

INVESTIGATING SOCIAL INFLUENCE ON ACCEPTANCE OF EXECUTIVE INFORMATION SYSTEMS: A UTAUT FRAMEWORK APPROACH

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Abstract

The Unified Theory of Acceptance and Use of Technology (UTAUT) is constructed to address all factors derived from various behavioral models significant to user's acceptance of information technology. This theory, however, deals with individual aspects of general technology acceptance. In reality, information technology is deployed based on different needs of different intended users. Executive information systems, for instance, is intentionally deployed for the use of organizational participants in the highest position of a centralized organizational hierarchy. Several proposed UTAUT's constructs may not apply to executives' characteristics in general or several additional constructs are added to address the acceptance of certain users of certain information technology. This paper investigates one of such constructs, the social influence, to posit such a difference.

Keywords: UTAUT, executive information systems, technology acceptance, social influence

Introduction

A determinant to a successful deployment of a technology artifact is based on the extent to which such a technology is accepted and adopted by its intended users. Much of prior research on technology acceptance focuses on the intertwining aspects of technology characteristics, users or participants, and voluntariness. Recent works have included factors such as peer or social influence, performance expectancy, and demographic factors. These determinants and constructs apply to individual acceptance of technology in general.

This paper investigates social influence on acceptance of *Executives Information Systems* (EIS). The objective of this paper is to achieve a better understanding of the social influence construct defined by the *Unified Theory of Acceptance and Use of Technology* (UTAUT), specifically as it relates to EIS. Like any other technology artifact, an EIS should be deployed based on the needs of its intended users, viz. executives and managers, and should respond to a specific need, such as a need to be more responsive to changing customer desires, a need to improve product quality, or a need to improve organizational communications (Rainer and Watson, 1995). The latter focuses on the technological features, which is not the theme of this paper. The social-influence construct of UTAUT delineates motivation and influence among users of IT.

We argue that executives differ from other organizational participants due to executives' perceived attributes in an organization. Therefore, influence from other organizational participants on executives is likely to be minimal, while the internal peer-influence among executives also remains weak. We posit that there is, however, a significant external peer-influence among executives, in which such influence comes from executives of different organizations or of competitors. The important question this paper seeks to answer is how significant does the social-influence construct affect executives to accept EIS?

Theoretical Framework: Unified Theory of Acceptance and Use of Technology (UTAUT)

The UTAUT originates from eight theoretical models of user behavior, which are the theory of reasoned action, the technology acceptance model, the motivational model, the theory of planned behavior, a model combining the technology acceptance model and the theory of planned behavior, the model of PC utilization, the innovation diffusion theory, and the social cognitive theory (Venkatesh et al., 2003). This theory consists of four determinants of intention and usage, which are performance expectancy, effort expectancy, social influence, and facilitating conditions, and four moderators of key relationships, which are gender, age, experience, and voluntariness of use.

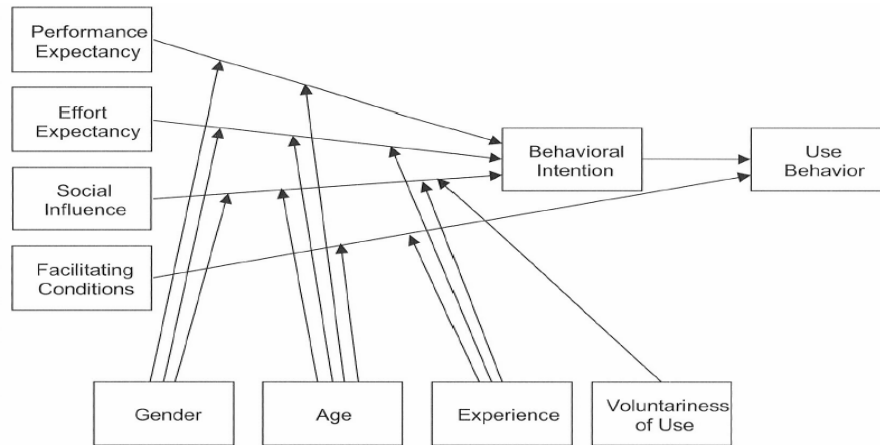


Figure 1. A Theoretical Model of UTAUT

The social influence affects individual behavior through compliance, internalization, and identification (Venkatesh et al., 2003). According to Venkatesh, et al. (2003), the social-influence construct originally consists of *subjective norm, social factors, and image*.

Social Influence on Executives Information Systems: Modifying UTAUT

Some researchers suggest that executives' decision to accept and adopt EIS may simply be a result of decision maker's style, decision environment, and the timeframe for decision making (Rai and Bajwa, 1997). The greater the analytical or directive decision styles and time pressures, the greater the extent to which executives accept EIS. The Triandi's model of values, attitudes, and behavior posits that the use of EIS is determined by EIS experience (habits); work group influence (social factor); user satisfaction with information, system access and assistance (affect); perceived consequences (of EIS use); and EIS sophistication and presence of a hotline (facilitating conditions) (Bergeron et al., 1995).

