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A benchmarking framework for information systems management issues in Kuwait

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Abstract

Purpose – Aims to demonstrate the importance of reporting IS management constructs rather than reporting and ranking the individual management issues; determine whether the ratings of IS management factors differ across organizational and personal variables; and benchmark the position of Kuwait's results on dimensionality and determinants of IS management issues with that of other previous studies.

Design/methodology/approach – This field study considered only the opinions of the highest ranked executives of the IS functions within their organizations. A seven-page structured interview guide was used for data collection. Principal component factor analysis was performed on the issue ratings in order to determine underlying IS management factors. Confirmatory factor analysis was performed to further assess how well the factors fit the issue data and to test the fit of the resulting factor model. Finally, *t*-tests were performed to test whether the differences between factors were significant in order to demonstrate the discriminatory value of reporting IS management factor areas rather than individual issues.

Findings – The key IS management factors identified by IS managers are the effective management of IS resources such as data, networks and applications; and managers' knowledge of IS. This study also found that most situational variables including nationality are not associated with differences in IS management factor ratings. Thus, the survey results are consistent across different types of organizations and respondents. The exception is organization size and IS department size. Size differences can lead to different opinions on the relative importance of various IS management factors.

Originality/value – To demonstrate the importance of reporting IS management factors (constructs) as a benchmarking framework rather than reporting and ranking the individual management issues, and to use the derived conceptual benchmarking model to determine whether the ratings of IS management factors differ across organizational and personal variables.

Keywords Benchmarking, Kuwait, Information systems

Paper type Research paper

Introduction

Identification of the top management issues in information systems has been a popular research topic in the MIS field. Several research teams have surveyed Chief Information Officers regarding the top IS management issues that they face. According to Shi and Bennett (2001), in their description and summary study on benchmarking IS management issues studies, the main purposes of the conducted studies can be grouped in four categories as follows: frameworks for identification, framework for comparison, frameworks that are used to analyze trends, and frameworks for examinations. As a methodology, benchmarking is suitable for evaluating virtually

any aspects of organizational performance in both public and private organizations (McGaughey, 2002).

Numerous IS management issues surveys have been conducted over the past 20 years. The reason for repeating these surveys is the assumption that IS management issues differ over time and geographical contexts. IS issues investigations are carried out longitudinally over time, or in different countries to be used as a useful means of benchmarking issues in term of their current and future importance within the specified contexts (Shi and Bennett, 2001). The results have been used by IS researchers to guide the selection of relevant research topics and by IS managers to focus their decision-making. Given the significance assigned to the results of issues surveys, it is important to establish the validity and meaning associated with these results.

Palvia and Basu (1999) have proposed that reporting the underlying constructs associated with the IS management issues is more meaningful than listing the individual management issues and their ranks. They performed confirmatory factor analysis on a model of ten (10) proposed IS management factors using data from the Niederman *et al.* (1991) IS issues study. The results supported their proposed factor model.

Utilizing issues grouping frameworks are more useful than the customarily practiced approach of identification of particular issues in isolation because the nature of information systems activities require to look at technology, strategies, organization structure, management processes, and employees and their roles in a holistic view (Earl, 1992; Somogyi and Galliers, 1987; Kawalek, 2003). Future benchmarking studies on issues comparisons and examinations should focus on IS issues as groups in a framework rather than individual issues and use the arrived at issues frameworks as a single structure variable (Shi and Bennett, 1998). Moreover, the IS literature shows that many of the expected benefits are sought after by developing information systems infrastructure in business organizations are qualitative in nature, therefore, require context to the organizations' strategy (Alshawi *et al.* 2003).

This study reports on the results of a more recent IS management issues survey conducted in Kuwait. Factor analysis is performed and factor scores are computed in order to report the most important IS management factors rather than ranking individual IS management issues. This study also investigates how CIO ratings of IS management issues vary across organizational and personal variables using the developed IS management issues benchmark dimensions. Organizational variables include organizational type (public vs private) as well as IS function age, degree of centralization, and size. Respondent demographic variables included age, nationality, education and experience.

