceptance.

Finally, in considering the five dimensions in total, there are a number of next steps. We welcome other researchers to consider how the five dimensions interact over time perhaps within a stage model. Essentially, to what extent do all five psychological perceptions become salient over the lifetime of IT use? Does one facet of acceptance more or less temporally precede another? Do they differentially impact outcomes, such as optimal use (i.e., infusion), efficient use (i.e., routinization), and adaptive or innovative use? It is our desire to raise these issues for debate, hoping this commentary encourages our colleagues to explore new lenses that will move us closer to solving the enduring challenge of ensuring end user acceptance of information technology (IT).

References

- Agarwal, R. and Prasad, J. (1997). "The Role of Innovation Characteristics and Perceived Voluntariness in the Acceptance of Information Technologies." *Decision Sciences* 28(3), pp. 557-582.
- Bacharach, S. B. (1989). "Organizational Theories: Some Criteria for Evaluation," *Academy of Management Review* 14(4), pp. 496-515.
- Bargh, J. A., & Barndollar, K. (1996). "Automaticity in action: The unconscious as repository of chronic goals and motives." In P. M. Gollwitzer & J. A. Bargh (Eds.), *The psychology of action* (pp. 457-471). New York: Guilford.
- Barnhart, R.K. (ed) (1988). *The Barnhart dictionary of etymology*. Bronx, NY: H.W. Wilson Co.
- Binnick, R. I. (1991). *Time and the Verb: A Guide to Tense and Aspect*. New York: Oxford University Press.
- Borsodi, R. (1967). *The Definition of Definition*. Boston: Porter Sargent Publisher.
- Brynjolfsson, E., and Hitt, L. (1996) "Paradox Lost? Firm-Level Evidence on the Returns to Information Systems Spending," *Management Science* (42:4), pp. 541-558.
- Burton-Jones, A. and Straub, D. W. (2006). "Reconceptualizing System Usage: An Approach and Empirical Test," *Information Systems Research*, (17:3), pp. 228-246
- Chin, W. W., Gopal, A., and Salisbury, W. D. (1997). "Advancing the theory of adaptive structuration: The development of a scale to measure faithfulness of appropriation," *Information Systems Research*. (8:4), pp. 342-367.
- Chin, W. W. & Marcolin, B. L. (2001). "The Future of Diffusion Research." *The Data Base for Advances in Information Systems* 32(3), pp. 8-12.
- Chin, W. W., Todd, P., George, B., and Hinson, S. (2002). "Modeling the Technology Adoption Decision: The Impact and Generalizability of the Perceived Characteristics of Innovating Inventory on Electronic and Voice Mail Adoption." Working Paper.
- Ching, R. K. H., and Glorfeld, L. W. (1996). "Predictive change to perceived information system use." *Journal of Computer Information Systems* 37(2), pp. 96-100.
- Cooper, R. and Zmud, R. (1990) "Information technology implementation research: a technological diffusion approach." *Management Science*, 36(2), pp. 123-139.
- Davis, F.D. (1989). "Perceived usefulness, perceived ease of use, and user acceptance of information technology." *MIS Quarterly*, 13(3), pp. 319-340.
- Day, R. K. (1999). "Psychomotor agitation: Poorly Defined and Badly Measured." *Journal of Affective Disorder*, 55(2-3), pp. 89-98.
- Fazio, R. H. (1986). "How do attitudes guide behavior?" In Richard M. Sorrentino and E. Tory Higgins (Eds.), *The handbook of motivation and cognition* (pp. 204-243). New York: Guilford Press
- Gagliardi, P. and Compeau, D. (1995). "The Effects of Group Presentations on Intentions to Adopt Smart Card Technology: A Diffusion of Innovations Approach." *Proceedings of the ASAC*, pp. 20-32.
- Gilman, S.L. (1983). "Why is Schizophrenia 'Bizarre:' A Historical Essay in the Vocabulary of Psychiatry?" *Journal of the History of the Behavioral Science*, 19(2), pp. 127-135.
- Hartley D. (1749). *Observations on Man, his Frame, his Duty, and his Expectations*. In Two Parts. Bath: Leake and Frederick.
- James, W. (1890). *The Principles of Psychology*. London; MacMillan.
- Jasperson, J., Carter, P. E., and Zmud, R. W. (2005). "A Comprehensive Conceptualization Of Post-Adoptive Behaviors Associated With Information Technology Enabled Work Systems," *MIS Quarterly*, (29:3), pp. 525-557.
- Jones, E., Sundaram, S., and Chin, W. W. (2002). "Factors Leading to Sales Force Automation Use: A Longitudinal Analysis." *Journal of Personal Selling & Sales Management* (22:3) pp. 145-156.
- Kohli, R., and Devaraj, S. (2003). "Measuring Information Technology Payoff: A Meta-Analysis of Structural Variables in Firm-Level Empirical Research," *Information Systems Research* (14:2), pp. 127-145.
- Limayem, M., Khalifa, M., and Chin, W. W. (1999). "Factors motivating software piracy: A longitudinal study." In P. De and J. I. DeGross (Eds.) *Proceedings of the Twentieth International Conference on Information Systems*, pp. 124-131.
- Limayem, M., Hirt, S., and Chin, W. (2001). "Intention Does Not Always Matter: The Contingent Role Of Habit On IT Usage Behavior." *The 9th European Conference on Information Systems: Global Co-operation in the New Millennium*, June 27-29, 2001, Bled, Slovenia.
- Lucas, H. C. and Spitzer, V. K. (2000). "Implementation in a world of workstations and networks." *Information & Management* 38(2), pp. 119-128.
- Markus, L. M. and D. Robey (1988). "Information Technology and Organizational Change: Causal Structure in Theory and Research." *Management Science* 35(5): 583-598.
- Moore, G.C. and Benbasat, I. (1991). "Development of an Instrument to Measure the Perceptions of Adopting an Information Technology Innovation." *Information Systems Research* 2(3), pp. 192-222.
- Morse, G. (1993). "On The Utility Of Classical Etymology For Sociology." *Electronic Antiquity* 1(3), <http://scholar.lib.vt.edu/ejournals/EJAnt/V1N4/morse.html>.

