

December 2003

ERP success: Does organisation Size Matter?

Darshana Sedera
Queensland University of Technology

Guy Gable
Queensland University of Technology

Taizan Chan
Queensland University of Technology

Follow this and additional works at: <http://aisel.aisnet.org/pacis2003>

Recommended Citation

Sedera, Darshana; Gable, Guy; and Chan, Taizan, "ERP success: Does organisation Size Matter?" (2003). *PACIS 2003 Proceedings*. 74.
<http://aisel.aisnet.org/pacis2003/74>

This material is brought to you by the Pacific Asia Conference on Information Systems (PACIS) at AIS Electronic Library (AISeL). It has been accepted for inclusion in PACIS 2003 Proceedings by an authorized administrator of AIS Electronic Library (AISeL). For more information, please contact elibrary@aisnet.org.

ERP success: Does organisation Size Matter?

Darshana Sedera, Guy Gable, Taizan Chan

Centre for Information Technology Innovation
School of Information Systems, Queensland University of Technology
Brisbane, Queensland, Australia
d.sedera@qut.edu.au | g.gable@qut.edu.au | t.chan@qut.edu.au

Abstract

Organisations invest enormous sums of money in acquiring Enterprise Resource Planning (ERP) systems, presumably expecting positive impacts to the organisation and its functions. Despite the optimistic motives some ERP projects have reported nil or detrimental impacts. This paper studies the proposition that the size of an organisation (e.g. small, large) may have contributed to the differences in receiving benefits reported in prior studies in this domain. The alleged differences in organisational performance are empirically measured using a prior validated model, using five constructs and forty-two sub-constructs. Information is gathered from three hundred and ten respondents representing twenty-seven public sector organisations. Results suggests that (1) larger organisations have received more benefits compared to small organisations, (2) small organisations demonstrated higher reliance on their ERP systems, (3) employment cohorts demonstrate significant differences in perceived benefits in small and large organisations.

Keywords: Enterprise Resource Planning systems, ERP, ERP success, Organisation Size, IS impacts

Introduction

Prior research suggests that organisational context is a determinant of Information System (IS) success. Schultz and Slevin (1975) and Ein-Dor and Segev (1978) were among the first in pointing the importance of organisational factors in managing Information Systems. In their early work, Ein-Dor and Segev (1978) proposed a framework after studying Management Information System (MIS) in which they identified organisation size as one of the critical variables. Although many others (e.g. Delone, 1988a; Delone, 1988b; Lai, 1994; Raymond, 1985; Raymond, 1990) have attributed to the understanding of IS with regard to organisation size, few have empirically measured differences in variants of organisation size (i.e. small vs. large organisations). Researchers have concluded that small organisations have distinctive and unique needs compared to large organisations (e.g. Delone, 1988a; Delone, 1988b; Lai, 1994; Raymond, 1985; Raymond, 1990) and therefore, the research findings of large organisations cannot be generalized to small firms (e.g. Delone, 1988a; Delone, 1988b;

Lai, 1994; Raymond, 1985; Raymond, 1990). Traditionally, large organisations adopt packaged software to address their information systems requirements. One such popular example is Enterprise Resource Planning (ERP) systems. In the year 2000, it was reported that over 70% of *Fortune 1000* companies had or were in the process of implementing an Enterprise Resource Planning (ERP) system (Hillegerberg, Kumar, 2000). As the demand from large corporations plateau ERP vendors shifted their emphasis to Small and Medium size firms (Pituro, 1999). However, this shift in focus by the ERP vendors was not projected in research activities in recent years. Prior research studies in the ERP context mainly focused on large organisations with ERP systems, ignoring the importance of small organisations.

This paper investigates the impacts of organisation size on ERP success. ERP success is empirically measured using information received from 310 responses representing 27 public sector organisations that had implemented SAP ERP solutions in the second half of 1990. The data collection of the study was conducted in two phases: first phase of the study was conducted through an exploratory survey aimed at identifying ERP impacts and to qualify survey constructs and sub-constructs to the public sector ERP context. Only the 'qualified' sub/constructs were to be used in the confirmatory survey. The confirmatory survey employed constructs similar to ones that are proposed by Delone and McLean (1992). The structure of the paper is as follows. First, it summarizes results of a comprehensive literature review conducted to appreciate prior research pertaining to small organisational information systems. The second section briefly outlines the study, the confirmatory survey and the research model. The prominence of the paper is devoted to the latter half of the paper, demonstrates possible differences in perceptions in small and large organisations, using the *five* research constructs.

