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ERP SYSTEM IMPLEMENTATION ISSUES AND CHALLENGES IN DEVELOPING NATIONS

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ABSTRACT

In current years there has been enhancement in exercising on Enterprise Resource Planning (ERP) systems in big concerns and government firms mostly in urbanized nations, whereas extensive acceptance of ERP systems in developing nations lags far away. It has been observed that there are many instances where ERP systems prove to be a failure either in the design or its implementation. A number of reasons contribute in the success or failure of an ERP systems. Success or failure of the system depends upon the initial stage of adoption and implementation of the system. Consideration of all issues and challenges at the initial stage may furnish a sound base for a successful ERP system implementation in an organisation. There is a significant need for considering ERP system implementation issues and challenges in developing nations, as ERP systems are still in their premature stages in these nations. Literature review on successful ERP system implementation disclose that there are many studies whispered by researchers, but very few have listed the success issues and challenges of ERP system implementation focusing on developing countries. Issues and challenges of ERP system implementation in developing nations differ from those of developed nations. The main objective of this study is to unearth the issues and challenges of successful ERP system implementation in developing nations like India. Data are collected by having an extensive literature review of about past fifteen years. Analysis and synthesis of collected data reveals that clear scope of implementation, top management commitment, proper implementation strategy, proper vendor selection, project management, user training & education, end user involvement and lack of experienced implementers are the important issues and challenges. Understanding of issues and challenges will help organisations to adopt appropriate implementation strategies leading to success of ERP system in an organisation.

Keywords: ERP system implementation, issues and challenges, developing nations.

INTRODUCTION

In the current era of competition, the use of computers and allied technologies has become inevitable and it has been well recognized that information systems plays vital roles in different industries(19). A kind of information system known as Enterprise Resource Planning (ERP) is becoming more popular and useful in almost all process industries specially in developing nations like India. ERP system helps organizations to achieve enterprise wide integration which results in faster access to accurate information required for decision making. ERP has its roots in manufacturing as the name is an extension of Manufacturing Resource Planning (MRP II) (14, 23). Today, an ERP system is considered as the price of entry for running a business and for being connected to other businesses, which allows for business-to-business electronic commerce (14).Although the implementation of ERP systems has been problematic for many industries. Many reports of considerable failures, the implementation of ERP system and associated changes in business processes has proved not to be an easy task. As many organizations have discovered, the implementation of ERP systems can be an enormous disaster unless the process is handled carefully (12). ERP implementations are different from "traditional" systems analysis and design projects (12, 23). In the post liberalization and opening up of the economy business era, ease in international trade barriers, economic liberalization, globalization, privatization, disinvestments and deregulation have thrown several challenges to enterprises in the fast developing economies like India (14). Compressed product development cycles, cut throat domestic and global competition, economic downturns, rapidly changing customer demands and volatile financial markets have all increased the pressure on enterprises to come up with effective and competitive capabilities to survive and succeed. ERP system is often considered as one of the solutions for their survival.

Up to mid-1990s, Enterprises in developing nations had operated under a much-protected economic regime characterized by limited competition and a highly regulated business environment. This business atmosphere had resulted in limited focus on process efficiencies, centralized control structures, highly formalized business settings and lack of professional business practices. However, following the economic liberalization and opening up of the economy, developing nations have been forced to adopt modern business practices and strategies, which in turn can provide a cutting edge over its competitors (14).

In this paper authors have presented the issues and challenges in front of developing nations, hence coordination among these may be sustained to lead successful ERP system implementation in an organisation. Understanding of issues and challenges will help organisations to adopt appropriate implementation strategies leading to success of ERP system in an organisation.