- Mukhopadhyay, T., Kekre, S., and Kalathur, S. (1995). "Business Value of Information Technology: A Study of Electronic Data Interchange," *MIS Quarterly* (19:2), pp. 137-156
- Plouffe, C. R., Hulland, J. and Vandenbosch, M. (2001). "Richness versus Parsimony in Modeling Technology Adoption Decisions: Understanding Merchant Adoption of a Smart Card-Based Payment System." *Information Systems Research*, 12(2), pp.208-223.
- Posner, M. I., & Snyder, C. R. R. (1975). "Facilitation and inhibition in the processing of signals." In P. M. A. Rabbitt, & S. Dornic (Eds.), *Attention and performance*. (Vol.V, pp. 669-682). New York: Academic Press.
- Rogers, E.M. (1963). *Diffusion of Innovations*, The Free Press, New York.
- Saussure, Ferdinand de. (1986) *Course in General Linguistics*. Translated by Roy Harris. Chicago: Open Court Press.
- Schneider, W., & Shiffrin, R. M. (1977). "Controlled and automatic human information processing: I. Detection, search, and attention." *Psychological Bulletin*, 84, 1-66.
- Shiffrin, R. M., & Schneider, W. (1977). Controlled and automatic human information processing: II. Perceptual learning, automatic attending, and a general theory. *Psychological Review*, 84, 127-190.
- Sundaram, S., Schwarz, A., Jones, E., and Chin, W. W. (forthcoming) "Technology Use on the Front Line: A Longitudinal Analysis of How Technology Enhances Individual Performance" *Journal of the Academy of Marketing Sciences*.
- Triandis, C. H. (1980). "Values, Attitudes and Interpersonal Behavior," *Nebraska Symposium on Motivation, 1979: Beliefs, Attitudes and Values*, Lincoln, NE: University of Nebraska Press, pp. 159-295.
- Venkatesh, V., Morris, M.G., Davis, G.B. & Davis, F.D. (2003). *User Acceptance of Information Technology: Toward a Unified View*. *MIS Quarterly*, 27(3), pp. 425-478.
- Wegner, D. M., Bargh, J. A. (1998). "Control and automaticity in social life." Gilbert, Daniel T. (Ed)., Fiske, Susan T. (Ed)., et al. (1998). *The handbook of social psychology*, Vol. 2 (4th ed.). (pp. 446-496). Boston, MA, USA: Mcgraw-Hill.



