

## The Factors Affecting Information Technology Usage Behavior of Tax Office Employees in the Black Sea Region of Turkey

Emine Yılmaz<sup>a</sup>

Sonnur Aktaş<sup>b</sup>

Gökhan Özer<sup>c</sup>

Murat Özcan<sup>d</sup>

**Abstract:** *The purpose of this paper is to investigate the factors affecting information technology usage behavior of tax office employees in the Black Sea Region of Turkey. To accomplish this purpose, the data is gathered from 133 tax office employees who work in Black Sea Region of Turkey through a questionnaire that is formed with 5-point Likert-type scale. Research model is developed in the light of Theory of Reasoned Action, and a series of analyses is conducted. The predicted hypotheses are tested through regression analyses. According to results, intention of tax office employees has the high predictive power on information technology usage. Additionally, attitude and subjective norms of tax office employees have an impact on their intention towards information technology usage. However, their attitude has the more predictive power than their subjective norms on their intentions towards information technology usage.*

**Keywords:** Information Technology, Tax Office Employee, Reasoned Action, Intention, Attitude, Subjective Norm

**JEL Classification:** M00, M15, M40

### 1. Introduction

In both private and public organizations, information is of vital importance. Rapidly globalizing world necessitates accessing immediate information, process and exchange of it due to increasing competition among organizations operating in the same sector. Efficient use of information can be the driving force of organizations against their competitors. However, accessing immediate information, processing and using it in right time and right manner could be only possible with information technology (IT) usage. Because of that virtually there is no organization existing without using IT, and IT could be shown among the main assets of organizations.

Decisions related in the future of organizations could be made thanks to information, data, report, etc. obtained through IT; and additionally, rapid and reliable information sharing can also be provided by spreading these decisions throughout the whole organization with the help of IT. However, it brings lots of advantages to the organizations; it also brings some challenges such as adaptation of employees to changes and rapid advances of IT.

Despite the large number of studies investigating IT usage behavior in literature, lack of study on IT usage of public organizations' employees, especially on IT usage of tax offices' employees pushed us to conduct this research. The purpose of the current study is to contribute towards the understanding of underlying factors affecting IT usage behavior of tax office employees. To this end, the Theory of Reasoned Action (TRA) that is developed by

<sup>a</sup>Assist. Prof., Istanbul Medeniyet University, Istanbul, Turkiye, emine\_yilmaz2004@yahoo.com

<sup>b</sup>Lecturer, Artvin Coruh University, Arhavi Vocational School, Artvin, Turkiye, sonnur-aktas@hotmail.com

<sup>c</sup>Prof., Gebze Institute of Technology, Kocaeli, Turkiye, ozer@gyte.edu.tr

<sup>d</sup>Assist. Prof., Abant İzzet Baysal University, Bolu, Turkiye, mozcan@ibu.edu.tr

Fishbein and Ajzen (1975), the well-known behavioral theory, was taken as a base. Accordingly, with the Theory, we suggest that the primary predictor of IT usage behavior is the intention to use IT. Some researchers also used some other theories such as the Theory of Planned Behavior and Technology Acceptance Model derived from TRA (Mathieson, 1991; Taylor & Todd (1995); Venkatesh, Morris and Ackerman, 2000; Mao et al. 2005).

