

Success Models of Information Technology Outsourcing

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Abstract

Outsourcing is described as the strategic use of external resources to carry out tasks that have traditionally been performed by internal staff and resources. It is considered to be the best-known phenomena of modern times and business strategy to drive the global economy. Outsourcing offers enormous benefits to companies only if the outsourcing decision is correct and factors that affect the outsourcing decision are adequately considered, otherwise irreparable harm may be caused. A study to identify the critical success factors of IT outsourcing in Nepal from the vendor's perspective has been initiated. This study examines different models about the effectiveness of outsourcing for the reason. All these models have their own advantages and drawbacks, so a careful review is important to reach at conclusions for the organizations that wish to follow such models. This article is based on4 comprehensive literature review of the success factors for outsourcing that led to the discovery of six different outsourcing models. The study has reviewed Leavitt's model, McKinsey 7-S framework, The Nadler-Tushman Congruence Model, Technology Acceptance Model, DeLone and McLean's IS-Success Model and IS-Impact Model. Revised DeLone and McLean Model of Information Systems Success, however, are widely debated and considered to be the most promising.

Keywords: critical success factors, IT Outsourcing, Outsourcing Models, systematic literature review, vendor.

Introduction

Outsourcing has become one of the great research fields in diverse sectors in this rapidly evolving global environment and dynamic business scenarios (Asli, Eric, & Nursel, 2014). The concept of cooperation among firms enables companies to focus on their own core activities and delegate noncritical jobs to other specialized partners. This process is called outsourcing. In other words, use of third party firms to provide logistic services is considered as outsourcing (Erturgut, 2012).

Information Technology outsourcing has become an inevitable part of the modern businesses (Bapna, Barua, Mani, & Mehra, 2010) and growing at an average rate of 4.4% from 2010 to 2015 (Gartner, 2020). It's been decades the concept of outsourcing evolved and two main ITO research streams have formed. The first stream overlooks ITO decisions (Karimi-Alagheband, Rivard, Wu, & Goyette, 2011), while the second centers on outsourcing relationship management (Choudhury & Sabherwal, 2003).

Studies have found that ITO success is determined by characteristics like contract, trust level between the parties and partnership quality, commitment, expertise, knowledge sharing activities and the extent of outsourcing (Lee, Miranda, & Kim, 2004) (Grover, Cheon, & Teng, 1996). Similarly, few studies have emphasized on the strategic role of IT Outsourcing (ITO) and portray ITO as an important component of information systems strategy. For example, IT sourcing has been studied as a decisive component within organization's boundary and should ideally be aligned with business strategy (Aubert, Beaurivage, Croteau, & Rivard, 2008). It was also described as a means of advancing from controlling costs to making strategic IT investments (Ross & Beath, 2006) and as a means of transition between various stages of enterprise IT architecture maturity.

As a strategic presence among giant outsourcing countries India and China, outsourcing was expected to make a significant contribution to national GDP of Nepal. The lack of information on success factors and models for outsourcing, the lack of relevant data and the lack of domestic literature have led us to start this research to help policy makers, practitioners and IT researchers. The main objective of this article is to analyze the current success model of IT outsourcing and identify study variables of the research in Nepalese context.

Materials and Methods

The study has drawn the conclusion based on the review of previous literature. It has reviewed the Leavitt's model, McKinsey 7-S framework, The Nadler-Tushman Congruence Model, Technology Acceptance Model, DeLone and McLean's IS Success Model and IS-Impact Model because they are widely researched and found to be most of the accepted models among the others.

Review of existing success models of IT Outsourcing

Leavitt's organizational change model

Leavitt's model offers an entry point for the development of a system that will determine offshore IT outsourcing influences on its performance (Davis & Olson, 1984). There are five components of Leavitt's model related to IT outsourcing.