Small organisational Information Systems

Ein-Dor and Segev (1978) identified ten (10) organisational variables with direct or indirect influence on the impact of an IS. The identified variables are: (1) organisation size, (2) maturity, (3) structure, (4) time frame, (5) psychological climate towards [CB] IS, (6) organisational situation, (7) rank of responsible executives, (8) location of responsible executives, (9) steering committee location and rank and (10) resources. They found that the organisation size had special importance because of its influence on resource availability, requirements necessary for integration of professional units within an organisation, degree of formalisation of organisational systems, and lead time for planning and implementation. Furthermore, Ein-Dor and Segev (1978) recognized organisation size as an uncontrollable variable and stated that [CB] IS projects are less likely to succeed in smaller organisations compared to larger organisations.

Whisler (1970) studied nineteen insurance companies and reputed that firm size was directly related to performance of IS. Cheney (1983) identified various factors that would affect a small business firm's success or failure in using information systems and found three areas of difficulty associated in small businesses information systems: (1) software problems, (2) hardware problems and (3) implementation problems.

Delone (1981) studied the relationship between the size of a manufacturing firm and IS usage and concluded that firm size is: (1) directly related to the age of the firm's computer operations, (2) inversely related to the amount of external programming that is used, (3) directly related to the portion of revenues allocated to Electronic Data Processing (EDP), and (4) inversely related to the percentage of EDP costs that are used for computer equipment. He also explained that smaller firms experience more computer related problems than their larger counterparts. Malone (1985) found that small organisational managers rate accounting and inventory control as the most frequently used and important applications, and reported that inventory control was the most problematic aspect of computer usage in small organisations. Nickell and Seado (1986) reputed similar findings using 121 small businesses. They stated that budgeting and inventory control were primary uses of IS in small organisations. Farhoomand and Hrycyk (1985) reported that the most significant problem for a small organisation, in relation to IS, is the lack of technical support within the organisation.

A study by Cooley, Walz and Walz (1987) identified the importance of user-friendly interfaces and lower implementation costs as key factors affecting end users in small organisations. Confirming the above statement, Montazemi (1988) investigated factors affecting information satisfaction in 83 small businesses found that end user satisfaction is correlated to firm size.

An organisation has two basic options when it decides to implement a computerized application; (1) to have its own staff develop the software, or (2) to acquire packaged software from a vendor (Raymond, 1985). Turner (1982) stated that as a firm increases in size, it would demand more sophisticated software. Even though that this argument is intuitive, it suggests a correlation between organisation size and package software adoption. Turner (1982) specifically emphasized the importance of smaller organisations obtaining computer resources from external sources rather than developing applications in house. To the contrary, Raymond (1985) found that small firms are capable of developing, implementing and administering their own applications in-house. He specified that small organisations could maintain an IS with minimum financial, technical and personnel requirements. Raymond and Bergeron (1992) re-emphasized the importance and advantages of small firms developing in-house applications than adopting packaged software. They further added that *end user computing*, (where the user have direct control over their computing needs) is more appropriate for small organisations than adopting packaged software.

Soh, Yap and Raman (1992) investigated the importance of external consultants on computerization success in small businesses. They concluded that (1) the level of computer system usage of small businesses with consultants is higher than that of small businesses without consultants. Further, they added that small businesses that engage consultants are less likely to complete there IS project on time and within budget. Harrison, Mykytyn and Riemenschneider (1997) used the Theory of Planned Behaviour (TPB) to explain and predict small business technology adoption. They found that as business size increased the importance of expectations from the [social] environment increased. However, they observed a negative correlation with the importance of intra-

firm consequences and control over the potential barriers for IS adoption. In recent years, Hong and Kim (2001) looked at the '*fit perspective*' in 34 ERP installations. Even though the study did not implicitly mention, organisation size was considered as a critical contingency variable.

The review of literature showed organisation size as a discriminant variable of ERP [IS] success. Prior studies have established that small organisations are a fundamentally distinct entity and therefore, findings of IS impacts of large organisations cannot be generalized into small organisational IS. The review also pointed out that there only few studies have empirically measured the possible differences between the two organisational cohorts.