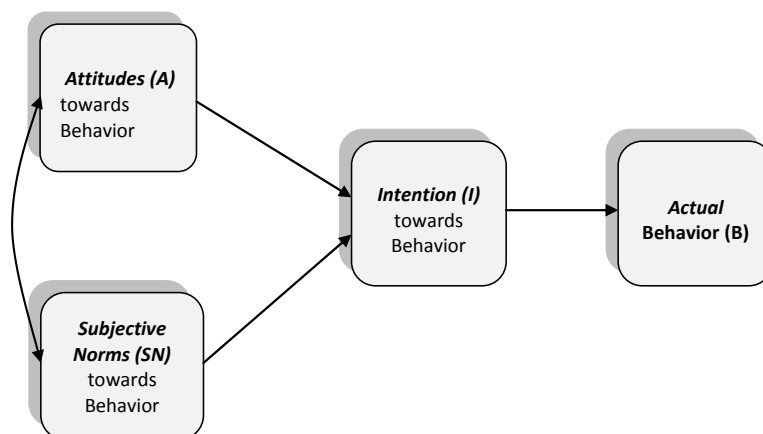
The study is made up of four sections. The rest of the study organized as follows. Second section encompasses the theoretical background of the study. Accordingly, it gives general explanation and demonstrates the theoretical frame of the Theory of Reasoned Action and hypotheses. In third part, the methodology of research is explained and scales of factors are given. In fourth section, the results of regression analyses are presented. And in the last section, the results of study are evaluated.

## 2. Theoretical Background: Theory of Reasoned Action

TRA takes into consideration the cognitive aspects of behavior and assumes that humans are rational, and their behaviors are totally under volitional control (Madden, Ellen and Ajzen, 1992; Ajzen, 2002). Accordingly, Theory of Reasoned Action accepts an intention towards to perform certain behavior as the unique antecedent of actual behavior (Ajzen and Fishbein, 2005). Intention is related to the willingness of individual to realize specific behavior (Chen, Chen and Kinshuk, 2009).

Additionally, intention towards this behavior is jointly determined by attitudes and subjective norms related to behavior (Malhotra and Galletta, 1999). Attitude comprises values and judgment about certain behavior (Leonard, Timothy and Kreie, 2004). Subjective norms are composed of person’s perceptions about what important other people think about performing this behavior by him/her (Spark, Shepherd and Frewer, 1995). During the formation of person’s attitudes and subjective norms concerning the behavior, two sorts of beliefs play an important role; behavioral beliefs and normative beliefs. While behavioral beliefs form attitudes, normative beliefs form subjective norms. The general schematic frame of TRA is illustrated in Figure 1.

Figure 1: Theory of Reasoned Action



Source: Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1975

Because of its indisputable success and proven predictive validity, TRA has had broad application area in different disciplines. Ethics (Chang, 1998; Randall and Gibson, 1991), information technology usage and adaptation (Cheng, Sheen and Lou, 2006; Chow and Chan,

2008; Lucas, 1975; Robinson et al., 2005; Sheppard et al., 1988), information/knowledge sharing (Bock and Kim, 2002; Bock et al., 2005), marketing (Lutz, 1991; Shih, 2004; Hansen and Solgaard, 2004), health (Manstead, Proffitt and Smart, 1983; Baker et al., 1996; Fishbein, 2008), management (Wu, 2003), renewable energy (Bang et al., 2000) could be given as an example to these areas. TRA could be used to understand almost all kinds of behavior (Ajzen and Fishbein, 1980), and that is why it will also be beneficial to comprehend computer usage behavior. Accordance with Davis et al. (1989), many researchers such as Wu (2003), Kuo and Young (2008), Rehman et al. (2007) have used TRA as a starting point to their studies, which explore IT usage behavior.

In this study, Theory of Reasoned Action is used as a starting point in order to understand IT usage behavior of tax office employees. Accordance with the Theory, it is proposed that intention of tax office employees towards IT usage is the sole determining factor of IT usage behavior. It is assumed that if employees have positive intention, it is more likely to use IT in their professions. This assumption is hypothesized as follows;

H<sub>1</sub>: Intention of tax offices' employee towards IT usage has a positive impact on their IT usage behavior.

If the tax office employee has positive beliefs regarding the consequences of IT usage behavior, they will acquire more positive attitudes about IT usage. Accordingly, these positive attitudes will lead them to use IT in their professions (Mathieson, 1991; Özer and Yılmaz, 2010a; Özer and Yılmaz, 2010b; Özer and Yılmaz, 2011).

