Chapter XV
The Technology Acceptance Model and Other User Acceptance Theories

Joseph Bradley
University of Idaho, USA

ABSTRACT

As global business markets become increasingly competitive, firms look to information technology to manage and improve their performance. Timely and accurate information is a key to gaining performance efficiency. Yet, firms may invest in technology only to find that their users are not willing to accept and use the new technology. This chapter explores the technology acceptance model and other theories of user acceptance.

INTRODUCTION

There is nothing more difficult to plan, more doubtful of success, nor more dangerous to manage than the creation of a new order of things... Whenever his enemies have the ability to attack the innovator, they do so with the passion of partisans, while others defend him sluggishly, so that the innovator and his party alike are vulnerable. (Machiavelli, 1513, from Rogers, E. M., Diffusion of Innovations, 2003)

The above quote from the 16th Century demonstrates that resistance to innovation is not unique to information systems, but has been with us for a long time with any type of innovation. Industry has turned to information systems technology to become more competitive in controlling resource use and costs to face increased global competition. The successful implementation of information systems ranging from simple applications, such as word processing and spreadsheets, to more complicated applications, such as enterprise resource planning systems, requires user acceptance. Yet, users are
The Technology Acceptance Model and Other User Acceptance Theories

not always willing to accept the new technology. Academics and practitioners will benefit from a better understanding user acceptance. With this knowledge, user response can be predicted and systems modified to improve acceptance. Davis et al. (1989) propose a model of how users deal with the adoption of new technologies.

Davis et al (1989) developed the Technology Acceptance Model (TAM) based on the Theory of Reasoned Action (Ajzen and Fishbein, 1980). The TAM uses two variables, perceived usefulness (PU) and perceived ease of use (PEOU), as determinants of user acceptance. A key element of the TAM is behavioral intent which leads to the desired action, use of the system.

This article will first look at the theoretical development of the TAM beginning with the Expectancy-Value Theory and the Theory of Reasoned Actions. The TAM is introduced and described. A discussion of the impact of TAM on information systems research follows together with the limitations of the model. Extensions of TAM and alternative theories of user acceptance are then discussed. Lastly, a current discussion of the future of TAM is presented.

BACKGROUND

The theoretical roots of TAM can be found in the expectancy-value model and the theory of reasoned action.

Expectancy-Value Theory

The expectancy value theory was developed to understand motivations underlying the behavior of individuals. Behavioral intent is posited as the immediate precursor of a particular behavior. If we understand the elements that influence intention, we can better predict the likelihood of an individual engaging in a behavior. “Individuals choose behaviors based on the outcomes they expect and the values they ascribe to those expected outcomes” (Borders, Earleywine & Huey, 2004, p. 539). Expectancy is “the measurement of the likelihood that positive or negative outcomes will be associated with or follow from a particular act” (Mazis, Ahtola & Kippel, 1975, p. 38). The strength of the expectancy and the value attributed to the outcome will determine the strength of the tendency to act (Mazis et al., 1975, p.38). A simple example demonstrated by Geiger and Cooper (1996) is that college students who valued increasing their grades were more willing to increase their effort in the course.

Theory of Reasoned Action

The theory of reasoned action (TRA), found in social psychology literature, improves the predictive and explanatory nature of the Expectancy Value Theory. The TRA explains the determinants of consciously intended behaviors (Fishbein and Ajzen, 1975; Ajzen and Fishbein, 1980). TRA is a general model which posits that an “a person’s performance of a specific behavior is determined by his or her behavioral intention (BI) to perform the behavior” (Davis et al., 1989). Eveland (1986) observes that “ultimately, technology transfer is a function of what individuals think – because what they do depends on those thoughts, feelings and interests” (p. 310).

