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On managing business, organization climate and enterprise system implementation: Insights from Indian MSMEs

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Insights from Indian MSMEs

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Abstract

Purpose – This study aims to explore the linkage between organization climate, politics and enterprise system implementation in context to micro, small and medium enterprises (MSMEs). Organizational climate and politics play a significant role in determining the outcome of enterprise implementations. Adequate focus on such factors can help resource-starved MSMEs to ensure a positive outcome of their enterprise system implementation exercise.

Design/methodology/approach – Primary data used in this study were collected from the users in 62 MSMEs who have been part of the implementation process in their organization. Responses were collected by means of validated questionnaires and personal interviews given by end-users. The study presents the reduced factors after analyzing the responses through exploratory study followed by a confirmatory study.

Findings – The results highlight that in addition to factors like project execution and management competency, package and vendor competency, top management support and leadership factors, organizational politics and organizational climate factors play a significant role in ensuring success of an implementation process. Organization climate in the form of organization politics emerges as a major inhibitor in context to MSMEs. The analysis also showed a statistically significant relationship between the identified factors like technical, project management competency and vendor- and package-specific competency.

Practical implications – MSMEs are resource-constrained and hence cannot afford any failure in the implementation of processes running within the system. For enterprise system implementation, not only financial commitments are required but a successful execution of processes is also required, otherwise there are chances of failures, which can adversely affect the business continuity of many MSMEs. Thus, the finding of this study can provide an insight into the management of such organizations, so that they can plan properly to ensure a successful implementation.

Originality/value – Some published studies have reported the role of top management in the enterprise implementation process but have not been able to provide specific evidence of the factor "organization climate" in the implementation process. Also in context to a developing economy,

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few published studies are available exploring this linkage in context to MSMEs, as attempted by this study.

Keywords Enterprise system implementation, Managing business, Organization climate

Paper type Research paper

1. Introduction

In the present global liberalized economy, organizations have implemented or are in the process of implementing such integrated information systems for competitiveness and sustainability. In this highly competitive business environment, enterprise systems (enterprise resource planning) are increasingly becoming accepted in the small- and medium-scale industrial sectors, and it is considered essential to achieve competitive advantage and to reengineer the business process. In the new economic era, small and medium-sized enterprises (SMEs) are now facing challenges to become more responsive and agile, to compete against large businesses. The extensive study among the Indian SME sector regarding the adoption of an enterprise system (ES) has also revealed the fact that every organization, irrespective of its size and industry, has uniform aspirations from their ES project. But the significant outcome of the concerned research is that smaller organizations have been less concerned about organizational change and, hence, have shown weaker motivation to adopt an ES project (Ahmed *et al.*, 2014).

Enterprise systems can bring competitive advantage to organizations coming under the SME and MSME category, but it is observed that there is a high rate of failure in its implementation (Bajwa *et al.*, 2004). Better strategic planning of IS by the SMEs' managers may increase the utilization level of an enterprise resource planning (ERP) system (Zach and Munkvold, 2012). A good strategic planning along with a sound organizational climate is required for implementing any technological solution. Organizational climate plays an important role in implementing any kind of change within the organization (Armenakis *et al.*, 1999).

The researchers in this study have attempted to identify certain factors that can be considered critical in context to MSMEs on account of their peculiarities. The objective of the study is to explore the linkage between the factors like organizational politics and organizational climate in addition to the technical factors which have been adequately reported. This paper attempts to explore the linkage which is given in Figure 1.

The paper is organized as follows: a detail review of literature with focus on MSMEs has been presented in the next section. Section 3 presents the research methodology followed in this study, and data collection is reported in Section 4. An in-depth analysis of data and the results obtained thereof has been reported in Section 5. A discussion of

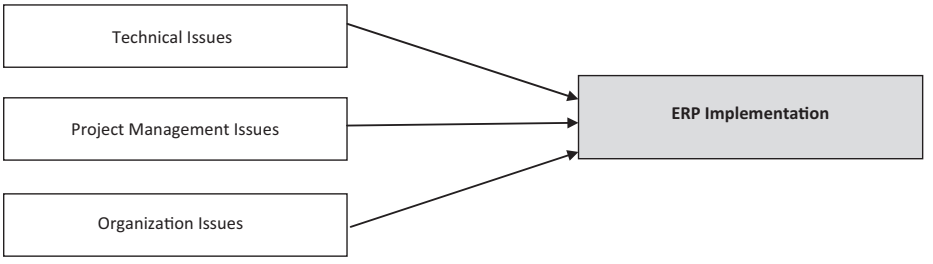

Figure 1.
Broad issues affecting ERP implementation

the results obtained in the previous section has been presented in Section 6 along with managerial implications of the findings. Section 7 presents the possible limitations of this study along with scope for future researchers along with the conclusion.