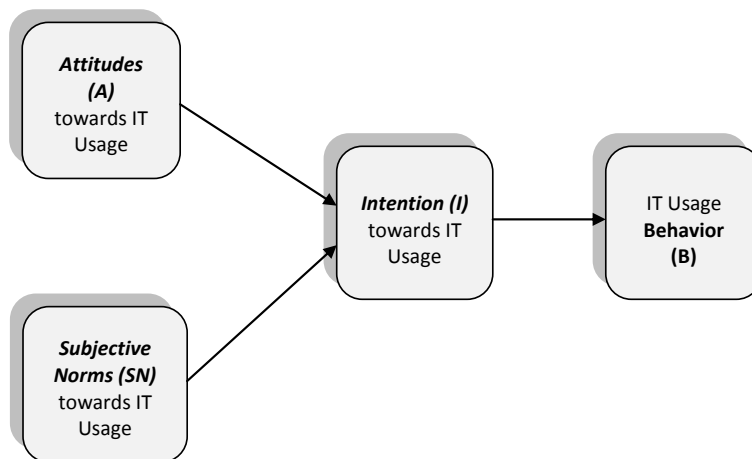
H<sub>2</sub>: Attitude of tax offices' employee towards IT usage has a positive impact on their intentions towards IT usage.

Similarly, if employees perceive that other people think that IT usage is quite important for their professions and makes them successful, it is more possible to gain positive subjective norms and accordingly, it is more possible that they use IT in their professions (Chang, 1998; Ryu, Ho and Han, 2003; Özer and Yılmaz, 2010a). This suggestion is hypothesized below;

H<sub>3</sub>: Subjective Norms of tax offices' employee towards IT usage have a positive impact on their intentions towards IT usage.

The research model is displayed in Figure 2.

Figure 2: Research Model



### 3. Methodology

The data is obtained from tax office employees who work in Black Sea Region of Turkey through a questionnaire which is formed with 5-point Likert-type scales. The questionnaires are distributed to participants by hand. Totally, 155 questionnaires are collected, but 22 of them are dropped because of misleading answers. The data is gained from remained 133 questionnaires.

Scale items that are used for this study are generally adapted from previous study, and their validity and reliability are confirmed. In other words, scales of the current study are theoretically strong. IT usage behavior is measured by two items adapted from Yang and Yoo (2004). Intention is measured with six items adapted from different authors such as Madden et al. (1992), Lee, Cheung, and Chen (2005) and Girgin (2003). Attitude is measured by four items that are adapted from Lee et al. (2005), Yang and Yoo (2004) and Madden et al. (1992). Subjective norm is measured by seven items, which are adapted from Madden et al. (1992) and Girgin (2003), Baker et al. (1996).

### 4. Analyses and Results

The data is evaluated by the help of SPSS Package program. Factor, reliability, correlation and regression analyses are conducted to investigate relations among variables. Factor analysis points out a structure with four factors as it is expected. These four factors explain 60,511% of total variance. The KMO (Kaiser Meyer-Olkin) (0,822) and Barlett Tests (0,000) verify the appropriateness of the variables that is used in the questionnaire to the factor analysis. So, significance of analysis is approved (Mitchell, 1994, 6). The reliability is measured by using Cronbach's  $\alpha$  value of variables. Cronbach's  $\alpha$  value of variables are as follows; IT Usage behavior: 0,792; Intention: 0,874; Attitude: 0,747; Subjective Norms: 0,819 and all of them are over 0.60 that is accepted lower limit (Nunnally, 1978). The results of factor analysis and Cronbach's  $\alpha$  values are presented in Table 1.

