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Comparing the Prioritization of ERP System Effectiveness Measures by Organizational Actors: A Focus on IT Professionals and Business Managers

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ABSTRACT

Modern organizations adopt Enterprise Resource Planning systems (ERP) to integrate their organizational data resources into unified systems. Researchers tend to concentrate on ERP implementation issues with only a handful studying ERP system effectiveness or success in adopting organizations. In fact, none has studied how key organizational actors prioritize or rank relevant measures or items related to the effectiveness of such systems. This study is designed to fill this gap in research as it aims at investigating how two organizational stakeholder groups, i.e. information technology (IT) professionals and business managers prioritize relevant measures related to ERP systems effectiveness. Using surveys in two European countries with a good record of ERP adoption, the study collected data from 66 respondents in 44 diverse, private, industrial organizations. Prior literature suggests that differences exist between the two organizational groups regarding how each perceives organizational-IT issues. However, this study's findings showed that no significant statistical differences exist between the two groups on the all the measures operationalized for ERP effectiveness assessment with the exception of one dimension: the Vendor/Consultant Quality. The implications of the finding for both practice and research are discussed.

INTRODUCTION

An Enterprise Resource Planning (ERP) system is packaged business software that integrates organizational processes and functions into a unified system. ERP systems are being adopted for a variety of reasons, including the replacement of legacy systems and cost reductions (Klaus, et al., 2000; Davenport, 1998; 2000; Wu, et al., 2005). The report from AMR Research (2005) indicates that the ERP market worldwide is to grow from US$47.8 billion in 2004 to US$64.8 billion by 2009. These figures or amounts underscore the popularity of the software among organizations, globally. A comprehensive study of the literature shows that researchers often concentrate on issues related to the implementation and adoption of ERP systems (Abdinnour-Helm, et al., 2003; Ifinedo, 2006; Wu, et al., 2005; Galy & LeMaster, 2006) with only a handful researching the success or effectiveness of such systems (Gable et al., 2003; Sedera et al., 2002, 2004; Ifinedo, 2006). Here, "ERP systems effectiveness" refers to the utilization of such systems to enhance the organizational goals (Thong, et al., 1996; Myers, et al., 1997; Gable, et al., 2003; Galy & LeMaster, 2006). This definition differs in scope from the technical implementation success of such systems wherein measurement indicators such as cost overruns, project management metrics, and time estimates are considered vitally important (Martin, 1998; Markus & Tanis, 2000). Some of the dimensions used in this study to represent ERP effectiveness include system quality, information quality, individual impact, and organizational impact. Apparently, these are the same dimensions or factors often used in the information systems (IS) success evaluations literature (DeLone & McLean, 1992). Importantly, the term "IS success" is used interchanging with "IS effectiveness" in the literature (Thong, et al., 1996), and this research study extends the foregoing terms to "ERP success" and "ERP effectiveness", which incidentally are treated as having the same connotations here.

That said, the paucity of research on ERP system effectiveness in the literature is the primary motivation for this study, and secondarily this study aims at responding to the calls made by IS researchers (Gable, et al., 2003; Ifinedo, 2006) for more studies to focus on other aspects of ERP systems. The issue of ERP effectiveness or success assessment is an important area of research because for ERP adopting organizations to maximize their returns from investments in such complex and expensive IT systems, the viewpoints of key organizational members on the effectiveness of such systems need to be investigated (and addressed). The stakeholders' theory (Freeman, 1984) underpins this area. The stakeholder theory has techniques for identifying stakeholders, describing the relationships

among them, and providing guidelines for handling conflicting interests (Pouloudi & Whitley, 1997). The research study is precisely designed to investigate how two organizational stakeholder groups, i.e. business managers and IT professionals assess ERP system effectiveness or success. As noted above, only a handful of IS researchers (Sedera et al., 2002; 2004) have studied a comparable theme as this one.

