

The Impact of Culture in Enterprise Resource Planning System Implementation

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Abstract—The successful implementation of an Enterprise Resource Planning (ERP) system in any organisation can be affected the culture within the organisation, which could be a characteristic of the culture within a particular society. Implementing an Enterprise Resource Planning (ERP) system is a major cultural change for any organization. This paper explores the impact of culture in the implementation of Enterprise Resource Planning (ERP) systems based on a literature review. The review categorizes cultural factors affecting ERP implementation and identifies some cultural factors that inhibits from prioritizing their implementation efforts, and resources in order to achieve a successful ERP implementation process.

Index Terms— Culture, ERP system, ERP implementation

I. INTRODUCTION

The need to improve information flow in organisations, reduce costs, streamline business processes, establish linkages with suppliers, satisfy customers, and also reduce response time to customer needs and expectations are some reasons behind the implementation of ERP in most organisations. According to Rabaa'i (2009) organisations require information technology such as ERP, in order to remain successful and retain their competitiveness. Davenport (1998) further states that ERP systems may be the most important development in the corporate use of information technology. Thus, many organisations are planning to improve their competitive position by implementing ERP systems (Rabaai, 2009; Grabski and Leech, 2007). Enormous amounts of money is usually invested in ERP projects since many organisations consider it as an opportunity for saving costs and increasing competitive advantage (Trinskjær, 2009). Researchers (e.g. Nah ,Lau and Kuang, 2001; Siau, 2004; Beheshti, 2006)

note that ERP systems assist in improving business processes and decreasing costs, as these systems facilitate communication and coordination, centralise administrative activities, increase the ability to deploy new information system functionality and reduce information system maintenance costs. According to Huang and Newell (2003), a growing number of multinational enterprises are beginning to embrace ERP systems in the anticipation of increasing productivity and efficiency, and also as a means of leveraging organisational competitiveness (Davenport, 1998).

Beheshti (2006) defines 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”. Gracheva (2010) describes Enterprise Resource Planning Systems as software systems for business management encompassing modules supporting functional areas such as planning, manufacturing, sales, marketing, distribution, accounting, financial, human resource, management, project management, inventory management, service and maintenance, transportation and e-business. ERP systems in many organisations are described as a pillar of business intelligence as it offer seamless integration of processes across functional areas with better-quality workflow, standardisation of several business practices and access to real-time up-to-date data (Ehie and Madsen, 2005; Mottaghi and Akhtardanesh, 2010). As a result, companies invest large sums of money on ERP packages and their implementation process (Mottaghi and Akhtardanesh, 2010). Nevertheless, there is extensive confirmation that organisations experience significant problems during the implementation of these ERP systems. According to Peng and Nunes (2009) the implementation of ERP is often faced with challenges, difficulties and problems even when the system is implemented successfully. Esteves *et al.* (2003) pointed out that the implementation of an ERP system is comprehensive, prolonged and expensive process, characteristically quantified in millions of dollars. This view is also supported by Sarker and Lee (2003) who stated that three quarters of the ERP projects are considered failures and many ERP projects end-up catastrophically. Shanks *et al* (2000) state that ERP systems have been adopted throughout the world in many different cultural settings however, there is little published research work on cultural differences in ERP systems implementation. Also, Talet and Al-Wahishi (2011) and Rabaa'i and Gammack

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(2008) note that several studies have identified critical success factors relevant to ERPs, but cultural fit is a particularly neglected factor in assessing ERP implementation success. Soh *et al* (2000) stress that the aspect of organisational culture is often over-looked in implementing ERP systems. Hence, this paper seeks to address the effect of organisational culture on an implemented ERP system. The paper attempts to understand the cultural influences on ERP implementation success.

II. RESEARCH METHODOLOGY

A systematic literature review was conducted on relevant journal papers, conference papers, and books on culture, ERP implementation, technology management, and information system management particularly focusing on key themes such as culture, and ERP implementation. These themes were used as key words in searching for related journal articles, conference papers and books from electronic online repositories. The review first examined literature on ERP implementation in various cultures, the focus being to discover the culture factors that affect the ERP implementation.

III. ORGANIZATIONAL CULTURE AND ITS IMPACT ON ERP IMPLEMENTATION

The environment in which an ERP system is developed, selected, implemented and used constitutes a “social context” (Skokie and Legged, 2002). This ecosystem includes several stakeholders, from the developers of the system, to vendors, the consultants, the project team, and the eventual users. Each one of these holds a certain cultural assumption towards the ERP implementation and use process (Rasmy *et al.*, 2005). Particularly, the developers’ and consultants’ cultural assumptions are embedded in the very roots of the software itself. If cultures of producers and users are different it results in a cultural clash (Otieno, 2010).