The purposes of this study then are threefold:

(1) Demonstrate the importance of reporting IS management factors (constructs) rather than reporting and ranking the individual management issues;

(2) Determine whether the ratings of IS management factors differ across organizational and personal variables;

(3) Benchmark the position of Kuwait's results on dimentionality and determinants of IS management issues with that of other previous studies.

The paper is divided up into five sections. The first section reports the results of previous research on IS management issues dimensionality and determinants. In the next section, the sample and research methodology for the study are discussed. Results and analysis of the data are presented in the third section. Discussion, implications, and future directions on IS management issues are presented in section four. The last section presents a summary and some conclusions of the research.

Previous research

IS management issues dimensionality

Yang (1996) surveyed IS managers in Taiwanese companies to identify their most important IS management issues. Questionnaires were mailed to a sample of 748 CEOs, CIOs and other professionals. The response rate was 44 percent. Factor analysis was performed on 38 key issues and seven underlying factors were found and explained 96.8 percent of the issues variance. The issues factors are summarized in Table I. Badri (1992) surveyed IS managers from organizations in the Gulf Cooperation Council (GCC) regarding their top IS management issues. Self-administered questionnaires were handed directly to 120 CIOs and 80 percent completed the surveys. Factor analysis was performed on 20 key management issues and eight underlying factors were identified explaining 75.9 percent of the variance in the issue responses. The resulting factors can be found in Table I. There were four similar IS management factors found in both studies; namely, strategic alignment of IT, IT integration, IS productivity, and IT application management.

IS management issues determinants

Yang (1996) hypothesized that IS management issues ratings are influenced by organizational, IS department and respondent variables. Yang tested for associations between these variables and 38 individual IS management issues and the results of the

Study	Aggregated factors
Yang, 1996[a]	Strategic planning, organization and communication
	Data management
	New and integrated information technology
	IS productivity and quality
	Software and hardware environment
	Information technology applications
	Information regulations and laws
Badri, 1992[b]	Incorporating IS to strategy
	Applications of IS resources to goals and objectives
	IS role and contribution Integration of the IS office
	Measuring IS effectiveness and productivity
	Integration of the IS office
	Management of the IS operations
	Managing applications
	Effective utilization of information resources and presentation

Table I.
Issue factors in previous studies

Notes: [a]Factors are ranked from the most important to the least important based on average rankings of the issues in each factor; [b]Factors are ranked from the most important to the least important based on mean summation scores

analysis are summarized in Table II. Two additional studies (Wang, 1994 and Chou and Jou, 1999) have analyzed the possible relationship of issue ratings with organizational variables, with IS department variables and with respondent variables. A summary of significant associations found in these two studies is also presented in Table II. In these three studies, organizational, IT and respondent variables were not found to have significant associations with many of the individual issue ratings. The one variable that does seem to impact numerous issues ratings is the size of the organization and the size of the IS department.

Research methodology

One hundred and five organizations with formal MIS departments were chosen as the target population. Sixty-two public and private organizations took part in the project, providing a net participation rate of 59 percent. This study considered only the opinions of the highest ranked executives of the IS functions within these organizations.

The IS management issue list that was included in the research instrument was developed through a three-phase protocol. A list of 30 issues was compiled based on three sources: the global issues in IS management identified in Watson *et al.* (1997), the Society for Information Management (SIM) key issue list (Brancheau *et al.*, 1996), and current IS issues identified in the local Kuwaiti business press. Then, the issues with their rationales were comprehensively evaluated by three academicians and five IS professionals. This phase resulted in a final revised list with 25 key IS issues. These IS management issues, plus organizational and personal demographic items, were combined into a seven-page structured interview guide.

The participants were asked each, in face-to-face interviews, to rate the perceived importance of the key IS issues and their rationale over the next 3 to 5 years using a scale from 1 to 10.