Hamilton and Chervany (1981) and Myers, et al. (1997) assert that for deeper understanding to emerge, more studies examining IT systems effectiveness or success – in this instance ERP effectiveness - in organizations from wide ranging perspectives are needed. Nonetheless, Sedera, et al. (2004, p.2) note that 'there is no universal agreement on what employment cohorts (organizational stakeholder groups) should be canvassed' in such studies. Drawing from the stakeholder theory, the organizational members chosen for this study include business managers who were considered important because these functionaries are ideally suitable to act as key informants in the assessment of IT (and ERP) success or impacts on their organizations (Tallon, et al. 2000; Sedera, et al., 2004), and the other group selected are IT professionals. The latter are important actors in modern organizations because the use of IT systems is growing for organizations as they gradually realize the strategic importance of IT systems in their operations (Ward & Peppard, 1996; 1999). Moreover, during the acquisitions of complex IT systems such as ERP, IT professionals' technical backgrounds may come in handy for the adopting organization (Willcocks & Sykes, 2000; Markus and Tanis, 2000).

Differences or similarities between organizational stakeholder groups, including the ones chosen for this study can be investigated using a variety of approaches; however, for illustration purposes, this research uses an approach which involves the examination of how each group prioritized or ranked relevant items or measures related to ERP systems effectiveness. Fortunately, other studies (Brancheau & Wetherbe, 1987; Sedera, et al., 2004) have used a similar approach to compare and contrast viewpoints of business managers and IT professionals on organizational-IT issues. Here, organizational-IT issues refer to the interplay between information technologies, on the one hand, and the organization, on the other. Prioritize is defined as putting 'tasks, problems, etc. in order of importance' (Hornby, 2000, p.1047). Regarding how IT professionals and business managers prioritize ERP success measures – obviously, one aspect of organizational-IT issues - this study, to some extent complements the work of Sedera et al. (2002; 2004) who studied the same issue in public sector organizations in Australia.

Sedera et al. (2004, p.12) note that the different 'employment cohorts [in their study] possess different views on [ERP] success'. The findings from Sedera et al. (2002) also showed that IT staff (IT professionals) prioritized 'system quality' more than business managers did. Further, Sedera, et al. (2002) showed that IT professionals and business managers did prioritize measures related to "individual impact' and 'organizational impact' dimensions differently. And, in both studies, business managers accorded a higher degree of importance to the two foregoing dimensions (Sedera et al., 2002; 2004). They researchers also noted that both groups did not show any significant differences in how they prioritized the dimension related to 'information quality'. Sedera and her colleagues did not offer reasons as to why differences were seen between the various organizational stakeholder groups. Clearly, the purpose of their study was not to uncover why differences might have surfaced. At a general level, the literature suggests that the differences seen with respect to how business managers and IT professionals assess organizational-IT issues could be attributable to a variety of reasons, including the existence of cultural gaps between both groups, presence of differing agendas or goals for organizational-IT issues between the two, differences in value perceptions, and organizational politicking (Schein, 1992; Pfeffer, 1992; Saunders & Jones, 1992, Shah, et al., 1994; Ward & Peppard 1996; 1999).

This study is designed to increase our understanding on whether both IT professional and business managers accord the same importance or priority to relevant ERP success or effectiveness measures. This research intends to provide an answer to the following question: Do business managers and IT professionals prioritize the measures and dimensions of ERP system success differently? It is hoped that the study's conclusions will be beneficial to both the researchers' and practitioners' communities alike.

BACKGROUND

Business Managers and IT Professionals as Organizational Stakeholders

According to Freeman (1984), 'a stakeholder in any organization is (by definition) any group or individual who can affect or is affected by the achievement of the organization's objectives' (p.25). Fraser and Zarkada-Fraser (2003)

state: 'The stakeholder theory posits that sustainable success rests, to a great extent, with a systematic consideration of the needs and goals of all key stakeholders'. The stakeholder theory has techniques for identifying stakeholders, describing the relationships among them, and providing guidelines for handling conflicting interests (Pouloudi & Whitley, 1997). The theory considers two perspectives: inside-in (employees, managers) and inside-out (others: shareholders, partners, etc.). This study narrows its scope to the former. Stakeholders have been identified by researchers based on a particular research purpose. Here, business managers and IT professionals are identified as important sources of knowledge on ERP success (Sedera et al., 2004). By studying how the two organizational actors perceive ERP success assessment, managers would be able to gain valuable information on how to manage both groups. This exercise is vitally important because there is evidence suggesting that ERP acquisitions in organizations often result in some organizational members coming out as 'losers' and others as 'winners' (Willcocks & Sykes, 2000; Kumar & van Hillegersberg, 2000). For example, Willcocks and Sykes (2000) observe that during ERP adoption, the IT department (and its staff) tends to have less important roles compared to other departments (mainly business). Kumar and van Hillegersberg (2000, p.24) comment: 'Typically, ERP initiatives in organizations are motivated by senior executives other than the CIO'. This might be interpreted to mean that those calling the shots during the system acquisition will invariably be the most influential actors in such initiatives, and may have higher perceptions of issues related to the acquired systems' success.