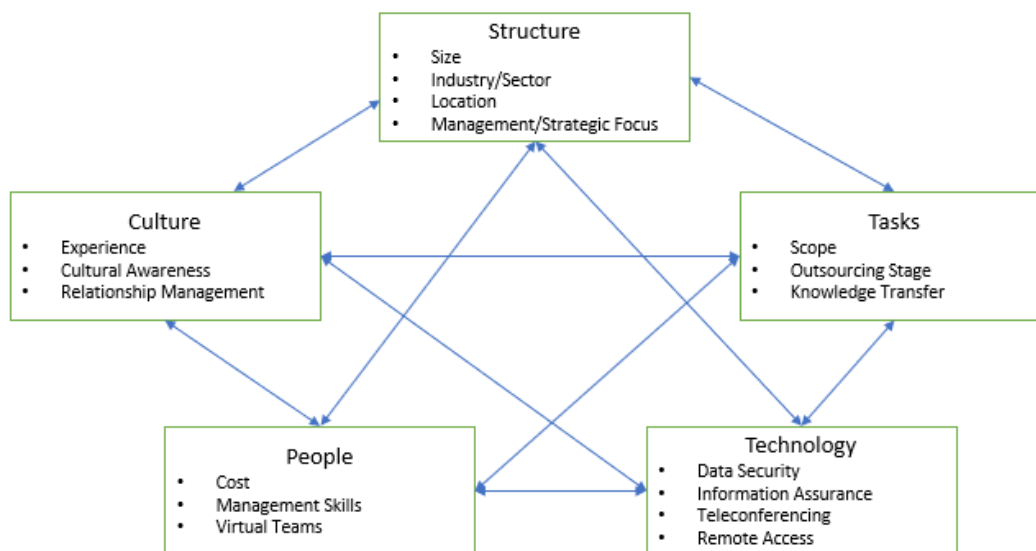


Fig: Leavitt's organizational change model

E. Structure

- **Size:** Small businesses are considered more agile and less burdened by the bureaucracy associated with larger companies, so transferring those business processes to a foreign partner can allow for emerging international opportunities (Gregorio, Musteen, & Thomas, 2009). Small businesses, however, could be at a disadvantage over larger IT outsourcing firms because of their scale (Carmel & Nicholson, 2005).
- **Industry/sector:** It was proposed that companies in the manufacturing, banking and technology sectors are most likely to participate in IT outsourcing. This suggests that other companies are less likely to be involved in this endeavor.
- **Location:** In deciding to participate in offshore IT outsourcing, location can play a role. The average living wage varies between country to country. The difference in pay and the competitiveness of the employment market may lead to the offshore decision.
- **Management and strategic focus:** As per (Blackburn, Hart, & Wainwright, 2013), written business plan associates positively with growth. In order to recognize patterns in strategic planning that could contribute to the implementation of an offshore outsourcing strategy and whether strategic knowledge and preparation may contribute to a more effective outcome for the outsourcing projects, it is of interest to get information on management and strategic emphasis.

B. Task

- Scope of activities: It is important to assess the extent of the task being outsourced as the difficulty of the higher task requires mutual collaboration and stronger working relationship (Mirani, 2006).
- Outsourcing stage: Depending on each point of the IT offshore outsourcing project, the essence of the tasks and the degree of commitment needed from the client organization shift, hence this information is necessary to capture.
- Knowledge transfer: Cultural awareness is a crucial point for the effective dissemination of information (Rottman, 2008). Cultural differences can pose a major barrier to the transfer of information.

C. Technology

- Data Security: In the literature, data protection is commonly regarded as a particular concern with IT outsourcing. Because of the difficulties of managing and tracking offshore vendors, it is primarily viewed as an operational risk (Morabito, Themistocleous, & Serrano, 2010).
- Document Assurance: Improving the standard and management of documentation will trigger a smoother transition from in-house to offshore. Documentation would now have an audience of non-native English speakers outside the consumer business; thus, transparency and avoidance of internal company jargon are prerequisites for effective transfer of information.
- Teleconferencing: It is important to discuss the ability to communicate remotely, because communication barriers disrupt human-to-human interactions, even for people with similar context. (Jones, 2009).
- Remote access: Enabling external access to systems may be helpful and can be crucial to its success depending on the nature of the outsourcing project (Carmel & Nicholson, 2005). This is another field where the protection of the data may require attention.

