Empirical Study

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Culture, Environmental Pressures, and the Factors for Successful Implementation of Business Process Engineering and Computer-Based Information Systems

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Abstract

The objective of the study is to identify the effect of culture and environmental pressures on the factors of successful implementation of Computer-Based Information Systems (CBIS)/ Business Process Reengineering (BPR) projects based on the experience and perception of chief information officers in India and in the U.S. about computerization/BPR projects in their organizations. For the organizations that have not been able to initiate such projects, the objective is to include the inhibiting factors so as to identify the relationships with culture and the environmental pressures.

The findings suggest that environmental pressures and cultural factors play an important role in changing the mind-set of employees to facilitate the successful implementation of CBIS/BPR projects in India. In case of the United States based organizations, the culture plays an important role in facilitating the successful implementation of both CBIS/BPR projects. However, most of the environmental pressures were found having positive significant correlation with the severity in implementation of CBIS/BPR projects for US based organisations.

For successful implementation of CBIS/BPR projects, the factors used are technological factor, managerial factor, human factor and user training, behavioral factor, project related factor, and government policy and support in the country. The culture is measured by using variables power distance, uncertainty avoidance, individualism, and masculinity. The environmental pressures are measured using variables frequency of changes in marketing practices, rate of product obsolescence, prediction of competitor's actions, prediction of consumer test/product demand, and frequency of changes in mode of production/services.

In the comparative study between India and the United States, we have collected the quantitative data through a survey of chief information officers in India and the United States. This data has been analyzed by using the correlation analysis and validated by factor analysis and discriminant analysis.

Keywords : BPR projects, CBIS, cultural and environmental pressures, successful implementation

Introduction

The worldwide spread of IT is well documented, with diffusion from developed to developing countries and the Newly Industrialized Economies (NIEs) in Asia (Mody and Dahlman, 1992). Most businesses in the industrial world could not compete, and many could not even survive without computers and software (Jones, 1994). Now IT is an integral part of the products and services delivered to customers (Henderson and Lentz, 1995/1996).

Today, multinational corporations and governments increasingly use IT for international business and commerce. While advanced countries have made use of this technology for years, IT has also started to make inroads into lesser-developed countries (LDC's) as well (Palvia and Palvia, 1992). Thus, the level of IT adoption is different from country to country, as are each country's key management information systems or CBIS issues (Palvia & Palvia, 1992). Businesses are generally regulated by a government policy in India (Palvia and Palvia, 1992). However, beginning with the New Computer Policy of 1984 (Dhir, 1992; Menon, 1990), the government aggressively promotes the increased use of IT in business and industry.

The United States remains the world leader in IT (Westwood, 1995). The average IT investment in U.S. organizations is 4% of their sales revenue, and it contributes up to 50% in total capital costs (Broadbend and Weill, 1997). The U.S. service sector has 85% of its IT installation base. Strategic Planning Services/Spectrum Economics projected the global IT spending on hardware, software, networking and other components at $2,000 billion for the year 2003, and $2,600 billion for the year 2005 (Campbell, 2000).

Computer related technology or any other technology is essentially neutral: whether IT's application succeeds or fails depends entirely on the decisions that are made on how it shall be used (Bostrom and Heines, 1977). Also, the impact of IT in less developed countries depends on its adaptation to the local environment (Montealegre, 1998). Effective

implementation of IT depends on the organization's vision of change, either by deliberate design or as an emergent phenomenon.

A report by Sandish Group International on the success of software projects reveals that in the United States 31.1% of projects are not completed; 52.7% are completed but with an average cost overrun of 189%, and many of these did not contain all the functionalities of original specifications; and 16.2% are completed in-time and on-budget (Hays, 1997; Turban et al., 2001). Ambler (1999) found that the estimated failure rate of large-scale software development since the early 1980s is 85%. Jeong and Klein (1999) note that more complex systems are susceptible to a high failure rate. CSC Consulting estimated the failure rate for BPR is on the order of 70 percent (Stanton et al, 1992).

Environmental pressures play an important role in creating a receptive mind-set of the organizations employees for CBIS/BPR projects.

Literature Review

This section is divided into six parts: environmental pressures, organization as a socio-technical system; culture/ use of computer, stages of IS growth, factors affecting successful implementation of CBIS, and reasons of failure for BPR projects.

Environmental Pressures

With blurring national boundaries, the number of competing organizations and knowledge workers has been increasing. Further, the environment is turbulent, changes rapidly, and in unpredictable manner (Scott-Morton, 1991; Turban et al., 2001). Environment generally changes much faster than organizations. The characteristics of the environment includes time compression-amazing short product life cycle, 'rategic discontinuity-compete in uncertainties, blurring ganizational boundaries-increase collaboration, knowledge ntensity, increase returns to the scale, and customer focused (El Sawy et al, 1999). New technology, new products, and changing public tastes and values (many of which results in new government regulations) put strains on any organization's culture, policies, and people (Schein, 1985). Sutcliffe (1997) stated that the US industries with their backs against the wall from increased foreign competition, fought, in past decade, to regain their position as global leader using business process reengineering and information technology. In successful implementation of computer-based information systems/business process reengineering the environmental pressures play an important role in converting mind-set of the organization's employees (Agrawal et al., 2003).

Organization as a Socio-Technical System

A socio-technical systems approach views a work system as an open system, made up of technical and social subsystems (Schoderbek et al., 1986). The output of the work systems depends on the interaction between its subsystems.

The technical system deals with the processes, tasks, and technology needed to transfer inputs to outputs (Bostrom, 1980), whereas the social system is concerned with attributes of people (e.g., attitudes, skills, and values), the roles they enact, the reward systems, and the authority structure. To optimize the entire work system, the interaction of both subsystems must be jointly optimized (Huse and Cummings, 1985).

Culture/Use of Computer

Theories in sociology, psychology, and organizational behavior suggest that a theory that applies in one culture does not necessarily apply, in total, to other cultures (Hofstede and Bond, 1988). Haire, Ghiselli, and Porter (1966) determined that national differences make a consistent and substantial contribution to the differences in a manager's attitudes: two-thirds national and one third individual. Herbig and Day (1990) indicate that certain socio-cultural conditions have to be in place for innovation to occur.

