THE IMPACT OF ORGANISATIONAL CULTURE ON ERP SYSTEMS IMPLEMENTATION: LESSONS FROM JORDAN

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Abstract

Jordan is adopting Enterprise Resource Planning (ERP) systems in both its public and private sectors. Jordan's emerging private sector has historically close ties to the public sector; though a global market orientation requires a shift in its organisational culture. ERPs however embed business processes which do not necessarily fit with traditional cultural practices, and implementation success is not assured. This study looks at the perceptions of both public and private sector ERP implementations in Jordan and assesses these on various measures of success. There were few differences between public and private sectors, but the benefits actually realized in Jordanian ERPs fell short of claims made for the technology in other cultures.

Key word: *Enterprise Resource Planning, ERP systems, Organisational Culture, Critical Success Factors, CSFs, Developing Countries, Jordan*

INTRODUCTION

Organisations need Information Technology to improve information flow across the entire organisation, reduce costs, streamline business processes, offer product variety, establish linkages with suppliers, and reduce response time to customer needs and expectations (Beheshti, 2006) in order to remain successful and retain their competitiveness. Davenport (1998) stated that enterprise resource planning (ERP) systems may be the most important development in the corporate use of information technology. Hence, many organisations want to improve their competitive position by implementing ERP systems (Grabski and Leech, 2007). ERP systems hold the promise of improving business processes and decreasing costs (Nah, Lau and Kuang. 2001; Beheshti 2006), as these systems facilitate communication and coordination, centralise the administrative activities, increase the ability to deploy new information system functionality and reduce information system maintenance costs (Siau, 2004).

Various definitions and descriptions of ERP systems can be found in the literature. A recent and comprehensive definition of ERP system is provided by Beheshti (2006), who defined enterprise resource planning (ERP) system as *"a set of business applications or modules, which links various business units of an organisation such as financial, accounting, manufacturing, and human resources into a tightly integrated single system with a common platform for flow of information across the entire business"* (p. 184).

A successful ERP system can be the backbone of business intelligence for an organisation because it can give managers an integrated view of the processes involved within it (Parr and Shanks, 2000;

Nash 2000). ERPS can link different areas of an organisation, such as manufacturing, order management, financial systems, human resources, suppliers and customers, into a tight integrated system with shared data and visibility (Chen, 2001). For instance, ERPS provide seamless integration of processes across functional areas with improved workflow, standardisation of various business practices and access to real-time up-to-date data (Mebert, Soni and Venkataramanan, 2003; Ehie and Madsen, 2005). Implementing ERPs successfully however is problematic, costly and complex, and often shows high failure rates or even abandonment due to lack of fit with the business or social culture.

Although governments are generally enthusiastic about ICT adoption, (since these also facilitate digital inclusion in the wider global economy) the phenomenon of globalisation means that globally used technologies have not only to be adopted but also *adapted* into local cultures and to their prevailing norms. This is not always unproblematic, and particularly with technologies such as Enterprise Resource Planning (ERP) systems that embed (Western) assumptions about organisational practices and that impose specific, homogeneous ways of communication through technology there is clear potential for a cultural clash when these do not fit the adopting culture's norms. *"As ERP systems diffuse into developing countries, it is essential to be aware of the implications of cultural assumptions embedded in ERP software and those reflected in developing country organisations"* (Molla and Loukis, 2005: 3). Avison and Mataurent (2007) for example found that an ERP implementation in China was unsuccessful due to national cultural factors, and other researchers (e.g. Soh *et al*, 2000; Davison, 2002) have noted similar issues of culture and business environment affecting implementation success. Across various developing countries, Huang and Palvia (2001) identified many factors of national and organisational culture affecting ERP implementation including economic status and growth, infrastructure, government regulation, low IT maturity, small firm size, and lack of process management and BPR experience.