D. People

- Management skills: (Plugge & Janssen, 2009) has defined outsourcing as a company for people. From a management skills perspective, it is important for the customer business to pay attention to its resources as a result of offshore IT outsourcing there needs to be a re-balancing of strengths, activities and relationships within the management structure (Dedrick, Carmel, & Kraemer, 2011).
- Virtual teams: Virtual teams are characterized as teams whose members are scattered geographically, and interact through technology. Cultural variations must be understood and valued in order to get the best out of the team (Brooks, 2006). The warmer the relationship between virtual team members is perceived to be, the greater the degree of success in outsourcing (Gurung & Prater, 2006).
- Cost: Cost saving is virtually omnipresently cited as one of the key reasons in the literature examined to participate in offshore IT outsourcing. So it is important that the risks associated with these costs are addressed very regularly. Reference (Gray, Densten, & Sarros, 2003), for example, highlights one of the key problems with cost

benefit analysis: the potential expense and risk of offshoring is not so easily calculated and can go well beyond the project's direct cost.

E. Culture

- Experience: In an outsourcing company, the culture is also regarded as very critical (Gray, Densten, & Sarros, 2003). Motivated individuals may benefit from Offshore IT outsourcing. Relation in cross-regional and cross-organizational IT offshoring project teams and rating cultural experience alongside technological expertise, market and functional knowledge makes a compelling case for the idea of a negotiated community (Gregory, Prifling, & Beck, 2009).
- Cultural awareness: It is believed that this would yield a better outcome if the IT outsourcing organization had experienced people who are aware of cultural differences and have management experience. Similarly, trainings on cultural understanding ought to be detailed and not just a high-level cultural summary (Willcocks & Lacity, 2009).
- Relationship management: Offshore initiatives typically start as a transaction but end up in the domain of the ties (Mirani, 2006). The creation of this partnership is based on the successful management of cultural differences (Gurung & Prater, 2006).

McKinsey 7-S framework

McKinsey consultants Tom Peters and Robert H Waterman created this model in early 1980s with the support academicians Richard Pascale and Anthony G Athos (Pothiyadath & Wesley, 2014). The 7-S system comprises of the factors namely Structure, Strategy, Skills, Staff, Style, Systems and Shared values.

Strategy: The coherent series of actions by which a firm seeks competitive advantage.

Style: Tangible patterns in facts about the priorities of the top management team.

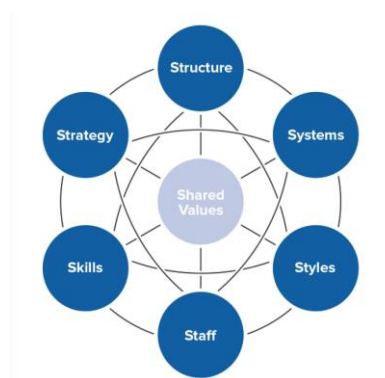
Skills: A synergistic blend of dominant strengths and skills within the Company.

Systems: Normal management processes and running ordinary flows.

Structure: The organizations formal assignment of specializations, authority and responsibility.

Staff: People in business, viewed in terms of organizational demographics not individual personalities.

Shared Values: The guiding principles and vision which underlie the organization's desired destiny.



This arrangement initially received criticism of its ability to affect the organization's effectiveness (Pothiyadath & Wesley, 2014). The claim was based on the other authors contending about some 7-S elements particularly like structure-who does what, who reports to whom, and the like, but a composite framework that includes 7-S constituents was not studied. Now a 7-S understanding is very relevant as the size and complexity of the organizations increased and one of human cooperation became the more critical issue. It is understood that there is no hierarchy in working on each part of the structure, however, implementation of one would have an effect on another. Therefore, caution must be taken in advancing on of part of the process. This framework is more than 30 years old and many organizations take the cue from each component and believe the organization is not an isolated part of the scheme, but a composite one common to all levels of the organization (Pothiyadath & Wesley, 2014).

The Nadler-Tushman Congruence Model

The congruence management model is a diagnostic method that measures how well the components of an organization function together and how they can be better combined in order to maximize results (Sabir, 2018). Some companies seem to prosper on a certain organizational structure or style of work, while others are struggling to make a profit, and the reason for this lies in recognizing the main drivers of success and the relationship between them. The Congruence Model, first built by David A Nadler and M L Tushman from the University of Columbia in the early 1980s, is a powerful tool for finding out what's wrong with a team or organization and thinking about how to fix it. This model is often used in business management to identify problem areas within a company and focuses on several broad elements: the work a company does; the people who do it; the structure of the company. The Nadler-Tushman Congruence Model was constructed as a systematic model in line with open system theory setting inputs and outputs as parameters (Sabir, 2018).