People interact with the IS through a human interface. Culture impacts attitudes towards the use of computers. This impact is enunciated by various theories. The study of Compeau and Higgins (1995) discusses the role of individuals' beliefs about their ability to competently use computers, a.k.a. computer self-efficacy. Theory of Reasoned Action (Fishbein and Ajzen, 1975) maintains that individuals would use computers if they could see positive benefits (outcomes) associated with using them. Davis (1989) included two constructs in his Technology Acceptance Model (TAM). He highlights two constructs: perceived usefulness and perceived ease of use. Task-technology fit (TTF) implies matching the capability of the technology to the demands of the task (Goodhue and Thompson, 1995). Also, both theory (Fishbein and Ajzen, 1975) and a recent path analysis (Baroudi et al, 1986) suggest that satisfaction leads to usage rather than usage stimulating satisfaction. There is increasing evidence that the effective functioning of an application depends on its ease of use or usability (Goodwin, 1987).

Hofstede (1984) identified four basic dimensions accounting for variations in culture. In this study we have used these four parameters for measurement of culture: Individualism versus Collectivism: The extent to which the individual expects personal freedom versus the acceptance of the responsibility to family, tribal or national groups. More individualism will result in more innovation. Power Distance: The degree of tolerance and inequality in wealth and power indicated by the extent to which centralization and autocratic power are permitted. Higher innovation capacity is more available in societies having less power structure or little difference in power status within organizations. Risk (Uncertainty) Avoidance: The extent to

which a society avoids risks and creates security by emphasizing technology and buildings, laws and rules, and religion. A high-risk avoidance environment is not conducive to entrepreneurship and hence dampens innovations. Masculinity versus Femininity: The extent to which the society differentiates roles between the sexes and places emphasis on masculine values of performance and visible achievements. Masculinity refers to assertive, competitive, and firm, whereas femininity culture refers to soft, yielding, dependent, intuitive, etc. Radical innovation thrives in more masculine societies.

Stages of IS Growth

Depending upon the level of IS growth, the IT strategy is formulated by the organizations. A proper IT strategy corresponding to a matching stage of IS growth leads to a successful implementation of IS applications in the organizations. Nolan (1979) indicates that organizations go through six stages of IT growth initiation, expansion, control, integration, data administration, and maturity. Venkatraman (1994) has argued that enterprises pass through levels of IT- enabled transformation, which range from localized automation (exploitation), internal integration, business process redesign, business network redesign, to business scope redefinition.

Culture impacts attitude towards the use of computer. National differences make a consistent and substantial contribution to the differences in manager's attitude: two third national and one third individual.

The United Nations classified countries according to their computer industry development potential (CIDP) as follows: advanced, operational, basic, or initial (Porat, 1977). Palvia and Wang (1995) have developed a model of country specific CBIS issues. In the model they have added between operational and advance level, one more category named "newly industrialized countries" (NIC). According to this model, the level of IT adoption and the sophistication of the corresponding management issues increases from one stage to the next, i.e. from underdeveloped to developing to newly industrialized to advanced nations.

Palvia and Palvia (1992) focused on CBIS key issues in India, a nation classified as "operational" by the United Nations, and compared them to U.S. key issues. They concluded that, the level of IT adoption and CBIS issues are different from country to country. In the United States, operational and control issues have dropped to the background, and strategic and newer issues have come to the forefront, whereas the important issues in India are currently operational and control oriented. Further, it is not necessary that CBIS development in lesser-developed countries, like India, must parallel the "bottom- up" evolutionary cycle experienced in the US. It is conceivable that developing nations, with proper planning and advances in technology, can leapfrog into advanced strategic uses of IT.

Factors Affecting Successful Implementation of CBIS

CBIS implementation is often considered as the introduction of change (Keen, 1981). Reengineering implementation is also viewed as a large-scale organizational change (Davenport, 1993). Therefore, it is reasonable to assume that reengineering implementation can benefit from an understanding of some of the same problems faced in general IS implementation.

Various prior studies have indicated that management issues judged to be the most important in MIS, change with time (Harrison and Farn, 1990). Bailey and Pearson (1983) identified 39 distinct factors that influence a user's IS satisfaction and make IS successful. Li (1997) identified seven additional factors with additional classification for IS success and found their relevance in the study as the valid factors for IS success. Previous research indicates that a fully developed model may need to include factors related to culture, IT infrastructure, political/ economic system, and government policies (Ives and Jarvenppaa, 1991).

In today's environment, users/customers are faced with similar products, too many options, and lack of time. The customer's natural reaction is to look for the cheapest, the most familiar, or the best quality product (Kalkota and Robinson, 1999). The growth in end-user computing, shifting of IT resources to the hands of user departments, availability of knowledge workers, trend towards usage of packaged software, and availability of quality packaged solution, leads to elimination of most of the factors related to quality. Increased competition leads to a receptive environment for adoption of technology. The remaining factors from the preceding discussion and additional factors identified from other studies are grouped with respective citations in Table 1.

Reasons of Failure of BPR Projects

In his study (Jeong,1995) has identified 64 factors as BPR implementation problems and categorized the factors as: management support problems, technological competence problems, process delineation problems, project planning problems, change management problems, and project management problems. Based on a survey, he concluded that the most important five factors were: need for managing change is not recognized, management's short term view and quick fix mentality, rigid hierarchical structure, line managers unreceptive to innovation, and organizational resistance to change The factors from the preceding discussion and additional factors identified from other studies are grouped with respective citations in Table 2:

Table 1 : Determinants of Successful Implementation of CBIS Projects Used in this Study