Table 1: Factor Loadings and Cronbach's  $\alpha$  Values of Variables

Factors and Scales	Factor 1	Factor 2	Factor 3	Factor 4
<b>I: Intention Towards IT Usage (Cronbach <math>\alpha</math>: 0,874)</b>				
I1	,828			
I2	,767			
I3	,762			
I4	,732			
I5	,729			
I6	,664			
<b>SN: Subjective Norms Towards IT Usage (Cronbach <math>\alpha</math>: 0,819)</b>				
SN1		,781		
SN2		,766		
SN3		,760		
SN4		,652		
SN5		,581		
SN6		,531		
SN7		,515		
<b>A: Attitude Towards IT Usage (Cronbach <math>\alpha</math>: 0,747)</b>				
A1			,786	
A2			,714	
A3			,619	
A4			,604	
<b>B: IT Usage Behavior (Cronbach <math>\alpha</math>: 0,792)</b>				
B1				,812
B2				,753

Correlation analysis is performed to examine the direction and intensity of relations between variables. Results of correlation analysis and means and standard deviations of variables are exhibited in Table 2. Eventually, statistically significant and positive correlation between intention and IT usage behavior, between attitude and IT usage, between attitude and intention, between subjective norm and IT usage, between subjective norm and intention and between subjective norm and attitude at the level of 0.01 (two tailed).

**Table 2: Mean, Standard Deviation, Correlation Coefficients**

Variables	Means	Standard Deviation	1	2	3	4
1 IT Usage	3,3045	,93102	1,00			
2 Intention Towards IT Usage	4,1516	,64303	,424(**)	1.00		
3 Attitude Towards IT Usage	4,3797	,51364	,374(**)	,467(**)	1.00	
4 Subjective Norms Towards IT Usage	3,9409	,52227	,257(**)	,375(**)	,491(**)	1.00

\*\* Correlation is significant at the 0.01 level (2-tailed).

Two regression models that are developed to test hypotheses are presented below. In the first regression model, it is investigated that the effect of tax office employee's intention on IT usage behavior. In second regression model, the effects of attitude and subjective norms of tax office employees on their intention towards IT usage are investigated.

$$B = \beta_0 + \beta_1 * I + e \quad (1)$$

$$I = \beta_0 + \beta_1 * A + \beta_2 * SN + e \quad (2)$$

B: IT usage behavior of tax office employees

I: Intention of tax office employees towards IT usage behavior

A: Attitude of tax office employees towards IT usage behavior

SN: Subjective norms of tax office employees towards IT usage behavior

The first regression analysis shows that the first regression model developed to test the relationship between intention of tax office employees and their IT usage is statistically significant (F: 28,752, p=0,000). The results of analyses are in parallel with the assumption of study. Intentions of tax office employees have statistically significant and positive impact on their IT usage ( $\beta = 0,424$ ; p=0,000). As it is expected, results demonstrate if tax office employees have positive intentions towards IT usage, it is more likely that they will use IT in their professions. Results support the hypothesis H1. The results of first regression analysis are presented in Table 3.

**Table 3: Regression Analyses Results of Step 1**

Step	Independent Variable	Beta	t	F	R <sup>2</sup>	Adjusted R <sup>2</sup>	Sig.
1	Intention Towards IT Usage	0,424	5,362	28,752	0,180	0,174	0,000

Dependent Variable: IT Usage

It is found that second regression model developed to explore the relationship between attitude and subjective norms of tax office employees, and their IT usage behavior is statistically significant (F: 21,204,  $p=0,000$ ). Attitude and subjective norms of the tax office employees have statistically significant and positive effect on their IT usage behavior (Attitude:  $\beta =0,372$ ;  $p=0,000$ ; Subjective norms:  $\beta =0,193$ ;  $p=0,000$ ). If tax office employees have positive attitudes and subjective norms towards IT usage, they also have positive intention towards IT usage. These results confirm hypotheses H2 and H3. The results of second regression analysis are displayed in Table 4.