The context of the study

This study was conducted in public sector twenty-seven ERP organisations in Queensland – Australia. All Queensland state Governmental agencies (Departments) with live SAP systems were surveyed. Queensland is the first Australian state to implement common software statewide namely; The Queensland Government Financial Management System (QGFMS). In 1983, the Queensland Government adopted the Management Services America (now Dunn and Bradstreet), financial modules. A decade later, QGFMS, initially broadly considered a success, was in the minds of many, 'inadequate' to support the Government's ambitious plans for the future. In 1994, Queensland Treasury sent a request for information (RFI) to key ERP vendors. In October 1994, Requests for Offers (RFO) were sought from three short-listed ERP vendors and in December 1994, a committee of agency representatives led by the Queensland Treasury, selected SAP R/3 to contribute to the continual improvement of financial management within the Queensland public sector. In 1995 the state government of Queensland commenced implementation of SAP Financials across all state Government agencies (later followed by Controlling, Materials Management and in some agencies Human Resources). The Queensland Government approach was very much focused on using the Enterprise Resource Planning System as a common reporting and financial management tool (Queensland Treasury, 1998, 2000a). The objectives of the ERP based new QGFMS were to provide a financial management system to Queensland Government agencies that will: (1) support the '*Managing for Outcomes*' (MFO) framework and financial management improvement activities, (2) encourage best practice resource management across Queensland Government, (3) facilitate the consolidation of Queensland Government financial information, (4) meet the business needs of agencies and (5) achieve economies of scale in main operations (Queensland Treasury, 1998, 2000a, 2000b, 2000c).

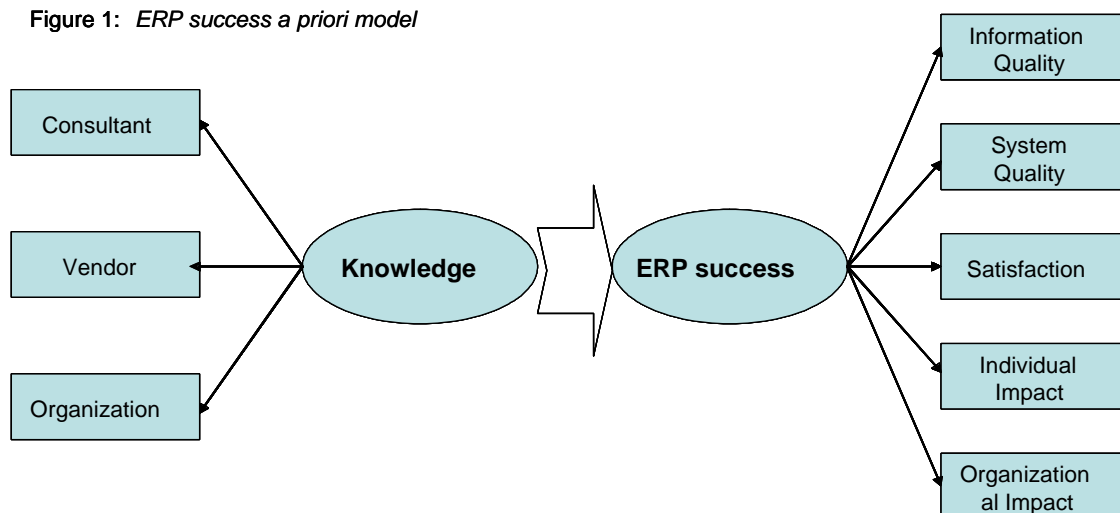
Despite the claimed benefits by most of the agencies, a relatively smaller agency that provides corporate services to a group of other agencies demonstrated their dissatisfaction about their SAP system. Even though the SAP software provided rich functionality to this organisation, the stakeholders believed that the SAP ERP system was too complex and too expensive to operate in a smaller organisation. After three years of SAP use the agency decided to replace the SAP ERP solution with FinanceOne, increasing the appropriateness of a study of this nature.

The survey

This study was first introduced to the Queensland State Government agencies in August 2001 at a special ‘benefits realization’ interest group gathering. The *exploratory survey* was conducted in September 2001, followed by the *confirmatory survey* that commenced in August 2002.