Situational variable	Study	Number of associated issues
Public vs Private sector	(Chou and Jou, 1999) (27 issues)	4
	(Wang, 1994) (28 issues)	1
	(Yang, 1996) (38 issues)	8
Industry type	(Chou and Jou, 1999) (27 issues)	1
	(Yang, 1996) (38 issues)	5
Organization size	(Wang, 1994) (28 issues)	9
	(Yang, 1996) (38 issues)	10
IS Department		
Age	(Yang, 1996) (38 issues)	3
Size	(Wang, 1994) (28 issues)	12
	(Yang, 1996) (38 issues)	10
Degree of centralization	(Chou and Jou, 1999) (27 issues)	2
Growth stage	(Yang, 1996) (38 issues)	2
Respondent		
Position	(Yang, 1996) (38)	1
Work experience	(Yang, 1996) (38)	2

Table II.
Situational variables associated with issues ratings in previous studies

Principal component factor analysis with Varimax rotation was performed on the issue ratings in order to determine underlying IS management factors. Factor rating scores were then computed as the weighted average score of the issues associated with that factor. The management issue factors were then ranked according to their weighted importance scores. Confirmatory factor analysis was performed to further assess how well the factors fit the issue data and to test the fit of the resulting factor model. The factor model was estimated and tested using SPSS AMOS version 3.6. Finally, t-tests were performed to test whether the differences between factors were significant in order to demonstrate the discriminatory value of reporting IS management factor areas rather than individual issues.

Using a model similar to Yang's (1996) model , proposed associations between organizational, IS department and respondent variables and IS issues factor scores are shown in Figure 1. The proposed associations are tested using Mann-Whitney and Kruskal-Wallis association tests. Organizational variables included organization type (public vs private) and industry type. IS department variables include age, degree of centralization and size. Respondent demographic variables included age, nationality, education and experience. Association tests are performed for each situational variable against each of the issues factors in the framework.
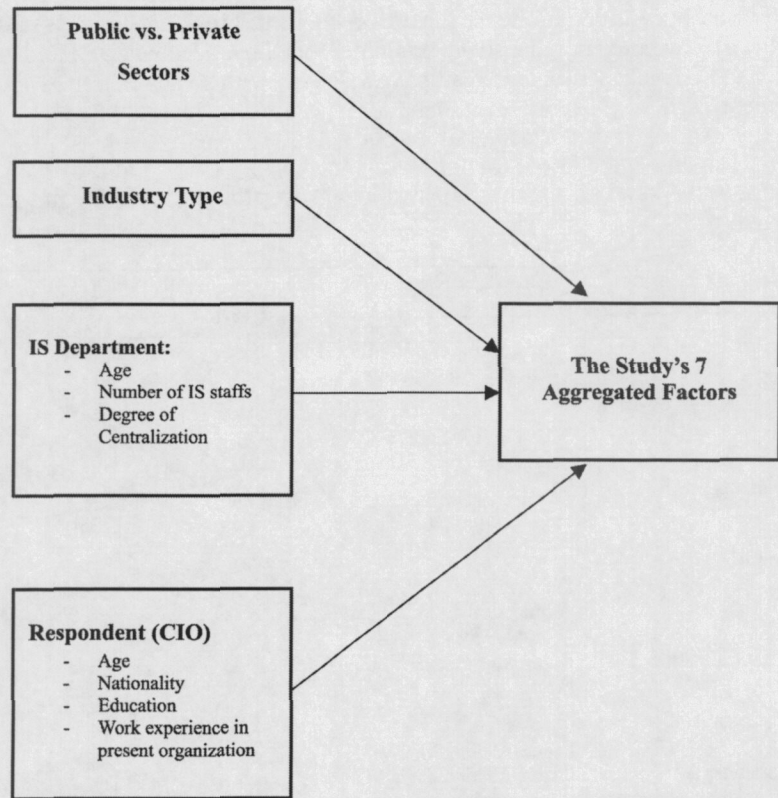

Figure 1.
Determinants model for the study

Analysis and results
Corporate and personal profiles
The profile of the participating Kuwaiti organizations is shown in Table III. Two-thirds of the participating organizations are from the private sector and nearly two-thirds of the private sector firms are financial. The IS functions in these organizations tend to be centralized and small in terms of staff size (50 or less IS employees). Demographics of the respondents can be found in Table IV. The 62 respondents are primarily Arab males with university education in computer science or engineering. There are a significant number of Asian respondents (17.7 percent) and a large number of respondents (48.4 percent) with less than 5 years of work experience at their present organization.