Several studies have identified critical success factors relevant to ERPs, however cultural fit is a particularly neglected factor in assessing ERP implementation success (Willis and Chiasson, 2007). What appears to be missing from mainstream research into the success of ERP implementations from the cultural aspect is the understanding of how ready organisations are for ERP implementations. Failure is well documented but as Frolick and Barker (2003) argue it's a matter of understanding how people and streams of organisational culture fit into the reality of these implementations. In particular, is there a way to understand how ready an organisation is to implement an ERP system by studying its culture? If there is a way to understand how "ready an orgaisation is" then, can orgaisational culture be incorporated into existing CSF's for ERPs?. The critical success factors consistently identified in the literature include top management support, the presence of a champion, good communication with all stakeholders, effective project management, reengineering of business processes, an understanding of corporate cultural change, and the use of business analysts on the project team (Bancroft et al., 1998). Later authors argue these with specific reference to clear vision, business plans and goals (e.g. Al-Mashari *et al*., 2003) and other categories of factors, including change management and team composition (Nah and Delgado, 2006), along with more general recognition of the need for a detailed requirements specification reflecting participation from all affected business units to ensure organisational needs are met. Although numerous lists of CSFs exist, once ranked or categorised in a framework they rarely differ substantially.

Organisational culture plays a critical role in ERP implementation success. Indeed ERPs have also proved challenging to implement even in Western organisations, often due to an underestimated requirement for change management and the repositioning of roles and their meaning for actors (Boersma and Kingma, 2005). Many organisational practices are influenced not only by societal aspects, but also by the considerations appropriate within an organisational sector, public or private. Private organisations differ from public organisations at three distinct levels- individual, organisational, and environmental (Heintze and Bretschneider, 2000). At the *individual* level public sector managers and employees differ in their response to incentives; identification with the organisation and level of satisfaction with work. At the *organisational* level public sector organisations have more rigid hierarchies and structures, and more paperwork, while at the *environmental* level public sector organisations are more strongly influenced by the political rather than the economic environment, entailing strong measures of accountability, short-term vision and

public monitoring of performance. The differing concerns of the private sector and of the public sector within any given country imply attitudes towards ICTs will be informed by their sectoral needs, respectively to position for global competitiveness, or to sustain essentially local or national interest practices through appropriate bureaucracy.

Molla and Loukis (2005) note how ERP success depends on a congruence between the host culture and the ERP system culture, and in the Middle East context they highlight the need for attention to the IT management factors, and especially the need for "total commitment, leadership and persistence within an orgaisation" (p32).ERP technology is also known for imposing rigid norms of workflows and particular practices upon workplaces and it is well noted that ERP demands changes to organisational culture. It is this aspect, rather than any technical inadequacy either of the product or implementation teams that can critically affect success, but literature to date has mainly focussed on critical success factors (CSFs) related to technological and management aspects.

Also, ERPs are being implemented widely in the public sector, often to replace legacy systems and motivated by the perceived benefits of simplifying complex, fragmented and duplicated resources. Any technology that imposes controls, consistency, centralisation and manages organisational information flows might be successful in the public sector, but mismatch with the development needs of the private sector, who may also perceive different criteria for measuring success. Watson *et al.* (2003) for example argued that state government officials have three major concerns with ERP implementations: high expectations of ERP systems; inconsistent technology diffusion within government agencies and (despite the standardisation ERP implementations warrant), many agencies are effectively independent. These specific considerations may not apply in the private sector.

Miranda (1998) has suggested that an ERP vendor that only designs software for the public sector might not follow universal best business practices, and that *"transporting business practices to the public sector may not be desirable or even possible … the greater burden of accountability in the public sector is entwined in processes that appear cumbersome or redundant to those from the private sector"* (1998, p. 7). Conversely, Gulledge and Sommer (2003) argued that there is nothing special about public sector business processes that would prevent them from implementing ERP systems like any private sector organisation.

As well as potential sectoral differences between public and private ERP implementations, ERP success also requires a cultural congruence, both societal and organisational. The potential for a lack of congruence is particularly marked in developing countries with non-Western cultures. ERP implementations have never yet been studied in the Jordanian context, and both the critical success factors in implementing ERPs, and the attitudes of Jordanian project teams towards these is therefore of particular interest.

In this study, for the case of Jordan, we examine the implementation success factors of ERPs: a technology that imposes a strong culture on workplace practices. Although vendors' products differ, their functionality and intent is similar. We have therefore chosen ERP implementations as a paradigmatic, (and non-native technology) that forces change on organisations by replacing previous business processes with their own sets of prescriptive methods crossing various business units. Enterprise resource planning systems have been chosen for study here as they represent an exemplary Western technology undergoing extensive adoption worldwide, and one that also represents a major investment in technology and associated business processes.

