

# The Conceptual Model of Integration of Acceptance and Use of Technology with the Information Systems Success

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**Abstract.** Two streams of study in the research literature on behavioral information systems to measure the success of IS/IT implementation – the literature on acceptance and use of technology and information system success literature. The UTAUT and DMISM theory models each represent both approaches of study, both theoretical models have been widely known and have been widely used in a number of research contexts, but the integration of these two theoretical models is relatively small. This article proposes a conceptual model of UTAUT integration with DMISM on the basis of the advantages of each theoretical model in defining the successful implementation of IS/IT with an expanded TRA and TPB conceptual framework. Implementation of IS/IT in government organizations (e-government) is designed to validate the proposed conceptual model. This integration model is more comprehensive and can guide policymakers in formulating further concepts of e-government development and academically be contributing to the research gap and theoretical gap.

## 1. Introduction

The ICT-based information management era makes people and organizations dependent on information technology-based information systems (IS/IT) and organizations (business or government) continue to invest large IS/IT to get positive benefits for the organization's stakeholders. Large investments by organizations put great emphasis on the concepts and methods of measuring successful implementation to justify the promised benefits of IS/IT use. Measuring the success of IS/IT implementation has been an important concern for practitioners and researchers of information systems [1-3]. In practice, contemporary IS/IT not only provides financial benefits, but also many nonfinancial benefits [4, 5], organizations have moved beyond traditional financial measures on the size of IS/IT success [6]. In academic research with a broad investigative area, it raises attention to one of the key areas of the IS/IT success measure, which is user behavior. That among all potential causes that may be responsible for the success or failure of implementation, the user's response to his interaction with technology has been recognized as a factor that has a significant impact on the successful implementation of an organization's IS/IT [7-10]. However, measures of success based on user response include several intangible concepts [11], so some researchers developed some of the more easily measurable concepts and measurement methods [12].



Some well-known and widely used surrogate measurement concepts in behavioral information systems research are behavioral intentions; use behavior; user satisfaction; task-technology fit; and individual user performance, with the focus of research referring to two types of studies. The first study with the focus of acceptance and use of technology, such as the Technology Acceptance Model-TAM [7, 8] or Unified Theory of Acceptance and Use of Technology-UTAUT [9] using behavioral intent or usage behavior as a single variable or collectively usage behavior as a dependent variable, the impact of behavioral intentions (mediation variables). The second study focuses on information system success (IS Success) evaluation at the organizational level based on user perceptions using usage behavior, user satisfaction, and individual performance or net benefits as interdependent variables in DeLone and McLane Information System Success Model-DMISM [12, 13], and on the Technology-to-Performance Chain-TPC [14, 15] use behavioral variables and task-technology fit to predict individual performance. Both types of studies are categorized as research streams of behavioral information systems, both developing in parallel, but the integration of both approaches is still very limited [16].

Clearly demonstrated between the UTAUT and DMISM models can be integrated as behavioral intent and usage behavior as constructs exists in both models [17], as well as earlier information systems researchers that the integration of both theoretical models is supposed and can be done [16, 18-21]. Behavioral intentions (acceptance reflection) will have an effect on IS/IT usage and the relationship between usage behavior and user satisfaction and its impact on user performance is an important and important area of subsequent research on the benefits of IS/IT use in an organization [9, 22].

Theories of acceptance and use of technology (such as UTAUT) focus on predictions linking beliefs and attitudes to usage behavior based on behavioral intentions to use IS/IT, and acceptance and use of technology by users can be a measure of successful IS/IT implementation [23]. This statement has been criticized by other information systems researchers, that acceptance and use of IS/IT are not equivalent to IS Success, although acceptance and use are important prerequisites for IS success [24]. Model theories of acceptance and use of technology ignore the evaluation of user satisfaction and impact to performance [25] recommended as a measure of successful IS/IT implementation [26]. In contrast, the user satisfaction variables of the DMISM [12, 13] are weak predictors of acceptability and use (belief, reliability, and object-based attitudes (system, information, and service quality) are very weak behavior predictors [16], and the model does not have a theoretical foundation for predicting behavioral construct intent to use IS/IT [24].