TRA, shown in Figure 1, posits that a person’s beliefs and evaluations lead to their attitude (A) toward the behavior, which in turn leads to behavioral intention (BI). Normative beliefs and motivation affect the subjective norm (SN) which also influences BI. The subjective norm is defined as the influence others will have on the acceptance decision. Beliefs in the model are defined as “the individual’s subjective probability that performing the target behavior will result in consequence i” (Davis et al., 1989, p. 984). Behavioral intention is determined by the person’s attitude (A) and subjective norm (SN) concerning the behavior in question (Davis et al., 1989). Attitude toward behavior is a function of individual’s “salient...
beliefs \( b_i \) about consequences of performing the behavior multiplied by the evaluation \( e_i \) of those consequences (p. 984). Subjective norm (SN) is determined by the user’s normative beliefs \( nb_i \) which are the perceived expectations of specific individuals and groups, and the user’s motivation to accept these expectations \( mc_i \).

**TECHNOLOGY ACCEPTANCE MODEL**

TAM evolved from the TRA with the goal “to provide an explanation of the determinates of computer acceptance that is general, capable of explaining user behavior across a broad range of end-user computing technologies and user populations, while at the same time being both parsimonious and theoretically justified” (Davis et al., 1989, p. 985). TAM, however, does not contain the subjective norm element of TRA. Davis states that, “It is difficult to disentangle direct effects of SN on BI from indirect effects via A” (p. 986). Like TRA, TAM postulates that actual technology usage is determined by behavioral intent (BI). The model is shown in Figure 2.

The perceived usefulness (PU) is based on the observation that “people tend to use or not use the application to the extent they believe it will help them perform their job better” (Davis, 1989, p. 320). PU directly influences the attitude toward use of the system and indirectly influences behavioral intention to use. Even if an application is perceived as useful, it will only be used if it is perceived as easy to use, that is, benefits of usage outweigh the effort of using the system. PEOU influences attitude toward use of the system. These two determinants, PU and PEOU, directly influence the user’s attitude toward using the new information technology, which in turn leads to the user’s behavioral intention to use. PEOU influences perceived usefulness (PU). PU also has a direct impact on behavioral intention (BI). Behavioral intention to use leads to actual system use.

The two key variables in TAM are perceived usefulness and perceived ease of use. Perceived usefulness (PU) is defined from the prospective user’s point of view. Will the application improve his or her job performance in the organization? Perceived ease of use (PEOU) is a variable that describes the perception of the user that the system will be easy to use. In the model, PU directly
The Technology Acceptance Model and Other User Acceptance Theories

influences both attitude toward using attitude (A) and behavioral intention to use (BI). PEOU influences both PU and A. Davis (1989) develops and validates a scale for these variables.

Theoretical support for the use of these variables can be found in self-efficacy theory, the cost-benefit paradigm and adoption of innovation literature. Bandura (1982) defines self-efficacy as “judgments of how well one can execute courses of action required to deal with prospective situations” (p. 122). Davis (1989) describes self-efficacy as similar to perceived ease of use. Self-efficacy beliefs are theorized as determinants of behavior. This theory does not offer a general measure sought by Davis, but is situationally-specific. Davis et al., (1989) differentiate TAM from TRA with respect to one’s salient beliefs. In TRA these beliefs are “elicited anew for each new context” (p. 988). TAM determines these variables for a population resulting in a more generalized view of systems and users. External effects on the model can be separately traced to each of these variables.

The cost-benefit paradigm from the behavioral decision literature is also relevant to perceived usefulness and perceived ease of use. The paradigm describes decision-making strategies “in terms of a cognitive trade-off between the effort required to employ the strategy and the quality (accuracy) of the resulting decision” (Davis, 1989, p. 321).

Adoption of innovation literature finds that compatibility, relative advantage and complexity of the innovation are key factors. Rogers and Shoemaker’s (1971) definition of complexity is similar to PEOU: “the degree to which an innovation is perceived as relatively difficult to understand and use” (p. 154). Davis (1989) points out the convergence of these and other theories to support the concepts of PU and PEOU.

Gefen and Straub (2000) describe PEOU and PU in terms of intrinsic and extrinsic characteristics. PEOU relates to the “intrinsic characteristics of IT, such as the ease of use, ease of learning, flexibility and clarity of its interface” (p. 1). PU results from a user’s assessment of IT’s “extrinsic, i.e., task-oriented, outcomes: how IT helps users achieve task-related objectives, such as task efficiency and effectiveness” (p. 1-2). Using MBA students Gefen and Straub demonstrated that PEOU affects intrinsic tasks, i.e., using a Web site for inquiry, but not extrinsic tasks, i.e., using a Web site to make a purchase.