Factors	Citation
Technological	• Palvia and Palvia (1992) identified key MIS issues in India with their ranking (2. Human resources and personnel for MIS. 6. Continuing training & education of MIS staff. 7. Maintenance of software. 7. Standards in hardware and software. 9. Data security. 10. Packaged application software availability. 12. Maintenance of hardware. 14. Need for external/ environmental data. 14. MIS productivity/ effectiveness. 17. Computer hardware.) • Technological newness (Jeong and Klein, 1999) • Personnel shortfalls (Boehm, 1989)
Managerial	• Palvia and Palvia (1992) identified key MIS issues in India with their ranking (1. Understanding and awareness of MIS contribution. 4. Educating senior managers about MIS. 13. Aligning MIS with organization. 16. Application portfolio. 18. MIS strategic planning. 22. Fear of loss of management authority. 23. Fear of loss of employment. • Top management support (Jeong, 1995).
Human factor and user training	• Palvia and Palvia (1992) identified key MIS issues in India with their ranking (1. Understanding and awareness of MIS contribution. 5. User friendliness of systems. • Lack of user experience on applications (Jeong and Klein, 1999).
Behavioral	• Palvia and Palvia (1992) identified key MIS issues in India with their ranking (3. Quality of input data. 10. Cultural and style barrier. 23. Fear of loss of employment.) • Lack of user support (Jeong and Klein, 1999).
Project related	• Application complexity and lack of clarity of role definition among the team members (Jeong and Klein, 1999). • Sufficient resources, competent-team-members, and adequate communication (Jeong, 1995). • Project size, Lack of team's general expertise, Lack of team's expertise with the task, Lack of team's development expertise, Resources insufficient, Lack of clarity of role definitions, Lack of user experience, and Application complexity (Jeong and Klein, 1999)
Government policy and support in the country	• Palvia and Palvia (1992) identified key MIS issues in India with their ranking. (19. Effect of country's political climate on MIS. 20. Telecommunications. 21. Government control.)

Model and Hypothesis Formulation

The relevant variables identified are as follows: technological factor, managerial factor, human factor and user training behavioral factor, project related factor, government policy and support in the country, power distance, uncertainty avoidance, individualism, masculinity, frequency of changes in marketing practices, rate of product obsolescence, prediction of competitors actions, prediction of consumer test/product demand, and frequency of changes in mode of production/services.

Table 2 : Determinants of Successful Implementation of BPR Projects Used in this Study

Factors	Citation
Technological	• Inadequate tools for the developers and users (Mathews, 1995). • A less than favorable IT implementation climate (Shabana, 1995). • Lack of expertise in IT in the organization (Davidson, 1993). • Limited telecommunication infrastructure (Davenport, 1993; Venkatraman, 1994). • Limited IS application infrastructure (Davenport, 1993, Davidson, 1993).
Managerial	• Jeong (1995) - Need for managing change is not recognized (1), Management's short-term view and quick fix mentality (2). • Flawed objectives (Mathews, 1995). • Failure in committed leadership (Hammer et al, 1995; Mathews, 1995; Shabana, 1995) • Uncertainty about reengineering project's timeframe (Shore, 1992).
Human factor & user training	• Inadequate training to affected personnel (Davenport, 1993; Davidson, 1993).
Behavioral	• Jeong (1995) - Rigid hierarchical structure in the organization (3), Line managers in the organization unreceptive to innovation (4). • Jeong (1995) Failure to anticipate and plan for the organizational resistance to change (5). • Resistance to change (Grover et al., 1995; Hammer and Stanton, 1995; Shabana, 1995) • Inadequate attention to employee concerns (Grover et al., 1995). • Failure to consider existing organizational culture (Davenport, 1993; Davidson, 1993).
Project related	• Inadequate and inappropriate staffing (Grover et al., 1995; Hammer and Stanton, 1995). • Lack of oversight during implementation and follow up phase (Grover et al., 1995). • Lack of appropriate planning (Davidson, 1993). • Failure to commit the required resources (Morris and Brandon, 1993). • Lack of expertise in business reengineering (Davenport, 1993). • Lack of appropriate BR methodology (Davenport, 1993; Klein, 1994).
Government policy and support in the country	• Lack of external consulting support (Harrison and Pratt, 1993).

The model (Figure 1) showing the relationships among the variables has been prepared using the model prepared by Agrawal et al. (2003). The severity of implementation problems is a dummy variable included for the sake of clarity in the diagram. The factors to the left represent the severity of implementation problems and the factors to the right represent the cultural and environmental factors. The following hypothesis and goal were developed.

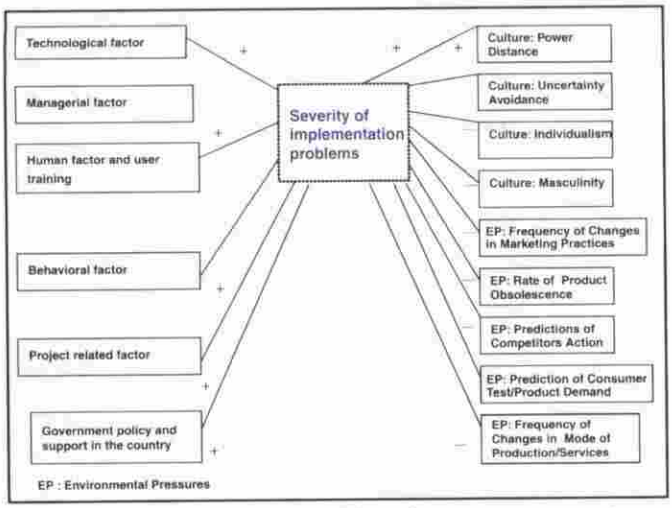


Figure 1: Conceptual Model -Culture, Environmental Pressures and Factors for Successful Implementation of Computerization and BPR Projects
(Source: Adopted from Agrawal et al, 2003)

Hypotheses and Goal

- *H1:* The severity in environmental pressures (frequency of changes in marketing practices, rate of product obsolescence, prediction of competitors actions, prediction of consumer test/product demand, and frequency of changes in mode of production/services) are negatively correlated with severity of implementation problems (technological factor, managerial factor, human factor and user training, behavioral factor, project related factor, and government policy and support in the country).
- *H2:* Power distance and uncertainty avoidance are positively correlated with severity of implementation problems (technological factor, managerial factor, human factor and user training, behavioral factor, project related factor, and government policy and support in the country).
- *H3:* Individualism and masculinity are negatively correlated with severity of implementation problems (technological factor, managerial factor, human factor and user training, behavioral factor, project related factor, and government policy and support in the country).
- *Goal 1:* Determine the critical factors of the failure of computer-based information systems/business process reengineering projects (Note: In this research, failure of CBIS and BPR also includes those projects that were not undertaken).