THE STUDY BACKGROUND: JORDANIAN CULTURE

The Hashemite Kingdom of Jordan currently presents an interesting case for examining the uptake of ERPs. Jordan is a lower middle income country, but is one which in recent years has been undertaking reforms to position for stabilised prosperity. Along with increased focus on infrastructure and education, developing a stronger private sector is part of the national strategic modernisation. Since the mid 1980s Jordan's per capita GDP has increased more than 500% as it has implemented policies to foster conditions favourable to technology transfer (Finston, 2007), ICT expansion and a global market orientation. In the same period Jordan has continually increased its ranking on the "Business-

Friendly Index", (Staab, 2003) consistent with the tight relationship between the public and private sectors that research indicates as being appropriate for economic success in developing countries.

Culture changes however are relatively slower, and it is known that societal culture attitudes do help shape organisational culture attitudes towards ICT adoption, including in the Arab world (Twati and Gammack, 2006). Noting that countries of similar economic levels adopt ICTs at different rates Erumban and de Jong (2006) argue that national culture and societal conditions affect successful ICT uptake. Whilst many conventional interpretations assume that the national cultural values of employees directly influence organisational cultures this has been strongly challenged (McSweeney, 2002[1]). Jordan's organisational culture context is more complex. Although the will for change is strong, as the private sector re-emerges, its relation to public sector organisations and the government more generally operates within a set of what Cerny (1997) identifies as *paradoxes,* and which have been related to Jordan's situation. Specifically: the state becomes *more* interventionist in regulating towards market competitiveness; state organisations themselves must adjust to global realities, and thirdly, state institutions' traditional capacity to embody *Gemeinschaft* (social solidarity*)* becomes endangered (Cerny, 1997, cited in Al-Jaghoub and Westrup 2003:97). It is this latter aspect, the erosion of communal bonds, that Cerny (1997: 255) views as the "latent crisis" of the nation state today, and which ERP technologies directly affect.

The business environment in Jordan is thus likely to remain influenced by both the changing organisational structures, as well as by the social environment's historical traditions and cultural paradigms. Although these may no longer be as simple as Hofstede's characterisation might imply, an understanding of them is relevant to how technologies are adopted and implemented. We now look at Jordan with respect to some of the salient constructs commonly used to characterise its culture and society.

In his original study Hofstede (1980) characterised the Arab world nations collectively as being high in *power distance*, *masculinity* and in *uncertainty avoidance*, but low in *individualism*. Hofstede's subsequent 'fifth dimension" distinguished "Long term" from "short-term" orientation but the study on which it was based did not include any Arab world countries and has in any case been criticised on philosophical and methodological grounds (Fang, 2003)[2]. The combination of these dimension values suggests a rule-based, risk averse society where leaders are powerful, and in-group loyalties are strong and enduring, (see Hofstede, n.d.).

Several aspects of contemporary Jordanian society influence attitudes relevant to technology adoption and management. Although women are literate, educated and free to move Jordanian society respects the belief, (common in the Arab world) that the sexes, while equal, should have distinct roles: this is reflected in the under-representation of Jordanian women in the overall work force and in particularly in administrative and managerial positions (5%) (Tzannatos & Kaur, 2000). Although gender segregation figures in the broader Middle East and North Africa region are now changing upwards towards international norms, much of the increase is in the informal sector, in industries such as tourism and agriculture, and although progress on some indicators is being made, comparatively Jordan still remains globally low in terms of women's economic participation. This structural exclusion of women from meaningful roles in ICT workforces or relegation to a subculture of administration means that important human, social and organisational factors may be neglected in information systems implementation, thus affecting success (Beekhuyzen, 2001), and in shaping management style more generally.

The Jordanian culture is also traditionally dominated by interpersonal networks, akin to the Chinese practice of guanxi, but which now has overtones suggesting the possibility of corruption, as well as its traditionally positive role in mediation. In the Arab world this is called *Wasta* and deep connections of kin and obligation provide a pervasive foundation for important decisions and information sharing

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[1] Though for a letter in response see Hofstede, G. (2002) Dimensions do not exist: A reply to Brendan McSweeney *Human Relations* 55 (11) 1355-1360

[2] Weir and Hutchings (2005) consider this idea with respect to Arabic constructs of time, which are deeply related to Islamic belief: although the Arab world is like China in having a long-term orientation, in Arab thought Timelessness is of the Infinite, and does not necessarily fit standard Western analytic frames.