LITERATURE REVIEW

There is wide adoption of ERP systems in Europe and North America, developing countries lag far behind (26). However, due to economic growth, developing countries are becoming major targets for ERP system vendors (26, 27, 32). In some developing countries, a number of large and mid-sized organisations have implemented ERP systems and more are expected to follow suit. The majority of adopting organisations that joined the 'ERP bandwagon' presumed that with relative ease they can benefit from the alleged 'best business practices' that are embedded within ERP systems. However, the transfer of information systems like ERP system, typically developed in developed countries to developing countries is often spoiled by problems of mismatch with local, cultural, economic and regulatory requirements. Sheu (21) states that no universal ERP system can be implemented in different countries successfully without resolving misfit resulting from national differences. The business models, including operating processes underlying most ERP software packages, reflect European and US industry practices. Such operating processes are likely to be different in Asian countries, having evolved in a different cultural, economic, and regulatory environment.

Huang *et al*. (26) explains ERP system vendors are experiencing global expansion. Asia/Pacific and Latin American countries are taking the lead. Economic expansion, especially in Asian countries, is the major reason. Second, fierce competition and pressures from Western corporations force firms in developing countries to vigorously pursue information technology. However, ERP is in its early stages in developing countries. Gargeya & Brady (2005) state that studies, mostly conducted in developed countries, show that organisations often run into costly and sometimes fatal di□culties with implementation and subsequent maintenance of ERP systems. Akkermans & van Helden (16) and Monk & Wagner (10) observe that a typical ERP implementation initiative takes anywhere between one and three years and typical budgets are in tens to hundreds of millions of dollars.

India has also achieved significant economic growth in recent years. Its ERP system industry growth is quite admirable. India is the largest developing country base for global software outsourcing. Moreover, global software outsourcing continues to grow rapidly (26). However, IT diffusion and implementation lags far behind, and ERP growth in India has been quite slow except in recent years. The low ERP system penetration is due to several reasons. The first reason is that the infrastructure is far below any organizational requirements. The next reason for developing nations is that organizations lack a culture that regards computers as a pervasive way of doing business. Indian state excise authorities refuse to accept excise returns in a format other than manual registers (26). Popular press and trade journals have documented both successes and failures (22) but with very little explanation on the underlying causes. Poba-Nzaou *et al*. estimate the failure rate of ERP implementations in developed countries to be between 66% and 70%. Since the trade press is now replete with articles on ERP failures in Europe and North America. Huang & Palvia (26) argument that ERP implementation is likely to be more problematic in less developed countries, given that "ERP technology faces additional challenges in developing countries related to economic, cultural, and basic infrastructure issues".

OBJECTIVE OF THE STUDY

The Implementation of new technologies and manufacturing philosophies in steel sector with superior success rates is essential in a nation's economic expansion and prosperity. ERP is one such system for which a lot of resistance is offered in organizations for implementation due to higher investments and more failures associated with it(9). The study of ERP implementation issues and challenges is necessary to promote and influence industries to go for ERP system implementation as it is crucial in their future augmentation. The purpose of this paper is to provide a consolidated list of essential issues and challenges to ensure successful implementation of Enterprise Resource Planning (ERP) systems in steel industries.

RESEARCH METHODOLOGY AND DATA COLLECTION

Data were collected both from primary and secondary sources for this research article. Semi structures interview of the executives of ERP system department of steel plants were arranged to collect primary data. Prior to each interview an interview script was developed, which allowed a semi-structured data gathering technique with sufficient flexibility to pursue interesting information when disclosed by the participant. Additionally, an information sheet and an interview agenda (the interview script in bullet point) were sent to each participant prior to each interview. This allowed each participant to focus in advance on the issues and activities performed during ERP system implementation process.

Secondary data were collected by having an extensive literature review of about past fifteen years. Content analysis technique is applied to analyse the collected data since it is the analysis of what is contained in a message. Broadly content analysis may be seen as a method where the content of the message forms the basis for drawing inferences and conclusions about the content. Further, content analysis falls in the interface of observation and document analysis. It is defined as a method of observation in the sense that instead of asking people to respond to questions, it "takes the communications that people have produced and asks questions of communications" . Therefore, it is also considered as an unobtrusive or non-reactive method of social research(3).