IS management issues dimensionality
Mean issue scores and issue rankings can be found in Table V (Alshawaf, 2001). The most pressing concern for the IS community is occupied equally by two issues. These are improving information security and control, as well as establishing effective disaster recovery capabilities. Based on prior literature, both issues might be grouped together as IS control activities.

Factor analysis results reveal the underlying dimensionality of the 25 key IS management issues in Kuwait. These results are shown in Table VI. Seven underlying IS issue dimensions or factors are identified. These factors accounted for 70.6 percent of the variance in the IS management issues responses. Information security and disaster recovery did load on a single dimension which we titled "Regulation and Control of the IT Environment." Weighted average importance scores show that this

	Frequency	Percentage
Organizational type		
Government	20	33.3
Private	42	67.7
Industry type		
Manufacturing	14	22.6
Finance, banking, and insurance	28	45.1
Other service industry	20	32.3
History of IS department [a]		
From 1 to 10 years	22	35.5
From 11 to 20 years	26	41.9
> Than 20 years	12	19.4
Total number of IS staff		
<10	26	41.9
10 to 50	25	40.3
51 or more	11	17.7
IS function structure		
Centralized	32	53.3
Middle	23	37.1
Decentralized	7	11.3

Note: [a]Two data points are missing from this category

Table III.
Profile of responding organizations

	Frequency	Percentage
Age		
26-35	27	43.5
36-45	23	37.1
46 or more	12	19.4
Gender		
Male	60	96.8
Female	2	3.2
Nationality		
Arab	40	64.5
European/American	9	14.5
Asian	11	17.7
Others	2	3.2
Education		
Tech/high diploma	7	11.3
University degree	43	69.4
Master	12	19.4
Educational Major		
Business Information Systems	5	8.1
Computer Science	28	45.2
Engineering	15	24.2
Others	14	22.5
Work Experience in Present Organization		
Less than 5 years	30	48.4
5 to less than 10 years	12	19.4
10 years or more	20	32.3

Table IV.
Profile of respondents

management dimension ranked only fourth in importance. "Effective Management of IS Resources" scored highest in importance and "IS Knowledge and Feedback" ranked second in importance. Outsourcing and Funding Level issues loaded with opposite signs. This result implies that outsourcing and IS funding are inversely related in their impact on IS services and resources.

The results of the confirmatory factor analysis are mixed (Table VII). Since there is no single recommended measure of model fit, we are going to rely on more than one measure to determine the goodness of fit for our seven factor model (Palvia and Basu, 1999). The chi square statistic (0.0027) is below the recommended cutoff value of 0.05 or higher. However, other measures provide support for the model. The chi square statistic divided by degrees of freedom is 1.265, which is well below the cut-off value of 3.0 and is indicative of model fit. Furthermore, the root mean square residual is .0086, which is below the cut-off point of 0.10 as recommended. The goodness of fit index is 0.875 and adjusted goodness of fit index is 0.784 are only slightly lower than desired. Taken together the confirmatory factor analysis results support the seven-factor model of Kuwaiti IS management issues.

One of the problems with ranking the individual issues rather the underlying factors is that there may be no significant difference among the mean scores of the top four or five issues. An issue ranked fifth may be equal in importance to an issue ranked first. IS management, taking the rankings at face value, may inappropriately put

Key issue	Rank	Mean	SD
Establishing effective disaster recovery capabilities	1[a]	8.26	1.85
Improving information security and control	1[a]	8.26	2.30
Making effective use of the data resources	3	8.24	1.65
Building a responsive IT infrastructure	4	8.23	1.63
Education of senior management	5	8.13	1.59
Improving IS strategic planning	6	8.08	1.62
Planning and managing communication networks	7	7.73	2.07
Recruiting, and developing human resources for IS	8	7.53	2.12
Increasing understanding of the role and contribution of IS	9	7.52	2.15
Legislating information intellectual property protection	10	7.48	2.51
Measuring IS effectiveness and productivity	11	7.40	1.90
Reengineering business processes through IT	12	7.26	1.97
Using information systems for competitive advantage	13[a]	7.18	2.24
Integrating data processing, office automation, telecommunication, and image technology	13[a]	7.18	1.95
Developing and implementing an information architecture	15[a]	7.18	2.10
Aligning the IS organization within the enterprise	15[a]	7.15	2.04
Facilitating organizational learning and use of IS technologies	15*	7.15	2.06
Improving the quality of software development	18	7.00	1.94
Facilitating/managing decision and executive support systems	19	6.92	1.83
Facilitating and managing end-user computing	20	6.89	1.63
Determining appropriate IS funding level	21	6.83	1.59
Developing and managing distributed systems	22	6.43	2.07
Outsourcing selected information services	23	6.39	2.06
Using IS to influence organizational structure	24	6.34	2.17
Information technology transfer	25	6.16	2.37