The culture of an organization is defined as “a pattern of shared basic assumptions that a group learns as it solves its problems of external adaptation and internal integration, that has worked well enough to be considered valid and, therefore, to be taught to new members as the correct way to perceive, think, and feel in relation to those problems” (Schein, 2000). The implementation of ERP systems always mandate change in business process and organization culture. Organizational culture plays an important role during implementation of ERP systems and consequently its success (Shah *et al.*, 2011). It enforces rules, values and practices at the organizational and individual levels (Rasmy *et al.*, 2005).

In China case, Avison and Mataurent (2007) in Rabaai (2009) revealed that an ERP implementation was unsuccessful due to national cultural factors. Also, a study

conducted by Allen and Kern (2001) on ERP implementation in Singapore shown a significant misfit in terms of data format, procedures, and legal requirements. The cultural assumptions within ERP systems and the whole notion of cultural universalism are challenged.

ERP implementation adopted successfully in one culture, nation, or region, may be a disastrous failure in another. Thus, adopting an ERP that has been invented and developed in one culture, country, or region to another diverse culture involves more than simply providing information on the technical features of adopting the software (Talet and Al-Wahaishi, 2011).

Several culture factors could affect the implementation of ERP systems and below are some of the factors that have been identified.

1. Mismatch with Local Culture: The occurrence of globalization means that globally used technologies are not only to be approved but also adapted into local cultures and to their prevailing norms. There is clear potential for a cultural clash when these do not fit the adopting culture's norms. Clash level of the culture embedded in the ERP package with the company's organizational culture has been identified by Zhou-Sivunen (2006). According to Molla and Loukis (2005), ERP success depends on congruence between the host culture and the ERP system culture. Implementation of an ERP system in a global environment can be fragmented due to the internal enterprise culture, which is representative of societal culture. The way ERP systems are perceived, treated, and integrated within the business plays a critical role in the success or failure of the implementation. When a Western developed ERP system is implemented in a country where the culture differs greatly from that of the developer, implementation may require localization in order to be successful. In doing so, strategic benefits of ERP systems may be reduced (Srivastava and Gips, 2009). Also Gips (2009) particularly pointed out culture mismatch was the case in China due to the nationalistic culture of business. Rasmy *et al* (2005) also confirm that ERP implementation becomes more challenging in Egyptian context where national and organizational culture was mismatched. These factors can result in undesirable design reality gaps, which tend to lead to underperforming systems. Tools transferred from one country to a specific enterprise abroad suffer a double-layered acculturation: the technology is confronted with a foreign national and alien corporate culture (Motwani *et al.*, 2007; Zu *et al.*, 2006).

Unlike traditional software development approach, which promotes building systems from scratch, ERP encapsulates reusable best business practices unlike traditional software development approach, which promotes building systems from scratch; ERP captures reusable best business practices. All business units at different countries had their own way of doing things because of different business processes and local requirements generated by national and local differences (Otieno, 2010). Thus, the initial plan had to be transformed by allowing localized solutions and decentralized ERP implementations, in order to escape the conflicts (Zhou-Sivunen, 2006).

2. Lack of Ownership Culture: Taking Chinese culture for example, state-owned companies are more likely to be absorbed in improved managerial control and lowered costs, particularly through the use of international best practices. State-owned companies also incline to have more problems in integrating data, as employees identified with departments rather than the entire firm. Managers in traditional companies like Chinese case firms have less trust in data quality and took more actions to verify data (Ngai *et al.*, 2008). Also, taking Chinese organization culture there are distinct differences in top management involvement, with high levels in foreign-controlled organisations and low participation in state-owned firms. Lower state-owned involvement is normally attributed to a different attitude towards the role of leadership (Olson *et al.*, 2005).

3. Management Culture: The study of national cultural differences and resultant repercussions for management has been dominated by the characterization of culture along a variety of predetermined attitudinal dimensions or predispositions to action (Jayaganesh and Shanks, 2009).

Understanding culture is a vital activity for top management executives because it affects strategic expansion, efficiency, and learning at all levels of management. Leadership culture is a key to the success of IS adoption and effective leadership is the means by which the culture is created and managed (Talet and Al-Wahaishi, 2011). Management attitudes and values concerning control, management, and communication can hinder successful implementation. According to Srivastava and Gips, (2009) it was very common in China that there was a lack of strategic expectancy for ERP adoption and management did not see the strategic benefits. Cross-functional teamwork was lacking as many managers put the needs of their department above the needs of the enterprise because the project was considered IT-related and did not have a strategic focus or sponsor in top management, the IT staff took the lead roles on the project teams. According to Baloglu (2004) Turkey case where the culture of everybody wants to be a leader though they have not adequate knowledge and experience, sometimes create a barrier for the successful technology implementation projects. Since technology projects are one of the important investment projects for an enterprise, project manager may behave emotionally instead of being logical (Baloğlu, 2004). In china, leaders are more inclined to value the past and more combative to changes, a tendency which may pose a hurdle to business process reengineering (BPR) (Ngai *et al.*, 2008). According to Ngai *et al.* (2008) Chinese state-owned firms are more tolerant of unclear information, and top managers tend to rely on personal experience and intuition in making decisions. Managers and employees incline to treat data gathered from their work activities as their own, rather than company assets. This belief may adversely affect the attitude towards information sharing, and business process re-engineering (Ngai *et al.*, 2008).

