

# UTAUT AND UTAUT 2: A REVIEW AND AGENDA FOR FUTURE RESEARCH

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## ABSTRACT

*This study reviews the most recent literature on UTAUT (Unified Theory of Acceptance, and Use of Technology) and UTAUT 2 (Unified Theory of Acceptance, and Use of Technology) 2 by focusing on the findings and recommended future research. The papers, proceedings and dissertations included in the analysis were identified technology acceptance as the focus of their studies. This search was supplemented various websites which host scientific journals such as Emerald, Science Direct and Google Scholar. The initial search produced 65 papers. The studies examined works which employed UTAUT and UTAUT 2 by focusing on findings on the core constructs of UTAUT to predict Behavioral Intentions. The results confirmed previous studies that the four constructs of UTAUT contributed to Behavioral Intention even though PE seemed to be the most significant contributors. Findings also suggest UTAUT 2 has been more explanatory and list the suggestions for future works. The immediate implications are for researchers who wish to examine behavioral intentions, and managers who wish to ensure the acceptance and use of a new system or technology. This study bears a number of limitations. Number of papers examined is one of them. It would be more accurate to increase the number of paper examined. The other limitation is the ability to draw a statistical conclusion each research examined. This is due to a great variety of research topics, methods, constructs and contexts.*

**Keywords:** behavioral intention, technology acceptance, technology use, UTAUT and UTAUT 2

## ABSTRACT

*Karya tulis ini meninjau karya-karya ilmiah tentang UTAUT (Unified Theory of Acceptance and Use of Technology) and UTAUT 2 (Unified Theory of Acceptance, and Use of Technology) 2 dengan memusatkan perhatian pada temuan dan rekomendasi penelitian di masa depan. Berbagai karya tulis, prosiding dan disertasi yang ditinjau diperoleh dengan melakukan pencarian di mesin pencari karya ilmiah di jurnal-jurnal ilmiah seperti Emerald, Science Direct dan Google Scholar. Hasil pencarian bertotal 65 karya berdasarkan teori-teori di bidang pemasaran khususnya perilaku konsumen dan penerimaan dan penggunaan teknologi. Karya ini meninjau karya-karya ilmiah yang mempergunakan UTAUT and UTAUT 2 dengan memusatkan perhatian pada temuan konstruk inti untuk meramalkan behavioral intentions. Hasilnya menguatkan karya-karya sebelumnya bahwa keempat konstruk UTAUT memberikan sumbangsih yang signifikan paa Behavioral Intention dan bahkan PE nampaknya merupakan contributor yang paling signifikan. Temuan-temuan juga mengungkapkan bahwa UTAUT 2 lebih mampu memberikan penjelasan tentang hubungan konsturk dengan behavioral intention dan juga menyarankan penelitian lanjutan di masa yang akan datang. Implikasi yang paling dekat ialah bagi peneliti yang akan melakukan penelitian dan manajer yang ingin memastikan penerimaan dan penggunaan suatu system teknologi. Karya tulis ini memiliki sejumlah keterbatasan salah satunya adalah jumlah karya ilmiah yang ditinjau; tentunya akan lebih akurat sekiranya jumlah karya yang ditinjau lebih memadai. Kekurangan kedua ialah kesulitan menarik kesimpulan statistik karena banyaknya variasi karya ilmiah yang ditinjau.*

**Kata kunci:** perilaku konsumen, penerimaan dan penggunaan teknologi, UTAUT and UTAUT 2

## INTRODUCTION

Various theoretical models have been devised to predict adoption and use of technology. Unified Theory of Acceptance and Use of Technology or UTAUT is a framework devised by Venkatesh et.al. to predict technology acceptance in organizational settings. UTAUT advances on the basis of integrating the dominant constructs of eight prior prevailing models that range from human behavior, to computer science. The eight models are: Theory of Reasoned Action (Fishbein & Ajzen, 1975), Technology Acceptance Model (Davis, 1989), Motivational Model (Davis, et al. 1992), Theory of Planned Behavior (Ajzen, 1991), Combined TAM and TPB (Taylor & Todd, 1995), Model of PC Utilization (MPCU) (Thompson, et al., 1991), Innovation Diffusion Theory (Moore & Benbasat, 2001), and Social Cognitive Theory (Compeau, et al., 1999).