Notes: [a]From Alshawaf (2001); **Denotes a tie for issues

Table V.
Kuwait's ranking of the
key IS issues

significantly more resources into the top ranked issue when the top five issues may actually be equally important. To demonstrate this point, t-tests for significant differences were performed on mean scores of issues that were separated by five or ten positions in the importance rankings. The results are shown in Table VIII. The mean importance scores of issues ranked 1st and 5th are not significantly different which means the top five issues are rated as equally important. Furthermore, there is no significant difference in the mean importance scores of the issues ranked 10th and 20th indicating equal importance across a large number of IS management issues.

The premise of this research is that, unlike differences among issues, the differences between issue categories (factors) will be significant. Table IX presents the results of pair wise t-tests of the seven mean dimension scores. The results show that 16 of the 21 factor pairs are significantly different at the level of 0.10 significance. The mean scores of top three ranked issues dimensions (resource management, knowledge and feedback, and competitive advantage) are significantly different. The interpretation of

Table VI.
Factor analysis results

Factor dimensions	Cronbach alpha	Variance explained	Weighted average[a]	Key issues
Effective management of IS resources (F4)	0.722	6.975	7.819	Making effective use of the data resources Planning and managing communication networks Improving IS strategic planning Improving the quality of software development
IS knowledge and feedback (F5)	0.6963	6.139	7.705	Education of senior management Measuring IS effectiveness and productivity Increasing understanding of the role and contribution of IS
IS for competitive advantages and human resources (F6)	0.5835	4.996	7.375	Using IS for competitive advantages Recruiting and developing human resources for IS
Regulation and control of IT environment (F3)	0.6959	7.287	7.322	Information technology transfer Legislating information intellectual property protection Establishing effective disaster recovery capabilities Improving information security and control
IS structure: organization, architecture and infrastructure (F1)	0.7732	29.014	7.296	Facilitating and managing end-user computing Developing and implementing an information architecture Building a responsive IT infrastructure Aligning the IS organization within the enterprise
Organizational impacts (F2)	0.778	11.787	6.890	Integrating data processing, office automation, telecommunication, and image technology Reengineering business processes through IT

Factor dimensions	Cronbach alpha	Variance explained	Weighted average[a]	Key issues
				Using IS to influence organizational structure
				Facilitating organizational learning and use of IS technologies
				Developing and managing distributed systems
				Facilitating/managing decision and executive support systems
IS services outsourcing and funding (F7)	0.713	4.178	6.600	Outsourcing of selected information services
				Determining appropriate IS funding level

Notes: [a]The weighted average score for each category is calculated using normalized loading scores of the factor analysis, i.e. sum of weights add up to unity under each of the 7 factors. The category weighted average scores are listed in absolute values

Table VI.

these results is that the ranking and differences between issue categories are more meaningful than the ranking and differences among individual IS management issues. Thus, using this approach (i.e. issue categories) is more rigorous for issues identification benchmarking research.

IS management issue determinants

Table X summarizes the results of the association tests between situational variables and IS management factors. Most of the association tests between situational variables and issues factors proved to be not significant. This implies that issue importance ratings did not differ across organizational, IS departmental and respondent variables. It should be noted that the overall sample size is somewhat small ($n = 62$) so that category sizes are often less than 20. This limits the discriminatory power of the difference tests.