**Table 4: Regression Analysis Results of Step 2**

Step	Independent Variable	$\beta$	t	F	$R^2$	Adjusted $R^2$	Sig.
2	Subjective Norms Towards IT Usage	0,193	2,207*	21,204	0,246	0,234	0,000
	Attitude Towards IT Usage	0,372	4,255*				0,000

Dependent Variable: Intention towards IT Usage

## 5. Conclusion

This study is realized to investigate the factors affecting IT usage behavior of tax office employees and relationship between these factors and IT usage behavior in the light of correlation and regression analyses. The results of study are convenient with Theory of Reasoned Action that forms the theoretical base of study. Furthermore, they support lots of previous researches in literature. Results are also remarkable for showing that Theory of Reasoned Action has a significant predictive power for IT usage behaviors of tax office employees.

Results show that intentions of tax office employees towards IT usage have a positive impact on their IT usage. In other words, if employees have positive intentions about using IT in their works, the possibility of using IT by them will be higher. On the other hand, if they don't have positive intention, they will use IT less.

The other outcome of study is that the attitudes and subjective norms of tax office employees positively affect their intention to use IT. It means that if employees perceive that using IT will be beneficial for their work, they have more positive intention to use IT. In addition, if they perceive other people think that they should use IT, and if they have more motivation to comply with their opinion, they will have more positive intention towards IT usage. These results are convenient with the previous researches such as Chow and Chan (2008), Ryu et al. (2003), Özer and Yılmaz (2010a). However, there are some studies that are not partially supported by present study such as Liker and Sindi (1997). Liker and Sindi (1997) claimed that there is no statistically significant relationship between attitudes of advanced systems user and their intentions.

However, both attitude and subjective norms have statistically significant and positive effect on employees' intentions to use IT; the effect of attitude towards IT usage is higher than the effect of their subjective norms. It means that their values and judgments about IT are more effectual than what others think about IT usage of them. In some researches, subjective norms could be more effectual than attitude. The underlying reason of this could be the social differences between the samples of the studies (Erten, 2002). For example, Özer and Yılmaz (2010a, 2011) suggest that subjective norms of accountants have more determining effect on their intention to use IT than their attitudes.

Eventually, attitude, subjective norms and intention towards IT usage are the important factors for predicting IT usage behavior of tax office employees. Thus, it is necessary to increase positive intentions, attitudes and subjective norms of employees towards IT usage in order to increase IT usage and adaptation.

The current study also has some limitations as every study. The most important limitation is that individual's intention, attitude and subjective norms could change time to time and under different conditions. Because of that it is hard to measure them. It should reckon with that this study is carried out on tax office employees, and generalization of outcomes of this study to other fields should be made under this consideration.

### References

- Ajzen, I. (2002). Perceived behavioral control, self-efficacy, locus of control, and the theory of planned behavior. *Journal of Applied Social Psychology*, 32, 665-683.
- Ajzen, I. & Fishbein, M. (1980). *Understanding attitudes and predicting social behavior*. Englewood Cliffs, NJ: Prentice-Hall.
- Ajzen, I. & Fishbein, M. (2005). The influence of attitudes on behavior. In Albarracín, D., Johnson, B.T. and Zanna, M.P. (Ed.). *The handbook of attitudes*. Mahwah, NJ: Erlbaum. 173-221.
- Baker, S.A., Morrison, D.M., Carter, W.B. & Verdon, M.S. (1996). Using the Theory of Reasoned Action (TRA) to Understand the Decision to Use Condoms in an STD Clinic Population. *Health Education and Quarterly*, 23(4), 528-42.
- Bang, H., Ellinger, A.E., Hadimarcou, J., & Traichal, P.A. (2000). Consumer Concern, Knowledge, Belief and Attitude toward Renewable Energy: An Application of the Reasoned Action Theory. *Psychology & Marketing*, 17(6), 449-468.
- Bock, G. & Kim, Y. (2002). Breaking the myths of rewards: An exploratory study of attitudes about knowledge sharing. *Information Resources Management Journal*, 15(2), 14-21.
- Bock, G. W., Zmud, R. W., Kim, Y. G. & Lee, J. N. (2005). Behavioral Intention Formation in Knowledge Sharing: Examining the Roles of Extrinsic Motivators, Social Psychological Forces and Organizational Climate. *MIS Quarterly*, 29(1), 87-111.
- Chang, M. K. (1998). Predicting Unethical Behavior: A Comparison of the Theory of Reasoned Action and the Theory of Planned Behavior. *Journal of Business Ethics*, 17(16), 1825–1834.
- Chen ,I.Y.L., Chen, N.S. & Kinshuk (2009). Examining the Factors Influencing participants' Knowledge Sharing Behavior in Virtual Learning Communities. *Educational Technology & Society*, 12(1), 134–148.
- Cheng, J. M. S., Sheen, G. J. & Lou, G. C. (2006). Consumer acceptance of the internet as a channel of distribution in Taiwan—a channel function perspective. *Technovation*, 26, 856–864
- Chow, W.S. & Chan, L. S. (2008). Social network, social trust and shared goals in organizational knowledge sharing. *Information Management*, 45, 458–465.