2. Literature review

Substantial research has been performed to measure the issues of ES implementation that are subjected to various theoretical perspectives dealing with aspects like characteristics, adoption and implementation process (Bingi *et al.*, 1999; Butler and Pyke, 2003), designing of projects (Chan, 1999), organizational impact (Chang and King, 2005), forecasting of the probability of success (Chen, 2001) and extending toward e-commerce (Davenport, 1998; Gable and Stewart, 1999). ES is still in the early stage for developing countries like India and specifically in the MSME sector. Enterprise architecture (EA) is the foremost requirement for the success implementation of the enterprise systems in the MSME sector. According to them, EA aligns system solutions with business operations for achieving the strategic goals, which is possible only when there is acceptance of such solutions within the culture of the organizations.

Bingi *et al.* (1999), on the basis of their research outcome, suggested some critical issues that would lead to a positive outcome of the ES implementation process like support from top management, re-engineering the business process, role of external consultants, proper team composition and employee training and morale (Kaiser, 1960).

A study by Somers and Nelson (2004) identified ten success factors in implementing ES in Malaysian companies, which are support from top management, clear goals and objectives, communication, effective project management, business process engineering, data accuracy and integrity, suitability of software and hardware, support from vendor, education and training and user involvement (Karimi *et al.*, 1996).

Kamhawi (2008) has investigated the reasons behind ERP systems adoption as well as non-adoption practices in a less developed country setting, namely, Bahrain.

A study by Susomrith and Coetzer (2015) on five small engineering firms of Australia clearly indicated that participations of the employees of the small business firms in a formal training and development process in small industries is deficient and it is because of lack of support from the owner-managers mainly due to resource constraints. A similar kind of study was undertaken by Walker *et al.* (2007) and 80 West Australian small business owners had participated. The study revealed that small business owners were interested in skill development as long as the training is directly applicable to their current business needs and training delivery had minimum impact on business operations.

Another research study by Kemppainen (2004) was carried out in micro- and small- and medium-scale organizations, and on the basis of empirical analysis, the researchers identified six critical issues that ensure smooth and positive impact in the implementation of ES. Those identified issues are proper goals and objectives of business, user education and training, project team being competent, change management, assistance from vendor and external consultants' role.

Bakovic *et al.* (2013) identified four independent variables, namely, autonomy, readiness for cannibalization, pro-activeness and risk-taking behavior, of top-level managers to measure the radical innovative culture in the Croatian manufacturing industry.

The success of implementation of ERP depends on several factors and those critical success factors (CSFs) have been ranked by Finney and Corbett (2007). They have considered almost all perspectives, such as technical domain (such as business process re-engineering and software configuration, project management among others), system domain (IT infrastructure, selection of ERP, among others), strategic domain (such as top management commitment and support, visioning and planning) and organizational part (such as change management, training and job redesign, managing cultural change, among others). The CSF phasing model for the implementation of ERP II has also been investigated, and benefits realization from the implementation has also oriented three consecutive steps, such as technology-related CSFs, process-related CSFs and people-related CSFs. This complete integration makes the organization highly competitive in the present-day scenario.

A number of individual and organizational factors contribute to political behaviors. Some of them as per Dubrin (2001) are pyramid-shaped organization structure, subjective standards of performance, environmental uncertainty and turbulence and emotional insecurity. Poon (2003) found that employees will perceive their work environment as politically charged if they believe that they lack information about job objectives, job opportunities and the outcome of performance.

A study of Choueke and Armstrong (1998) on the MSME sector in the UK has identified the five most common characteristics about the culture of MSMEs. These are:

(1) having a culture of continuous learning (innovative culture);

(2) devoted to satisfy the customer (customer-centric culture);

(3) market-driven (adaptive culture-responsiveness to change);

(4) highly focused in their business objectives (sustainability); and

(5) profit-driven.