There were a few exceptions where differences in situational variables were associated with differences in importance ratings. Private sector respondents tended to rate IS funding and outsourcing as significantly more important than did the public sector respondents. Larger IS departments rated the effective management of IS resources as more important. Middle-aged respondents rated IS structure as more important than did their older and younger counterparts. Finally, respondent level of education was associated with differences in rating regulation and control, as well as IS funding and outsourcing. Respondents with graduate degrees rated regulation and control as less important and IS funding and outsourcing as less important than did their university-educated counterparts. It is interesting to note that respondents of differing nationality did not demonstrate significant differences in their factor ratings. This suggests that the geographical location and organizational work environment may neutralize nationality differences when rating the importance of IS management issues.

Measure	Recommended value	Actual value
Chi-square	$p > 0.05$	0.0027
Chi-square/df	$< = 3$	1.265
Goodness of Fit	$> = 0.90$	0.875
Adjusted goodness of fit	$> = 0.80$	0.784
Root mean square residual	$< = 0.10$	0.086

Table VII.
Fit measures for the developed model

Set of ranked issues	Sig. (2-tailed)
Pair 1: 1 and 5	0.596
Pair 2: 5 and 10	0.046
Pair 3: 10 and 15	0.465
Pair 4: 15 and 20	0.293
Pair 5: 20 and 25	0.094
Pair 6: 1 and 10	0.017
Pair 7: 10 and 20	0.135

Table VIII.
Differences between selected pairs of individually ranked issues

Note: Issues are ranked in a descending order from highest to lowest mean score, e.g. 1 and 5 means testing the difference between the highest and the fifth highest means

Issue categories	Sig. (2-tailed)
Pair 1: 1 and 2	0.015
Pair 2: 1 and 3	0.995
Pair 3: 1 and 4	0.011
Pair 4: 1 and 5	0.059
Pair 5: 1 and 6	0.914
Pair 6: 1 and 7	0.000
Pair 7: 2 and 3	0.031
Pair 8: 2 and 4	0.000
Pair 9: 2 and 5	0.000
Pair 10: 2 and 6	0.020
Pair 11: 2 and 7	0.000
Pair 12: 3 and 4	0.039
Pair 13: 3 and 5	0.074
Pair 14: 3 and 6	0.920
Pair 15: 3 and 7	0.000
Pair 16: 4 and 5	0.583
Pair 17: 4and 6	0.082
Pair 18: 4 and 7	0.000
Pair 19: 5 and 6	0.128
Pair 20: 5 and 7	0.000
Pair 21: 6 and 7	0.000

Note: 13 out of 21 pairs are significant at 0.05 level and 16 out of 21 pairs are significant at 0.10 level

Table IX.
Differences among the seven issue categories

	F1	F2	F3	F4	F5	F6	F7
Public vs private sectors	0.901	0.850	0.981	0.729	0.775	0.354	*0.066*
Industry Type	0.550	0.443	0.576	0.318	0.571	0.961	0.741
IS department							
Age	0.806	0.533	0.985	0.872	0.129	0.190	0.971
Number of IS staffs	0.276	0.271	0.146	*0.042*	0.676	0.535	0.282
Degree of centralization	0.673	0.129	0.499	0.161	0.290	0.966	0.806
Respondent (CIO)							
Age	*0.042*	0.250	0.332	0.379	0.241	0.190	0.173
Nationality	0.880	0.879	0.162	0.371	0.299	0.974	0.157
Education	0.902	0.370	*0.034*	0.412	0.195	0.180	*0.011*
Work experience in present organization	0.522	0.262	0.829	0.511	0.556	0.299	0.390

Notes: F1: IS structure: organization, architecture and infrastructure; F2: Organizational impacts; F3: Regulation and control of IT environment; F4: Effective management of IS resources; F5: IS knowledge and feedback; F6. IS for competitive advantages and human resources; F7.IS services outsourcing and funding; and *P* values significant at 0.10 are in italics

Table X.
Associations between situational variables and benchmarked issue categories

Discussion, implications and future directions
IS management issues dimensionality
The results of this study support the findings of Palvia and Basu (1999). While their study used a data set collected more than a decade ago, this study demonstrates

underlying dimensionality in recently collected IS management issues data. All 25 issues items loaded on seven (7) issues factors or categories explaining 70 percent of the issues variance. The factor model was reinforced by confirmatory factor analysis. More importantly, these results are more parsimonious and easier to interpret and apply particularly for benchmarking purposes. Differences between mean factor scores are generally statistically significant and meaningful whereas differences between ranked individual issues are not significant and can therefore be misleading. Future issues research should present and benchmark/compare the underlying issues factors rather than ranked individual issues. Researchers can begin to test for benchmarking the consistency of the underlying issues factors across different studies and across geographical contexts to determine whether the seven issues factors identified in this study or those factors identified in earlier studies are unique or universal.