Review of all research papers suggests that there are noticeable issues and challenges which are used for successful ERP system implementation at Steel Industries.

Summary of Issues and Challenges for ERP system implementation is tabulated in Table-1 below.

Table-1. Summary of issues and challenges for erp system implementation.

SN	Author	Year	Issues and Challenges
1	Appuswami R. (28)	2000	Traditional IT Project vs. ERP system Project, People and Process, Product Data Manager (PDM), Change Management, Computer based training (CBT), Resistance to change, Hardware.
2	Chang et al. (26)	2000	Cost/Benefit, Data Conversion, Knowledge Management, Lack of Consultation, Operational Deficiencies, Organizational Context, Reluctance to Accept Dissenting View, Support, System Development, System Performance.
3	Huang Zhenyu(26)	2001	Economy and economic growth, Infrastructure, IT maturity, Computer culture, Business size, BPR experience, Manufacturing strengths, Government regulations, Management commitment, Regional environment.
4	Ghose(29)	2002	Non uniform accounting and business practices, Conflicts of interest (Resistance from end users and functional managers, Software selection, End user involvement), Lack of experienced implementers, Efficient uses of metanational advantages,
5	Al-Mashari(1)	2003	Selection of an appropriate plan for end-user training and education, Vendor support, ERP selection, BPR, End-user training, ERP maintenance and support, Competent consultants, Establishment of knowledge transfer mechanism, management leadership, Vision and Planning, ERP package selection, Communication, Process Management, Tanning & Education, Project management, Legacy system management, System integration, System Testing, Cultural and structural changes.
6	Linda	2003	People, Organizational change process, Different approaches to implementing ERP,
7	Vinod Kumar(15)	2003	Selection of ERP vendor, Project manager and implementation partners, Constitution of project team; Project planning, Training, Infrastructure development, On-going project management, Quality assurance, Software configuration and institutionalization, Testing and quality assurance, Shakedown challenges, Organizational change and Stabilization of ERP

8	Wong Ada(32)	3003	ERP system misfit, High turnover rate of project team members, Over-reliance on heavy customization, Poor consultant effectiveness, Poor IT infrastructure, Poor knowledge transfer, Poor project management effectiveness, Poor quality of Business Process Reengineering (BPR), Poor quality of testing, Poor top management support, Too tight project schedule, Unclear concept of the nature and use of ERP system from the users' perspective, Unrealistic expectations from top management concerning the ERP System, Users' resistance to change.
9	Sheu Chwen(21)	2004	*Socio-psychological factors:* Culture and language (influence adaptation, centralization, and training), Management style (influences implementation approach and project duration), *Economic/political factors:* Government/corporate politics (influence adaptation and information sharing), Government regulations/legal requirements (influence adaptation), *Demographic factors:* Internal technical personnel resources/labour skills (influence training and centralization), Government regulations/legal requirements (influence adaptation), *Demographic factors:* Internal technical personnel resources/ labour skills (influence training and centralization), Geography/time zone (influence adaptation).
10	Ike C. Ehie(11)	2005	Project management principles, Feasibility/evaluation of ERP project, Human resource development, Process re-engineering, Top management support, Cost/budget, IT infrastructure, Consulting services
11	Olson(18)	2005	Business process reengineering, Federalism and customisation, Supply chain aspects, Outsourcing in multinational operations, Culture/language, Management style, Political factors, Labour skills, Need for business cases,
12	Carutasu George(25)	2006	Process, Technology , Employee, Organisation
13	Upadhyay(31)	2010	Education & training, Clearly defined goal and scope of implementation, Team composition, Top management support, Proper project planning, Minimal customization, Proper implementation strategy, Data accuracy, Role of external consultant, User involvement, Vendor support, BPR, Project management, Communication, Change management, Legacy system, Software development, Testing and troubleshooting, Ease of upgrading system, Suitability of hardware and software,