The main aim of the *exploratory survey* was to identify and validate constructs and sub-constructs that are relevant to the study context by surveying twenty-seven public sector SAP implementations. The analysis of the exploratory survey and a series of expert workshops resulted the *a priori* model depicted in figure 1. The purpose of the *confirmatory survey* was to test the *a priori* model. A survey instrument was designed that operationalize the five constructs on the right (dependent) side in figure 1 (and 42 related sub-constructs¹). The knowledge construct (antecedent on the *left* side of the *a priori model*) is measured using two constructs and eleven sub-constructs. The *a priori*

Figure 1: ERP success *a priori* model



constructs and sub-constructs were validated and the relationships between them were explored. These results have been published will not be discussed herein (see details in Sedera, Gable, Rosemann, 2000; Sedera, Rosemann, Gable, 2000; Sedera, Gable, Palmer,

¹ See appendix A for details. Also note that Usage / Usefulness is not used in the study. As Delone and McLean (1992) point out “usage, either perceived or actual is only pertinent when such use is not mandatory” (p 68). When use of a system is mandatory, the number of hours a system is used conveys little information about the impact of such a system. Seddon and Kiew (1994) argue that the underlying construct IS researchers have been trying to gauge is *Usefulness*, not *Usage*.

The ERP system under investigation is mandatory for all users, and thus changes advocated by Seddon and Kiew (1994) are acknowledged. However, we argue that the *Usefulness* of a system derives from such factors as, the quality of the system, quality of information, and satisfaction of users. We therefore argue that *Usefulness* is not an independent construct, but rather a surrogate measure of system quality, information quality and satisfaction. On the basis of this argument, *Usefulness* is excluded from the *a priori model*.

2002; Sedera, Gable, Chan, 2003a; Sedera, Gable, Chan, 2003 b; Sedera, Gable, Chan, 2003c).

Next section reports the findings of the consequences of organisation size on the performance of the ERP system. It will first establish that differences in the organisation size (i.e. small vs. large) pose an effect to perceived ERP systems' success. It is followed by a detailed analysis of ERP impacts employing the five a priori constructs, namely: System Quality, Information Quality, Satisfaction, Individual Impact, Organisational Impact.

Organisational size as a determinant of ERP success

The number of SAP user licenses was deemed an accurate illustration of the size of the organisation and was used as the principal guideline to make the distinction between small and large organisations. Organisations with more than 1000 SAP user licenses considered as large agencies and the rest were small agencies. Additional criteria were established (i.e. Number of employees, dispersion of the organisation) to be used in the grouping exercise to supplement the principal criterion, where the initial classification was unclear. Table 1(a) shows the break down of organisations, classified in to small and large organisations and Table 1 (b) shows the classification of respondents segregated into the two agency cohorts. All participated agencies: (1) used the same ERP software application, (2) had similar versions of SAP, (3) were in the same phase of the ERP life cycle, and (4) mainly use Financial Accounting and Controlling, Materials Management modules of SAP. These homogeneous characteristics of sample improved the comparability of the results between the agencies and the results of the data analysis will be valuable to the stakeholders of Queensland Government.

Table 1(a): Composition of agencies	
	#
SMALL AGENCIES	25
LARGE AGENCIES	2
Table 1(b): Respondents classification	
SMALL AGENCIES	251
LARGE AGENCIES	66

In order to establish the suspected difference in perceived ERP impacts between the two types of agencies, the criterion item was analyzed using the Analysis of Variance (ANOVA). The criterion item (*Overall, the impact of SAP on the agency has been positive*) showed a high F value of 5.22 indicating the differences in opinions across the two cohorts of agencies. Further analyze was conducted to assess the extent of differences between the two types of agencies using the *paired sample t test*. The results are shown in Table 2. The results of the t-test verify the analysis conducted through the Analysis of Variance (ANOVA).

Table 2: T-Test ($\alpha = 0.05$)					
	Mean	St: Dev	P	t-value	2-tailed probability
Small agencies	4.41	1.51	.00024	-3.58	.00048
Large agencies	5.00	1.08			

System Quality

The quality of a system under investigation is a multifaceted phenomenon. The system quality construct is designed to capture how the system performs from a technical and design perspective. Sub-constructs employed in prior research to gauge system quality have included: (1) System Efficiency, (2) Reliability, (3) Response time, (4) Ease of use, (5) Content of database, and (6) System accuracy. Hong and Kim (2001) suggest the fit between organisational requirements and system features in the context of ERP systems, is an important system quality measure. Table 3 depicts the mean and standard deviation values for validated system quality items. It can be observed that large organisations have relatively larger mean values compared to their smaller counterparts, indicating higher ERP system quality in large organisations.