(Hutchings and Weir, 2006). This subject is sensitive within Jordan, and many solutions to manage it have been attempted, including privatisation and administrative structural reform (Cunningham and Sarayrah, 1994). In their work Hutchings and Weir (Weir and Hutchings, 2005; Hutchings and Weir, 2006) note the intertwining of cultural and institutional layers in Arab orgaisations and their characteristically ill defined structures with vague authority relationships and the presence of "substantive, though informal, employee participation".Such an organisational culture is incompatible with the culture imposed by ERPs.

This profile, recent analysis suggests (Dwairi et al, 2007), is incompatible with the market orientation a strong private sector requires for global competitiveness. Moreover, "formalisation and centralisation are considered unfavourable to market orientation", (Dwairi et al, 2007: 713), and at firm level, many traditional bureaucracies have entrenched structures and practices that can hamper information flows and departmental coordination. Their work found that top management attitude was an important determinant of a cultural shift towards market orientation, but also that organisational and environmental factors were more complex and unstable influences, and empirically demonstrated the possibility of "within-country variations in Hofstede's cultural typology".

Hofstede's studies did not include data from Jordan, and were conducted many years before Jordan's reform programs. Moreover, there are significant differences between Jordan and other Arab nations, (such as Saudi Arabia and UAE) that are relevant to technology adoption. Tubaishat et al (2006) conclude that "using technology in Jordanian society is easier than UAE due to the fact that the country is relatively liberal". This motivates going beyond Hofstede's original analysis, (which aggregated several Arab nations, not including Jordan) towards a more country-specific examination of local factors behind successful implementation of adopted technologies and also focussed on cultural differences at the *organisation* level.

If the general culture in the Arab world's public sector is indeed risk averse and bureaucratic, (as Hofstede consistently claims) a difference between the traditional public and emerging private sector organisations may be expected as technology adoption aligns private sector processes towards western norms.

Alternatively, despite organisational culture differences, in Jordan societal factors such as the informal networks dominating everyday business may mean that the public/private distinction is itself culturally inappropriate to distinguish attitudes to technology adoption and implementation. If organisational structures are lacking in rigorous lines of authority, as Hutchings and Weir suggest, the culture imposed by ERPs may not fit without major customisation or culture change, attitudes to which may differ between the traditional public sector and emerging private enterprises. In the next section we describe a study aimed at helping to understand these issues.

METHOD

To identify implementation teams' perceptions a survey using 7-point Likert scales was developed by the author. Questions related to the various categories of CSFs consistently identified in the literature.

The survey instrument consisted of 55 questions[3] and was pilot tested and reviewed by ERP experts before use with Jordanian public (n=28) and private (n=20) sector organisations. Participants were selected using information publicly available from vendors and other organisations, and from the author's experience. Because knowledgeable and qualified participants were desired, a targeted, non-probability sampling method was used to ensure willing and committed respondents. Participants with ERP implementation experience (project managers and team members) were selected and contacted in early 2007. Of the 413 participants approached 116 usable surveys (28%) were returned.

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[3] available on request from the author

The first section of the survey covered details of project size, timescale and budget as well as the ERP software package[4] and the organisation's industry sector. Section two then asked questions on specific benefits sought from the package, while section three addressed the implementation CSFs.

DATA ANALYSIS

Data was analysed using SPSS, and both descriptive and inferential statistics are reported in this section.

The first section of the survey identified general ERP project characteristics along with demographic data for 116 respondents, all of whom were team members or project managers involved in ERP implementations in Jordan. Data was collected from 62 respondents from 28 public sector orgaisations and 54 from 20 private orgaisations addressing perception of overall project success; time, budget, usage and software details, and post-implementation performance.

Although the market leading products were all represented, a combination of SAP and PeopleSoft was the modal choice for both sectors. On the issue of overall *implementation success* there was no significant difference between public and private sector orgaisations. Around 39% viewed the implementation as successful, 31% as fairly successful and 30% as unsuccessful.