The study of Lancaster and Milia (2015) on a newly formed organization explored that the leadership characteristics and cultural factors have a great impact on the creation of a supportive learning environment. Schniederjans and Yadav (2013) have developed a complete conceptual model of ERP implementation organized using the technology–organization–environment (TOE) framework. They have provided insight and theoretical foundations for the importance of company culture and its vitality in change management and regulatory pressure in ERP implementation.

The review of published literature clearly provides evidence that all the identified factors for the successful ES implementation have not been empirically established. No such study has been performed to establish the factors, covering both internal and external, that would be responsible for the ES implementation for better performance outcomes of the MSME sectors in the context of liberalized Indian economy. In fact, there is a dearth of research in the Indian context. The primary question in the area of adoption would be the objectives of ES adoption in the Indian organizations. An attempt has been made in this study to explore the linkage between organization climate, politics and ES implementation in context to MSMEs in the context of liberalized Indian economy.

3. Research methodology

The present research studied organizations implementing and using ERP systems. The project managers who represented the client organization during the implementation and who were actively involved with the consultants were targeted for data capturing.

3.1 Survey instrument development

This study has used instruments adapted from extant review of literature in the context of identifying parameters for success or failure while implementing ES in MSMEs in the developing economies. A review of the literature found very few survey instruments with measures corresponding to the ES implementation issues in context to micro-, medium- and small-scale business enterprises for a developing economy. Most of the research studies mainly considered the technological aspects of the ERP implementation. Those few found were inapplicable to the context of organizational politics and ES success factors. The present researchers have identified the potentiality of undertaking studies, considering almost all aspects of technical issues, project management issues and organizational issues. Then only one can understand the challenging issues of implementation of ERP system**s** in the developing country as a whole. With the objective of covering all aspects, the present researchers therefore created items to measure the constructs. Questionnaire-based survey method is adopted following the exhaustive study of literature to evaluate the identified parameters associated with implementation issues found from the past research. The required modification has been made in the survey questionnaire by the subsequent addition/deletion of the identified issues, keeping in mind the context of the study. The survey uses the five-point Likert-type scales where "1" means strongly disagree and "5" means strongly agree. The items were empirically tested and validated.

The managers of client organizations who had worked on a completed ES implementation and who were familiar with the selection of the package, consultant and the management of the implementation project were invited to participate in the survey. At the beginning of the survey, the respondents indicated if their ES was operational. If so, they were asked to proceed with the next set of questions; otherwise they answered only the questions about respondents and organizational demographics at the end of the survey.

3.2 Pilot study

In the pilot study, five experienced client project managers were considered. The researcher requested that the pilot subjects identify and suggest improvements for any omission, error or inconsistency in the survey. All of the pilot participants completed the survey in the presence of the investigator. The pilot test resulted in several small revisions to the primary instrument that included rewarding of a few items, addition of a few demographic questions and alterations to the instructions to make them easier to understand. No scaled item was dropped or added as a result of the pilot study. The whole process of the pilot survey has only been made for improving the acceptability among the target audience and validity of the questionnaire.

4. Data collection

Data for this study were collected from the users of some of the leading vendors offering enterprise solution to enterprises in the MSME category. The vendor companies like SAP, Microsoft and Oracle and few domestic companies were requested to distribute the

link of the survey embedded in it to their clients through e-mails. Members of some of the user groups of SAP, Microsoft, Oracle and PeopleSoft (an Oracle division) were also requested to respond.

Overall, 180 responses to the survey that were obtained from 62 MSMEs were available for analysis. Generally, more than one employee of an organization participated in this study. The objective of the extensive study is to identify the factors influencing ES implementation from the end-user's perspective. The pilot surveys were excluded from analysis. Because the survey was distributed by the vendor officials to the members of their respective user lists through newsletters and e-mails, a determination of the number of recipients and actual readers of the newsletters was not possible. Moreover, the e-mails were sent to all the members in the user lists, many of whom never played the role of project managers. Therefore, determination of a response rate was not possible. However, chi-square tests were performed to match the distributions of some of the demographic variables in this study to the same ones from other similar studies (Somers and Nelson, 2004). Annual revenue of the firm (from two different studies), firm size (as total employee numbers) and respondents' functional area were the three demographic variables compared to the same corresponding ones from the similar papers. The results did not show differences in the distributions of the variables in both the samples. An unpaired *t*-test was also performed with the current employment duration variable, and no difference between the means was found at a statistically significant level after Bonferroni correction.