Table 3: comparing ERP system quality

	SURVEY ITEM	SMALL		LARGE	
		Mean	StDv	Mean	StDv
1	SAP is easy to use	3.89	1.88	4.21	1.74
2	SAP is easy to learn	3.78	1.90	3.98	1.56
3	It is often difficult to get access to information that is in the SAP system	4.09	1.74	4.18	1.62
4	SAP meets agency requirements	4.27	1.58	4.55	1.25
5	SAP includes necessary features and functions	4.31	1.55	4.65	1.32
6	SAP always does what it should	4.13	1.52	4.20	1.47
7	The SAP user interface can be easily adapted to one's personal approach	3.71	1.58	3.91	1.55
8	SAP requires only the minimum number of fields and screens to achieve a task	3.62	1.37	4.06	1.56
9	All data within SAP is fully integrated and consistent	4.20	1.43	4.20	1.57
10	SAP can be easily modified, corrected or improved.	3.19	1.55	3.32	1.42

The correlation between the criterion item (item: *Overall, the impact of SAP on the agency has been positive*) and the simple average of system quality items, show a stronger relationship in small organisations when compared to their larger counterpart (see table 4). These numbers show that the importance of system quality and explains that the overall impact of SAP. The results indicate that in small organisations the overall impact is highly depended on the quality of the SAP system.

Table 4: Correlation of system quality and overall impact

	SMALL	LARGE
	Overall impact	Overall impact
System quality	.711	.542

Information Quality

Measures of information quality focus on the output (*on-screen and reports*) produced by the system, and the value, usefulness or relative importance attributed to the output by the users. In an early leading study of IS success, Bailey and Pearson (1983) identified nine characteristics of information quality: accuracy, precision, currency, timeliness, reliability, completeness, conciseness, format and relevance. Sirinivasan (1985) added 'understandability' of information as another important sub-construct; while Saaksjavi and Talvinen (1993) employed content, availability, accuracy as sub-construct measures of information quality in their study of marketing information systems. Rainer and Watson (1995) found accuracy, timeliness, conciseness, convenience and relevance as being key aspects of Executive Information Systems information quality. Results of the exploratory survey and expert workshops revealed context-specific measures of information quality and thus significant changes have been made to the sub-constructs of information quality. Mean values of question one indicate that both agency cohorts (i.e. small, large) consider information from SAP to be very important. It also indicates that organisations rely heavily on the SAP system for their day-to-day information needs. Similar to the system quality perspective, higher mean values were observed in large organisations in all the seven validated information quality items and small agencies show a higher correlation with the quality of information generated from the SAP system and the overall impact (see table 6).

Table 5: comparing ERP information quality

	SURVEY ITEM	SMALL		LARGE	
		Mean	StDv	Mean	StDv
1	Information available from SAP is important	6.11	1.08	6.23	0.91
2	SAP provides output that seems to be exactly what is needed	3.74	1.55	3.98	1.65
3	Information needed from SAP is always available	4.48	1.60	4.58	1.62
4	Information from SAP is in a form that is readily usable	3.79	1.74	3.86	1.69
5	Information from SAP is easy to understand	3.88	1.75	4.24	1.59
6	Information from SAP appears readable, clear and well formatted	3.66	1.67	3.98	1.60
7	Information from SAP is concise	4.21	1.39	4.29	1.38

Table 6: Correlation of information quality and overall impact

	SMALL	LARGE
	Overall impact	Overall impact
Information quality	.601	.5137

Individual Impact

Individual impact is concerned with how the ERP system has influenced the performance of individual users. Individual impact tends to encompass a broad range of subjective measures such as: confidence in decisions made, improvements in decision-making, and

the time to reach a decision (Kim and Lee, 1986; Sirinivasan, 1985; Ein-Dor, Segev, Steinfeld, 1981). Dickson, Senn, Chervany, (1977) provided early insights into Individual Impact citing decision quality, decision time, decision confidence, and estimated outcomes. This study employs four sub-constructs to measure impact of the ERP system under investigation on the individual respondent. All items displayed significant values in the large organisation cohort (details in table 7).

Table 7: comparing ERP *individual impact*

	SURVEY ITEM	SMALL		LARGE	
		Mean	StDv	Mean	StDv
1	I have learnt much through the presence of SAP.	4.59	1.58	5.27	1.28
2	SAP enhances my awareness and recall of job related information	4.36	1.59	5.00	1.15
3	SAP enhances my effectiveness in the job	4.59	1.61	5.27	1.27
4	SAP increases my productivity	4.31	1.57	4.86	1.38

Organisational Impacts

The impact of an ERP system on organisational performance is difficult to isolate. Consideration was given to the overall objectives of the organization, and there should be a clear separation from individual impacts. Analysis of the exploratory survey data, and several interviews of key individuals from participating agencies, provided insights into overall objectives of these organisations. Eight sub-constructs were utilized to evaluate ERP impacts at the organisational level. In the eight sub-constructs used under the organisational impact dimension, larger organisations showed significantly higher mean values.