Broadly speaking, researchers in the IS and related management science literature have suggested that business managers and IT professionals hold differing views on organizational-IT issues perhaps due to cultural differences between them (Schein, 1992; Shah, et al., 1994; Ward & Peppard, 1996; 1999; Senn, 2003). Others have suggested that differences between both groups might have arisen due to differing value perceptions (Saunders and Jones, 1992) and organizational politicking (Pfeffer, 1992). In fact, some authors (Shah, et al., 1994; Tai & Phelps, 2000) have noted the existence of "two worlds" for IT professionals and business managers. In fact, differing views of organizational-IT issues for both IT and business managers have been widely reported in the literature (Wilkes & Dickson, 1987; Brancheau & Wetherbe, 1987; Khandelwal, 2001). For example, Khandelwal (2001) found that Chief Executive Officers (CEOs) tend to prioritize organization-wide business issues while 'IT managers appear to be concentrating more on IT management and technology issues' (p.24).

With specific references to ERP systems, Singletary, et al.'s (2003) study of managers, IT professionals and end-users regarding the characteristics, benefits and downsides of ERP applications integration found significant differences among the three stakeholders. Sedera et al. (2002, 2004) reported that both business and IT managers or professionals have different views on ERP success with the exception of one dimension, i.e., information quality. These researchers show that IT staff prioritized system quality measures more than did business managers. Sedera, et al. (2002, 2004) showed that business managers prioritized measures and the dimensions related to 'individual impact' and 'organizational impact' more than did IT professionals. Similarly, IT professionals' technical backgrounds may cause them to have higher opinions of system quality of ERP as Sedera, et al. (2002, 2004) revealed. These observations could be reflecting the fact that business managers tend to use such systems in their daily operations more than IT staff, and thus are in a better position to understand the impacts of such systems (Abdinnour-Helm, et al., 2003). It is also possible that the influential roles of business managers during ERP acquisitions compared to IT professionals may permit the former to have a more positive view of the system's impacts.

ERP System Effectiveness Measurement Model

This study draws from the accumulated body of knowledge on IS success evaluations (DeLone & McLean, 1992) in general and the growing ERP success or effectiveness measurement literature (Gable, et al., 2003; Ifinedo, 2006; 2007) in particular. Importantly, ERP systems are different from other IT systems (Davenport 2000; Klaus, et al., 2000; Akbulut & Motwani, 2005) because their implementations include technological, operational, managerial, strategic, and organizational related issues (Markus & Tanis, 2000; Yu 2005; Salimi, et al., 2006). As a consequence, success evaluations models used for other typical IT systems may not be adequate for ERP systems (Yu, 2005; Ifinedo, 2006). Thus, it is useful when attention is paid to ERP systems particularly rather than just lumping them together with other IT systems. Indeed, DeLone and McLean (1992) stress that researchers should take into account the specific characteristics of the IT system under investigation when evaluating its success for organizations. Given that ERP systems are a different class of IT systems, it is therefore vitally important for a specialized success measurement framework or model to be used when discussing the success of such systems.

To this end, Gable, et al. (2003) developed an ERP system success measurement model that redefines the dimensions in the DeLone and McLean (1992) IS success model. In short, Gable and colleagues eliminated (through multi-stage data collection and statistical analysis) the "Use" and "User Satisfaction" dimensions in the D&M model. Arguments against dropping them are also available in the literature (Ifinedo, 2006; 2007). The retained ERP success or effectiveness dimensions in Gable and colleagues' model are system quality (SQ), information quality (IQ), individual impact (II) and organizational impact (OI). Through literature reviews and case studies, Ifinedo (2006) and Ifinedo and Nahar (2006) proposed an extended ERP system success measurement model to include two relevant dimensions (i.e. workgroup impact and vendor/consultant quality [VQ] not included in the Gable et al. model. (Please see Appendix 1 for the meanings of the dimensions). Full discussions of this are published elsewhere (Ifinedo, 2006, 2007; Ifinedo & Nahar, 2006). Importantly, vendors and consultants were grouped together because items that they used to represent consultant and vendor loaded together (Ifinedo, 2006). The extended ERP success measurement model is illustrated in Figure 1.

