

Applying Uses and Gratifications Theory to Acceptance of ERP Systems

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Abstract---This study draws on uses and gratification theory (UGT) to develop and empirically test a model for explaining enterprise resource planning (ERP) system acceptance and use. Accordingly, gratifications from the UGT such as enjoyment and informativeness are purported to have direct effects on attitudes toward using ERP and satisfaction with ERP. In turn, ERP attitude and satisfaction hypothesized to be direct determinants of ERP acceptance and use. The experimental results are expected to show that the UGT provides a sound theoretical basis for explaining users' gratifications, attitudes, and behavioral intentions toward adopting and using an ERP. Based on its theoretical and empirical foundations, the proposed model offers greater capability to explain users' intentions to use an ERP.

Keywords---Enterprise Resource System (ERP), Uses & Gratification, Informativeness, Enjoyment, Attitude, Satisfaction.

I. INTRODUCTION

THE number of businesses implementing enterprise resource planning (ERP) systems as tools to gain strategic and competitive advantage is growing rapidly. ERP systems are comprehensive and customizable software packages designed to integrate processes and information within and across all business functional areas [9]. By doing so, ERP systems can enhance decision-making, accelerate response to customer orders, improve information visibility and flow throughout the business, and increase employees' productivity [1] [14] [47] [45]. However, the implementation of ERP systems do not automatically guarantee improvements in performance or competitiveness. In fact, a considerable number of ERP implementations end up in total failure and result in substantial loss of organizational resources [14].

The failures and variations in the success rates of ERP systems have been related in many instances to users' perceptions of those systems. More specifically, the lack of users' acceptance and use of ERP systems has been consistently identified as a key factor leading to ERP implementation failure and the inability of businesses to recoup the investments that were made in these systems [12] [15] [43]. Thus, research focusing on individual and behavioral factors that can boost or hamper users' perceptions and acceptance of ERP systems is greatly needed.

Despite the sizable and still growing body of literature on users' acceptance and utilization of ERP systems, the causes of ERP under-utilization and failure are still poorly understood [10] [47]. In addition, the majority of past ERP acceptance studies have used the technology acceptance model (TAM) [15] as a theoretical framework [2] [43]. While these studies provide valuable insights into understanding users' ERP acceptance, numerous researchers have called for investigating other factors and to utilize additional theoretical frameworks to examine users' perceptions of ERP systems [43]. As a lack of understanding of what is required at the adoption stage of an ERP system compromise the success of ERP and squandering critical organizational resources [47], research aimed offering new insights to understanding users' acceptance and adoption of ERP systems is vital to improving ERP success.

The present study attempts to address the two voids described above. First, this study extends previous research and develops a research model to incorporate variables that have not been addressed in previous research to enhance understanding of intrinsic motivations that attract users to adopting and using ERP systems. Second, this study draws on marketing and communication theories to develop and empirically test a model of factors affecting individuals' adoption and utilization of ERP systems. The proposed model employs constructs from the Uses and Gratification Theory (UTG) as detractors of end-users' perceptions about ERP systems. Undoubtedly, a better understanding of the gratifications and intrinsic factors that motivate users to use ERP systems provides valuable contributions to the design of more effective ERP systems that can maximize users' gratifications and induce them to use these systems [26].

II. THEORETICAL BACKGROUND

In the quest to identify and understand the behavioral, cognitive, and motivational factors affecting users' decisions to accept and use an ERP, past studies have applied a host of theories to explain ERP adoption and utilization. The technology acceptance model (TAM) [16] has been used extensively in ERP literature to provide theoretical basis to investigate behavioral aspects of ERP adoption and use by end-users. Table 1 shows a partial list of studies that utilized TAM in studying users' acceptance of ERP systems. Overall, the studies in Table 1. However, other studies suggests that TAM's main constructs (i.e. perceived ease of use and perceived usefulness) cannot sufficiently explain ERP acceptance [43].

Because most of the theories used in past research were not able to fully explain end-users' ERP acceptance [5] [11], some researchers acknowledged a need to ponder other theories

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from other research areas to provide new insights into users' acceptance of ERP. For example, applying marketing concepts to ERP implementation could help overcome users' resistance to ERP [3]. The Expectation Confirmation Theory (ECT) from marketing research was used to examine acceptance of ERP systems [22]. Since ERP systems are implemented to enhance and simplify integration of processes, data, and communication within and across business units, the Uses and Gratification Theory which explains customers' selection of a particular communication media, as explained below, is well suited for studying the motivational factors affecting individual adoption of ERP systems.