The model's inputs include variables like environment, resources, history (i.e. past behavior patterns), and organizational strategy. Nadler and Tushman are clear on each of the variables in their construct. The system components of the entire organizational transformation process are informal organizational arrangements, operations, formal organizational arrangements and individual components. Similarly; the outputs of the model include individual outputs, unit, and systems: products and services, production, and performance. Though outputs such as products and services are given general understanding.

Organizations are effective when the four main components-activities, personnel, structure, and culture-match results are combined. Given that these elements function in tandem to promote and encourage high performance, the end result is an organizational structure that functions efficiently and effectively.

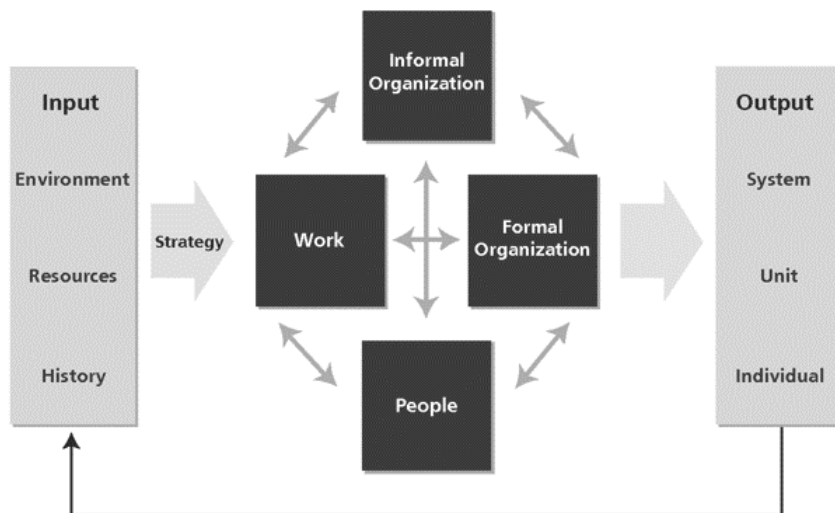


Fig. The Congruence Model.

Congruence Analysis is used to look at the organizational factors that contribute to overall success and create congruence between and within them-workers will feel much more relaxed and the work will be performed much more efficiently (Sabir, 2018).

Technology Acceptance Model

Non-acceptance of users also impairs the company's productivity (Davis F. D., 1989). Therefore, Davis has developed a model to predict acceptance by users. His thesis work had been on the Technology adoption model in 1986 and later on, it was published in MIS Quarterly (Davis F. D., 1989). The model is mainly based on the Theory of Reasoned Action. Davis focused on analyzing principal structures in his research. By relying on two theoretical constructs, he aimed to forecast: perceived utility and perceived user-friendliness. According to Davis, people are more likely to use a product or program, if they see a competitive advantage. This attribute is determined using Expected Utility. (Davis F. D., 1989). Overall user motivation leads to actual system use and the user motivation derives from multiple catalytic factors.

The TAM is aimed at predicting behaviour, similar to TRA. If the system is deemed useful, there is always a danger that the system may be seen as too complicated or difficult. Consumption does not triumph over commitment. Considering this criteria, perceived ease of use is evaluated (Davis F. D., 1989).