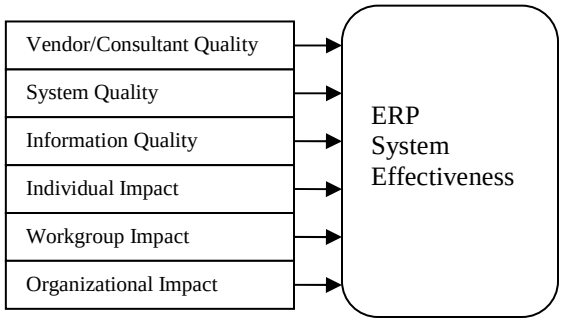

Figure 1: The Extended ERP System Effectiveness Assessment Model.

RESEARCH METHODOLOGY

This research sampled firms generated from local contacts, ERP User Groups and vendors lists, as well as published lists of Top Enterprises for 2004 for both countries. Firms were chosen by the researcher's ability to obtain contact addresses for key organizational personnel. 350 and 120 firms in Finland and Estonia respectively were contacted. The participants from the firms included key organizational personnel such as Chief Information Officers, Chief Financial Officers, Chief Accountant, etc. Respondents received a packet consisting of a cover letter, questionnaire, and a self-addressed, stamped envelope.

The researcher accepts that enlisting multiple respondents in any chosen organization would enhance the validity of the responses as a common source bias would be reduced. However, as the financial resource available to the study is limited, it was decided that the cost of postage would be kept at a minimum by reducing the weight of some of the mails to be sent out. To that end, 60% of the mailings to the participants included only one questionnaire; the rest (40%) had two questionnaires. Nonetheless, the research subjects – in each case - were encouraged to present views representative of their organization. To ensure data validity and reliability of the survey instrument, four knowledgeable individuals (i.e. two IS faculty, one ERP consultant and one ERP managerial level user) completed the questionnaire before our mailing it out, and their comments helped us improve its quality.

Respondents indicated their degree of agreement with statements using a 7-point, Likert-type scale, where 1 = strongly disagree and 7 = strongly agree (see Appendix 1). The research instrument used measures and constructs that have been validated in the literature and used in comparable studies. To ensure each organizational stakeholder group is presenting a view representative of organization-wide perspectives, the questions in the questionnaire were posed appropriately (see Appendix 1). It was noticed that for firms with more than one respondent, the responses on key issues were comparable; this enhances the validity of the responses from such firms as well as our data in general. Table 1 shows a few of the measures, their sources, and the reliabilities of the research variables. Clearly, the Cronbach Alpha for each dimension is above the 0.70 limit recommended by Nunnally (1978), indicating a

reasonably high reliability of the research measures and constructs. Recommendations suggested by Armstrong and Overton (1977) were used to assess the non-response bias in the survey. Early and late respondents were compared on key organizational characteristics such as size, industry type, year of ERP adoption, and ERP type, among others. The results of the chi-square tests (significant at 0.05) showed there were no significant differences along these key characteristics.

Table 1: ERP System Effectiveness Dimensions.

Dimension	**No. of measures**	**Cronbach Alpha**	**Sources**	**Examples of questions in the instrument**
Vendor/Consultant Quality	5	0.876	(Ifinedo, 2006 ; 2007)	"Our ERP vendor/consultant is credible and trustworthy." Our ERP vendor/consultant is experienced and provides quality training and services.
Information Quality	8	0.822	(Gable, et al., 2003; DeLone & McLean, 1992)	"The information on our ERP is understandable." "The information on our ERP is relevant."
System Quality	11	0.852	(Gable, et al., 2003; DeLone and McLean, 1992)	"Our ERP has accurate data." "Our ERP is easy to use." "Our ERP is easy to learn."
Individual Impact	6	0.769	(Myers, et al., 1997; Sedera et al., 2003; DeLone & McLean, 1992)	"Our ERP improves individual productivity." "Our ERP saves time for individual tasks and duties."
Workgroup Impact	7	0.810	(Myers, et al., 1997)	"Our ERP helps to improve workers' participation in the organization."
Organizational Impact	8	0.867	(Myers, et al., 1997; Gable, et al., 2003; DeLone & McLean, 1992)	"Our ERP reduces organizational costs." "Our ERP increases customer service/ satisfaction."