In open market economy, using IT, the corporations should transform themselves for survival and growth.

Methodology

This study has been confined to manufacturing, telecommunication (hardware), computer hardware, banking, hotels, computer software, and airlines. This particular study has been defined as an exploratory and descriptive "survey" approach in order to achieve more generalizability and additional richness. The study is divided into three phases.

Phase 1 Exploratory Study

In the first phase, a literature search, an obvious first step in an exploratory study, was conducted. Then, interviews were conducted. The data gathered from a literature search and interviews were analyzed, and a revised version of the problem list and a questionnaire was developed.

Phase 2 Survey, Construct Validity, and Data Analyses

In the second phase, a questionnaire survey was used to answer the research questions. The data are quantitative in nature. The data were used to test the hypotheses using correlation and multiple regressions. Principal component factor analyses along with Varimax rotation were performed to test the construct validity of the questionnaire.

Phase 3 Computation of Discriminant Functions

To determine if statistical differences exist between the average score of manufacturing and service sectors within Indian organizations, discriminant analysis using stepwise variable selection method has been carried out. The discriminant analysis is also carried out for manufacturing and service sectors in the United States.

Implementation of Research Methodology

Questionnaire Design

The questionnaire uses the Likert scale with nine intervals, from low to high, with equal weights. Because of the difficulties in measurement, open-ended questions were avoided. The questions are mutually exclusive.

Questionnaire Validation and Testing

The questionnaire validation exercise was divided into four parts: face validity, criterion validity, content validity, and construct validity. In construct validity, to determine the number of factors for each construct, an Eigenvalue greater than one rule was employed. While 0.30 has been suggested as sufficient, only loadings greater than 0.32 in absolute value were used in this study (Churchill, 1979). The questionnaire items were found significantly loaded (Appendix I) and grouped under the variables they ought to measure. There are variables loaded on more than one factor, but there was no variable found not loaded on any of the factors significantly – possible association of variables is one reason, which could be attributed to the loading of more than one construct on the same factor. The construct validity is not more or less than a scientific process (Baussel, 1986). It is, therefore, difficult to assert that construct validity of a measure is established. An instrument may need several administrations before its construct validity can be ensured. Further, due to multiple variations and combinations in each study, a general model as proposed in Figure 1 is

considered uniformly to facilitate the needed comparison between organizations of India and the United States. In spite of seeming limitations, this gives the confidence that the questionnaire administered had enough construct validity. After field-testing, the questionnaires were mailed for survey research.

Administering the Instrument

The questionnaire survey was administered following the guidelines suggested by Dillman (1978, and 2000). For the United States, stratified sampling was used. In India, a judgment sampling was used.

A total of 423 in India and 384 questionnaires in the United States were mailed. After about three weeks a follow up letter was mailed requesting that that the completed questionnaires are returned at the respondents' earliest convenience. Out of the questionnaires received, the total usable responses were 112 from India and 89 from the United States. This has resulted in a response rate of 26.48 percent in India and 23.18 percent in the United States. This response rate compares favorably to mail surveys reported in the IS literature many of whom have less than 25 percent response rate (Jeong, 1995).

Data Processing and Results

The results of statistical analysis are presented to show the degree of association among the variables and examine the statistical significance of the model presented. The significance level of 0.01 and 0.05 are very common in a larger sample size. In our case the sample size is 112 (India) and 89 (U.S.A.); thus, the significance level of 0.1 is considered appropriate. Further, for generalization of model, and considering the number of combinations of options in the study, the significance level of 0.1 is justified. Software package SPSS version.10 has been used for statistical analysis to validate hypotheses and for the discriminant function analysis. For discussion on relative significance, the mapping of mean values is done using the criteria given below in Table 3. Because the nine intervals could not be divided equally with meaningful separation points, the upper and lower extreme values taken relatively of smaller range.

This part is divided into six sub-parts: culture, effect of environmental pressures, ranking of variables and data items, results and analysis, validation of hypotheses, and comparison of manufacturing sector and service sector (results of stepwise statistical discriminant function analysis).

Table 3 : Mapping of the Mean Values of Data Items and Variable Used for the Study Using Likert's Scale of Nine Intervals.

Range of Mean Values	Level of Significance
Up to 1.500	Very Low
From 1.501 to 3.500	Low
From 3.501 to 5.50	Moderate
From 5.501 to 7.50	High
Above 7.500	Very High

Culture

For cross comparison the culture is measured based on four parameters: power distance, uncertainty avoidance, individualism, and masculinity. Table 4 contains mapping of mean values for both the countries. The mean values are also plotted in Figure 2.

Table 4 : Mapping of Mean Values of Variables Measured in Questionnaire Part C.

Variable Description	Variable Code	India	U.S.A.
Power distance (degree of inequality among people which the population of a culture considers normal)	V219 (C8A)	High	Moderate
Uncertainty avoidance (degree to which people in a culture feel uncomfortable with uncertainty and ambiguity)	V220 (C8b)	High	Moderate
Individualism (degree to which people in a culture prefer to act as individuals rather than members of groups)	V221 (C8C)	Moderate	Moderate
Masculinity (degree to which value like assertiveness, performance, success, and competitiveness prevails among people of a culture over gentle values like quality of life, maintaining warm personal relationships, service, care of the weak, etc.)	V222 (C8D)	Moderate	Moderate

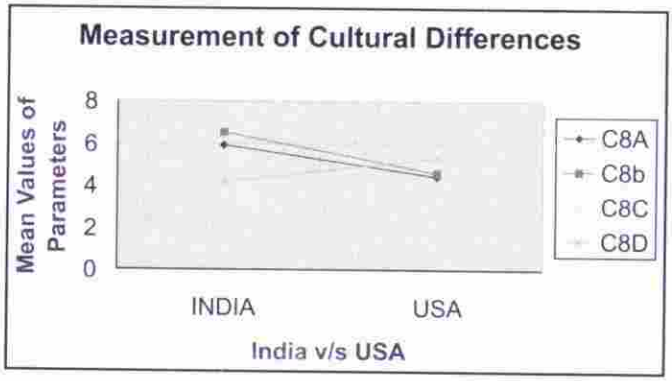


Figure 2 : Cultural Difference Between the Organizations of India, and the United States.