Both sectors also showed a similar profile on *implementation time* with only 11% of the particpants' projects completing on time, around 40% up to 6 months late and 44% taking up to a year. Although only 8-9% were completed on *budget* in both sectors, the public sector had more projects running significantly over budget (60% compared to the private sector's 46%) and overall public sector respondents had less *usage experience* than their private sector counterparts.

Performance post-implementation was also ambivalent in both sectors: just under half of respondents in each sector indicated that organisational performance had decreased or remained the same, with the rest noting a slight increase or better. These results are summarised in table 1.

Package Implemented	SAP		PeopleSoft		Oracle		SAP & PeopleSoft		Oracle & PeopleSoft	
	n	%	n	%	n	n	%	n	%	n
Public	10	16.13	1	1.61	23	10	16.13	1	1.61	23
Private	4	7.41	8	14.81	13	4	7.41	8	14.81	13

Overall Implementation	Successful			Fairly Successful		Unsuccessful	
	n	%		n	n	%	n
Public	25	40.32		19	25	40.32	19
Private	20	37.04		17	20	37.04	17

Post-Implementation Performance	Slightly increased		Same		Increased		Decreased	
	n	%	n	%	n	%	n	%
Public	11	17.74	16	25.81	11	17.74	16	25.81
Private	9	16.76	16	29.63	9	16.76	16	29.63

Implementation Time	On time		Earlier		1-6 months late		6months-1year late		Over 1 year late	
	n	%	n	%	n	%	n	%	%	n
Public	6	9.68	2	3.23	26	41.94	26	41.94	2	3.23
Private	7	12.96	0	-	20	37.04	25	46.30	2	3.70

ERP System Usage	1-6 months		6months-1year		1year-2years		More than 2years	
	n	%	n	%	n	%	n	%
Public	6	9.68	21	33.87	6	9.68	21	33.87
Private	1	1.85	13	24.07	1	1.85	13	24.07

Implementation Budget	On budget		1%-25% over budget		25%-50% over budget		More than 50% over budget	
	n	%	n	%	n	%	n	%
Public	5	8.06	20	32.26	5	8.06	20	32.26
Private	5	9.26	24	44.44	5	9.26	24	44.44

Table 1: Overall project characteristics by sector.

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[4] either SAP, Oracle or PeopleSoft, who dominate the ERP market

The second section of the survey looked at the perception of specific benefits claimed for the technology. Sets of items were related to the topics of:

- data accuracy
- reporting
- customer and user-satisfaction
- alignment with organisational vision
- usability
- maintenance
- order-fulfillment
- improvement in business processes

With an option for "no opinion", a 7 point Likert scale was used to measure strength of agreement with a statement for each item, from 1 (strongly agree) to 7 (strongly disagree). T-tests were also used to compare the means for public and private sector responses. Results are summarized in table 2.

Although the private sector showed consistently greater variance on all items, means were comparable. The only significant difference was on the item "The implementation of the ERP system improved business processes ", where a tendency to moderately agree was stronger in the public sector. Indeed the modal response of private sector respondents on this item was "disagree" (26%) whilst almost half the public sector respondents chose "neutral" or "moderately agree". In both sectors only a minority agreed that the ERP was easier to use than before and that customer satisfaction had increased.

ERP benefits	Public Sector		Private Sector	
	Mean	Standard deviation	Mean	Standard deviation
Increased data accuracy	3.69	1.490	3.48	1.551
Improved report mechanisms	3.81	1.480	3.57	1.700
Increased end-users' satisfaction	4.21	1.559	4.04	2.092
Solved maintenance problems associated with the old system	4.05	1.742	4.26	2.147
Improved business processes	3.23*	1.644	3.98*	1.986
Eliminated the delays in filling customers' needs	4.26	1.578	4.43	2.124
Increased customers' satisfaction	4.63	1.710	4.46	2.163
Easier to use than the old system	4.60	1.741	4.96	2.163
Accommodated the organisation's vision	3.06	1.717	3.00	2.487

Table 2. Differences in perceived benefits by sector.

The third section of the survey examined CSFs using statements grouped under previously identified categories. The specific items on business plan, goal and vision; on technical aspects; on team composition and skills; on top management championing and support; on project communication factors and on change management aspects formed the next block of items.

These all showed high and significant inter-correlations among related category items and for every item the private sector responses showed larger standard deviations, but otherwise there were no statistically significant differences between sectors, so comparative results are not discussed further here.