Survey Results

Twenty nine (29) Finnish and fifteen (15) Estonian firms participated in the survey. The effective response rates for the Finnish and Estonian participants were 8.5% and 12.5%, respectively, and 9.5% (i.e., 44 firms) for the two countries combined. It worth noting that Finland and Estonia are neighboring countries and do share a similar cultural values (Ifinedo, 2006). In brief, cultural differences are not a serious issue, for the study. Additionally, the data collection effort reflects the typically low response rates that are commonly seen for IS studies in the region and

for surveys targeting midlevel and senior employees in organizations (Ifinedo, 2006). The study received 62 individual responses: 39 and 23 from Finland and Estonia, respectively. These are adequate for a study of this nature. The data classified by occupation comprised 20 (32.3%) IT professionals/managers and 42 (67.7%) business managers. The respondent grouped by occupation, in each of the country, is proportionally represented (Ifinedo and Nahar, 2006).

The job titles of the respondents, among others, included the following: Chief Executive Officer, Chief Information Officer, Chief Accountant, IT Manager and Finance Manager. There were 35 (56.5%) men and 27 (43.5%) women in our sample. Of the respondents, 40% had college degrees, 20% had technical and other vocational education, and 43 (69.3%) were between 31 and 50 years old. On average, they had 9 years of work experience in their respective organizations. Of the 62 respondents, 33.9% had SAP in their organizations, 14.5% had Movex, 9.6% had Scala, 8.1% had Hansa, and the remaining 33.9% had other mid-market ERP products, including Concorde, Nova, etc. The annual turnover of the firms in the sample ranged from €1 million to a little over €2 billion, with €19 million as the median. The workforce ranged from 10 to 13 000 employees, with a median of 120 employees. Responses were received from a wide range of industries, including manufacturing, financial services, IT firms, pharmaceuticals, food processing, retail, and warehouse businesses. The sample classified by the size of workforce following guidelines provided by EC (2003) and Laukkanen, et al. (2005) included 15 (24%) small, 25 (40%) medium-sized, and 22 (36%) large firms.

DATA ANALYSIS

Apparently, the study got unequal number of participants per group for the research. To enhance the validity of the results, the researcher conducted a strict test on the data by randomly selecting an equal number, i.e. 20 from each group. The mean scores obtained for each measure and dimension of ERP system effectives was then compared with the ones retained for the original data set. The confidence in the study's results was assured as the mean scores did not show any significant differences. The results of the chi-square tests (significant at 0.05) showed there were no significant differences between the data set segmented by countries.

Having discussed the issues related validity of the study's data; we will now focus on the main objective of this study, which was to determine whether there are differences in how business managers and IT professionals prioritize the measures and dimensions of ERP system effectiveness. To that end, the mean of each measure for the two groups, as obtained from the survey, was computed and ranked in order of priority. Then, the Kendall Tau-b coefficient (Tb), significant at p 0.05 was used to compare the ranking orders of the 45 measures for both groups. The results for comparisons of the 45 measures were as follows: Tb = 7.34, Value = 0.562, Sig. (p) = 0.000, which indicate that there is a strong relationship between the two groups. This suggests no differences between them in how they prioritize the measures of ERP system success.

Upon inspection of the ranking orders for both groups, attention was drawn to a few salient parts. The top five most important measures in order of importance (priority) for both groups are comparable with measures such as: importance, relevance, accuracy, reliability, and information timeliness of ERP systems being featured. Similarly, the least important measures include the following statements: 'Our ERP provides us with competitive advantage,' 'Our ERP is easy to use,' and 'Our ERP is flexible'. These measures received lower ratings from both groups and resulted in these measures being placed at the bottom of the ranking order (see Table 2).

Table2: Relative Ordering of ERP System Effectiveness Measures.