Figure 2. Technology acceptance model

Impact of TAM

The IS community has found the TAM to be a powerful model. Lee et al. (2003) found that the first two TAM articles, Davis (1989) and Davis et al. (1989), received 698 journal citations through 2003. A Google Scholar search on the term, “Technology Acceptance Model,” in June 2008 produced 7,330 hits.

Lee et al. (2003) examined a number of variables related to TAM research, including types of information systems examined, external variables tested, number of publications by year by journal, most prolific researchers, characteristics of research subjects, relationship between major TAM variables, major limitations, and research methodology.

Types of Information Systems Examined

TAM researchers have applied the model to a wide variety of information systems. In the area of communications systems, TAM has been applied in 25 articles to e-mail, v-mail, fax and dial-up systems. General purpose systems were examined in 34 articles, including Windows, PC, internet, workstations, computer resource centers and groupware. Office systems such as word processors, spread sheets, presentation software, database programs and groupware were the subject of 33 articles. Specialized business systems such as computerized models, case tools, hospital systems, decision support systems, expert support systems and MRP were examined in 30 articles (Lee et al., 2003).

External Variables Tested

Researchers have proposed and examined many external TAM variables. Lee et al. (2003) assembled the following list of external variables in TAM research which is summarized below. See Lee et al. (2003) for definitions, origin and referred articles.

TAM Publications

Lee et al. (2003) found 101 studies involving TAM were published in what they defined as major journals and conferences between 1989 and 2003. MIS Quarterly led the group with 19 TAM articles; Information & Management, 12; Information Systems Research and Journal of Management Information Systems, 10 each. The peak of interest in TAM was the period from 1999 to 2001 when 41 articles appeared in a three year period. Subsequent to 2003 the pace of articles appears to have declined. MISQ ran two articles in 2004, one in 2005 and none since. However, a Journal of the Association for Information Systems special issue in April 2007 included eight

<table>
<thead>
<tr>
<th>Table 1. TAM variables</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accessibility</td>
</tr>
<tr>
<td>Compatibility</td>
</tr>
<tr>
<td>Perceived enjoyment</td>
</tr>
<tr>
<td>Facilitating conditions</td>
</tr>
<tr>
<td>Managerial Support</td>
</tr>
<tr>
<td>Relative Advantage</td>
</tr>
<tr>
<td>Social Presence</td>
</tr>
<tr>
<td>Visibility</td>
</tr>
</tbody>
</table>

281
articles assessing the current status of technology acceptance research.

**Characteristics of TAM Research Subjects**

Research subjects used in the technology acceptance literature cited by Lee et al. (2004) were composed of students (44 studies) and knowledge workers (60 studies). For example, Davis et al. (1989) used 107 students and word processing technology. Taylor and Todd (1995) used 786 students dealing with the use of a university computing center.

**Major Limitations of the TAM Model**

Lee et al. (2003) found the major limitation of the TAM studies included in their research was self-reported usage. The studies did not measure actual usage, but relied on the research subject to indicate usage. A better approach would have been to employ an independent measure actual use. Another limitation was the use of a single IS system in each research project limiting the generalizability of the conclusions. Student samples were heavily employed raising the questions of how representative this group was to the real working environment. Other limitations discuss in these papers include single subjects (i.e., one organization, one department, one student group, etc.), one-time cross sectional studies, measurement problems (for example, low validity of new measures), single task, low variance scores, and mandatory situations.

**Most Published TAM Authors**

Lee et al. (2003) found that 11 authors published 4 or more papers accounting for 50 of the 101 articles found in major IS journals. The most prolific TAM authors through 2003 include Viswanath Venkatesh (12), Fred D. Davis (9), Detmar W. Straub (8), Elena Karahanna (6), David Gefen (6), and Patrick Y.K. Chau (6).