There were, however, some differences between sectors in the project management category. Although similar in terms of expertise, leadership, responsibility, management tactics and upper management support, in the public sector the *project manager's authority to take decisions* was perceived as significantly less, with a mean of 5.21 compared to the private sector's 4.41 (t=-2.784, df=114, p<0.01). There was also a significant difference in the *regularity of cost reviews*, with almost 50% of

private sector respondents disagreeing that *"the project's costs were reviewed regularly"* compared to around only 6% of public sector respondents.

Despite few between-sector differences, individual category ratings showed some clear issues applicable to both sectors. In both sectors half of all respondents strongly agreed that *"major customization was required"*. Large majorities in each sector also agreed that *"team members were not authorised to make decisions"*. In both sectors 82% strongly agreed that *business processes had been changed by the implementation* and only about half in each sector agreed that *effective communication plans had occurred* during implementation.

There were also some specific differences between sectors at item score level, whose statistical significance was masked by the overall pattern. In the private sector almost half disagreed that end users were significantly involved, which was less of an issue in public sector organisations. In the private sector the project team was rarely perceived to consist of the best employees, whereas attitudes on this were more evenly distributed in the public sector. Table 3 summarises these data.

DISCUSSION AND CONCLUSIONS

Apart from two differences on project management aspects, the overwhelming impression is that the CSFs for implementation success were similar between the Jordanian public and the private sector. Organisational factors traditionally found to affect implementation success, including management support, project communication, change management and team composition do not differentiate the public from the private sector, at least in the case of Jordan.

Equally, the overall results achieved from ERP implementations were broadly equivalent, with similar levels of budget and deadline blowouts, and only moderate overall estimations of success. Moreover, both sectors reported mixed results in terms of post-implementation performance, with the only notable difference being the private sector's slightly lower realisation of improved business processes. These results are consistent with the general blurring between private and public sectors noted by Knowles (2005), suggesting the culture of ERP implementation is indifferent to orgaisation type in Jordan. The question is: is this just a hiccup, or is it in the nature of a rift?

Although there are few differences across orgaisations, the Jordanian data does not support previous literature on CSFs for ERP implementations. The benefits actually realized in Jordanian ERPs fell short of claims consistently made for the technology in other cultures. Apart from improved business processes, commonly touted benefits include increased customer satisfaction, greater ease of use, maintenance improvements and greater end user satisfaction. In Jordan however, only a minority of the respondents agreed that such benefits had eventuated from the implementation of ERP systems. Low *end user satisfaction* and also low *customer satisfaction* in both sectors may be attributable to the newness of these modules' processes, compared to the culture of high customer service expected from traditional (public) organisations.

Other organisational culture aspects apply. Low *ease of use* could be due to the complexity and unfamiliarity of the interfaces, ineffective end-user education and training, inadequate user involvement and participation in the implementation, or simply user rejection of the technology. Cultures that have successfully adopted ERPs recognise the importance of adequate education and training for end-users in using the new system (Bajwa *et al.*, 2004). Arabic organisations often devalue this however, considering training end-users as an additional cost to be avoided as much as possible. As a cheaper substitute to training, organisations often provide end-users with printed manuals describing the system's functionality, as happened in the majority of organisations surveyed here.
While the results suggested most respondents considered the training adequate, it can be argued that the failure to provide significant resources for training purposes has seen short-term gains, but ultimately end-users ignorance and system rejection led to long-term failure. Further research could examine this more closely, since traditional Jordanian cultural attitudes to training and change management may not match the requirements for successful ERP uptake.