Since its establishment, UTAUT has been employed by a number of scholars: Héctor San Martín et.al. (2012), Krittipat Pitchayadejanant (2011), Lu, Hsi-Peng, et.al.(2010). A combination of UTAUT and Technology Acceptance Model was employed by Sona Mardikyan, et. al. (2012) and Yuan-Hui Tsai, et.al.(2011). A combination of UTAUT and Social Cognitive Theory was employed by Ilias Pappas (2011). Gruzd et al. (2012) found that overall the UTAUT constructs were a useful starting point in studying scholarly behavioral intention and use of social media. Gruzd et al. (2012) and Yen-Ting Helena Chiu et al.(2010) found that performance expectancy, effort expectancy, facilitating conditions and social influence impact overall use intention, the perceptions of these antecedents vary significantly between potential versus early users.

According to Venkatesh et al. (2003), UTAUT proposed four main factors that influence intention and usage of information technology. First is performance expectancy. It is the degree to which an individual believes that using the system will help him or her to attain gains in job performance. Second is effort expectancy. It is the degree of ease associated with the use of the system. Third is facilitating conditions. It is the degree to which an individual believes that an organizational and technical infrastructure exists to support use of the system. Fourth is social influence. It is the degree to which an individual perceives that others believe that he or she should use the new system.

Despite the wide acceptance of UTAUT, Venkatesh et.al. incorporated three other constructs into UTAUT: hedonic motivation, price value, and habit, extending UTAUT into UTAUT 2. Compared to UTAUT, the extensions proposed in UTAUT2 produced a substantial improvement in the variance explained in behavioral intention (56 percent to 74 percent) and technology use (40 percent to 52 percent). The theoretical and managerial implications of these results are discussed.

## METHOD

The papers, proceedings and dissertations included in the analysis were identified technology acceptance as the focus of their studies. This search was supplemented various websites which host scientific journals such as Emerald, Science Direct and Google Scholar. The initial search produced 65 papers.

Data were collected to focus primarily the findings and the future research of research employing UTAUT or UTAUT 2, eliciting the core constructs of both.

## RESULTS AND DISCUSSION

### UTAUT

#### Performance Expectancy

Performance expectancy is defined as the degree to which an individual believes that using the system will help him or her to attain gains in a job (Davis et al., 1992; Shin, 2009). According to Compeau & Higgins (1995), the theoretical background of this variable comes from usefulness perceptions (Technology Acceptance Model), extrinsic motivation (Motivation Model), job-fit (Model of PC Utilization), relative advantage (Innovation Diffusion Theory) and outcome expectations (Social Cognition Theory). Three factors that affect the performance expectancy are perceived usefulness, extrinsic motivation, and job fit (Shin, 2009). Within each of the individual models tested, the variables related to performance expectancy were the strongest predictor of intention to use the target technology. Performance expectancy, social influence, facilitating conditions, and optimism bias all have a significant impact on e-file intention (Schaupp, et al., 2010). People who worked in CHCs exhibited a high degree of IT acceptance and use influenced by performance expectancy, effort expectancy, social influence and voluntariness (Kijisanayotin, Pannarunothai, & Speedie, 2009).

Zhou et al. (2010) found that performance expectancy, task technology fit, social influence, and facilitating conditions have significant effects on user adoption. In addition, we also found a significant effect of task technology fit on performance expectancy. The result showed that perceived usefulness, perceived enjoyment, trust, cost, network influence, and trust have significant influence on consumers' m-commerce adoption intentions. The online purchase intention is positively influenced by: (1) the levels of performance and effort expected with regard to the transaction; (2) the level of innovativeness of users. In addition, the innovativeness construct has a moderating effect on the relationship between performance expectancy and online purchase intention (H. S. Martín & Herrero, 2012).