In comparison with the values in India, organizations in the United States are having moderate values for power distance, and uncertainty avoidance. These attitudes seem to be contributing significantly in the successful usage and implementation of IT. Further within moderate range the organizations in the United States are having values for individualism, and masculinity closer to the upper limit, while in India, it is at lower end of the range. In the Figure 2, the parameters on Y-axis represent mean values of

variables V219(C8A), V220(C8b), V221(C8C), and V222(C8D). On X-axis the values on the left hand side are pertaining to the organizations in India, and on right hand side, the values are pertaining to the organizations in the United States.

The category wise results (Table 5) reveal that in the United States, there is a significant difference in individualism between manufacturing (5.02) and service sectors (5.95). The difference can be explained considering the nature of work in service sector, i.e. more independent compared to more team work in manufacturing sectors. Further, in India the difference in values of masculinity between manufacturing sector (3.55) and service sector (4.9) can be explained considering the fact that service sector requires more customer focused approach, and needs more efforts for getting and retaining customers.

Table 5 : Mean Values of Variables for Category Wise, and Cross Comparison: Culture

Sr. No.	Code	Description	India			USA		
			Total	Mfg	Ser	Total	Mfg	Ser
1	V219 (C8A)	Power distance (degree of inequality among people which the population of a culture considers normal)	5.94	6.271	5.53	4.43	4.45	4.41
2	V220 (C8b)	Uncertainty avoidance (degree to which people in a culture feel uncomfortable with uncertainty and ambiguity)	6.51	6.82	6.13	4.581	4.6	4.57
3	V221 (C8C)	Individualism (degree to which people in a culture prefer to act as individuals rather than members of groups)	3.77	3.75	3.8	5.494	5.02	5.95
4	V222 (C8D)	Masculinity (degree to which value like assertiveness, performance, success, and competitiveness prevails among people of a culture over gentle values like quality of life, maintaining warm personal relationships, service, care of the weak, etc.)	4.16	3.55	4.9	5.314	5.02	5.6

Effect of Environmental Pressures

The mapping of mean values for both the countries in given below in Table 6 and their relative differences are also depicted in Figure 3.

In comparison with the values in India, organizations in the United States have significant difference in frequent changes in marketing practices to keep up with its market and competitors. This parameter differentiates both countries and seems to be a major contributor in developing a positive mind set for incorporating changes with the help of IT/BPR. Further within moderate range the organizations in the United States are having value for predictions of competitor's actions closer to the upper limit, while in India, it is near the lower end of the range. In the Figure 3, the parameters on Y-axis represent mean values of variables V212(A9a), V213(A9b), V214(A9c), V215(A9d), and V216(A9e). On X-axis the values on the left hand side are pertaining to the organizations in India, and on right hand side, the values are pertaining to the organizations in the United States.

Table 6 : Mapping of Mean Values of Variables

Variable Description	Variable Code	India	U.S.A.
The changes in Marketing Practices to keep up with its market and competitors	V212 {A9(a)}	Moderate	High
The rate of obsolescence of your product	V213 {A9(b)}	Moderate	Moderate
Predictions of competitors actions (fairly easy to very unpredictable)	V214 {A9(c)}	Moderate	Moderate
Forecast of demand and prediction of consumer test (easy to very difficult)	V215 {A9(d)}	Moderate	Moderate
The mode of production/services (well established to subject to very much change)	V216 {A9(e)}	Moderate	Moderate

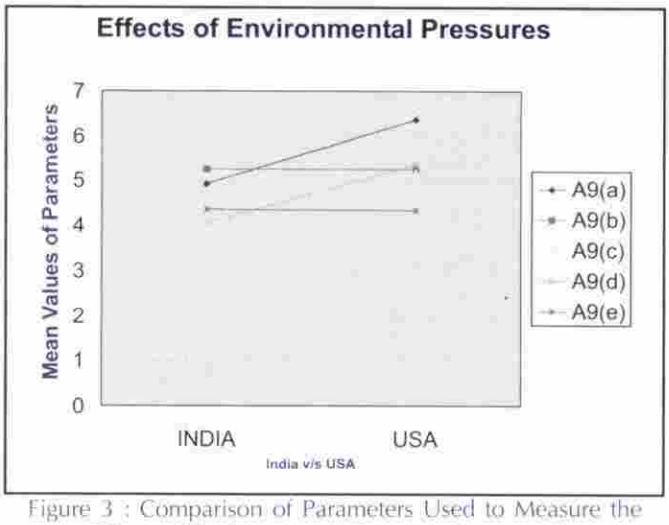


Figure 3 : Comparison of Parameters Used to Measure the Effects of Environmental Pressures Between the Organizations of India, and the United States.

The category wise results (Table 7) show the significant difference among manufacturing and service sectors in case of rate of obsolescence of products (India and the United States); forecast of demand and consumer test (the United States), and the mode of production/services (the United States). In manufacturing sectors the values are higher compared to service sectors. This difference can be argued, considering that in service sector the mode of services are relatively more stable compared to the products in manufacturing sector.

Table 7 : Mean Values of Variables for Category Wise, and Cross Comparison: Effect of Environmental Pressures

Sr. No.	Code	Description	India			USA		
			Total	Mfg	Ser	Total	Mfg	Ser
1	V212 {A9(a)}	The changes in marketing practices to keep up with its market and competitors	4.93	4.617	5.28	6.368	6.62	6.13
2	V213 {A9(b)}	The rate of obsolescence of your product	5.26	6.067	4.35	5.244	5.98	4.58
3	V214 {A9(c)}	Prediction of competitors action	3.93	3.508	4.41	5.182	5.3	5.07
4	V215 {A9(d)}	Forecast of demand and prediction of consumer tests	4.04	3.733	4.38	5.352	5.67	5.04
5	V216 {A9(e)}	The mode of production/services, i.e., well established or subject to very much change	4.35	4.638	4.08	4.333	4.95	3.76

Ranking of Variables and Data Items

Tables 8 and 9 contain the ranking of variables and the data items based on their mean values. The results support the arguments that for the successful implementation of projects, human and managerial/project related factors are more severe compared to technological factors.