- Davis, F. D., Bagozzi, R. P. & Warshaw, P. R. (1989). User acceptance of computer technology: a comparison of two theoretical models. *Management Science*, 35(8), 982-1003.
- Erten, S. (2002). Planlanmış Davranış Teorisi ile Uygulamalı Ders İşleme Öğretim Metodu (The Teaching Methods of Applied Course Processing with the Theory of Planned Behavior). *Hacettepe University Journal of Faculty of Letters*, 19(2), 217-233.
- Fishbein M. (2008) A reasoned action approach to health promotion. *Medical Decision Making*, 28, 834-44.
- Fishbein, M. & Ajzen, I. (1975). *Belief, Attitude, Intention and Behavior: An Introduction to Theory Research*. Reading, MA: Addison-Wesley.
- Girgin, T. (2003) Acceptance of mobil data services; an application of Technology acceptance theories (Master Thesis), Marmara University.
- Hansen, T., Jensen, J. M. & Solgaard, H. S. (2004) "Predicting Online Grocery Buying Intention: A Comparison of the Theory of Reasoned Action and the Theory of Planned Behavior" *International Journal of Information Management*, 24(6), 539-550.
- Kuo, F. Y. & Young, M. L. (2008). Predicting knowledge sharing practices through intention: A test of competing models. *Computers in Human Behavior*, 24(6), 2697-2722.
- Lee, M. K. O., Cheung, C. M. K. & Chen, Z., (2005). Acceptance of internet based learning medium: the role of extrinsic and intrinsic motivation. *Information & Management*, 42 (8), 1095-1104.
- Leonard, L. N. K., Timothy, P. C. & Kreie, J. (2004). What Influences IT ethical Behavior Intentions-Planned Behavior, Reasoned Action, Perceived Importance, or Individual Characteristics? *Information Management*, 42, 143-158.
- Liker, J. K. & Sindi, A. A. (1997). User Acceptance of Expert Systems: A Test of the Theory of Reasoned Action. *Journal of Engineering and Technology Management*, 14, 147-173
- Lucas, H. C. Jr (1975). Performance and the Use of an Information System. *Management Science*, 21(8), 908-919.
- Lutz, R. L. (1991). The Role of Attitude Theory in Marketing, in *Perspectives in Consumer Behavior*, In H. H. Kassarian and T. S. Robertson (Eds.), Scott, Foresman, Glenview, IL, (233-250).
- Madden, T., Ellen, I., Pamela, S. & Ajzen, I. (1992). A Comparison of the Theory of Planned Behaviour and the Theory of Reasoned Action. *Personality and Social Psychology Bulletin*, 18(1), 3-9.
- Malhotra, Y. & Galletta, D. F. (1999). Extending the Technology Acceptance Model to Account for Social Influence: Theoretical Bases and Empirical Validation. *Proceedings of the 32nd Hawaii International Conference on System Sciences*. 1-14.
- Manstead, A. S. R., Proffitt, C. & Smart, J. L. (1983). Predicting and understanding mothers' infant-feeding intentions and behavior: Testing the theory of reasoned action. *Journal of Personality and Social Psychology*, 44, 657-671.
- Mathieson, K. (1991). Predicting user intentions: Comparing the technology acceptance model with the theory of planned behavior. *Information System Researches*, 2, 173-191.