4. Cultural Change: ERP viewpoint is process-based, rather than function-based therefore instigating disruptive organisational changes (Nordheim, 2009). ERP technology is also known for imposing rigid norms of workflows and particular practices upon workplaces and it is well noted

that

ERP demands on changes to organisational culture (Rabaa'i, 2009; Jha and Joshi, 2007). When national or cultural borders are crossed, implementation in a global environment takes on a new dimension. Countries with long histories of highly traditional culture tend to have societal culture embedded in the modern organizational culture, which impacts business decision-making (Srivastava and Gips, 2009). Chinese business culture views change differently than Western culture, placing great value on the past and are reluctant to change, which limits process innovation. Most Chinese users have a preference to use the system to automate current processes rather than change processes to fit in the ERP system. According to Deng's report cited in (Liu *et al.*, 2011) cultural barriers to change in the Chinese business take place where even with ERP in place, most companies still prefer manual processes or old systems. He noted restructuring a company for ERP implementation was painful because of inflexible change management and top management preferred to keep old control methods (Liu *et al.*, 2011; Arunthari, 2005). This often required major customization for the Western ERP vendor if the system was to fit into the business culture (Srivastava and Gips, 2009; Zhou-Sivunen, 2006). 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). Countries in Sub-Saharan Africa for instance that has diverse value and belief system inevitably need substantially longer time for the adaptation and acceptance of such a major organisational change.

5. Cultural Fragmentation in the Marketplace: Taking Chinese market, for example, which are very fragmented, the business practices in Beijing vary from those in Shanghai; hence the cultural nuances in ERP implementation also differ (Srivastava and Gips, 2009). Mandarin is the official language and spoken by most Chinese, but language differences by region are challenging for Western ERP consulting teams. Across the different groups, there was one unfortunate common denominator; the Chinese culture did not regard computers as a pervasive way of doing business (Srivastava and Gips, 2009). Over the years, this has changed somewhat due to global pressures and the rapidly growing Chinese presence in a competitive world marketplace, but IT infrastructure is still young in China, employees are often IT-inexperienced, and readiness for change is not universally accepted across the enterprise (Srivastava and Gips, 2009).

6. Cultural Readiness: A firms that have planned to adopt ERP may possibly possess necessary resources to facilitate ERP implementation process, but poor operational deployment of organizational processes relative to intangible resources with valuable and inimitable disposition may delay or hinder successful ERP implementation (Kuppusamy *et al.*, 2009). Therefore, considering the readiness of the company for implementing ERP before its implementation is essential. Many factors are essential in determining a company's readiness for ERP implementation (Mottaghi and Akhtardanesh, 2010).

Cultural factors include differences in lack of ERP system preparedness and the related factor of data entry difficulties careful bridging of legacy systems is a factor in successful multinational ERP data clean up (Olson *et al.*, 2005).

7. Subculture Diversity: Sub-cultural dissimilarities exist because of differences between tasks, expertise and activities accomplished by different organizational groups. Given these differences, an organizational culture cannot simply be professed to be an aggregation of various sub-cultures (Kalbasi, 2007). Schein (1990) suggest that sub-culture represents a distinctive set of shared values, mindsets and norms that reflects a group's social identity. De Long and Fahey (2000) explore sub-culture differences as an outcome of paradigmatic diversity between organizational members. This may that impede cross-functional collaboration and the implementation of corporate-wide initiatives. The need to take into account the dynamics of sub-cultural differences when exploring the process of ERP adoption within an organizational context (Huang *et al.*, 2002). Communication effectiveness can be considerably give in by sub-cultural differences, simply because of the lack of common knowledge and misperception resulting in definitive diversity (Gargeya and Brady, 2005; Lau, 2005; Schein, 1990). The existence of these multiple business sub-cultures means that it is not helpful to talk about 'end-users' or 'technologists' as if they were both from homogenous groups. Precisely, where a technology is developed by different teams of technologists, and used by end-users who are located in functions with very different sub-cultures (Nordheim, 2009).