**Recent TAM Research**

Although the appearance of TAM articles in major journal appears to be on a downturn, TAM research continues to appear in the literature. More recent research extends the TAM to ERP implementation (Amoako-Gyampah and Salam, 2004; Bradley and Lee, 2007; Hwang, 2005), cross cultural implementation studies (McCoy, Galleta and King, 2006; McCoy, S., Everard, A., and Jones, B.M., 2005), e-commerce participation among older consumers (McCloskey, 2006), and biometric devices (James et al., 2006). Pijpers and van Montfort (2006) investigate senior executives’ acceptance of technology using the TAM and found that gender has no effect on perceived usefulness or perceived ease of use, but also found that gender affects positively actual usage frequency.

Following the introduction of the TAM in 1989 and validation period ranging from 1992 through 1996 and a period of model extension, a model elaboration period ensued “to develop the next generation TAM” model and “to resolve the limitations raised by previous studies” (Lee et al., 2003, p. 757).

**TAM MODEL ELABORATIONS**

**TAM2**

Venkatesh and Davis (2000) developed and tested an extension to TAM which “explains the perceived usefulness and usage intentions in terms of social influence and cognitive instrumental processes” (p. 186). In the ten years following the publication of the TAM, empirical studies found that the model explained about 40% of the variance in usage intentions and behavior. In an effort to expand the explanatory impact of the model, TAM2 was developed. Figure 3 shows this model. TAM2 extended the TAM model to include seven additional variables. Five of
these new variables directly influence perceived usefulness (PU). TAM2 considers both social influences (subjective norm, voluntariness and image) and cognitive instrumental processes (job relevance, output quality, result demonstrability and perceived ease of use. The expanded model accounts for 60% of the variance in the drivers of user intentions. While less parsimonious than the original TAM, the model is more powerful.

**Unified Theory of Acceptance and Use of Technology (UTAUT)**

Venkatesh, Morris, Davis and Davis (2003) examine eight competing models of technology acceptance and formulate a unified model that integrates elements of these models. The eight models are: TRA, TAM, motivational model, TPA, TAM/TPB combined, a model of PC utilization, innovation diffusion theory and social cognitive theory. UTAUT includes four variables, performance expectancy, effort expectancy, social influence and facilitating conditions, and up to four moderators of key behaviors, gender, age, experience and voluntariness. In an experiment, the eight models varied in explanatory power from 17 to 53 percent of the variance in user intentions to use information technology. UTAUT was tested on the same data and explained 69 percent of the variance.

Both TAM2 and UTAUT have stronger explanatory power than the original TAM model, but the additional number of variables raises the question of parsimony. What is the balance between the added explanatory power and the complexity introduced by the additional variables?

*Figure 3. TAM2-extension of the technology acceptance model*

Adapted with permission from Venkatesh, V. and Davis, F.D. (2000). A Theoretical Extension of the Technology Acceptance Model: Four Longitudinal Field Studies, Management Science, 46(2), 186-204. Copyright (1989), the Institute for Operations Research and the Management Sciences, 7240 Parkway Drive, Suite 300, Hanover, Maryland 21076. INFORMS is not responsible for errors introduced in the adaption of the original article.
OTHER THEORIES OF USER ACCEPTANCE

Theory of Planned Behavior (TPB)

The Theory of Planned Behavior (Ajzen 1985, 1991) shown in figure 4 is an extension of the Theory of Reasoned Action (Fishbein and Ajzen, 1975). TPB addresses conditions where users do not have complete behavioral control. It introduces the variable perceived behavioral control (PBC). Behavioral intention (BI) is seen as a weighted function of attitude (A), subjective norm (SN) and perceived behavioral control. Behavior (B), that is actual use, is the weighted function of intention and PBC². Relationships among beliefs are determined using an expectancy-value model.

Decomposed Theory of Planned Behavior (DTPB)

The decomposed theory of planned behavior expands the TPB theory by deconstructing the elements of attitude into three variables: perceived usefulness, ease of use, compatibility (See Figure 5). The subjective norm is comprised of two variables: peer influence and superior’s influence. Perceived behavioral control is influenced by three variables: self-efficacy, resource facilitating conditions and technology facilitating conditions.