- Mao, E., Srite, M., Thatcher, J. B. Yaprak, O. (2005). A Research Model for Mobile Phone Service Behaviors: Empirical Validation in the U. S and Turkey. *Journal of Global Information Technology Management*, 8(4), 7-28.
- Mitchell, V. W. (1994). How to Identify Psychographic Segments: Part1. *Marketing Intelligence & Planning*, 12(7), 4-10.
- Nunnally, J. C. (1978). *Psychometric Theory*. McGraw-Hill. 2nd Ed. New York.
- Özer, G. & Yilmaz, E. (2010a). An application to the accountants' information technology usage with the Theory of Reasoned Action. *İktisat İşletme ve Finans*. 25(290), 65-88.
- Özer, G. & Yilmaz, E. (2010b). An Application to the Accountants Information Technology Usage with the Theory of Planned Behavior. *World Accounting Science*, 12 (2), 33-54.
- Özer, G. & Yilmaz, E. (2011). Comparison of the theory of reasoned action and the theory of planned behavior: an application on accountants' information technology usage. *African Journal of Business Management*, 5(1), 50-58.
- Randall, D. M. & Gibson, A. M. (1991). Ethical Decision Making in the Medical Profession: An Application of the Theory of Planned Behavior. *Journal of Business Ethics*. 10, 111-122.
- Rehman, T., McKemey, K., Yates, C. M., Cooke, R. J., Garforth, C. J., Tranter, R. B., Park, J. R. and Dorward, P. T. (2007). Identifying and understanding factors influencing the uptake of new technologies on dairy farms in SW England using the theory of reasoned action. *Agricultural Systems*, 94(2), 281-293.
- Robinson, Jr. L., Marshall, G. W. & Stamps, M. B. (2005). Sales force use of technology: antecedents to technology acceptance. *Journal of Business Research*, 58(12), 1623–1631.
- Ryu, S., Ho, S. H. & Han, I. (2003). Knowledge Sharing Behavior of Physicians in Hospitals. *Expert Systems with Applications*, 25, 113–122.
- Sheppard, B. H., Hartwick, J. & Warshaw, P. R. (1988). The Theory of Reasoned Action: A Meta-Analysis of Past Research with Recommendations for Modifications and Future Research. *Journal of Consumer Research*, 15(3), 325-343.
- Shih, H. (2004). An Empirical Study on Predicting User Acceptance of E-shopping on the Web. *Information Management*, 41, 351–368.
- Spark, P., Shepherd, R. & Frewer, L. J. (1995). Assessing and Structuring Attitudes toward the Use of Gene Technology in Food Production: The Role of Perceived Ethical Obligation. *Basic and Applied Social Psychology*, 16(3), 267-285.
- Taylor, S. & Todd, P. (1995). Understanding information technology usage: A test of competing models. *Information Systems Research*, 6(2), 144–176.
- Venkatesh, V., Morris, M. & Ackerman, P. (2000). A longitudinal field investigation of gender differences in individual adoption and usage of technology. *Organizational Behavior and Human Decision Processes*, 83(1), 33-60.
- Wu, I. L. (2003). Understanding senior management's behavior in promoting the strategic role of IT in process reengineering: use of the theory of reasoned action. *Information & Management*, 41(1), 1-11.
- Yang, H. D. & Yoo, Y. (2004). It's all about attitude: revisiting the technology acceptance model. *Decision Support Systems*, 38, 19–31.

**This Page Intentionally Left Blank**