TABLE I
ERP ACCEPTANCE STUDIES WHICH USED TAM

Study	Factors Examined
[5]	Information transparency, perceived usefulness, perceived ease of use, perceived compatibility, perceived fit, attitude toward using ERP
[6]	Training, communication, perceived usefulness, perceived ease of use
[7]	Perceived usefulness; ease of use; user involvement, management support
[8]	Top management support, communication, cooperation, training and technological complexity.
[10]	Perceived usefulness, perceived ease of use, learnability, system capability, user guidance
[22]	Computer anxiety, perceived usefulness, perceived ease of use
[43]	perceived usefulness, perceived ease of use, perceived compatibility, perceived fit, attitude toward using ERP
[49]	Computer self-efficacy, perceived ease of use, perceived usefulness, perceived usability
[51]	Top management support, computer self-efficacy, computer anxiety, perceived ease of use, perceived usefulness
[54]	Organizational, system and personal characteristics, perceived usefulness, perceived ease of use, attitude
[57]	Perceived usefulness, perceived ease of use, attitude, work compatibility, organizational. System, and personal characteristics

A. Uses and Gratifications Theory

The uses and gratification theory (UGT) [28] suggests that consumers play an active role in selecting and using a media. UGT maintains that people actively evaluate the available media and they select the media or innovation that they believe will satisfy their needs and maximize their gratification. In particular, UGT posits that people seek to use a media or innovation which will provide them with the maximum information and enjoyment [37] [38] [48]. This suggests that information and enjoyment play a pivotal role in people's choice of a media or innovation. Accordingly, users will be more motivated to use an innovation when they believe that the innovation will provide them with enjoyment and satisfy their information needs.

Past research has utilized UGT to study consumers' motivations and hesitations for using older and traditional media such as radio, TV, and print media [19]. More recently, UGT has been successfully used to understand and explain the acceptance and use of various modern communication and computer technologies such as the use of the Internet [53], mobile phones [32], user-generated media such as e-commerce [24] [34] and online games [56]. Moreover, UGT was used as a theoretical basis for understanding why people prefer to use a specific computer-mediated communication

media such as social networking sites, instant messaging, and email [13] [30] [33]. UGT compares well with other models used in the literature to understand and explain users' motivations to adopt and utilize various information technologies. For example, [36] [39] found that UGT provides specific information and better understanding of usage than other models of information systems acceptance.

III. RESEARCH MODEL

Figure 1 presents the research model guiding the present study. As Figure 1 shows, the research model posits that two key variables in the UGT namely enjoyment and informativeness [48] [53] are hypothesized to have direct effects on ERP attitude and satisfaction with ERP, which are considered two key determinants end-users' acceptance of ERP systems. Then attitude and satisfaction with ERP are hypothesized to be direct determinants users' intention to adopt and use an ERP system [1]. The research variables and the hypothesized relationships among the research constructs are explained below.

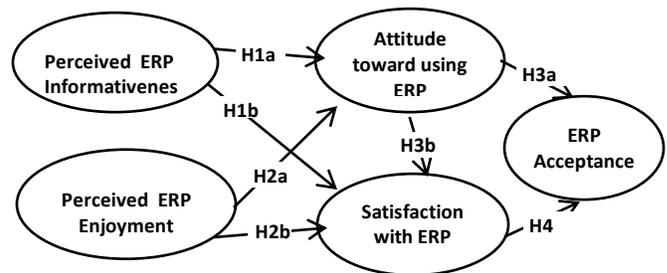


Fig. 1 Research Model

A. Informativeness

Informativeness is a key construct of UGT which refers to the extent to which a media provides its users with helpful and useable information [38]. Similarly, ERP informativeness can be defined as the extent to which an ERP provides its users with the information they need to complete their job activities. As noted earlier, businesses implement ERP systems not only to replace the fragmented legacy systems dispersed throughout their organizational units but also to consolidate all business data from disconnected databases into a central database to improve delivery of critical information to users, improve data consistency, and increases visibility of corporate data [47] [52]. Thus, the extent to which an ERP system can fulfill the information needs of its users is critical to the success of an ERP system.