Comparison of TAM, TPB and Decomposed TPB

Taylor and Todd (1995) compared the TAM, TPB and Decomposed TPD using student data from a computer resource center with structural equation modeling. In all three models behavioral intention is the primary factor in the desired behavior, the use of technology. It was anticipated that the addition of the subjective norm and perceived behavioral control variables would give the TPB greater explanatory power, contrary to the finding of Davis (et al., 1989). Their results found that TAM explained 52% of the variance in BI while the pure TPB explained 57% of the variance and decomposed TPB explained 60%. The improvement from the social norm and perceived behavior control may be due to the setting of the Taylor and Todd (1995) research. While in this

Figure 4. Theory of planned behavior

The Technology Acceptance Model and Other User Acceptance Theories

Figure 5. Decomposed theory of planned behavior


particular research setting the decomposed TPB proved superior in explanatory power, TAM may still be a more parsimonious model. Mulaik et al (1989) recommend as preferable a model that has good predicting power while using the fewest variables. The TAM explains over 50% of variance of BI with two variables. The decomposed TPB requires seven variables to explain 60%.

Innovation Diffusion Theory

Another line of research on the acceptance of new technology is examined by Rogers (1983, 2003). This perspective views such factors as individual user characteristics, information sources and communication channels and innovation characteristics as determinants of IT usage and adoption. Rogers (2003) views the dif-
fusion of innovation as “a social process in which subjectively perceived information about a new idea is communicated person to person” (p. xx). Communication channels distribute knowledge of the innovation, contribute to the prospective user forming attitudes about the innovation leading to a decision to accept or reject the innovation.

Knowledge occurs when a potential systems user is exposed to the existence and functionality of the technology. Persuasion is when a user forms an attitude toward the new system. The attitude can be either favorable or unfavorable. The decision step is when a user decided to accept or reject the IS event. Implementation is putting to technology into use. The confirmation step occurs after the technology is in use. The user seeks confirmation and reinforcement of the decision he or she has made.

**Task-Technology Fit Model**

Dishaw, Strong and Bandy (2002) propose a combination of the TAM and the Task-Technology Fit (TTF) Model (Goodhue & Thompson, 1995). The combined model is shown in Figure 7. The Task-Technology Fit Model is the “matching of the capabilities of the technology to the demands of the task, that is, the ability of IT to support a task” (p. 1022). The TTF model which is composed of four constructs: Task Characteristics, Technology Characteristics, Task-Technology Fit which leads to either performance or utilization. Task characteristics and Technology characteristics are related to task-technology fit. Task-technology fit is related to both performance impacts and utilization. Utilization also is directly related to performance impacts. Dishaw et al. (2002) posit that “IT will be used if, and only if, the functions available to the user support (Fit) the activities of the user” (p. 1022). IT without any significant advantage will not be used.

**Coping Model**

Beaudry and Pinsonneault (2005) explore a coping mode of user acceptance to understand user acceptance process.
The Technology Acceptance Model and Other User Acceptance Theories

responses to information technology changes. User adaptation is defined as “the cognitive and behavioral efforts exerted by users to manage specific consequences” (p. 496). The model posits that users apply a variety of coping strategies based on their “assessment of the expected consequences of an IT event (p. 493)” and an assessment of their control over the situation. Users ask (p. 495), “What is at stake for me in this situation?” Four major coping strategies are identified: “benefits maximizing, benefits satisficing, disturbance handling and self-preservation” (p. 493). Applying these coping mechanisms lead to one of three different individual level outcomes: 1) restoring emotional stability, 2) minimizing the perceived threats of the technology, and 3) improving user efficiency and effectiveness.

Beaudry and Pinsonneault (2005) tested the model at two North American banks. The case studies supported their propositions. Although they observe that the benefits satisficing and self-preservation strategies may “first appear suboptimal” (p. 517), the benefits of raising this level of acceptance may be outweighed by the costs. The model provides guidance to managers to understand how users evaluate IT events, which may help them guide users to adaptation strategies.