Editor

Kalle Lyytinen
Case Western Reserve University, USA

Senior Editors			
Izak Benbasat	University of British Columbia, Canada	Robert Fichman	Boston College, USA
Varun Grover	Clemson University, USA	Rudy Hirschheim	Louisiana State University, USA
Juhani Iivari	University of Oulu, Finland	Elena Karahanna	University of Georgia, USA
Robert Kauffman	University of Minnesota, USA	Frank Land	London School of Economics, UK
Bernard C.Y. Tan	National University of Singapore, Singapore	Yair Wand	University of British Columbia, Canada
Editorial Board			
Ritu Agarwal	University of Maryland, USA	Steve Alter	University of San Francisco, USA
Michael Barrett	University of Cambridge, UK	Cynthia Beath	University of Texas at Austin, USA
Anandhi S. Bharadwaj	Emory University, USA	Francois Bodart	University of Namur, Belgium
Marie-Claude Boudreau	University of Georgia, USA	Tung Bui	University of Hawaii, USA
Yolande E. Chan	Queen's University, Canada	Dave Chatterjee	University of Georgia, USA
Roger H. L. Chiang	University of Cincinnati, USA	Wynne Chin	University of Houston, USA
Ellen Christiaanse	University of Amsterdam, Nederland	Guy G. Gable	Queensland University of Technology, Australia
Dennis Galletta	University of Pittsburg, USA	Hitotora Higashikuni	Tokyo University of Science, Japan
Matthew R. Jones	University of Cambridge, UK	Bill Kettinger	University of South Carolina, USA
Rajiv Kohli	College of William and Mary, USA	Chidambaram Laku	University of Oklahoma, USA
Ho Geun Lee	Yonsei University, Korea	Jae-Nam Lee	Korea University
Kai H. Lim	City University of Hong Kong, Hong Kong	Mats Lundeberg	Stockholm School of Economics, Sweden
Ann Majchrzak	University of Southern California, USA	Ji-Ye Mao	Remnin University, China
Anne Massey	Indiana University, USA	Emmanuel Monod	Dauphine University, France
Eric Monteiro	Norwegian University of Science and Technology, Norway	Jonathan Palmer	College of William and Mary, USA
B. Jeffrey Parsons	Memorial University of Newfoundland, Canada	Paul Palou	University of California, Riverside, USA
Yves Pigneur	HEC, Lausanne, Switzerland	Nava Pliskin	Ben-Gurion University of the Negev, Israel
Jan Pries-Heje	Copenhagen Business School, Denmark	Dewan Rajiv	University of Rochester, USA
Sudha Ram	University of Arizona, USA	Balasubramaniam Ramesh	Georgia State University, USA
Suzanne Rivard	Ecole des Hautes Etudes Commerciales, Canada	Timo Saarinen	Helsinki School of Economics, Finland
Rajiv Sabherwal	University of Missouri, St. Louis, USA	Olivia Sheng	University of Utah, USA
Ananth Srinivasan	University of Auckland, New Zealand	Katherine Stewart	University of Maryland, USA
Kar Yan Tam	University of Science and Technology, Hong Kong	Dov Te'eni	Tel Aviv University, Israel
Viswanath Venkatesh	University of Arkansas, USA	Richard T. Watson	University of Georgia, USA
Bruce Weber	London Business School, UK	Richard Welke	Georgia State University, USA
Youngjin Yoo	Temple University, USA	Kevin Zhu	University of California at Irvine, USA
Administrator			
Eph McLean	AIS, Executive Director		Georgia State University, USA
J. Peter Tinsley	Deputy Executive Director		Association for Information Systems, USA
Reagan Ramsower	Publisher		Baylor University