8. Information Flow: The way in which information is accepted, is central to the way information systems are used within an organization. In the case of Egyptian organizational culture, information is professed to be individual asset reasonably than organizational resource (Olsen and Sætre, 2007). As a result; most Egyptian management information systems are constrained to managers. Data also reside in soft form in the minds of managers who do not depend on information much even though information systems have been implemented. They depend on more on suppositions from experience and instinct (Rasmy *et al.*, 2005). Information is selectively released to assistants and employees instead of being widely shared across the whole organization. Most Egyptian organizations are built over solid, inflexible and isolated organizational boundaries. More prominence is put on in group relationships built over long time. The in-group relationships are stable and difficult for outsiders' access. Thus, collaboration across different functional areas entailed by ERP is less likely to be achieved (Rasmy *et al.*, 2005).

The random flow of documents and information among functional departments deters the process of ERP Centralization of decisions: Egyptian organizations are managed in a highly hierarchical predisposes culture against computer based communications because these media alter the group effect (Rasmy *et al.*, 2005).

9. Communication Culture. According to Srivastava and Gips, (2009) taking Chinese business culture for example, management is not used to to explaining actions to employees so the progress of the project had not been

communicated down the chain of command. The culture was such that the management inclined to act as father figures to employees. This meant management was professed to know what was best for the employees and that employees should place trust in the manager's judgment. Questioning leadership is not part of the culture norm. This resulted in a workforce that did not have the "big picture" view of the organization and its goals (Talet and Al-Wahaishi, 2011). This constrains the need for information exchange among managers. Thus, ERP is used to reinforce hierarchical control instead of peer-to-peer communication and cross functional integration which is the distinguishing characteristic of ERP (Rasmy *et al.*, 2005). Also, high context culture in which people are more tightly attached to each other and, because of this strong relationship, a social hierarchy exist that expect individuals to keep their expressions within their control and to communicate information in a simple way but with profound meanings. On the other hand, people in Low context culture are individualised and less attached to others (Huang *et al.*, 2002). When dealing with new technology, high context cultures may adopt it only if they fully understood its technical aspects in depth and are assured that there are no risks attached while low context cultures feel comfortable in dealing with new technology. People in these culture feel uncomfortable working with old systems for a long time and prefer to use new things (Zhou-Sivunen, 2006).

10. Sectoral Differences: Cooperation across different functional areas entailed by ERP system is less likely to be achieved in every organization (Zhou-Sivunen, 2006). According to Allen and Kern (2001) when ERP systems are implemented in the public sector they are seen as showing a "philosophy of the private sector". Many organisational practices are impacted not only by societal aspects, but also by the reflections appropriate within an organisational sector, public or private. Private organisations differ from public organizations at different level (Heintze and Bretschneider, 2000). At the individual level public sector managers and employees vary in their response to incentives; identification with the organisation and level of satisfaction with work (Rabaa'i and Gammack, 2008).

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 .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 burdensome or not necessary to those from the private sector" (1998, p. 7). On the contrary, Gullede 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. While it might be argued that the private sector by nature will be market focused and thus require being adaptive, central

governments with pro-growth policies also align with this value the greater burden of accountability in the public sector is entwined in processes that appear burdensome to those from the private sector (Rabaa'i and Gammack, 2008).

11. Gender segregation: Several aspects of current Jordanian society attitudes are relevant to technology adoption and management. Taking woman for example, Even though they are literate, educated and free to move, Jordanian society esteems the belief, that the sexes, while equal, should have distinctive roles: While 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 significant roles in ICT workforces or relegation to a subculture of administration means that important human, social and organisational factors may be deserted in information systems implementation, thus affecting success (Beekhuyzen, 2001), and in shaping management style more generally.

12. Inpatient Culture: As part of Turkish culture, projects are managed emotionally and time management is handling with impatient culture. Turkish people are said to be impatient and they wish to execute the entire task quicker than plan. Whereas some business tasks like ERP implementation require a dedicated period to be managed (Baloğlu, 2004). Whiles in Chinese case business culture is characterized with patience and humility hence is likely not to finish ERP implementation project as planned (Srivastava and Gips, 2009).

IV. CONCLUSION

This tentative reflexion suggests that cultural impact on ERP system adoption and use cannot be ignored. As the use of ERP system expands globally, there is need for further research into cultural aspects and implications of ERP system. A greater understanding of the various dimensions of culture, as applied to ERP system and the people who use it, will to more globally acceptable ERP system products and better choices for ERP system. Therefore, there is a need of examine ERP implementation different culturally contexts.

It is essential to be aware of the implications of cultural assumptions embedded in ERP software and those reflected in various country organizations settings. Such awareness can assist in assessing ERP suitability, in devising mechanisms to mitigate the impact of cultural misfit, and in increasing value from relatively expensive ERP investments.

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