Based on the above results the following can be concluded: Goal 302 (Determine the critical factors of failure in computer-based information systems/business process reengineering projects. [Note: In this research, failure of CBIS and BPR also includes those projects, which were not undertaken]).

- *Computerization projects:* Ranking of variables and data items for the organizations in India and the United states Refer to Tables 8 and 9.
- *BPR projects:* Ranking of variables and data items for the organizations in India and the United states Refer to Tables 8 and 9.

Table 8 : Ranking of Variables Based on Mean Values for Cross Comparison

Sr. No.	Code	Description	India			USA	
			Failure of Computer ization Projects	Failure of BPR Project	BPR Project not Undertaken	Failure of Computeriza-tion Projectis	Failure of BPR Project
			Ranking	Ranking	Ranking	Ranking	Ranking
1	V201	Technological factor	5	5	4	5	5
2	V202	Managerial factor	4	3	2	2	4
3	V203	Human factor and user training	3	4	3	4	3
4	V204	Behavioral factor	1	1	1	3	2
5	V205	Project related factor	2	2	N.A.	1	1
6	V206	Government policy and support in the country	6	6	5	6	6

N.A.: Not Applicable

Table 9 : Ranking of Data Items Based on Mean Values for Cross Comparison

Sr. No.	Code	Description	India			USA	
			Failure of Computer ization Projects	Failure of BPR Project	BPR Project not Undertaken	Failure of Computeriza-tion Projectis	Failure of BPR Project
			Ranking	Ranking	Ranking	Ranking	Ranking
1	D2	Resistance for change	4	9	4	6	4
2	D6	Inappropriate planning	3	5	N.A.	4	5
3	D7	Lack of perceived benefits	19	10	2	10	11
4	D8	Inadequate End-user support	7	3	6	3	3
5	D13	High risk of failure	14	4	5	12	14
6	D14	Unfavorable culture of the organization	8	14	1	8	7
7	D19	Non Scientific management philosophy of the management	5	13	7	13	16
8	D20	Inadequate level of such projects in the country	22	1	3	24	24
9	D22	Lack of perceived ease of use	9	16	13	5	6
10	D24	Large project size	1	7	9	1	1
11	D25	Application complexities	2	2	16	2	2

N.A.: Not Applicable

Results and Analysis

The results of correlations are placed in Appendix II. To make comparison the significant results are tabulated in Appendix III. The interpretation of the results is given below:

Frequent Changes in Marketing Practices

India: A negative correlation between frequent changes in marketing practice and severity in implementation problems (technological factor, managerial factor, human factor and user training, behavioral factor, project related factor, and government policy and support in the country) supports the argument that this variable helps in the growth of CBIS applications in the organizations. Further, the negative correlation between frequent changes in marketing practice and severity in implementation problems (behavioral factor) reveals a positive mind-set of employees during implementation of the BPR projects. However a positive correlation between frequent changes in marketing practice and severity of implementation problems (human factor and user training) indicates the resistance for undertaking BPR initiatives because of inadequate IT solution/training in the organizations.

Corporations should prepare themselves to quickly adapt to the requirements of using complex and integrated software solutions.

U.S.A.: A positive correlation between frequent changes in marketing practice and severity in implementation problems (human factor and user training) can be argued considering that the organizations are having inadequate IT solution/ training for their employees in implementation of CBIS and BPR projects. Further, the positive correlation between frequent changes in marketing practice and severity in implementation problems (government policy and support in the country) reveals that the massive lay-off of employees may be a big concern during implementation of the BPR projects.

Rate of Obsolescence of the Product

India: A negative correlation between rate of obsolescence of the product and severity in implementation problems (technological factor, managerial factor, human factor and user training, behavioral factor, project related factor, and government policy and support in the country) supports the argument that this variable helps in the growth of CBIS applications in the organizations. Further, the negative correlation between rate of obsolescence of the product and severity in implementation problems (technological factor, and project related factor) reveals a positive mind-set and a confidence of employees during implementation of the BPR projects. However a negative correlation between rate of obsolescence of the product and severity of implementation problems (technological factor) indicates the mitigation of the resistance for undertaking BPR initiatives in the organizations.

U.S.A.: A positive correlation between rate of obsolescence of the product and severity in implementation problems (managerial factor, and human factor and user training) can be argued considering that the fear prevails for high risk of failure, lack of strong leadership within the organizations, and there may be inadequate IT solution/ training for their employees in implementation of CBIS and BPR projects.

Prediction of Competitors Actions

India: A negative correlation between prediction of competitor's actions and severity in implementation problems (managerial factor, human factor and user training, behavioral factor, and government policy and support in the country) supports the argument that this variable helps in the growth of CBIS applications in the organizations. Further, the negative correlation between prediction of competitor's actions and severity in implementation problems (behavioral factor) reveals a positive mind-set of employees during implementation of the BPR projects. However a positive correlation between prediction of competitors actions and severity of implementation problems (technological factor, and government policy and support in the country) in case of implementation of BPR projects can be argued considering inadequate availability of resources/ infrastructure and fear of lay-off of employment in the organizations. Lastly, the positive correlation between prediction of competitor's actions and the severity of implementation problems (human factor and user training) indicates the resistance for undertaking BPR initiatives because of inadequate IT solution/training in the organizations.

U.S.A.: A positive correlation between prediction of competitors actions and severity in implementation problems (technological factor, managerial factor, and project related factor) can be argued considering that high rate of obsolescence of technology, lack of leadership support, high risk of failure of projects, fear of lay-off from employment, and the organizations are having inadequate IT solution/ training for their employees in implementation of CBIS and BPR projects. Further, the positive correlation between prediction of competitor's actions and severity in implementation problems (government policy and support in the country) reveals that the massive lay-off of employees may be a big concern during implementation of the BPR projects. However, a positive correlation between predictions of competitors actions the severity of implementation problems (government policy and support in the country) can be argued considering a fear of lay-off from the employment due to free market policy of the government, which has resulted in acute competition.