#### Effort Expectancy

In UTAUT, effort expectancy is defined as the degree of ease associated with the use of the system. According to Venkatesh et al. (2003), this factor was derived from the perceived ease of use factor as proposed in Technology Acceptance Model (TAM). Davis (1989) found that an application perceived by people which is easier to use is more likely to be acceptable. In a similar finding by Davis et al. (1989), effort-oriented constructs are expected to be more salient in the early stages of a new behavior, when process issues represent hurdles to be overcome, and later become overshadowed by instrumentality concerns. This is consistent with previous findings by Davis (1989), Davis et al. (1989), Venkatesh and Davis(2000), (Diaz & Loraas, 2010). Both performance expectancy and effort expectancy are significant predictors of the intention to use WBQAS (Web Based Questions and Answers Services) by Deng, et al. (2011). Performance expectancy, effort expectancy, facilitating conditions and social influence impact overall use intention, the perceptions of these antecedents vary significantly between potential versus early users (Yen-Ting Helena Chiu et al., 2010).

#### Social Influence

Social influence is the degree to which a user perceives that significant persons believe technology use to be important (Diaz & Loraas, 2010). It is similar to the factor "subjective norm" as defined in Technology of Acceptance Model (TAM) 2, an extension of TAM. Moore and Benbasat

(1991) defined image as the degree to which using a technology innovation is perceived to enhance individual's image or status in his or her social group. While subjective norm and image have different labels, each of these factors contains the explicit or implicit notion that the individual's behavior is influenced by the way in which they believe others will view them as a result of having used the technology.

In TAM 2, subjective norm exerts a significant direct effect on usage intentions over and above perceived usefulness and perceived ease of use for mandatory systems. However, none of the social influence constructs are significant in voluntary contexts. Subjective norms were found to be partially mediated by attitude towards technology use (Scheppers & Wetzels, 2007).

As explained by Venkatesh et al. (2003), subjective norm significantly influences perceived usefulness via both internalization, in which people incorporate social influences into their own usefulness perceptions and identification, in which people use a system to gain status and influence within the work group and thereby improve their job performance, particularly in the early stages of experience (Keong, et al., 2012).

Maldonado et.al (2011) found that learning motivation and social influence had a positive influence on behavioural intention, while facilitating condition had no effect on e-learning portal use. Similarly, Gonzalez et al. (2012) found that the North American internal auditors are more likely to use continuous auditing due to soft social coercion pressures of Social Influence through peers and higher authorities. On the other hand, Middle Eastern auditors are more likely to use the technology if it is mandated by the higher authorities. Social influence is also affected the acceptance of IT (Kijisanayotin et al., 2009).

People who worked in CHCs exhibited a high degree of IT acceptance and use. The research model analyses suggest that IT acceptance is influenced by performance expectancy, effort expectancy, social influence and voluntariness. Health IT use is predicted by previous IT experiences, intention to use the system, and facilitating conditions (Kijisanayotin et al., 2009).

### Facilitating Conditions

Facilitating conditions is defined as the degree to which an individual believes that organizational and technical infrastructure exists to support use of the system. Similar discussion can be found in model of personal computer utilization by Thompson et al. (1991). The underlying construct of facilitating condition is operated to include aspects of the technological and/or organizational environment that are designed to remove barriers to use (Keong et al., 2012). The UTAUT construct consists of items from perceived behavioral control and is theorized to model the relationship between the organization's attempts to overcome barriers to use and the potential users' intent to use. Like effort expectancy, the power of this variable predicts usage decreases after initial acceptance. Gupta et al. (2008) found that performance and effort expectancy, social influence and facilitating conditions all positively impact the use of the ICT. Table 1 summarizes the core constructs of UTAUT described above.