4.1 Demographic characteristics of primary respondents

The respondents of this survey came predominantly from manufacturing organizations (38 per cent), followed by services (12 per cent), education (10 per cent), health care (14 per cent), telecommunications (14 per cent), retail (6 per cent) and a variety of other industries. The respondents were having a satisfactory educational background, with more than 70 per cent of them having a three-year or higher college degree. They had about 5+ years of experience in their current area of work and were 3+ years with their current employer. Their organizations employed about 300.

5. Methodology and data analysis

5.1 Scale reliability and validity

During data analysis, a test for reliability and validity was conducted along with a test for common method variance. Harman's single-factor test to confirm the presence of common method bias was done. In the study, all 11 factors had eigenvalue greater than 1, with the largest factor accounting for 12.43 per cent of the variance, thereby indicating the absence of common method bias in the data set. Tests for validity include convergent validity and discriminant validity. As most items show loading of more than 0.7 (with *t* values significant at 0.001), all average variance extracted (AVE) values exceed 0.5 and all composite reliability (CR) values exceed 0.7; hence, it can be accepted that the scale exhibits good convergent validity. The alpha values were also found to be larger than 0.70, thereby showing good reliability.

5.2 Method

An attempt has been made to evaluate the ERP implementation strategy, considering all possible associated parameters, and estimate the most significant factors responsible

for the same through factor analysis. Based on the perceived data on all identified items, factor analysis has been performed.

5.3 Results

Here, principle components method with varimax rotation has been applied. Table AI explains the proportion of each variable's variance that can be explained by the factors.

With the objective to obtain reduced factors, factor analysis on explanatory variables was done to determine the minimum number of factors that account for maximum variance in data. Principal component analysis (PCA) has been used with varimax rotation with the selection criteria being eigenvalues greater than 1. PCA has been widely accepted in various applications of information system domain as a realistic research method. The findings of this study indicated that four factors have emerged as the influencing factors of ERP implementation in the organizations of the MSME sector and can explain the variation at the level of 76.93 per cent. The results show that the factors can be considered crucial in context to ES implementation in the MSME sector in India, as shown in Table AII.

They are:

- project execution and management competency;
- organizational climate;
- top management support and leadership; and
- package and vendor competency.

Analyzing the results reveals that all independent factors (project, package and vendor, top management) have a meaningful impact on project management (t-value > 2). But, organizational climate has a negative impact on project management (ML $= (-)$ 0.24, t-value > 2). In other words, this means that organizational climate mostly acts as an inhibitor during ES project management.

6. Discussion and managerial implications

The findings assume lot of significance for MSME in India, given the fact that resources are scarce for such type of enterprises. One significant finding is the prominence of the factor named "Organizational Climate", which has been the focus of this study. The factor has emerged as the major inhibitor in ES implementation in context to MSMEs in a developing economy like India. The entrepreneurs who run such MSMEs need to give due importance to this factor, as any "steam-roller" kind of approach to ensure a faster return on investment (ROI) is likely to backfire and result in a failure. SMEs expect a quick return on their investment on any information system deployment but are unwilling to bear some additional cost in the form of training to get their employees trained. MSMEs in India also spend less than adequate time for the new system to get operationalized, thereby brewing insecurity and resistance among the employees to adapt to the new environment. Chan (1999) in his study reports the unwillingness of MSMEs in another developing economy to allocate resources for reasons like duration of implementation and the high fees associated with such implementation. Levy and Powell (2000) point out that resource scarcity coupled with the lack of strategic planning strongly influence ES implementation and its adoption in organization of any size and particularly MSMEs.

Organizational climate along with organizational politics can act as an inhibitor during ES project management, if not handled properly. Bakovic *et al.* (2013) have also confirmed that the organizational culture, in this case, the radical innovation culture, is the main factor that determines the competitiveness of the SMEs of the Croatian manufacturing industry. Risk-taking ability and pro-activeness of the top-level managers turn out to be major factors of change management/innovative culture. Robey *et al.* (2002) emphasized on overcoming knowledge barriers concerned with the work process, and thereby controlling the incidence of organizational politics. Interacting with the client project managers and also with the vendors brings into fore the fact that the peril of organizational politics greatly affects the implementation process in MSMEs. To avoid these negative consequences, the top management should make proper intervention and combat any form of political behavior as it tends to becomes excessive (Dubrin, 2001; Pettigrew, 2003). In their recent study, Han *et al.* (2016) indicated that transformational leadership is one of the significant change agent of employee attitude and motivates the employees for knowledge sharing as well as increasing organizational commitment.