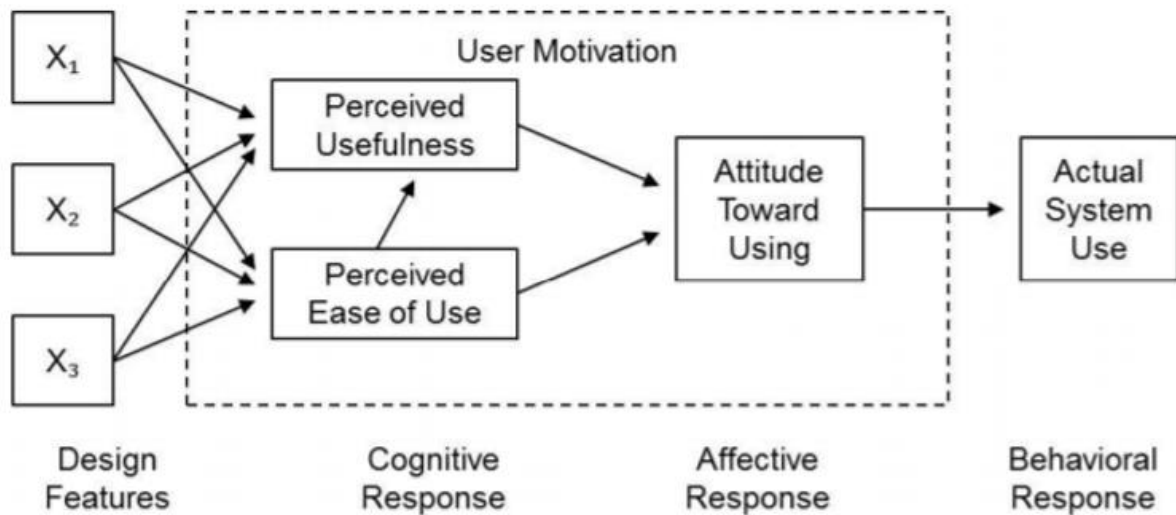


Fig: Technology Acceptance Model

DeLone and McLean Model of Information Systems Success

Companies across sectors are continuing to raise investment in information technology despite the economic downturns (Kanaracus, 2008). But globalization, economic powers, and heightened competition are forcing businesses to cut costs. On the other hand, this allows corporations able to evaluate the performance of information technology and its effect on organizational and individual level in order to affirm its importance and contribution to organizations' productivity, quality and competitiveness (Gable, Sedera, & Chan, 2003). However, it is argued that a well-defined calculation of the result (or measures) is important if research into information systems is to contribute to the world of practice (DeLone & McLean, 1992).

DeLone and McLean (1992) reviewed 180 empirical and philosophical studies and identified more than 100 criteria used for IS success determination. Based on the work of (Shanon & Weaver, 1963) and (Mason, 1978); DeLone and McLean (1992) proposed an IS-Success model that would reflect previously published measures. The IS Success model comprises six main IS success buildings or variables: System Quality, Information Quality, Use, User Satisfaction, Individual Impact, and Organisational Impact. This model is among one of the most cited models by researchers (Heo & Han, 2002).

DeLone and McLean synthesized the six factor frameworks from the variety of IS progress measures contained in the literature they reviewed. The taxonomy of these constructs indicates that (1) these constructs are interdependent; and (2) the time series or causal relation between them. The D&M model indicates that System Performance and Quality of Information affect both System Use and User Satisfaction together and singularly. Furthermore, the amount of System Use may have a positive or negative effect on the level of User Satisfaction, and the degree of User Satisfaction also affects System Use. Device Usage and User Satisfaction are

often a direct history of the Individual Effect. Finally, the individual effect may inevitably have some impact on the Organizational Effect.

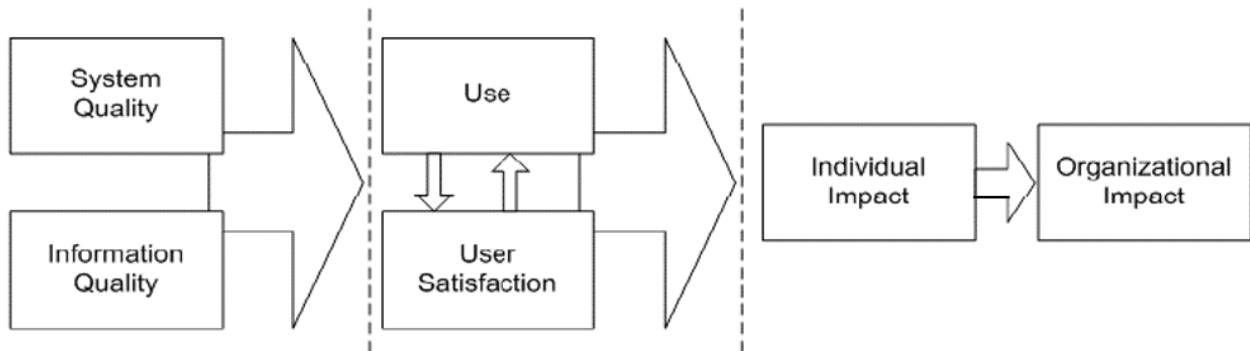


Fig: DeLone and McLean IS Success Model (1992).