Table 8: comparing ERP *organisational impacts*

	SURVEY ITEM	SMALL		LARGE	
		Mean	StDv	Mean	StDv
1	SAP is cost effective	3.41	1.37	3.85	1.22
2	SAP has resulted in reduced staff costs	3.31	1.47	3.52	1.28
3	SAP has resulted in cost reductions (e.g. inventory holding costs, administration expenses, etc.)	3.38	1.36	3.71	1.32
4	SAP has resulted in overall productivity improvement	4.00	1.55	4.23	1.20
5	SAP has resulted in improved outcomes or outputs	4.16	1.50	4.47	1.17
6	SAP has resulted in an increased capacity to manage a growing volume of activity (e.g. transactions, population growth, etc.)	4.63	1.42	4.92	1.18
7	SAP has resulted in better positioning for e-Government.	4.24	1.49	4.88	1.23

8	SAP has resulted in improved business processes	4.28	1.53	4.74	1.40
---	---	------	------	------	------

Satisfaction

As discussed by Delone and McLean (1992), user satisfaction is probably the most widely used single measure of IS evaluation. There are several studies and standard instruments that measure satisfaction, including: Bailey and Pearson (1983), Baroudi and Orlikowski (1986), Doll and Torkzadeh (1988). Most of these studies, however evaluated a specific application, focusing *only* on the satisfaction construct. Consequently, when used in conjunction with a more complete set of constructs, most of the survey items used in prior satisfaction-only studies ‘mapped’ into other constructs, not to satisfaction. This study employs five separate sub-constructs to comprehensively evaluate impacts of the satisfaction construct. In line with other constructs, large organisations showed higher mean values.

Table 9: comparing ERP *satisfaction*

	SURVEY ITEM	SMALL		LARGE	
		Mean	StDv	Mean	StDv
1	Overall, the SAP System Quality is satisfactory	4.59	1.41	4.82	1.25
2	Overall, the SAP Information Quality is satisfactory	4.57	1.44	4.71	1.30
3	SAP is enjoyable to use	3.84	1.69	4.17	1.61
4	Overall, SAP is satisfactory	4.36	1.63	4.77	1.44
5	Overall, SAP system related knowledge has been managed satisfactorily.	3.93	1.62	4.21	1.57

Employment cohorts within organisation size

A further analysis was completed to understand the behavior of employment cohorts in small and large organisations. Organisations typically have many stakeholders with multiple and often conflicting objectives and priorities (e.g. Cameron and Whetton, 1983; Leider and Elam, 1994; Tallon et al., 2000; Quinn and Rohrbaugh, 1983; Yoon and Guimares, 1995). These stakeholders rarely agree on a set of common objective and usually have different priorities. To understand these diversity respondents were classified into four employment categories based on their position descriptions given in the confirmatory survey and the individual database profiles of each employee. The four employment cohorts are: (2) Process Owners (PO), (2) Strategic Users (SU), (3) Operational Users (OU) and the (4) Technical Staff (TEC). Process Owners (e.g. Executive Officer, Director) represent the highest level of employment in an agency and they have a holistic understanding about impacts that the SAP system brought in to the entire organisation. Process Owners do not usually interact with the SAP system on a day-to-day basis compared to the other three cohorts. Strategic Users (e.g. Divisional managers, Business analysts, project consultants) manage a division or a branch of the organisation. Typically, they have few employees working under the division and possibly manage part of the organization’s budget. The Operational Users (e.g. data entry

officers, clerks) interact with the SAP system on a day-to-day basis. They do not use the system to provide any strategic directions, but provide support services to the management. Technical Staff (e.g. ABAP programmers) involve with system related duties and provide technical support to their organisation.

The analysis depicted in table 10 illustrates the mean values of each employment cohort with regard to the organisational classification (small, large). Results indicate all employment cohorts in large organisations have a higher approval of their ERP application, compared to small organisations. Process Owners (PO) in large organisations in particular show a significant difference in perceptions. It also showed significant differences in Individual Impact construct and Organisational Impact constructs across the small and large organisations.