Other crucial factors have also been identified by some researchers in the published literature. Project execution and management implies clarity in the project goal and their resemblance with organizational mission. Clarity should be present in defining the scope of the implementation along with controls, so that it can be better administered. Adherences to schedules and budgets against targets have been reported to be critical in context to SMEs by some previous researchers also (Wee, 2000; Kemppainen, 2004; Hong and Kim, 2002).

A few studies stressed the importance of change and project management competencies as important success factors for ES implementation (Davenport, 1998; Mandal and Gunasekaran, 2002; William *et al.*, 2013). Such studies indirectly raise the issue of MSME's lack of organizational preparation. Given the constraint in which such organizations operate, such a situation is a fallout of the limited scope of formalization of employee's roles and their responsibilities (Davenport, 1998). In addition to this, MSMEs operating in India tend to suffer from a widespread absence of culture in context to understanding of business processes (Upadhyay *et al.*, 2011). The work of Kansal (2007) also supported the same, and it has been concluded that the absence of entrepreneurial culture of innovation and professionalism has hindered entrepreneurial activities in India.

Proper package selection with adequate features and scalability is a crucial factor affecting the outcome of the implementation process. Ideally, an organization selects a solution that in addition to user-friendly features has adequate possibility for scaling-up as per business requirement. The selection of any specific ES solution requires careful attention. Previous studies by researchers like Kraemmergaard and Rose (2002) and Somers and Nelson (2001, 2004) have adequately stressed on this factor.

Support from top management has been reported critical by several researchers (Kaiser, 1960; Bingi *et al.*, 1999). The study by Somers and Nelson (2004) to identify the success factors in implementing ES in Malaysian companies also reports the significance of the support from top management, among others. Top management support is needed throughout the implementation process. The role of top management should be in both the form of project sponsor as well as project champion to derive consensus and oversee the entire life cycle of implementation.

The result of the work of Ramdani and Kawalek (2009) indicates that SMEs were found to be more influenced by technological and organizational factors than environmental factors for the implementation of systems, and the most significant variable turns out to be the top management support for system implementation.

The present research study has highlighted the issues of organizational climate which inhibit the ERP implementation, although the other factors, namely, project execution and management competency, top management support and leadership and package and vendor competency, have provided substantive support toward the growth potential of ES implementation. In case of SMEs, organizational change has been a significantly less important motivational factor than in case of large enterprises, as it was reflected in the weaker motivation of the Indian organizations to pursue business growth or extensions, and globalization support through their ES.

7. Limitations, scope for future research and conclusion

The authors feel that the study can be refined further by analyzing the impact of organization climate at each specific stage in the implementation stage as an early detection and intervention can possible lead to a positive outcome. Also, future researchers can explore the impact of any specific top management intervention in providing and maintaining a favorable organization climate, so that future project implementations can stand to benefit from such experiences.

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Appendix

Success factors	Initial	Extraction
Project champion higher authority	1.000	0.832
Project sponsor higher authority	1.000	0.903
Customization & BPR	1.000	0.855
Competence	1.000	0.941
Proper project management	1.000	0.910
Effective communication among team members during project	1.000	0.862
Clearly defined goals & objectives	1.000	0.968
Successful implementation	1.000	0.919
Training required for the users	1.000	0.952
Participation and involvement of users	1.000	0.854
Vendor support for implementation	1.000	0.918
Significant participation by external consultant	1.000	0.918
System compatibility with the existing technical infrastructure	1.000	0.907
Satisfactory composition & leadership of project team	1.000	0.897
Package is appropriate	1.000	0.741
Appropriate scope of implementation	1.000	0.742
Adequate scalability features are present in the package	1.000	0.646
Package is user-friendly	1.000	0.883
Support from higher authority	1.000	0.822

Table AI. Items and their extractions

Factors	Reliability
Project execution and management competency	0.72
Organizational climate	0.88
Top management support and leadership	0.81
Package and vendor competency	0.74

Table AII. Factors and their reliability

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