Table 1 The core constructs of UTAUT

Constructs	Definition	Variables	Model Contributing to Constructs
<b>Performance expectancy</b>	The degree to which an individual believes that using the system will help him or her to attain gains in a job	Perceived Usefulness (PU)	Technology Acceptance Model (TAM) 1-3; Combined TAM-TPB (Theory of Planned Behavior)

		Extrinsic Motivation	Motivation Model (MM)
		Job-fit	Model of PC Utilization (MPCU)
		Relative Advantage (RA)	Innovation Diffusion Theory (IDT)
		Outcome Expectations	Social Cognition Theory (SCT)
<b>Effort Expectancy</b>	The degree of ease associated with the use of the system.	Perceived Ease of Use (PEOU)	TAM 1-3
		Complexity	MPCU
<b>Social Influence</b>	The degree to which an individual feels that it is important for others to believe he or she should use the new system.	Subjective Norms	TRA, TAM2, TPB/ DTPB, and combined TAM-TPB
		Social Factors	MPCU
		Image	DOI
<b>Facilitating Conditions</b>	The degree to which an individual believes that organizational and technical infrastructure exists to support use of the system.	Perceived Behavioral Control	TPB/DTPB and combined TAM-TPB
		Facilitating Conditions	MPCU
		Compatibility	DOI

The four constructs of UTAUT have significant positive influence and impact on the behavioral intention to accept and use ICT by the ADSU academic staff.. Im et al. (2011) found that the impact of performance expectancy on behavioral intention was not significantly different between the US and Korea. It may indicate that performance is an important factor affecting technology adoption equally across countries. It is interesting that effort expectancy has a greater impact on behavioral intention in the US than in Korea. This implies that the US. users' decision- making on technology adoption is affected more than Korean users by how easy the technology is to use.

Additionally behavioral intention, together with facilitating intention, significantly influences the actual use of WBQAS. Social influence has no significant impact on the intention to use the service. Additionally behavioral intention, together with facilitating intention, significantly influences the actual use of WBQAS. Social influence has no significant impact on the intention to use the service (Deng et al., 2011). Trust in the internet and trust in the e-file provider were shown to significantly influence perceived risk. Implications for practice and research are discussed (Schaupp et al., 2010).

## UTAUT 2

UTAUT2 incorporates three constructs into UTAUT: hedonic motivation, price value, and habit. Individual differences—name, age, gender, and experience—are hypothesized to moderate the effects of these constructs on behavioral intention and technology use. Results showed that compared to UTAUT, the extensions proposed in UTAUT2 produced a substantial improvement in the variance explained in behavioral intention (56 percent to 74 percent) and technology use (40 percent to 52 percent). Further, Venkatesh et al 's data (2012) also revealed that the impact of hedonic motivation on behavioral intention is moderated by age, gender, and experience, the

effect of price value on behavioral intention is moderated by age and gender, and, habit has both direct and mediated effects on technology use, and these effects are moderated by individual differences.

### **Hedonic Motivation**

Hedonic motivation is defined as the fun or pleasure derived from using a technology, and it has been shown to play an important role in determining technology acceptance and use (Brown and Venkatesh 2005). In IS research, such hedonic motivation (conceptualized as perceived enjoyment) has been found to influence technology acceptance and use directly (e.g., van der Heijden 2004; Thong et al 2006). In the consumer context, hedonic motivation has also been found to be an important determinant of technology acceptance and use (e.g., Brown and Venkatesh 2005; Childers et al. 2001). Thus, we add hedonic motivation as a predictor of consumers' behavioral intention to use a technology.

