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Chapter VII

Evaluating IS Quality: Exploration of the Role of Expectations on Stakeholders' Evaluation

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INTRODUCTION

IT Evaluation is essential, given that the value of investment in the IT industry is currently almost $2 trillion US. There is no doubt that an effective organisation will try to evaluate IT effectiveness, by linking performance measures with a financial perspective (i.e. a shareholders' view); an internal business perspective (i.e. company planning for excellence); a customer perspective; and the innovation and learning perspective (i.e. the means to improve and create value), in order to move consistently forward.

The last three perspectives are at times derived by using the same measures/instruments, via an interpretive approach based upon views of different tiers of stakeholders. Such an approach reflects a movement away from the more technical measures like benchmarking. Instead, IT effectiveness is evaluated in terms of the use of IT, or success of IT outcomes, through seeking to understand the effectiveness of the delivered IT application to the job performance of stakeholders. The merit of this interpretive approach is increasingly applicable to sectors like ecommerce, where it is very apparent that customers are concerned with the effectiveness of such IT applications.

With regard to IT research, the interpretive approach was initially crystallised in the Success Model formulated by DeLone and McLean (1992). Their evaluative tools were Use and User Satisfaction. However, if research in related industries is considered, it rapidly becomes apparent that evaluation of quality is a more highly regarded approach. In seeking to adapt this approach to IT, it is important to consider the key components of an IT system, for which effectiveness would be measured in terms of quality; what quality means in an IT context; and how stakeholders internally derive an evaluation of such quality.

In summary, this chapter reports on research which has produced a redefined IS Success Model, in which quality is the key to effectiveness. It also reports results of a related empirical study, which reaffirmed this IS Success Model and then investigated whether quality was better measured in terms of stakeholders' expectations for IS performance and their perceptions of actual performance, or whether measurement of perceptions alone provided sufficient understanding of IS quality/effectiveness.

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BACKGROUND: QUALITY AS THE DETERMINANT OF IS SUCCESS/EFFECTIVENESS

Although DeLone and McLean's (1992) work reflected published research about delivered IS at the time of their study (1981-88), IT isn't a static phenomenon. Problems have arisen as IS has increasingly been recognised by corporate leaders as a service function. IS have moved from the mainframe era to a more decentralised approach in which computing and communication technologies merge to deliver an ubiquitous IS service over local and wide area networks. Via inter- and intra- organisational communication and information systems, where LANs, EDI and end-user computing prevail (Browning, 1994; Cattell, 1994; Drucker, 1988; Harris 1996; Phillipson, 1994; Violino and Hoffman, 1994; Ward and Griffiths, 1995), IS has become regarded as the instrument or service by which an organisation can gain or retain a comparative or competitive advantage. DeLone and McLean's model, which focused upon the stakeholders' use and feelings of satisfaction as the means to evaluate IS effectiveness, may have been relevant when IS success was so aligned to efforts by the IS department. Now the diffusion of IS within and between organisations is much wider and thus its role must be evaluated with a more business-oriented approach via stakeholders' views of IS capacity to accurately accommodate input and output data, in the performance of their jobs.

In seeking an alternative approach by which to evaluate IS success/effectiveness, it seemed pertinent to reconsider DeLone and McLean's own words. Given they used the term quality for framing the system and information components, this was the next point of consideration. Was it preferable and/or achievable to measure quality directly rather than through surrogates like use and user Satisfaction? Is there in fact a difference between satisfaction and quality? What does the term quality mean when it is used as a measure of success/effectiveness? How do stakeholders derive an internal measure of this quality/effectiveness?

DeLone and McLean's IS Success Model

Historically, in evaluating IT effectiveness, the key paradigm has been DeLone and McLean's Success Model. Despite calling this taxonomy a success model, what was claimed to be evaluated was the "output variable – IS success or MIS effectiveness" (DeLone and McLean 1992 p61). In that context, effectiveness was equated to influence and defined (following Mason 1978 p227) as the "hierarchy of events which take place at the receiving end of an information system which may be used to identify the various approaches that might be used to measure output at the influence level." Such events included receipt and evaluation of information as well as its application. The existence of an IS is fundamental to this work, but the term information system is not actually defined by DeLone and McLean, although it is consistent with their work for IS to "be defined in terms of its function and structure: it contains people, processes, data models, technology, formalised language in a cohesive structure which serves some organisational purposes or function" (von Hellens 1997 p802).

DeLone and McLean's (1992) IS Success Model (see Figure 1 below) offered a complete and coherent, yet conceptual depiction of the interdependent success components in an information system. Based upon a study of IS research and literature, they defined the evaluation of IS success in terms of six components, wherein the key for measuring effectiveness was postulated to be use and user satisfaction, with reference to the system and information so provided.

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