The results of the current study and two earlier studies are summarized and compared in Table XI. There is not much overlap among the IS management factors identified in this study and those found in the previous studies. Where there is some overlap, it is between this study and the more recent study in Taiwan. There is almost no overlap between this 1999 survey conducted in Kuwait and the survey conducted in 1992 in the Persian Gulf region. These inconsistent results may be attributable to different issue items across surveys, or to the different timing of the surveys or to different survey locations. This lack of consistency in the identification of IS management factors reinforces the need to conduct issues surveys regularly and across different geographic locations in order to pinpoint key IS management factors for a particular country or region at a particular point in time.

Working with seven management issues categories rather than 25 individual management issues, IS managers can begin to focus their attention and limited resources on a reasonable set of IS management areas. Since Kuwaiti organizations have made significant investments in information systems in recent years, the primary management concern is the effective management of these IS resources (Table VI). Similarly, these larger IS investments carry a corresponding expectation that senior Kuwaiti managers will know more about information systems and understand their potential impacts on their organizations (Management factor rated second most important in Table VI). IS managers should develop and offer regular IS education

IS management dimension	Kuwait (1999)	Persian Gulf Badri (1992)	Taiwan Yang (1996)
IS resource management	1[a]	6	1
IS knowledge and feedback	2	–	–
IS for competitive advantage	3	–	–
Regulation and control of IT environment	4	–	7
IT structure and infrastructure	5	–	5
Organization impacts	6	–	–
IS funding and outsourcing	7	–	–
Strategic alignment	–	1	1
IT integration	–	3	3
IS productivity	–	4	4

Table XI.
Benchmarking IS management dimensions and their rankings with that of previous studies

Note: [a]Column entries represent the dimension rankings for a particular study

programs for the senior managers of their companies. Competitive use of IS ranked only third. This result may be explained by the fact that public institutions were included in the survey results.

Determinants of IS issue importance

This study and three previous studies (Wang, 1994; Yang, 1996, and Chou and Jou, 1999) have found few associations between differences in situational factors (organization, IS department and respondent characteristics) and issue importance ratings. The one exception is organization size and IS department size. Differences in size have been found to be associated with differences in managers' ratings of issues and with their rating issues factors. Academic researchers should control for the effects of organization size and IS department size when conducting IS management issues surveys. Practitioners should be careful to note the relative size of the companies involved in issues surveys before using the survey results to focus their IS resources and management attention.

The fact that managers' IS management rankings did not differ across manager nationalities in this Kuwait-based study is an interesting finding. This result suggests that geographic location and organizational context can neutralize personal differences such as nationality when it pertains to rating the importance of various IS management issues.

Conclusions

IS management issues surveys play a valuable role in identifying important topics for IS research and in identifying important areas for IS management attention. Researchers and practitioners should be careful how they report and interpret the results of issues surveys. This study has reconfirmed the presence of underlying issues factors providing benchmark dimensions. These constructs, factors or categories represent a more parsimonious model of IS management concerns and are easier to interpret, and manage. The key areas identified by Kuwaiti IS managers in this 1999 survey were found to be

(1) the effective management of IS resources such as data, networks and applications; and

(2) management knowledge of IS.

This study also found that most situational variables are not associated with differences in issues ratings. Thus, the management factor ratings are consistent across organizations and respondents. The exception is organization and IS department size that can lead to different opinions on relative factor importance. Whilst this study demonstrates the importance of reporting IS management factors (constructs) from the perspective of identification and examination benchmarking, the results can be applied for other business and management field studies focusing on benchmarking issues research.

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