Organizational Impact (OI) assesses the influence of the IS on the organization's overall performance.

Individual Impact (II) discusses the impact of IS on user performance.

System Use (SU) has been discussed by (Doll & Torkzadeh, 1988) and addresses the actual use of Information System, the extent of its usage in user's job including the number of software applications used. (Anakwe, Igbaria, & Anandaeajan, 1998) designed a 4-item instrument to measure this construct. The instrument was later proven correct and reliable.

User Satisfaction (US) considers the IS to have a successful relationship with its users.

System quality is concerned with system bugs, user interface, ease of use, system response time, documentation, stability and software maintenance and update capability (Seddon & Kiew, 1994).

Information Quality (IQ) relates to issues such as timeliness, accuracy, relevance and format of information provided by the information system (Seddon & Kiew, 1994).

Empirical Validation of D&M Model was not provided, which means that their taxonomy needs to be further developed and validated. Despite the criticism that the IS-Success model faces, certain elements of the DeLone and McLean model have been reviewed in advance. Some researchers have modified the causal pathways, combined existing constructs, or added new constructs. Moreover, some studies reveal conflicting results about the causal relationships between the six constructs.

Updated DeLone and McLean Success Model

DeLone and McLean introduced an updated IS-Success model focused on an analysis of the various contributions made to it after 10 years of the initial model. (Delone & McLean, 2003).

In their 10-year-update, DeLone and McLean addressed the hypotheses were considered significant. They are: *System Use – Individual Impacts*; *System Quality – Individual Impacts*; *Information Quality – Individual Impacts*. With one exception (System Usage-Organizational Revenues), the other interdependencies were also confirmed. DeLone and McLean dismissed Seddon 's claim that consumption isn't a measure of performance. Instead, the difficulty is to be found in the ambiguity of the Implementation of *use* variable and thus, a lacking, concise definition. E-commerce in particular, where the costumers use the system, clarifies the importance of *Use* (D'Ambra & Rice, 2001). In addition to the Organizational Impact and Individual Effect, IS activities may affect additional entities. Therefore, researchers suggested considering *Group Impacts* (Ishman, 1998), *Inter-organizational and Industry Impacts* (Clemons & Row, 1993), *Consumer Impacts* (Brynjolfsson, 1996), and *Society Impacts* (Seddon, 1997). DeLone and McLean agreed to integrate all impacts as Net Profits, rather than a standard extension (Delone & McLean, 2003).

This generalization, like a quid pro quo, requires a given frame of reference e.g. sponsor, user, stock holder etc. Notwithstanding the cancelation of Individual Impact and Organizational Effect, the viewpoint of the study is still stated, e.g. individual viewpoint, industrial perspective. (Delone & McLean, 2003). (Pitt, Watson, & Kavan, 173-187) criticized IS Success as being based on goods but not services. Therefore, they extended *Service Quality* as one of the system characteristics (Delone & McLean, 2003).

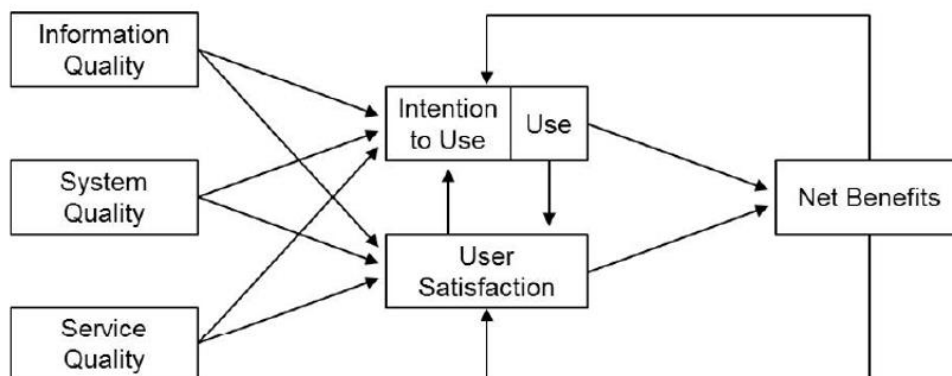


Fig: Updated DeLone and McLean Success Model

IS-Impact Model

The IS-Impact Model has introduced a new model for measuring the success or impact of information system outsourcing (Gable, Sedera, & Chan, 2008). Gable et al (2008) described the IS-impact as a calculation, at a time, of the current and expected stream of net benefits from the Information Systems, as viewed by all main user groups. The catalyst for the research, they

argue, is the lack of a consistent structured and empirically validated measurement model for IS success.