Table 10: employment cohorts Vs organisational cohorts²

	SMALL (mean values)				LARGE (mean values)			
	PO	SU	OU	TEC	PO	SU	OU	TEC
SQ	3.76	4.07	3.96	4.37	4.62	4.22	3.76	4.22
IQ	4.02	4.43	4.26	4.54	4.73	4.54	4.03	4.74
II	3.71	4.29	4.60	4.99	4.79	4.78	5.29	6.03
OI	3.22	3.92	4.04	4.17	4.19	4.29	4.14	4.61
SA	3.72	4.18	4.25	4.58	4.06	4.44	4.21	5.10

Conclusion

This paper discussed and analyzed Enterprise Resource Planning (ERP) system success in 27 public sector organisations using organisation size as discriminant variable. ERP success was empirically measured using five constructs and forty-two sub-constructs using information from 310 respondents. Analysis of all five constructs (system quality, information quality, satisfaction, individual impact, organisational impact) showed differences in perceived ERP success between small and large organisations. In line with the findings identified from a thorough literature review, large organisations in the sample show positive results in all five constructs, compared to small organisations. Further analysis was completed in order to understand perceptions of four employment cohorts (i.e. process owners, strategic users, operational users, technical staff) within the organisational classification. In relation to the two organisation cohorts, process owners (who have a holistic understand about the impacts of an ERP system) showed the highest differences.

References

Bailey, J. E., Pearson, S. W. (1983) "Development of a tool for measuring and analysing computer user satisfaction", *Management Science*, 29(5), 530-545

² Abbreviations: PO – Process Owner, SU – Strategic Users, OU – Operational User, TEC – Technical Staff, SQ – System Quality, IQ – Information Quality, II – Individual Impact, OI – Organisational Impact, SA – Satisfaction

- Baroudi, J. J., Orlikowski, W. J. (1986) "A short form measure of user satisfaction: research and practice", *Journal of Management Information Systems*
- Cameron, K. S., Whetton, D. A. (1983) "Organisational effectiveness: A comparison of multiple models", Academic press, New York, NY.
- Cheney, P. H. (1983) "Getting the most out of your first computer system", *American journal of small business*, 7-4, pp 476-485
- Cooley, P. L., Walz, D. T., Walz, D. B. (1987) "A research agenda for computers and small business", *American journal of small business*, 12-3, pp 31-42
- DeLone, W. H., McLean, E. R. (1992) "Information Systems success: The quest for the dependent variable", *Information Systems Research*, 3, 1, pp 60-95.
- Delone, W. H. (1981) "Firm size and the characteristics of computer use", *MIS Quarterly*, December, pp 65-77
- Delone, W. H. (1988a) "Small size and the characteristics of computer use", *MIS Quarterly*, 5-4, pp 65-77
- Delone, W. H. (1988b) "Determinants of success for usage in small firms", *MIS Quarterly*, 12-1, pp 51-61
- Dickson, G. N., Senn, J., Chervany, N. (1977) "Research in MIS: The Minnesota Experiments", *Management Science*, 28(9), 913
- Ein-Dor, P., Segev, E. (1978) "Organisational context and the success of management information systems", *Management Science*, 24,10, pp 1067-1077
- Ein-Dor, P., Segev, E., Steinfeld, A. (1981) "Use of management information systems: An empirical study", *proceedings in the 2nd International Conference on Information Systems*, December 1981, p215-228
- Farhoomand, F., Hrycyk, E. (1985) "The feasibility of computers in small business environments", *American journal of small business*, 9-4, pp 15-22
- Harrison, D. A., Mykytyn, P. P., Riemenschneider, C. K. (1997) "Executive decisions about adoption of information technology in small business: Theory and empirical tests", *Information Systems Research*, 8-2, pp 171-192
- Hillegersberg, J. V., Kumar, K. (2000) "ERP experience and evolution" *Communications of the ACM*, 43-4, pp 23-26
- Hong, K. K., Kim, Y. G. (2001) "The critical success factors for ERP implementation: an organisational fit perspective", *Information and Management*, 1-16, pp 1-16
- Kim, E., Lee, J., (1986) "An exploratory contingency model of user participation and MIS use", *Information & Management*, 11(2), 87-97
- Lai, V. S. (1994) "A survey of rural small business computer use: success factors and decision support", *Information and Management*, 26, pp 297-304
- Melone, S. C. (1985) "Computerising small business information systems", *Journal of small business management*, April, pp 10-16
- Montazemi, A. R. (1988) "Factors affecting information satisfaction in the context of small business environment", *MIS Quarterly*, June, pp 239-256