The Top-10 ERP system effectives measures for the groups						The bottom-10 ERP system effectiveness measures for the groups				
Measure	Business Managers		IT Professionals			***Measure***	Business Managers		IT Professionals	
Our ERP has (is)…	Mean	Rank	*Measure*	Mean	Rank	Our ERP has (is)…	Mean	Rank	Mean	Rank
relevant	5.81	**1**	important	5.90	**1**	enables e-business / e-commerce	4.38	**36**		
important	5.81	**2**	accurate data	5.70	**2**	improves organizational-wide communication	4.38*	**37**		
usable (information)	5.55	**3**	up-to-date (information)	5.65	**3**	easy to use	4.31	**38**	3.80*	**43**
up-to-date (information)	5.38	**4**	relevant	5.55*	**4**	improves worker's participation	4.26	**39**		
reliable	5.33	**5**	reliable	5.55*	**5**	facilitates business process change	4.24	**40**	4.10	**36**
available	5.31	**6**	efficient	5.35	**6**	enhances organizational learning	4.21	**41***	3.80*	**42**
accurate data	5.24	**7**	usable (information)	5.30*	**7**	easy to learn	4.14	**42**	3.85*	**41**
timely information	5.10	**8**	timely information	5.30*	**8**	flexible	4.12*	**43**	3.90	**39**
integrates with other IS systems	5.10	**9**	understandable	5.25	**9**	enhances individual creativity	4.12*	**44**	3.70	**45**
our ERP vendor / consultant is trustworthy	5.05	**10**	has good features	5.10	**10**	provides competitive advantage	3.90	**45**	3.85*	**40**
						ERP increases customer service / satisfaction			3.80*	**44**
						Our ERP vendor / consultant provides quality training and services			3.95	**38**
						Our ERP vendor / consultant communicates well with my org.			4.05	**37**

Legend = * (tie)

Both groups rated measures such as ERP's capability to enhance individual productivity among the least important measures. However, the main noticeable differences relate to a few of the measures pertaining to the vendor/consultant dimension; the IT professionals in our sample seem to indicate less satisfaction with this dimension compared to their business counterparts. In contrast, the business managers' top ten ranking measures included items related to the vendor/consultant dimension, for example, 'Our ERP vendor/consultant is trustworthy' ranks among the top-ten for business managers whereas the same measure ranked lowly for IT managers. Measures relating to the ease of learning and using ERP were rated lowly by both groups. Further, two organizational stakeholder groups appear to indicate that their ERP software lack flexibility and may not provide competitive advantage to their various organizations.

Suffice to say that the top and bottom measures for the two groups compare reasonably well, with the exception of the measure relating to VQ dimension. The six dimensions of ERP success (through their composite mean scores) were compared across both groups. For business managers, the order of importance for the dimension is information quality (IQ), vendor/consultant quality (VQ), system quality (SQ), individual impact (II), workgroup impact (WI), and organizational impact (OI). For IT professionals, the order of importance is information quality (IQ), system quality (SQ), workgroup impact (WI), organizational impact (OI), individual impact (II) and vendor/consultant quality (VQ) (see Table 3). Concerning the relative ranking ordering, the results of the Kendall Tau-b coefficient test (significant at $p = 0.05$) for the two groups on the six dimensions are Tb = 8.18, Value = 0.333, Sig. = 0.413, which indicates a difference between the groups on how the dimensions of ERP were ranked or prioritized. Clearly, business managers appear to prioritize the vendor/consultant quality (VQ) dimension higher than do their IT counterparts; however, both groups ranked the IQ dimension highest.

Table 3: The Ranking of ERP System Effectiveness Dimensions.

Dimension	Business managers (n=42)			IT professionals (n=20)			Total (n=62)	
	Mean	Std. Dev.	Rank	Mean	Std. Dev.	Rank	Mean	Rank
System Quality	4.7762	.8430	**3**	4.7550	.9305	**2**	4.78	**2**
Information Quality	5.2381	.7657	**1**	5.2778	.7902	**1**	5.25	**1**
Vendor/Consultant Quality	4.9000	.9890	**2**	4.2100	.8979	**6**	4.68	**3**
Individual Impact	4.6270	.8262	**4**	4.2583	.7482	**5**	4.51	**5**
Workgroup Impact	4.5204	.8129	**5**	4.6000	.8402	**3**	4.55	**4**
Organizational Impact	4.4851	.9174	**6**	4.2813	1.0926	**4**	4.42	**6**
Overall ERP system Effectiveness	5.0873	.9934		4.7833	1.3945		4.99	