Constructs similar to informativeness have been widely used in past ERP acceptance research. For instance, [5] examined the impact of information transparency which refers to openness and access to information on perceived ease of use, perceived usefulness, and attitude toward ERP use. They argue that information transparency prevails when employees have access to all internal and external information required to perform their work duties and responsibilities. Their results showed that perceived information transparency had significant direct effects on perceived usefulness and ease of use, and indirect effect on attitude toward ERP use. They suggest that the amount and quality of information that an

ERP system makes available to its users can satisfy their information needs and improve their attitude toward ERP.

User satisfaction in ERP implementation projects has been frequently cited as a measure of ERP use and success. User satisfaction in information systems environments refers the extent to which users perceive that the system available to them meets their information requirements [52]. Some researchers suggest that when a system meets information needs of the users, it reinforces satisfaction with the system and, conversely, users will be dissatisfied with the system if it does not provide the information they need [40]. With respect to ERP systems, [35] maintain that an ERP that provides helpful and accurate information increases users' satisfaction. Finally, information quality has been exerts strong influence on user acceptance, system use and user satisfaction and contributes to shaping the users intention to use ERP systems [47]. Hence, the following two hypothesis are suggested.

H1a: Informativeness of an ERP system will have a direct impact on attitude toward the ERP system.

H1b: Informativeness of an ERP system will have a direct impact on satisfaction with the ERP system.

B. Enjoyment

UGT posits that enjoyment or entertainment represents a major gratification that users seek to fulfil and maximize from adopting and using a media. Past studies maintain that enjoyment is a hedonic component of using information technologies. For example, in examining the impact of enjoyment on acceptance of a web-based learning system [31], it was found that perceived enjoyment had significant effects on perceived usefulness, perceived ease of use, and web self-efficacy. Concepts like perceived entertainment [38], flow [45], and playfulness [23] [55] have been used in the literature to refer to the same concept of hedonic or intrinsic motivation to using ERP systems [26].

Enjoyment from using a system refers to the extent to which the activity of using the system is perceived to be enjoyable by itself and aside from any expected benefits or outcomes [16]. ERP enjoyment gratification can be defined as the fun or entertainment that a user gets from using an ERP system. For instance, users of an ERP system may experience enjoyment from using comprehensive system with standard interface which they can use to perform all the job activities. In addition, users' might enjoy using an ERP system because it eliminates multiple data entries and also reduces duplicate work [6]. Perceived enjoyment is a very influential factor that should be considered in examining users' acceptance of ERP systems [26].

Perceived enjoyment demonstrated significant effects on end-user satisfaction and attitude toward using information systems in a study by [4]. Perceived enjoyment was examined as a direct determinant of intrinsic motivations (usefulness and ease of use) to use a system [20]. Their results showed significant relationships between enjoyment and perceived usefulness and ease of use. It is suggested that a sense of enjoyment in using a given system should reduce users' anxiety and help them feel confident about their ability to successfully execute the requisite usage actions [42]. Perceived enjoyment of using an ERP demonstrated

significant impact on intention to use an ERP [26]. His results also showed that the impact of enjoyment on intention to use an ERP was much stronger than that of personal innovativeness in IT. Thus, the following hypotheses are proposed.

H2a: Perceived enjoyment of using an ERP system will have a direct impact on attitude toward the ERP system.

H2b: Perceived enjoyment of using an ERP system will have a direct impact on satisfaction with the ERP system.

C. Attitude

Attitude refers to an individual's tendency to respond in a favorable or unfavorable manner to an object or behavior [2] [20]. Attitude is a central concept in the theory of reasoned action (TRA) which suggests that attitude toward a behavior is a key determinant of performing that behavior in the future. TRA maintains that people form their attitudes toward a behavior based on their experience with the behavior or their understanding of the consequences of performing that behavior. In the context of IS use, attitude toward use can be defined as tendency of users to respond in a favorable or unfavorable manner to an IS, application, IS staff person, or a process related the use of a system or application [41]. Numerous studies in the information systems utilized attitude as a key determinant of systems' usage behaviors [5].

In ERP settings, users' attitudes toward ERP systems are pivotal to the success of ERP implementation [1] [29]. Garcia (2011) argues that the attitude that users form toward the ERP system is detrimental to the organization's ability to reap the benefits associated with the ERP. Across multiple studies, the attitude construct has mediated the relationship between external variables and ERP acceptance and use. For example, attitude toward ERP mediated the effects of perceived ease of ERP use and perceived usefulness of ERP [5]. It is assumed that users of ERP systems form their attitude based on initial interacting with the system [43]. Then their attitude affects the amount or quality of their system usage which can impact their productivity, job satisfaction, and loyalty to toward the organization. Finally, attitude toward ERP demonstrated a strong direct impact on intention to use an ERP across multiple empirical studies e.g. [5], [7]. Thus, the following two hypotheses are suggested.