The IS-Impact model is based on the work of DeLone and McLean and addresses a range of questions regarding previous Success models. However, it deviates from the earlier DeLone and McLean models in five different ways. (1) it portrays as a measurement model and does not conceive of an effective causal / process model, (2) it omits the use construct, (3) satisfaction is viewed as an aggregate measure of performance, rather than as a construct of performance; (4) new measures have been introduced to represent the current IS context and organizational characteristics, and (5) additional measures are used to assess a more systematic model of organizational impacts.

The IS-Impact model was tested statistically using perceptual measures and developed in two stages, according to Gable et al (2008): the exploratory phase, and the confirmatory phase. In the exploratory process, two surveys were performed in which the purpose of the first was to define performance factors and the aim of the second was to assess what is known as a prior model.

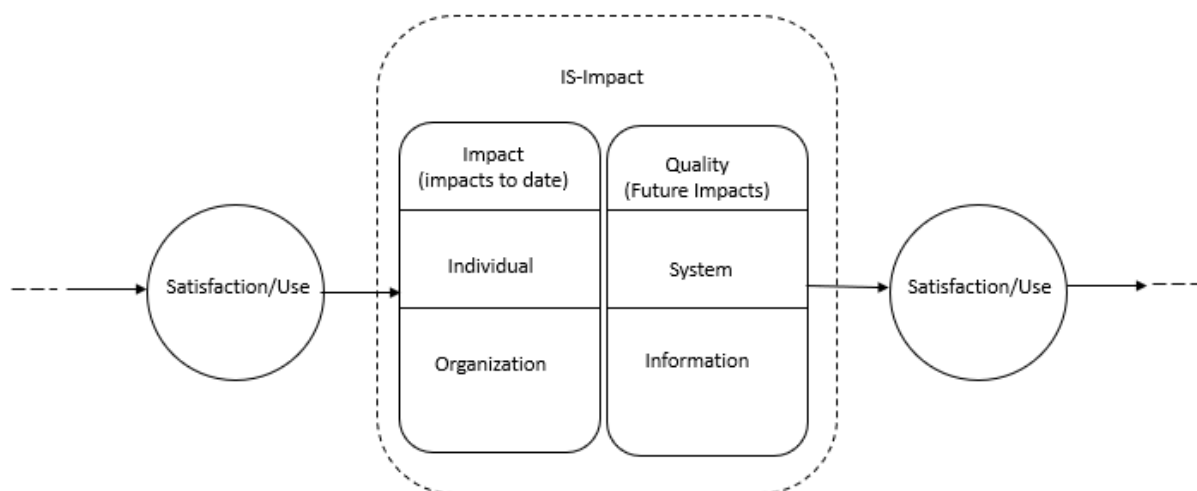


Figure 2: IS-Impact Measurement Model.

First test was conducted using exploratory process surveying 456 respondents representing twenty-seven Queensland public sector organizations that implemented SAP R/3 at the end of the 1990s. Priori model omitted 'Use' construct from initial model of D&M IS-Success. The model consists of four factors: Information Quality, System Quality, Individual Impact and Organizational Impact. Priori model was tested by using confirmatory factor analysis at Queensland University of Technology by 157 survey responses to ORACLE's financial systems. Model testing analysis showed the discriminating validity of the four constructs. The

evaluation of validity of the parameters demonstrated the additivity of the four output constructs and the completeness of the resulting IS Success.