	Sector	Strongly Disagree (7) %	Disagree (6) %	Moderately Disagree (5) %	Neutral (4) %	Moderately Agree (3) %	Agree (2) %	Strongly Agree (1) %
Project costs reviewed regularly	Public	0	4.84	1.61	35.48	35.48	17.74	4.84
	Private	9.26	37.04	1.85	11.11	5.56	24.07	11.11
The project manager had authority to take decisions	Public	32.26	32.26	4.84	16.13	11.29	3.23	0
	Private	18.52	31.48	0	16.67	20.37	12.96	0
End-users were involved and participated in the implementation and the team considered their feedback	Public	3.23	19.35	6.45	24.19	37.10	9.68	0
	Private	14.81	33.33	0	9.26	9.26	31.48	1.85
The implementation changed a number of business processes	Public	0	0	0	3.23	1.61	12.90	82.26
	Private	0	3.70	3.73	0	1.85	9.26	81.48
The project team consisted of the best employees of the organisations	Public	8.06	24.19	14.59	19.35	17.74	14.52	1.61
	Private	42.59	18.52	0	0	22.22	12.96	3.70
The top management was highly involved in every stage of the project implementation	Public	1.61	25.81	6.45	22.58	22.58	19.35	0
	Private	12.96	38.89	0	0.70	11.11	20.37	12.96
No major customisation for the selected ERP package was needed	Public	46.77	27.42	8.06	8.06	3.23	4.84	1.61
	Private	50.00	20.37	0	9.26	11.11	7.41	1.85
The team members were authorized to take decisions	Public	43.55	33.87	4.84	9.68	4.84	3.23	0
	Private	35.19	24.07	1.85	14.81	46.67	5.56	0

Table 3: selected CSF items compared across sectors

Lack of benefit realization is not simply attributable to technical or managerial aspects however, since most items specifically addressing required training, change and team composition largely showed that these aspects were adequately understood and implemented. Although the project communication planning was considered ineffective in both sectors, majorities in both sectors saw ERP implementations as fitting the organisation's vision and largely agreed the project goals and benefits were clear. Similarly, on technical aspects, testing and system integration were perceived as generally effective, though there were substantial minorities in each sector who did not consider that departments had been integrated by the ERP. Apart from the few items noted in the data analysis for other categories, ratings on most items were moderate, suggesting that few single points of technical or managerial failure explain the lack of perceived success. This pattern applied in each sector, though the private sector did demonstrate more extreme ratings and hence larger variance around highly similar means.

The data suggests that the cultural fit between the technology's demands along with a relative lack of previous experience with ERPs in Jordan explains the modest levels of implementation success. For many organisations experience with ERP was only about a year and only a tiny minority had more than two years experience with the technology. Unfamiliarity with ERP maintenance was likewise reflected in the ratings. Project managers, surprised by the scope, size, and complexity of ERP projects may fail to initiate the necessary level of detailed project management planning and control (Umble and Umble, 2002).

Buy in from users is a familiar requirement for implementation success but only a minority in each sector agreed that end-users were involved and participated in the implementation. Similarly, only around half of respondents in each sector felt that top management ensured employees' adherence and readiness to the ERP system: another requirement for success (Motwani *et al.*, 2005). In Jordan, and indeed most Arabic countries, this may be explained by the convention that top management consider themselves to have more important obligations, responsibilities, and meetings. Consequently, top management often develop report mechanisms to keep them informed of a project's progress without any actual and deep involvement in the project.

Project teams may not have wished to include end users for their own reasons, and end users themselves may have been unwilling to change. Resistance to new technology is a noted phenomenon in many cultures, but is one that requires effective change management strategies driven from the top. This may have been incompatible with traditional practices of Jordanian top management.

A further lack of fit with organisational culture is indicated by the extensive customisations that were required in the Jordanian organisations surveyed. Customisation increases project time, ruins schedules, introduce new bugs into the system, and make the upgrade to new releases harder (Shehab *et al*. 2004). Customisation within any culture should therefore be avoided, or at least minimised, in order to achieve the full benefits of an ERP system. General causes include an organisation's failure to consider fit with their overall business processes, inadequate detailing of functionality by the ERP vendor and the omission of a detailed requirements specification prior to implementation, but it remains open as to whether the level of customisation required reflects a standard hiccup or a more fundamental cultural rift.

Finally, in Jordan, critical decisions and approvals are *only* taken by top management, thus, project managers do not have access or control over financial resources without approval from top management. Naturally this impacts directly on financial support alignment with project schedules. Jordan's private sector is still nascent, and in a mature private sector critical decisions are made quickly, with the requirements for rapid decision-making often written directly into private sector implementation contracts. Public organisations have more rigid hierarchies and structures, as well as more bureaucracy generally, and with consensus decision-making also delaying the process considerably, the deep culture of public sector organisations affects timely implementation. Whether Jordan's private sector will adopt a differentiated organisational culture more suited to rapid decision making in future and whether the Jordanian culture adapts to Western norms will be interesting to watch.

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