A REVIEW OF INFORMATION SYSTEM SUCCESS MODELS

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Abstract

Measuring Information systems success has been the most arguable and important issue. Evaluation of success is not an easy task. Many models have been given by researchers in the past for the same purpose. The main objective of this paper is to study and review four main models of IS success – TAM, DeLone and McLean model, Updated DeLone and McLean model and Gable et al. model. Here we have compared these four models and discussed their relevance to the IS field.

Keywords: information systems, TAM, DeLone and McLean model, Updated DeLone and McLean model and Gable et al model

Introduction

Information systems (IS) are systems that are used by organizations to store, filter and process data. Organizations are investing a huge amount of money on information technology (IT) to get benefits from these systems. Since large investments are made in IT, the organizations are interested in knowing the success of these systems. The organizations want to find out the impact of these systems on them as well as on individuals (Gable, Sedera, and Chan, 2003). The effectiveness of these systems depend upon many factors like organizational, environmental and people use them (Petter, DeLone, and McLean, 2008). It is not easy to evaluate the success of information systems so measuring IS success is of utmost importance. It is a multidimensional concept that can be evaluated at various levels. Therefore, many success models have been developed to assess the success of information systems. Hence it becomes important as well as necessary to review various models. The main purposes of this paper are:

a) To study the models in literature related to success measurement of IS
b) Provide overview of each success measurement model
c) Identify their relevance to IS success measurement

Information Systems Models

After an extensive review of publications four models were selected for the study here. Technology acceptance model (TAM), DeLone and McLean (D&M success model), the updated D&M success model and The Gable et al. model. In this section a brief summary of all these models is presented.

Technology Acceptance Model

TAM model was developed by Davis to predict user acceptance of technology and was based on Theory of Reasoned Action (TRA). This model was subject of his dissertation. This model can predict the behavior. TAM indicates the relationship between external variables, perceived usefulness, perceived ease of use, attitude toward use and actual usage. TAM provides information on how the design choices influence user acceptance of technology. According to Davis, if the system appears useful to the users then they are more willing to use it.

DeLone and McLean (D&M success model)

To measure the success of Information systems Delone and McLean reviewed the research published in period between 1981 to 1987. Based upon their research they identified six variables of IS success - system quality, information quality, use, user satisfaction, individual impact and organizational impact. These are interdependent variables. D&M model states that the amount of system use can affect the degree of user satisfaction (DeLone and McLean, 1992). No empirical validation of the model was proposed by them.
Updated DeLone and McLean (D&M success model)

After the publication of D & M model, Seddon studied this model and modified the variable use to Usefulness, Sed- don also argued that this model is confusing because of the combination of process and variance in the same model. Researchers also suggested to include Service Quality construct also. Individual impact and organizational impact were replaced by Net Benefits.

Gable et al (IS impact) Model

Gable et al (2008) gave a model to measure IS success or impact. According to Gable et al. (2008) the IS-impact of an Information System (IS) is “a measure at a point in time, of the stream of net benefits from the IS, to date and anticipated, as perceived by all key-user groups”. This model is based on D&M model and it overcomes many issues related to past researches.
Comparison of IS success models and their relevance to the field

Many models have been given by researchers in the past to measure and evaluate the success of Information systems. Each model has been studied and extended further. Each model has strengths and weaknesses associated with it. Here we are comparing the models and discussing their relevance to the field.

The TAM model, developed by Davis (1989) is used to measure the acceptance, adoption and use of information technology. It is very popular and two constructs are used in TAM, perceived ease of use and perceived usefulness. Perceived usefulness is the degree to which an individual believes that using a particular information system or information technology would enhance his or her job. Perceived ease of use is the degree to which a person believes that using a particular information technology would be free of effort. TAM model has gained wide popularity among the researchers and is one of the most influential models. This is different from other models as it does not measure success but it is used to study and predict the user’s intention to use Information technology.

DeLone and McLean model is widely accepted and most popular model of IS success measurement. It is a process/casual model. It was criticized by researchers for including construct ‘Use’. It was studied further and was extended ten years later. Many studies were carried out using this model. In their updated model they included ‘Service Quality’ and ‘Use’ was replaced by ‘Intention to use/use’. ‘Individual Impact and Organizational impact’ were substituted by ‘Net benefits’. Later Gable et al. introduced IS-impact model which is also based on D & M model. In this model they tried to resolve concerns of past IS success models. This model differs from other models in various ways. First, it is a measurement model and not a casual/process model like D&M model. Second, it does not have ‘Use’ construct. Third, overall success measure is satisfaction. Fourth, new measures were added to it reflect the IS context and organizational success. This model can be used to measure the complete view of the system and success using all the four dimensions.

Conclusion

The main objective of this paper is to review different IS success models. From the study of literature, it is revealed that each model cannot be used in all practical situations. The scope of each model is limited so these can be used in different contexts. Here we have tried to give a
brief idea about the theoretical view of success models. The paper of DeLone and McLean’s is a key input to the literature as it was first attempt to success measures. The Delone and McLean model is the most popular among all the models given in the past. TAM model remains the most popular to study the willingness of the user towards accepting Information technology. It’s very difficult to state that which model is the best among all. Any one model can be chosen depending upon the requirement of the study to be carried.

References