Elaboration Likelihood Model

Bhattacherjee and Sanford (2006) examine how “external influences shape information technology acceptance among potential users, how such influence effects vary across a user population, and whether these effects are persistent over time” (p. 805). They are critical of prior research, including TAM, TRA, TPB, DTBP and UTAUT, which do not address external influence on user

Figure 7. TAM and TTF model

From Dishaw et al (2002)
acceptance beyond social norm. Drawing on social psychology literature, Bhattacharjee and Sanford examine dual-process theories “that suggest that external information is the primary driver of attitude change and consequent behavior change” (p. 808). Within these dual process theories, they select the elaboration-likelihood model (ELM) as: “(1) it relates directly to influence processes and their impacts on human perception and behavior and (2) it also explains why a given influence process may lead to differential outcomes across different users in a given user setting” (p. 808). Attitude change can follow either a central or peripheral route, which result in different amounts of information processing by individuals. The central route requires critical thinking about “potential benefits of system acceptance, comparison of alternative systems, availability and quality of system support, and/or costs of and returns from system acceptance” (p. 808). The peripheral route requires less effort, relying on endorsements from prior users and experts and the likeability of experts. ELM supports the extension of the TAM and other models to include messages of external agents as primary external variables. This model is shown figure 9.

Wixon and Todd (2005) propose an integrated model to reconcile two major streams of research on IS success, technology acceptance literature and user satisfaction literature. This model is similar to the TRA, TAM and UTAUT, but separates the concepts into object-based beliefs, object-based attitudes, behavioral beliefs and behavioral attitudes. Variables of completeness, accuracy, format and currency impact information quality which in turn influence information satisfaction. Information satisfaction influences usefulness which influences both attitude and intention. Reliability, flexibility, integration, accessibility, and timeliness influence systems quality which in turn influence systems satisfaction, ease of use, attitude and intention. Systems satisfaction influences information satisfaction. Ease of use influences usefulness.
FUTURE OF THE TECHNOLOGY ACCEPTANCE MODEL

A special issue of the Journal of the Association for Information Systems in April 2007 focused on “Quo Vadis TAM-Issues and Reflections on Technology Acceptance Research.”

While acknowledging the significant contribution of the TAM, Benbasat and Barki (2007, p. 212) state:

the intense focus on TAM has led to several dysfunctional outcomes: 1) the diversion of researchers’ attention away from important phenomena. First, TAM-based research has paid scant attention to the antecedents of its belief constructs: most importantly, IT artifact design and evaluation. Second, TAM-based research has provided a very limited investigation of the full range of the important consequences of IT adoption, 2) TAM-based research has led to the creation of an illusion of progress in knowledge accumulation, 3) The inability of TAM as a theory to provide a systematic means of expanding and adapting its core model has limited its usefulness in the constantly evolving IT adoption context, 4) The efforts to “patch-up” TAM in evolving IT contexts have not been based on solid and commonly accepted foundations, resulting in a state of theoretical confusion and chaos.

Schwarz and Chin (2007) call for an expansion and broadening of technology acceptance research to include a “wider constellation of behavioral usage and its psychological counterparts” (p.230).

Straub and Burton-Jones (2007) challenge the notion that TAM has been “established ‘almost to the point of certainty’” (p. 224). They state that the system usage construct has been understudied. Exploration of usage may open up possibilities to enrich the model. Straub and Burton-Jones (2007) point to a research flaw in TAM studies where respondents self-rated three key variables: PU and PEOU (IV’s) and usage level. This methodology results in a common methods bias. They suggest TAM researchers undertake “strenuous effort” to gather usage data independent of the source of PU and PEOU. Straub and Burton-Jones (2007) also challenge the parsimony of TAM. However, in this challenge they do not directly challenge the TAM but move forward in the TAM development stream to the UTAUT claiming that its 10

Figure 9. Elaboration likelihood model

Adapted from Bhattacharjee & Sanford (2006)
constructs are not parsimonious. They observe that Lee et al. (2003) enumerate “21 external variables that affect the four central variables in the model” (p. 227).

Silva (2007) examines TAM applying three criteria on what is scientific and what is a theory. He uses the perspective of three science philosophers: Karl Popper, Thomas Kuhn and Imre Lakatos. Popper’s principle of falsifiability suggests that “a good theory should ‘prohibit’ the occurrence of specific phenomena” (p. 264). Using Kuhn’s lens, Silva finds TAM to be a typical example of normal science as it provides an easily transferable and verifiable problem solving apparatus.