Prediction of Consumer Test/Product Demand

India: A negative correlation between prediction of consumer test/product demand and severity in implementation problems (human factor and user training) supports the argument that this variable helps in the growth of CBIS and BPR applications in the organizations. Further, a positive correlation between prediction of consumer test/product demand and severity of implementation problems (human factor and user training) indicates the resistance for undertaking BPR initiatives because of inadequate IT solution/training in the organizations.

U.S.A.: A positive correlation between prediction of consumer test/product demand and severity in implementation problems (managerial factor) can be argued considering that the organizations are having high risk, lack of leadership support, and inadequate IT solution for their employees in undertaking CBIS projects. Further, the positive correlation between prediction of consumer test/product demand and severity in implementation problems (managerial factor, human factor and user training, and behavioral factor) reveals that the projects are having high risk, along with the lack of leadership support, and inadequate IT solutions/training supplemented by fear of massive lay-off of employees may be a big concern during implementation of the BPR projects. This argument is supported by the negative correlation between prediction of consumer test/product demand and severity in implementation problems (technological factor) which shows that, to meet the changing needs of the organizations, the employees are willing to undertake more BPR projects if there concerns are addressed properly.

Shrinkage in product life cycle is facilitating implementation of CBIS/BPR projects in Indian organizations while it is causing heavy resistance in United States organizations.

Frequency of Changes in Mode of Production/Services

India :There are no significant results obtained.

*U.S.A.:*A positive correlation between frequency of changes in mode of production/services and severity in implementation problems (human factor and user training) can be argued considering that the organizations are having inadequate IT solution/training for their employees in undertaking CBIS and BPR projects.

Power Distance

India: A positive correlation between power distance and severity in implementation problems (managerial factor, human factor and user training, project related factor, and government policy and support in the country) supports the argument that this variable helps in the growth of CBIS applications in the organizations. Further, a positive correlation between power distance and severity in implementation problems (managerial factor) supports the argument that this variable helps in the growth of BPR applications in the organizations. However, a negative correlation between power distance and severity in implementation problems (technological factor) reveals that the employees are not willing to have a close interaction/monitoring by managers while learning/using the technology in BPR implementation. They may have a fear of nagging reactions of the management and would like to operate under free environment as far as possible. However a negative correlation between power distance and severity of implementation problems (human factor and user training) indicates also that the employees are not willing to have a close interaction/monitoring by managers while learning/using the technology in initiating BPR projects. They may have a fear of nagging reactions of the management and would like to work under free environment as far as possible.

U.S.A.: A positive correlation between power distance and severity in implementation problems (managerial factor, and project related factor) supports the argument that these variables help in the growth of CBIS and BPR projects.

Uncertainty Avoidance

India: A positive correlation between uncertainty avoidance and severity in implementation problems (technological factor, managerial factor, human factor and user training, behavioral factor, project related factor, and government policy and support in the country) supports the argument that this variable helps in the growth of CBIS applications in the organizations. Further, a positive correlation between uncertainty avoidance and severity in implementation problems (managerial factor, human factor and user training, behavioral factor, and government policy and support in the country) also supports the argument that this variable helps in the growth of BPR applications in the organization.

U.S.A.: A positive correlation between power distance and severity in implementation problems (managerial factor, and project related factor) supports the argument that these variables help in the growth of CBIS and BPR projects.

Individualism

India: A negative correlation between individualism and severity in implementation problems (technological factor, managerial factor, human factor and user training, behavioral factor, project related factor, and government policy and support in the country) supports the argument that this variable helps inversely in the growth of CBIS applications in the organizations. Further, the negative correlation between individualism and severity in implementation problems (technological factor, managerial factor, human factor and user training, behavioral factor, and project related factor) supports the argument that this variable helps inversely in the growth of BPR applications in the organizations. However, a positive correlation between individualism and severity of implementation problems

(behavioral factor) indicates the resistance for undertaking BPR initiatives because of more individual control of employees on the processes and therefore he can dictate his terms to alter the decision in the organizations.

U.S.A.: A negative correlation between individualism and severity in implementation problems (government policy and support in the country) support the argument that this variable helps inversely in the growth of CBIS applications. Further, a negative correlation between individualism and severity in implementation problems (managerial factor, human factor and user training, behavioral factor, project related factor, and government policy and support in the country) support the argument that this variable helps inversely in the growth of BPR applications.

Masculinity

India: A negative correlation between masculinity and severity in implementation problems (managerial factor, human factor and user training, and government policy and support in the country) supports the argument that this variable helps inversely in the growth of CBIS applications in the organizations. Further, a negative correlation between masculinity and severity in implementation problems (managerial factor, human factor and user training, and behavioral factor) supports the argument that this variable helps inversely in the growth of BPR applications in the organizations. However a positive correlation between masculinity and severity of implementation problems (technological factor, and behavioral factor) indicates the resistance for undertaking BPR initiatives because of fear of massive lay-off, inadequate technological infrastructure, and newness in the technology in the organizations. The resistance can be made successful with the help of human power through labor unions/associations.

Individualism, masculinity, low power distance, and lower risk-avoidance attitudes will facilitate implementation of CBIS/BPR projects.

U.S.A.: A negative correlation between masculinity and severity in implementation problems (government policy and support in the country) supports the argument that this variable helps inversely in the growth of CBIS and BPR applications.

Validation of Supporting Hypotheses

Based on the results and above interpretation, the goal and hypotheses can be concluded (Appendix IV)

The results obtained from statistical correlation analysis can be argued for Indian organizations as below:

- The projects of computerizations and BPR are viewed positively by the employees of the organizations during implementation because of change in their mind-sets influenced by change in culture and environmental factors. In some cases there is a resistance and that can be overcome with strong leadership support and proper training and incentives.
- There still exists the resistance for initiation of BPR projects in the organizations where there is no history of implementation of BPR projects. The organizations needs extensive leadership drive and training programs to change the mind set of employees.
- The organizations need to infuse culture which facilitates the successful implementation of CBIS and BPR projects.