DISCUSSIONS AND CONCLUSIONS

The objective of this study was to find out whether two organizational stakeholder groups, i.e., business managers and IT professionals prioritize the measures and dimensions of ERP system effectiveness or success differently. This research effort complements the studies by Sedera, et al., (2002, 2004). In those studies, both IT professionals and business managers were reported to prioritize ERP success dimensions measures differently with the exception of

the dimension related to 'information quality'. At a much wider level, the literature has shown that both groups would assess organizational-IT issues differently due to a variety of reasons including culture gaps, organizational influences, and value perceptions. This study is predicated on the knowledge that differences may exist between IT professionals and business managers, and did not aim at investigating why that might be the case.

The results in this study did not indicate any statistical differences between the two groups on how each prioritized measures related to ERP system effectiveness. It is easy to see that all the measures that made the top ten were the same across both groups. Similarly, both groups had seven measures in common in their bottom ten measures. With regard to how the dimensions of ERP effectiveness were prioritized, some variations were noticed on how each group prioritized the dimension related to vendor/consultant quality. Business managers rated this dimension significantly higher than did IT professionals. The results appear to be at variance with the observations in Sedera et al. (2002; 2004), but similar in one instance where both groups were found to have the same perception of 'information quality'. The following explanations are offered as possible reasons why some of the results in this study and those in Sedera et al. might have differed. First, the measures used in this study were not generated by the participants, unlike in Sedera, et al., (2002, 2004) where a Delphi method was used to enlist the measures from the participants (IT staff and business managers) who participated in subsequent surveys to evaluate the generated measures. Prior studies (Saunders & Jones, 1992) have suggested that when organizational actors (top managers and IT professionals) produce their lists of organizational-IT success factors, the ones generated by each group tend to be highly rated or accorded higher priority than those developed by others. Second, this study solicited participation from firms, unlike Sedera and colleagues who researched the same theme using respondents from public sector organizations. Studies have shown that IT performance and assessment issues may differ across both sectors (Khandelwal, 2001). Third, the conceptualization of ERP success measurement that was used in this study is different from those in Sedera, et al., (2002, 2004). Fourth, the results obtained in this study were based on small sample sizes, and this might have influenced the data analysis somewhat.

The implications of this study's findings for practice and theory are discussed as follows. Consistent with the stakeholder theory, the similarity in the prioritization of ERP success measures between the two groups would mean that corporate managers are in a better position to effectively manage the effectiveness or success of acquired ERP systems. Similarly, any ensuing differences on ERP success evaluations between the two groups might be easily spotted. As both groups regarded the informational quality of ERP systems as the important dimension of the six that were operated, managers in adopting firms could use this dimension as the best indicator of ERP effectiveness to monitor when examining any differences between different organizational stakeholder groups. Further, Items (measures) that were lowly ranked include the ease of use, learning of ERP, and the flexibility of such systems, which both business and IT managers in this study rated lowly, could provide insights to the providers of such systems. The relatively low placement of some of these measures from the total 45 measures support observations and arguments (Sammon, et al., 2004) that both the providers and adopters of such systems should be aware of the limits of ERP systems.

Even though this study did not fully support Sedera, et al., (2002; 2004) and widely held views that both groups would prioritize organizational-IT issues in general and ERP success in particular differently, it does, to some extent, confirm observations in some studies (Senn, 2003) indicating that views between the groups may in fact not be static (i.e. they may converge or diverge, depending on the issue). In this regard, this effort lends support to the conclusions made by Senn (2003) who suggests that there may be more similarities in the way IT professionals and business managers evaluate organizational-IT issues than there are differences. He asserts that 'The results show that there is a high degree of similarity in beliefs of managers and IT professionals . . . These are important findings. They suggest that perhaps the traditional 'two worlds' view, from the past, needs to be reconsidered' (ibid, p. 10). The insight provided here may be useful for theory development regarding the viewpoints and perception of IT professional and business managers on organizational-IT issues.