**SUMMARY AND CONCLUSION**

Despite the large body of research on this topic, “user acceptance of information technology remains a complex, elusive, yet extremely important phenomenon” (Venkatesh and Davis, 2000). Organizations invest billions of dollars in new technology each year. If employees are not willing to accept this new technology, the return on this investment will be reduced.

This chapter has surveyed the literature on the development and extension of the technology acceptance model and explored other user acceptance model. The TAM model is widely used and has been validated many times. Researchers have extended the model to encompass the impact of dozens of variables.

A central principle of the TAM model and its extensions is the measurement of behavioral intention to use and user attitude. Yet, most studies rely on self reported measures of this variable which may be unreliable. Straub and Burton-Jones (2007) point out that reliance on self-reported key variables, like attitude and intention, open models based on these variables to significant questions. Researchers need to find more reliable method
to measure these variables. Limitations on data gathering need to be addressed.

Other models examined in the chapter do not rely on behavioral intention or attitude. The innovation diffusion model is described as a social process which relies on communication and persuasion. The task technology fit relies on how well the technology fits the users’ tasks. The coping model examines the reaction to new technology as an opportunity or threat.

A promising avenue for future development may be combining the TAM models with other approaches to user acceptance such as the combination of TAM with the task-technology fit model (Dishaw et al., 2002) and the combination of TAM research and user satisfaction research demonstrated in the integrated model developed by Wixom and Todd (2005). Combining the extensive work in user acceptance and user satisfaction with the smaller body of knowledge on user resistance may prove fruitful.

The profession needs to learn more about user acceptance, user resistance and user satisfaction. Research should better inform systems designers on the attributes which will make their products easier for users to accept. Opportunities abound for scholars to take new directions in technology acceptance research.

REFERENCES


The Technology Acceptance Model and Other User Acceptance Theories

ing models. *Information Systems Research, 6*(2), 144-176.


**KEY TERMS AND DEFINITIONS**

**Coping Model:** Adaptation strategies to significant information systems events consisting of benefits maximizing, benefits satisficing, disturbance handling, and self-preservation. Expected outcomes of these strategies are restoring emotional stability, minimizing the perceived threats of the technology and improving user effectiveness and efficiency (Beaudry and Pinsonneault, 2005).

**Decomposed Theory of Planned Behavior:** A variation of the theory of planned behavior which breaks down attitudinal, normative and control beliefs into a set of more measureable variables.

**Innovation Diffusion Theory:** A theory of adoption of new technology based on individual user characteristics, information sources and communications channels, and innovation characteristics (Rogers, 1983).

**Perceived Ease of Use (PEOU):** One of the two key variables in the technology acceptance model. Perceived ease of use will lead to attitude toward use, behavioral intention to use and actual use. PEOU also influences the second key variable, perceived usefulness.

**Perceived Usefulness (PU):** One of the two key variables in the technology acceptance model. PU directly influences both attitude toward systems use and behavioral intention to use the system. PU is influenced by perceived ease of use.

**Task-Technology Fit Model (TTF):** A model of user acceptance that relates actual use to tool functionality and task characteristics (Dishaw et al., 2002).

**Technology Acceptance Model (TAM):** TAM is a model of user acceptance of information systems technology based on the theory of reasoned action. Two variables perceived usefulness and perceived ease of use lead to attitude toward use, behavioral intention to use and use of the system.

**Theory of Planned Behavior (TPB):** A theory which extends the theory of reasoned action to include users who do not have complete control over the use of an innovation. A variable of perceived behavioral control is added to the TRA.

**Theory of Reasoned Action (TRA):** A theory found in social psychology literature which explains the determinants of consciously intended behaviors (Fishbein and Ajzen, 1975; Ajzen and Fishbein, 1980).

**User Acceptance:** This term describes the willingness of a user of information systems technology to adopt and accept new IT initiatives.
ENDNOTES

1 Behavioral intention can be shown as $BI = A + SN$, attitude can be expressed as $A = \sum b_i e_i$, and subjective norm as $SN = \sum nb_i mc_i$.

2 Taylor and Todd (1995) describe this model as $B = w_1 BI + w_2 PBC$ and $BI = w_3 A + w_4 SN + w_5 PBC$, where $w$ is the weight of each factor.