According to Vandenbosch and Huff (1997), technology's perceptions are socially constructed to some extent. Work group influence is the core concept of social factor in EIS, whereby it defines the linear relationships among executives and between executives and subordinates. The correspondence among task requirements, individual abilities, and the functionality of the technology determines user satisfaction (Goodhue and Thompson, 1995). According to Goodhue and Thompson (1995), the uncertainty and ambiguity that confront managers in organizations will impact their tasks requirements (which may be unexpected, constantly changing, difficult to analyze, and interdependent) and the technology required for processing information.

We imply that the task requirements, individual abilities and functionality, and technology characteristics affect the cognitive aspect of individual's acceptance of technology in general. The effect may hone or impair performance expectancy, effort expectancy, facilitating conditions, as well as social influence. Based on UTAUT's social influence, we add several subconstructs for social influence, which are *external ties, self-identity, and power* in addition to the original ones by Venkatesh et al. (2003)

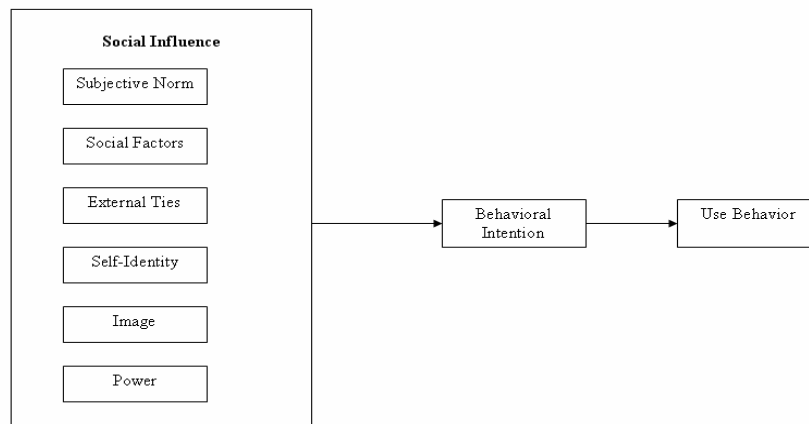


Figure 2. A Relationship Model of Social-Influence Subconstructs

These subconstructs represent the overall interaction of the subjective culture variables. Together, these subconstructs form the social-influence construct of UTAUT specifically applied to the users' acceptance of EIS.

Propositions

Subjective norm refers to the individual's perception that an entity or a person important to him/her thinks he/she should use the system. 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 (Venkatesh and Davis, 2000). The perceived usefulness and identification are conveyed into a system of beliefs, which is developed by an individual's demographic background. In this case, each executive's beliefs can be influenced by other executives' beliefs through social actions and communication (Chattopadhyay et al., 1999).

Proposition 1: Subjective norm affects executive's behavioral intention to adopt EIS when people important to him/her think that he/she should use the EIS.

Social factors refer to the individual's internalization of the reference group's subjective culture, and specific interpersonal agreements that the individual has made with others, in specific social situations (Venkatesh et al., 2003). Social factors consist in the internalization that people make of the subjective culture of the reference group to which they belong or with which they interact most frequently (Bergeron et al., 1995). According to Bergeron et al. (1995), social factors are themselves dependent on the social situation and on the individual's perception of subjective culture variables.

Proposition 2: Social factors affect the extent to which internalization of subjective culture leads executive to feel comfortable to use EIS.

The definition of external ties is the individual's external ties that conform and impact the use of the system. The notion of external ties lies under the assumption that executives strive to formulate and implement strategic initiatives that capitalize environmental opportunities, while mitigating external threats (Geletkanycz and Hambrick, 1997). We infer that the external ties of executives refer to the executive's boundary spanning relations with other executives (or entities) inside and outside their industry. These strategic initiatives include the acceptance of EIS to improve competitiveness.

Proposition 3: External ties affect executive to strategically compete with other entities by all means, which include accepting EIS.

Self-identity refers to the individual's comparison of other's expectation with his own value, beliefs, and previous experience and transformation of these into his own self-expectation. The effect of self-identity, unlike that of subjective norm, does not diminish with repeated experience of performing the relevant behavior (Lee et al., 2006).

Proposition 4: Self-identity influences executive to compare his own beliefs to adopt EIS to common beliefs of adopting EIS.

Image is the degree to which the use of an innovation is perceived to enhance one's image or status in one's social system (Venkatesh et al., 2003). We believe that executives are similar to other organizational participants in this case, and thus executives behave in a same manner as others do in terms of accepting the system.

Proposition 5: The need to preserve image as a superior affects executive to use EIS.