There are limitations in this work, some of which relate to the data sample size used, reliability of responses, and the diversity in the ERP systems in the sample, among others. Other research methods, including case studies might permit deeper understanding of the research theme. The viewpoint discussed in this study represents perspectives from firms; thus, generalizing the findings to all contexts should be done with caution. Nonetheless, this endeavor might stimulate further inquiry regarding the success evaluations of enterprise systems (and ERPs) in adopting firms vis-à-vis organizational stakeholder groups' perceptions. Future studies could investigate the viewpoints of the two organizational stakeholder groups on other IT systems, including systems developed internally in lieu of those

procured from external sources such as ERP. Investigations could aim at finding out whether IT professionals are satisfied with their roles during ERP implementation against the backdrop of others assuming process ownership roles, and how do contrasting roles impact the success evaluations of such systems. Other relevant questions to investigate may include the following: Are ERP adopting organizations satisfied with their systems' features? What views do in-house IT professionals and business managers have on their ERP vendors/consultants?

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APPENDIX 1

THE DIMENSIONS OF ERP SYSTEM EFFECTIVENESS

Vendor/Consultant Quality (VQ): This refers to the quality of expertise, relationships, training, and communication, among others that the providers of the software offer the adopting organization.

System Quality (SQ): This refers to the performance characteristics of the ERP systems. SQ is concerned with issues relating to the ease of using and learning the systems, its data accuracy, reliability, efficiency, and so forth.

Information Quality (IQ): This dimension focuses on the quality of the information system output. IQ deals with the timeliness, relevance, availability, understandability, and usability of the information output of the system, among others.

Individual Impact (II): This dimension is concerned with the effect of the IS (in this instance, ERP) on the individual. II assesses how the use of the adopted ERP system has increased the individual's productivity, improved his or her decision making capability, and so forth.

Workgroup Impact (WI): This dimension refers to the impact of ERP acquisitions on the workgroups, sub-units and/or departments within organizations. WI encompasses issues relating to the use of ERP to improve inter-departmental coordination, communication, and productivity.

Organizational Impact (OI): This refers to the value or benefits accruing to the organization for adopting a particular ERP system. Such impacts might be related to the extent to which the ERP has enabled the adopting firm to improve its customer service, enhance its decision making, reduce its organizational costs, and so forth.

APPENDIX 2

THE MEASURES OR ITEMS IN THE QUESTIONNAIRE

	Measure
1	Our ERP has accurate data
2	Our ERP is flexible
3	Our ERP is easy to use
4	Our ERP is easy to learn
5	Our ERP is reliable
6	Our ERP allows data integration
7	Our ERP is efficient
8	Our ERP allows for customization
9	Our ERP has good features
10	Our ERP allows for integration with other IT systems
11	Our ERP meets users' requirements
12	Our ERP database contents is up-to-date
13	Our ERP has timely information
14	The information on our ERP is understandable
15	The information on our ERP is important
16	The information on our ERP is brief
17	The information on our ERP is relevant

18	The information on our ERP is usable
19	The information on our ERP is available
20	Our ERP vendor/consultant provides adequate technical support
21	Our ERP vendor/consultant is credible and trustworthy
22	Our ERP vendor/consultant has good relationships with my organization
23	Our ERP vendor/consultant is experienced and provides quality training and services
24	Our ERP vendor/consultant communicates well with my organization
25	Our ERP enhances individual creativity
26	Our ERP enhances organizational learning and recall for individual worker
27	Our ERP improves individual productivity
28	Our ERP is beneficial for individual's tasks
29	Our ERP enhances higher-quality of decision making
30	Our ERP saves time for individual tasks and duties
31	Our ERP helps to improve workers' participation in the organization
32	Our ERP improves organizational-wide communication
33	Our ERP improves inter-departmental coordination
34	Our ERP creates a sense of responsibility
35	Our ERP improves the efficiency of sub-units in the organization
36	Our ERP improves work-groups productivity
37	Our ERP enhances solution effectiveness
38	Our ERP reduces organizational costs
39	Our ERP improves overall productivity
40	Our ERP enables e-business / e-commerce
41	Our ERP provides us with competitive advantage
42	Our ERP increases customer service/ satisfaction
43	Our ERP facilitates business process change
44	Our ERP supports decision making
45	Our ERP allows for better use of organizational data resource

Notes: Assessed on a Likert scale where 1=strongly disagree, 2=disagree, 3=somewhat disagree, 4=neutral, 5=somewhat agree, 6= agree, and 7=strongly agree