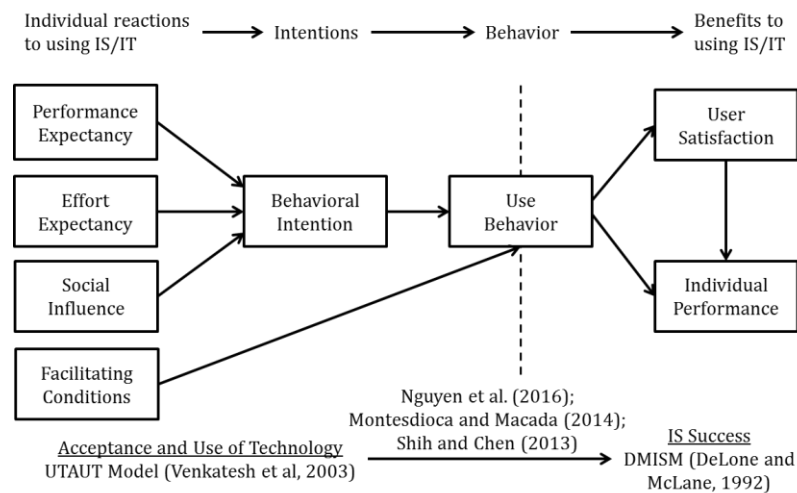
This article proposes a conceptual model for evaluating the success of IS/IT implementation by exploring empirical and nonempirical research articles by adapting UTAUT [9] and DMISM [12, 13]. The advantages of each theoretical model in defining the successful implementation of IS/IT from user perceptions are integrated. With the integration of these two theoretical models is expected to be able to explain and predict user behavior not only at the degree of behavioral intent to use, but also to explain and predict the impact of usage behavior to the satisfaction and performance of IS/IT users in an organization, especially the government organization in the implementation of e-government.

## 2. Conceptual Model

The conceptual framework of the UTAUT theory model, focuses on predictions that relate the characteristics of an IS/IT user's reactions to behavioral intentions that will impact the behavior of IS/IT usage, this is the advantages of the study stream model of the theory of acceptance and use of technology. That the usage behavior of IS/IT is not limited only to the technical usage (such as frequency and duration of the use of technology) by the user, back to common sense when the individual uses technology as a means of expecting more benefits from usage, then the behavior of usage can be correlated with satisfaction and IS/IT user performance. The DMISM theory model has an advantage in predicting user satisfaction and performance based on usage behavior that is a stream of IS Success model studies. Conceptually at the model level, the integration of UTAUT with DSISM is possible to be a comprehensive theoretical model to measure the success of IS/IT implementation.

The conceptual framework constructed from this model is based on the concept of inter-construct relation of the dominant basic theory of acceptance and use of technology, ie Theory of Reasoned Action-TRA [27] and Theory of Planned Behavior-TPB [28] expanded. That individual reaction characteristics in IS/IT use will affect intent, and intent will influence usage behavior, the usage behavior will impact the user's perceived benefits.

The UTAUT theory model is constructed Venkatesh et al. [9] by combining eight core theories of revenue streams and the use of technology, notably TAM [7, 8]. Construct (latent variable) performance expectancy is TAM's perceived usefulness adaptation and effort expectancy is perceived ease of use of TAM. Further empirical research investigations related to the integration of TAM and UTAUT models with the DMISM [12, 13] show some integration studies between the models. Four studies [11, 16, 29, 30] in the context of e-business and four studies [31-34] in the context of e-government. The studies with the integration theme use different model output constructs: intentional behavior [16, 32]; use behavior [11]; user satisfaction [30, 33]. Research that uses performance as a model output construct is: individual performance [29]; net benefits [31]; and performance impact [34]. However, these models have not fully demonstrated causal links between constructs that are sufficiently complete to provide understanding and explanation of the relationship of acceptance and use of technology to individual performance in organizations, such as Sun et al. [29] does not include user satisfaction constructs which is one of the important factors that researchers need to consider when studying the use of IS/IT [13], Koh et al. [31] does not include the construct of behavioral intention which is an important factor of the model of TAM, whereas Isaac et al. [34] does not use individual reaction constructs and behavioral intentions, using only usage behavior constructs as determinants of IS Success. In this context, there is a research gap of the integration model used, so the conceptual model proposed now can be stated more comprehensively in measuring the success of the IS/IT implementation from the user point of view (Figure 1).