Power is the basic energy to initiate and sustain action, thereby translating an intention into a reality (Stupak and Leitner, 2001). According to Stupak and Leitner (2001), executives focus their power outside the organization in order to advocate and negotiate on behalf of the organization in “external settings,” mid-level managers focus their power on horizontal settings (on the same level), while first-line supervisors/managers tend to exercise their power over their subordinates. We derive our own definition and scale(s) of power by merging all such definition and assumptions in EIS context. We define power as the individual's ability to persuade his peers or subordinates to do what he wants or the same thing as he does.

Proposition 6: Executive uses EIS to exercise power and persuasion over peers and subordinates.

Table 1 summarizes the discussion of the constructs that form part of social influence. The column titled “Items” gives examples to illustrate the definitions of the constructs.

Table 1. Social Influence: Subconstructs, Definitions, and Measurements

Social Influence		
Construct	Definition	Items
Subjective Norm (Chattopadhyay et al., 1999; Harrison et al., 1997; Venkatesh et al., 2000, Venkatesh et al., 2003)	The individual's perception that an entity or a person who is important to him thinks whether he should use the system	1. People who influence my behavior think that I should use EIS 2. People who are important to me think that I should use EIS
Social Factors (Bergeron et al., 1995; Venkatesh et al., 2003)	The individual's internalization of the reference group's subjective culture, and specific interpersonal agreements that the individual has made with others, in specific social situations	1. The organization has supported the use of EIS 2. I use the system because of the proportion of coworkers/peers who use EIS
External Ties (Geletkancycz et al., 1997)	The individual's external ties that conform and impact the use of the system	1. Competitors have used and are using EIS 2. EIS is obsolete in the industry
Self-Identity (Lee et al., 2006; Venkatesh et al., 2003)	The individual's comparison of other's expectation with his own value, beliefs, and previous experience and transformation of these into his own self-expectation	1. Using EIS will increase the organization's profit 2. Using EIS will be efficient for me 3. Using EIS is as easy as using any other system's I have previously used
Image (Venkatesh et al., 2003)	The degree to which the use of an innovation is perceived to enhance one's image or status in one's social system	1. People in my organization who use EIS have a high profile 2. Having EIS is a status symbol in my organization
Power (Stupak et al., 2001)	The individual's ability to persuade his peers or subordinates to do what he wants or the same thing as he does	1. The perceived ease of use and perceived usefulness of EIS will enable me to persuade my subordinates to make decisions by using EIS 2. Using EIS strengthens my position and influence in the organization

Conclusion

In this paper we expounded on the social influence construct of UTAUT, specifically as it relates to executive information systems. Specifically, we discussed six subconstructs that determine social influence. This discussion contributes to a better understanding of technology acceptance by executives, and thus may help in the successful implementations of EIS. External ties, self-identity, and power provide a unique view of executives as users. These subconstructs portray the independent and influential characteristics of executives. This is because executives differ in terms of job and task characteristics, as well as in position in the organizational hierarchy. One of the limitations of our discussion is that we did not look at the influence of the four moderators, viz. gender, age, experience, and voluntariness of use, on behavioral intention, which is shown in the original UTAUT model.

References

- Bergeron, F., Raymond, L., Rivard, S., & Gara, M. (1995) Determinants of EIS use: Testing a behavioral model. *Decision Support Systems*, 14, 131-146.
- Chattopadhyay, P., Glick, W. H., Miller, C. C., & Huber, G. P. (1999) Determinants of Executive Beliefs: Comparing Functional Conditioning and Social Influence. *Strategic Management Journal*, 20, 763-789.
- Geletkanycz, M. A. & Hambrick, D. C. (1997) The external ties of top executives: Implications for strategic choice and performance. *Administrative Science Quarterly*, 42(4), 654-681.
- Goodhue, D. L. & Thompson, R. L. (1995) Task-technology fit and individual performance. *MIS Quarterly*, 19(2), 213-236.
- Lee, Y., Lee, J., & Lee, Z. (2006) Social influence on technology acceptance behavior: Self-identity theory perspective. *Database for Advances in Information Systems*, 37(2/3), 60-75.
- Rai, B. & Bajwa, D. S. (1997) An empirical investigation into factors relating to the adoption of executive information systems: An analysis of EIS for collaboration and decision support. *Decision Sciences*, 28(4), 939-974.
- Rainer, R. K. & Watson, H. J. (1995) The keys to executive information system success. *Journal of Management Information Systems*, 12(2), 83-98.
- Stupak, R. J. & Leitner, P. M. (2001) Managers and leaders: An active strategy for understanding and using power. *Journal of Power and Ethics*, 2(2), 130-143.
- Vandenbosch, B. & Huff, S. L. (1997) Searching and scanning: How executives obtain information from executive information systems. *MIS Quarterly*, 21(1), 81-107.
- Venkatesh, V. & Davis, F. D. (2000) A theoretical extension of the technology acceptance model: Four longitudinal field studies. *Management Science*, 46(2), 186-204.
- 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), 425-478.