In response to the abundance of overlapping steps, (Gable et al 2008) extensively examined existing products, addressing convergence and defining new measures for contemporary IS. Their model reconciles persistent uncertainty as to the position of the DeLone and Mclean constructs as measures versus explanandum, demonstrating conceptually its importance as both. Study by Gable et al (2008) is the first evaluation of the sufficiency and necessity (or not) of the six DeLone and McLean constructs illustrating all four variables. They claim that Usage is repetitive, and in line with contemporary views in Information Systems, they also provide a clear argument for conceiving User Satisfaction as a function of performance (and background) rather than a construct.

According to Gable et al (2008, pp 389-390), Individual Impact is a measure of the degree to which the IS has affected key-user ability and productivity on behalf of the organization. Organizational effect is a measure of the degree to which (the IS) has facilitated change in the performance and capabilities of organizations. Information Quality is a measure of the quality of outputs: namely, the quality of information produced by the system in reports and on-screen. System Quality is an output indicator from both a technological and a design viewpoint.

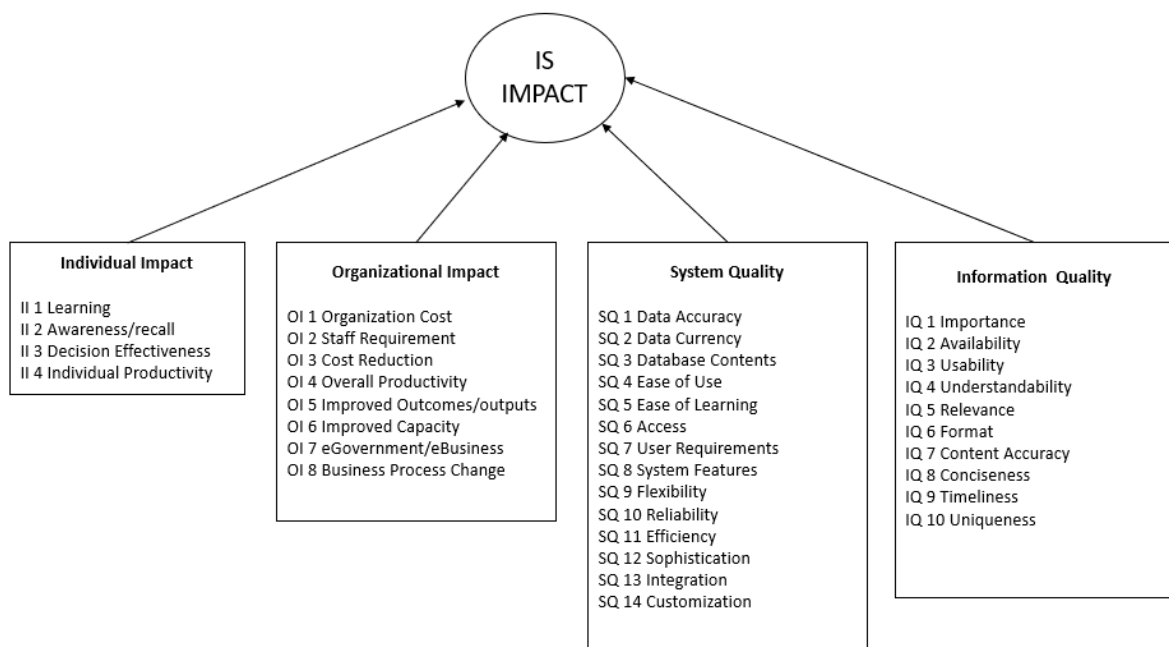


Figure: Measures of the IS-Impact measurement model.

Conclusion

This study gives an overview of the existing Success Model of IT outsourcing. It therefore provides a succinct entry point to the context of the theory and its implementation, which may be of particular benefit to new readers. In the Nepalese context, we have realized that *Updated*

DeLone and McLean Success Model are common with outsourcing companies. However, few strategic factors such as legal quality, environmental quality, global footprint and visibility, and the country's global partnership are lacking and need further expansion to meet the requirements of developing countries. We have identified 100 success factors constructed with variables: Strategic Factors, Information Quality, Service Quality, System Quality, Use, User Satisfaction and Net Benefits. The last 6 variables were modeled by Delone and Mclean in their Modified IS Success Model and evaluated by various researchers. Gable et al (2008) also measured four variables: Individual impact, Organizational Impact, System Quality and Information Quality. At the end of this research, we'll validate all seven success factors and identify critical success factors on the vendor's perspective.

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