			Relationship between external consultant and managers, Proper resource availability, User knowledge, Project champion, Improved work efficiency, ERP importance, Never run parallel system, Conference room pilot.
14	Dixit(9)	2011	Awareness, Perception, Earlier Implementations, Approach to implementation, Cost, Change management, Data provided, Parallel systems, Training and testing, Expectations from the ERP System, Employee Retention, Design & Testing, Customization should be less than 30%, Stakeholders shall be identified in the initial phase including customers and vendors.
15	Basu Rana et al.(4)	2012	Top management support, Properly defined goals and objectives, Project Management, Project Team Competence, Education and training, Change Management, Proper package selection, Effective Communication
16	Sanyal Manas Kumar (20)	2012	Clear scope of Implementations, Top management commitment, Proper implementation strategy, Vendor Selections, Project management, User training and education, Change Management.
17	Seo(7)	2013	Lack of senior manager commitment, Ineffective communications with users, Insufficient training of end-users, Failure to get user support, Lack of effective project management methodology, Attempts to build bridges to legacy applications, Conflicts between user departments, Composition of project team members, Failure to redesign business process, Misunderstanding of change requirements.
18	Al-mudimigh(2)	---	*Project Management:* Project Schedule and Plans, Monitoring and Feedback, Risk Management , *Change Management, Training, Communication, Strategic Level:* Current Legacy System Evaluation, Project Vision and Objective, ERP Implementation Strategy, Top Management Support/Commitment, Business Case, Benchmarking, *Tactical Level:* Client Consultation, Hiring Consultants, BPR, ERP Software/Vendor Selection, Implementation Approach, *Operational Level:* Business process Modelling, Configuring System.

19	Grabski(12)	---	*Risks:* Lack of Alignment of the ERP system and business processes, Loss of Control due to decentralization of decision making, Project complexity, Lack of in house skills, Users' resistance. *Controls:* BPR, Consultants' involvement, The close working relationship between the project team and consultants, Senior managements' support, Steering committee, Detailed implementation plan, Change management and transition Management, Users' project ownership, In-depth up front project planning.
20	Kale P. T. et al.(14)	---	Awareness, Perception, Earlier Implementations, Approach to implementation, Cost, Change management, Limited resources, Infrastructure resource planning, Education about ERP, Human resource planning, Top management commitment, Training facilities, Commitment to release the right people for the implementation.

Synthesis of various literatures clearly indicates that there are few issues and challenges which are critical for the successful ERP system implementation, those are: clear scope of implementation, top management commitment, proper implementation strategy, proper vendor selection, project management, user training & education, end user involvement and lack of experienced implementers). Industries seeking for implementing ERP system have to focus on these vital variables which will eventually lead to successful system implementation.

FINDING AND CONCLUSIONS

This paper presents review of various issues and challenges in implementing ERP system successfully in steel industries. The findings of this paper are based on analysis of both primary and secondary data. This research article highlights the issues and challenges affecting ERP system implementations in context of developing nations like India. Most of the authors highlights clear scope of implementation, top management commitment, proper implementation strategy, proper vendor selection, project management, user training & education, quality of Business Process Reengineering (BPR), end user involvement and lack of experienced implementers as important issues and challenges, which should be in focus when implementing ERP system. The managers and users can be benefited from this study by identifying those key issues to make the implementation procedure smooth without any disruption. Further ERP vendors can take inputs from this study to change their implementation approach while targeting developing nation's enterprises. A well-designed and properly integrated and properly implemented ERP system allows the most updated information to be shared among various business functions, thereby resulting in incredible cost savings and increased efficiency and provide competitive advantages. Of course, focussing and working on these issues and challenges will improve the situation on successful ERP system implementation on steel industries in developing nations like India.

The outcomes of the results provide important insights for the researchers and practitioners who are interested in implementing Enterprise Resource Planning systems, how best they can utilize their limited resources and to pay adequate attention to those factors that are most likely to have an impact upon the implementation of the ERP system. ERP systems can also be an instrument for transforming functional organizations into process-oriented ones. When properly integrated, ERP system supports process-oriented businesses effectively.

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