Yang (2010) found that that utilitarian and hedonic performance expectancy, social influence, and facilitating conditions are critical determinants of US consumers' intentions to use mobile shopping services and that the hedonic or entertainment aspect of mobile shopping services is the most critical driver of US consumers' intentions to use mobile shopping services. Meanwhile, the perceived usefulness emerged as a significant mediator in the case of utilitarian SNWs and perceived enjoyment emerged as a significant mediator in the case of hedonic SNWs user acceptance phenomenon (Pillai & Mukherjee, 2011). Bae & Chang (2012) maintained that the relative advantage has the greatest influence on the purchase intention of smart TV, followed by compatibility, entertainment, web-browsing and n-screen.

### **Price Value**

An important difference between a consumer use setting and the organizational use setting, where UTAUT was developed, is that consumers usually bear the monetary cost of such use whereas employees do not. The cost and pricing structure may have a significant impact on consumers' technology use.

### **Experience and Habit**

The last construct added to UTAUT is two related yet distinct constructs, namely experience and habit. Venkatesh et al. (2003) operated experience as three levels based on passage of time: (1) post-training was when the system was initially available for use; (2) one month later; (3) three months later. Habit was defined by Limayem et al. (2007) as the extent to which people tend to perform behaviors automatically because of learning, while Kim et al. (2005) equated habit with automaticity. Although conceptualized rather similarly, habit has been organized in two distinct ways. First, habit is viewed as prior behavior (see Kim and Malhotra 2005). Second, habit is measured as the extent to which an individual believes the behavior to be automatic. Previous IT experiences also predicted health IT use, intention to use the system, and facilitating conditions (Kijasanayotin et al., 2009)

### **Future Research**

UTAUT hypothesizes that performance expectancy, effort expectancy, social influence, and facilitating conditions are the determinants of behavioral intention or use behavior; and that gender, age, experience, and voluntariness of use have moderating effects on the acceptance of IT. Sun & Zhang also suggested that it is necessary to examine the potential moderating effects of user technology acceptance. A systematic review of 450 citations of the originating article in an

attempt to better understand the reasons for citation, use and adaptations of the theory by Williams et.al (2011) revealed that although a large number of studies have cited the originating article since its appearance, only 43 actually utilised the theory or its constructs in their empirical research for examining IS/IT related issues (Williams, Rana, Dwivedi, & Lal, 2011). This imply that despites its popularity, UTAUT was not employed solely without being extended.

Venkatesh et. al (2012) maintains that the future research can build on our study by testing UTAUT2 in different countries, different age groups, and different technologies, identify other relevant factors that may help increase the applicability of UTAUT to a wide range of consumer technology use contexts, using experiments that manipulate the predictors (and using the scales as manipulation checks) can further help reduce CMV concerns. Martin et al. (2011) suggests that future work should explore other relevant antecedents such as involvement as well as others related to purchaser profile, together with variables linked to vendors, such as reliability or reputation or even further variables linked to a country's culture (e.g. masculinity or individualism to use Hofstede's (1980) terms) or the kind of product purchased. It would also prove interesting to posit the analysis of these variables for other recent sales media such as mobile phones.

## CONCLUSION

The studies examined works which employed UTAUT and UTAUT 2 by focusing on findings on the core constructs of UTAUT to predict Behavioral Intentions. The results confirmed previous studies that the all of the four constructs of UTAUT contributed to Behavioral Intention even though PE seemed to be the most significant contributors among the four. Findings also suggest UTAUT 2 has been more explanatory and list the suggestions for future works.

The immediate implications are for researchers who wish to examine behavioral intentions using UTAUT or UTAUT2 models. They will be able to consider what factors to examine and future research to conduct and what theoretical models to use for their research. The findings will also be useful for managerial venture into ensuring that a new system or technology to be accepted and used by the employees.

This study bears a number of limitations. Number of papers examined is one of them. It would be more accurate to increase the number of paper examined. The other limitation is the ability to draw a statistical conclusion each research examined. This is due to a great variety of research topics, methods, constructs and contexts.

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