H3a: Attitude toward an ERP system will have a direct impact on intention to use the ERP system.

H3b: Attitude toward an ERP system will have a direct impact on satisfaction with the ERP system.

D. Satisfaction

As a psychological construct, the concept of satisfaction is used in various behavioral contexts such as: job satisfaction, satisfaction with product or service, and satisfaction of users with information system used [22]. End-user satisfaction refers to the affective attitude towards a specific computer application by someone who interacts with the application directly [18]. Satisfaction represents an individual's emotive state following first-hand experience with the target object or behavior [46]. End-user satisfaction with IS has been widely used in the literature as a measure or proxy for information systems success.

ERP systems do not automatically guarantee success or triumph over completion [35]. They suggest that user satisfaction is a key determinant of ERP systems' ultimate success. Satisfaction with ERP system has also been used as a surrogate measure of ERP success [35] and a requisite for the realization of benefits of ERP systems [52]. TAM was to ERP acceptance model and found perceived ease of use and perceived usefulness demonstrated significant effects of satisfaction with ERP system which in turn demonstrated a significant impact on ERP acceptance and use [22] [27]. In ERP contexts, user satisfaction has been based on a system's ability to provide complete, accurate, and timely information to its users [4]. Therefore, the following hypothesis is suggested.

H4: Satisfaction with an ERP system will have a direct impact on intention to use the ERP system.

IV. METHODOLOGY

A. Participants and Procedure

This study will use an experimental design in which undergraduate students from three sections of an Introduction to Information Systems course will be asked to use a SAP-R3 ERP system to complete a six-step business transaction. Past studies suggest that users of ERP systems form their attitude based on initial interacting with the system [43]. Therefore, to ensure that participants' evaluations and perceptions of the ERP system are based on their initial interactions with the system, the students chosen to perform the experimental task were unlikely to have any prior experience with ERP systems. The transaction consists of: (1) creating a vendor, (2) creating a purchase requisition, (3) creating a purchase order, (4) confirming goods receipt purchase order, (5) enter an incoming invoice to the system, and (6) posting outgoing payments. Upon completing the business transaction on the ERP system, participants will be asked to complete a survey questionnaire containing the measurement instruments and a few demographic questions.

B. Measurement

Well operationalized and validated measures from previous studies were utilized to measure the variables examined in this study. To measure perceived enjoyment, four statements from the work of [26] and [17] were adapted and used in this study. The statements were: (1) I have fun using this ERP system, (2) using this ERP system is pleasant, (3) I find using the ERP system to be exciting, and (4) I enjoyed using the ERP system. ERP informativeness was measured by 4 items relating to the completeness, accuracy, format and up-to-datedness of information obtained from the ERP system [44]. A sample statement to measure informativeness is "I believe that the information that I got from the ERP is complete". Response enjoyment and informativeness measurement statements were captured by a seven-point scale ranging from (1) strongly disagree to (7) strongly agree.

Five statements to measure attitude were adapted from the work of Al-Gahtani and King [4]. The statements asked individuals to indicate how they felt about using the ERP system. A sample statement of this measure is: (1) I feel that

using an ERP system is a good idea, (2) I feel that using an ERP system is a foolish idea (reserved), and (3) I feel that using an ERP system is a positive idea. Four statements from the work of [22] and [46] were used to measure satisfaction with the ERP. The statements were: (1) I am very satisfied with my use of this ERP system, (2) I am very frustrated with my use of this ERP system (reversed), (3) I am very pleased with my use of this ERP system, and (4) I am very delighted with my use of this ERP system. Response attitude and satisfaction statements were recorded on a seven-point scale ranging from (1) strongly disagree to (7) strongly agree.

ERP acceptance was assessed by evaluating the symbolic acceptance among users. Symbolic acceptance which refers to one's mental acceptance of an innovation is most appropriate in mandatory use contexts such as that of ERP [43]. The use of symbolic acceptance was further validated as a surrogate for ERP adoption in the study by [5]. Thus, consistent with work and recommendations of [43], behavioral intention was used assess ERP acceptance. The two statements to measure ERP use were: (1) I intend to use an ERP system in the future and (2) I expect my future use of ERP system to continue.

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