Chapter 1
Technology Acceptance Theories:
Review and Classification

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ABSTRACT

Studying the acceptance and usage of technologies has become one of the most significant fields in software engineering domain. In order to explain the individuals' usage behavior towards technologies, many theories and models have been proposed over the years. This research paper focuses on reviewing a group of ten technology acceptance theories and models by studying their structure, evolution stages, and their strengths and weaknesses points. These theories were analyzed and classified into two main types depending on their development method and scientific field which they were developed in. This study reveals that these theories are almost similar in their structure, but different in explaining the behavioral intentions of technology. It considers that the best theory should be comprehensive and less complexity according to the number of the constructs and moderators which represent their structure. This will make the theory more understandable and applicable especially for studying the acceptance behavior for any new technology.

1. INTRODUCTION

Recently, explaining the usage behavior and the intention to using technology in order to understand the reason of individuals' accepting or rejecting any new technology has become one of the most important areas in the software engineering field, as a part of computer sciences. Studying the adoption, acceptance, and use of information technologies (IT) and information systems (IS) has been recognized since the

1970s as a prerequisite for technology's utilization and realization. For organizations, it means continue to increase their investment in IT (Hong, Thong, and Tam, 2006). Davis, Bagozzi, and Warshaw (1989) defined the technology adoption as: the implementation of the software and hardware technology in an organization to increase productivity, competitive advantage, improve processing speed, and make information readily available.

In this context, it could be easy to recognize the reason of proposing the technology acceptance theories. Actually, the aim of these theories and models is to convey the concept of how users may understand and accept the new technology and how they may use it. For any new technology, there are many variables affect the individuals' decision-making process about how and when they will use it (Fishbein and Ajzen, 1975). These variables have been studied and analyzed in several researches (Ajzen and Fishbein, 1980; Ajzen, 1985; Bandura, 1986; Davis, 1986; Deci and Ryan, 1985; Rogers, 1983; Taylor and Todd, 1995a; Triandis, 1979; Venkatesh and Davis, 2000; Venkatesh, Morris, Davis, and Davis, 2003). Although much work has been done to date, more studies need to be conducted to ascertain the suitable theory to use in studying the individual acceptance to any new technology.

Therefore, it is worthy to make some related researches within the history of technology acceptance and use in order to understand how these theories and models were evolved throughout the years, and revealing the similarities and the differences between them. To address this issue, this research paper reviews the most important, famous, and widely used ten theories of technology acceptance and adoption. It shows the relations between them by studying their major constructs, variables and moderators, in addition to studying the most important strengths and weaknesses points for each one of them which shows the reason from their evolving. This paper, additionally, contributes in classifying the ten reviewed theories into two major classifications depending on the method of their development, and the scientific field which they were developed in. This research work is identified as being of importance to researchers in technology acceptance field for providing them with the necessary background towards their studies.

2. THEORIES AND MODELS OF TECHNOLOGY ACCEPTANCE

As mentioned before, this paper presented ten of the most famous, and widely used technology acceptance theories and models. These theories were developed to study the acceptance of technology by individuals and to show their ability to adopt new technology depending on the concepts of the behavioral science in psychology and sociology and their effects on the usage of the technology. These theories have been developed over the years and resulted from the extension of each other. Thus, the most important and famous used ten theories are reviewed as follows: The Theory of Reasoned Action (TRA) (Ajzen and Fishbein, 1980), which was extended to the Theory of Planned Behavior (TPB) (Ajzen, 1985), which also had an extension to the Decomposed Theory of Planned Behavior (DTPB) (Taylor and Todd, 1995c). The information systems had a contribution to the existence of the Technology Acceptance Model (TAM) (Davis, 1986), which is an extension of TRA; that also has an extension to TAM2 (Venkatesh and Davis, 2000). In addition to combination form of TAM and TPB (C-TAM-TPB) (Taylor and Todd, 1995a).

The Model of PC Utilization (MPCU) (Triandis, 1979), the Innovation Diffusion Theory (IDT) (Rogers, 1983), the Motivational Model (MM) (Deci and Ryan, 1985), and the Social Cognitive Theory (SCT) (Bandura, 1986) are developed in several scientific and social fields and are reviewed as well.

All technology acceptance theories are designed to measure the degree of acceptance and satisfaction to the individual users against any technology or information system but from different view-points

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