**Figure 1.** Proposed integrated model.

### 3. Application of the Conceptual Model

E-government is an effort to transform government services to stakeholders in order to improve service quality, accountability, and efficiency [35]. Based on the interaction between government organizations and other stakeholders, e-government is classified to government-to-internal clients and citizens (G2C); government-to-business (G2B); government-to-internal employees (G2E); and government-to-other institutional government organizations (G2G) [36].

The area of e-government study is very broad and complex, most studies refer only to G2C, G2B, and G2G without considering G2E or just entering it as part of the G2G field, so G2E research is relatively few and not much studied [37]. G2E's focus is to improve and improve the efficiency and

effectiveness of administrative processes of governmental organizations to improve employee satisfaction and performance and to encourage the implementation of government programs and objectives through budget management, accounting and human resources [37, 38].

The SIPKD (*Sistem Informasi Pengelolaan Keuangan Daerah*) application is an integrated application based on information technology used as a tool for local financial management, developed by the Ministry of Home Affairs (<http://keuda.kemendagri.go.id/sipkd>) since 2008, which aims to improve the effectiveness of the implementation of various regulation in the field of regional financial management in Indonesia based on the principles of efficiency, economical, effective, transparent, accountable and auditable. SIPKD was developed with third parties using the web-based Enterprise Resource Planning (ERP) concept.

The adoption of SIPKD in several local governments in Indonesia is successful, as the Provincial Government of South Kalimantan, which has implemented SIPKD (<http://sipkd.kalselprov.go.id/>), has received Unqualified Opinion (WTP) opinions in the 2014-2017 period of the Audit Report (LHP) of the State Audit Board (BPK RI) on Local Government Financial Report (LKPD) for the period of 2013-2016 [39, 40]. The academic evaluation of the success of SIPKD implementation from the point of view of the users (government employees) is needed to explore the advanced concepts of e-government development in 2018 The Indonesian Government discloses the e-budgeting integration policy (part of SIPKD) with e-planning on a national scale [41, 42].

#### 4. Methodology

The unit of analysis of this study is the user of SIPKD application at 117 work units in South Kalimantan Provincial Government. Technically, personnel (officials and staff) of the SKPKD (*Satuan Kerja Pengelola Keuangan Daerah*) and the SKPD (*Satuan Kerja Perangkat Daerah*) will interact directly with the SIPKD application as application users at all levels from the administrator to the operator, at least 3 users per unit work, so at least the application user population is about 350 users.

The research model is an extension of the existing theory (exploratory) to predict the predictive linear relationship between the variables and predict the model output variable is individual performance, so that the multivariate analysis approach used is Variance SEM or Partial Least Square (PLS-SEM) with WarpPLS software application. One approach in PLS-SEM to determine sample size is recommendations Hair et al. [43], the approach of Cohen [44]. It is assumed that the commonly used statistical power level is 80% and the independent variables in this study are 7 latent variables, the expected minimum  $R^2$  of 0.25 (25%) with a 5% error probability, the required sample is a minimum of 80 users. A simple random sampling method will be used to ensure that all elements of the population have equal opportunity to be selected as respondents.

#### 5. Conclusions

The adoption of IS/IT into business and government organizations is an important concern for researchers and information systems practitioners, especially aspects of measuring the success of IS/IT implementation. A number of theory and theory models are developed to help understand, explain, and predict user behavior in the use of IS/IT within the organization. UTAUT and DMISM are categorized into different research sections of behavioral information systems and the tradition of integration research on these two approaches is relatively small. The advantages of each theoretical model are integrated within the expanded TRA and TPB basic concept framework, that behavioral intentions will influence usage behavior, the usage behavior will impact the perceived benefits of IS/IT users reflected on user satisfaction and individual performance. Implementation of SIPKD application in South Kalimantan Provincial Government will be the application of conceptual model proposed. This integration model is more comprehensive and can guide policymakers in formulating further concepts of e-government development and academically be contributing to the research gap and theoretical gap.

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