- Nickell, G. S., Seado, P. C. (1986) "The impact of attitudes and experience on small business computer use, *American Journal of small business*, 10-1, pp 37-48
- Piturro, M. (1999) "How midsize companies are buying ERP", *Journal of accountancy*, 188-3, pp 41-48
- Queensland Treasury, (1998) "QGFMS Lead Agency Strategic Plan 1988-2003", The Office of Financial Management Systems and Training.
- Queensland Treasury, (2000a) "QGFMS Benefits Realization Guidelines: Translating Strategy in to performance benefits and initiatives", The Office of Financial Management Systems and Training.
- Queensland Treasury, (2000b) "Understanding Managing For Outcomes", The Office of Financial Management Systems and Training.
- Queensland Treasury, (2000c), "QGFMS Lead Agency Strategic Plan", The Office of Financial Management Systems and Training.
- Rainer, K. R., Watson, H. J. (1995) "The keys to Executive Information System Success", *Journal of Management Information Systems*, 12(2), 83-98
- Raymond, L., Bergeron, F. (1992) "Personal DSS success in small enterprises", *Information and Management*, 22, pp 301-308
- Raymond, L. (1985) "Organisational characteristic and MIS success in the context of small businesses", *MIS Quarterly*, 9-1, pp 37-52
- Raymond, L. (1990) "Organisational context and MIS success", *Journal of Management Information Systems*, 6-4, pp 5-20
- Saaksjarvi, M. T. V., Talvinen, J. M. (1993) "Integration and Effectiveness of marketing information systems", *European Journal of marketing*, 27(1), 64-79
- Schultz, R. L., Slevin, D. P. (1975) "Implementation and organisational validity: an empirical investigation" in *Implementing operational research/Management Science*, Eds. Shultz, R. L., Slevin, D. P., New York, Elsevier, North-Holland, pp 153-182
- Seddon, P. B., Kiew, K. Y. (1994) "A partial test and development of the DeLone and McLeans model of IS success", *proceedings of the international conference on Information Systems*, Vancouver, Canada
- Sedera, D., Gable, G., Palmer, A. (2002) "Enterprise Resource Planning systems impacts: a Delphi study of Australian public sector organisations" in *proceedings of the Pacific Asian Conference on Information Systems (PACIS '02)*, Tokyo, Japan, September 3-5.
- Sedera, D., Gable, G., Rosemann, M., (2001b) "A Balanced Scorecard Approach to Enterprise Systems Performance Measurement" in *proceedings of the 12th Australasian Conference on Information Systems (ACIS '01)*, Coffs Harbour, NSW, Australia, December 5-7.
- Sedera, D., Rosemann, M., Gable, G., (2001a) "Using Performance Measurement Models for Benefit Realisation with Enterprise Systems- The Queensland Government Approach", in *proceedings of the 9th European Conference on Information Systems (ECIS '01)*, Bled, Slovenia.

Sedera, D., Gable, G., Chan, T. (2003a) "Measuring Enterprise Systems Success: A preliminary model" in proceedings of the 2003 Americas Conference on Information Systems (AMCIS 2003), Tampa, Florida, USA, August 4-6.

Sedera, D., Gable, G., Chan, T. (2003b) "Survey design: Insights from a public sector-ERP impact study" in proceedings of the 7th Pacific Asia Conference on Information Systems (PACIS 2003), Adelaide, Australia, July 10-13

Sedera, D., Gable, G., Chan, T. (2003c) "Knowledge management for ERP success" in proceedings of the 7th Pacific Asia Conference on Information Systems (PACIS 2003), Adelaide, Australia, July 10-13

Sirinivasan, A. (1985) "Alternative measures of System Effectiveness: Associations and Implications", *MIS Quarterly*, 9(3), 243-253

Soh, C. P. P., Yap, C. S., Raman, K. S. (1992) "Impact of consultants on computerisation success in small businesses", *Information and Management*, 22, pp 309-319

Turner, J. S. (1982) "Firm size, performance and computer use", *Proceedings of the third international conference on information systems*, Ann Arbor, Michigan, December, pp 109-120

Turner, J. S. (1992) "Personal DSS success in small business", *Information and Management*, 22, pp 301-308

Yoon, Y., Guimaraes, T. (1995) "Assessing expert system impact on user's jobs, *Journal of Management Information Systems*", 12, 1, pp 225-254.

Whisler, T. L. (1970) "The impact of computers on organisations", Praeger Publishers, New York, 188 pp