In case of the United State's organizations the significant positive correlation with environmental pressures can be explained by discussing the past experience of the executives of US organizations. The US industries regained their leadership global position in the last decade using IT and BPR (Sutcliff, 1997). Considering their past experience, the executives of the US industries might be of the opinion that all the problems can be solved by using more and more IT applications. This may not be perceived true at lower level in the organizations. There may be one or any combination of the following problems in undertaking CBIS/BPR projects beyond a reasonable level:

- The rate of obsolescence of technology is very high and a continuous up-gradation of IT skills/infrastructure in the organizations may not be feasible. This may cause excessive investment and also stresses in employees.
- Higher IT investment and BPR projects may result in fear of abnormal lay-offs which will de-motivate employees in undertaking more CBIS/BPR projects.
- Every problem of the organization can not be solved by BPR/IT applications.

Considering the above arguments, it looks like that the effect of implementation of BPR/CBIS projects may have the behavior as given in Figure 4. The employees of the Indian organizations have positive mind-set because of environmental pressures, which facilitates the Implementation of CBIS/BPR projects successfully. On the contrary the United States organizations have a positive correlation with severity in environment. This effect seems to run in cyclic order as given in the Figure 4.

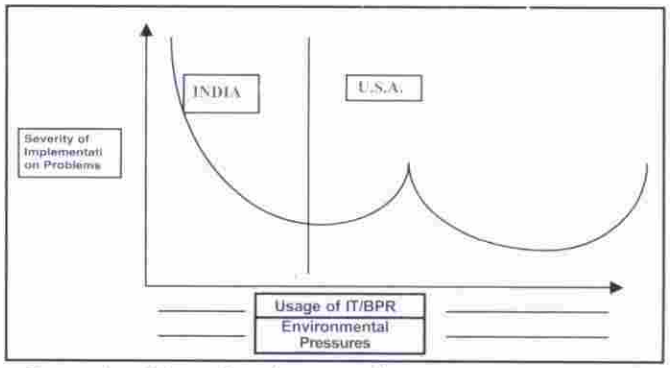


Figure 4 : Effect of environmental pressures on severity of implementation problems.

Discriminant Variables

To determine if significant differences exist between the average score profiles of manufacturing and service sectors of each country, multiple discriminant analyses have been carried out. The other purpose of this analysis was to know which of the independent variables account most for the differences in the average score of profiles of the two groups (Green and Donald, 1979).

The results of stepwise (statistical) discriminant function analyses show that there are significant differences in the values of manufacturing sector and service sector in the case of number of variables. The results are tabulated in Tables 10, 11, and 12. The classification procedure classifies substantially more than the number of cases should be correct by chance (Tables 10, and 11). The results (Table 15) can be interpreted as following:

India: In the past, the major emphasis was on improving the productivity; hence, the major concentration was in the manufacturing sector. Subsequently, the service sector is also considered by the organizations for future improvements. The above trend can be justified considering the organizations in India are at operational level of IS growth, and the resistance in the manufacturing sector is higher for computerization applications because of strong labor unions and government affiliation with labor unions. Since the BPR is new in India, and its applications are mainly in manufacturing with associated complexity of projects, the satisfaction level is justified. Because of growth in white collar workers, growth in knowledge workers, and potential cost savings in support functions driven by competition, in the past, the organizations initiated the IT applications in the service sector. In the service sector, the knowledge workers take the lead in computerization projects to offset the competition.

U.S.A.: In the past, the major emphasis was on improving the productivity; hence the major concentration was in manufacturing sector. Subsequently, the service sector is also considered by the organizations due to intensive competition, with emphasis on customer-focused approach, for future improvements. The above trend can be justified considering the organizations in the United States have tough, competitive pressures. The resistance in the manufacturing sector is higher because of strong labor unions and low consulting support in BPR, since the BPR concept is not very old and its applications mainly affect the manufacturing sector, as compared to the service sector. The higher obsolescence in technology also requires continuous updates through changes in processes and

Table 10 : Classification Results

Original Count	India						USA					
	Failure of Computerization Projects			Failure of BPR Projects			Failure of Computerization Projects			Failure of BPR Projects		
	Group 1	Group 2	Total	Group 1	Group 2	Total	Group 1	Group 2	Total	Group 1	Group 2	Total
Group 1 (M.S.)	**59**	3	62	**59**	3	62	**40**	3	43	**39**	4	43
Group 2 (S.S.)	2	**48**	50	35	**15**	50	2	**44**	46	3	**43**	46
Original %												
Group 1 (M.S.)	95.16	4.84	100.0	95.16	4.84	100.0	93.02	6.98	100.0	90.70	9.30	100.0
Group 2 (S.S.)	4.00	96.00	100.0	70.00	30.00	100.0	4.35	95.65	100.0	6.52	93.48	100.0
% of "grouped" cases correctly classified			**95.54**			**66.07**			**94.38**			**92.13**

Table 11 : Prior Probabilities for Groups

Group	India						USA					
	Failure of Computerization Projects			Failure of BPR Projects			Failure of Computerization Projects			Failure of BPR Projects		
	Prior Prob.	Cases Used in Analysis		Prior Prob.	Cases Used in Analysis		Prior Prob.	Cases Used in Analysis		Prior Prob.	Cases Used in Analysis	
		Un-Wt.*	Wt.*		Un-Wt.*	Wt.*		Un-Wt.*	Wt.*		Un-Wt.*	Wt.*
Group 1 (M.S.)	0.5	53	53	0.5	28	28	0.5	38	38	0.5	35	35
Group 2 (S.S.)	0.5	45	45	0.5	15	15	0.5	41	41	0.5	34	34
Total	**1.0**	**98**	**98**	**1.0**	**43**	**43**	**1.0**	**79**	**79**	**1.0**	**69**	**69**

* Un-Wt.: Unweighted; Wt.: Weighted

Table 12 : Results of Discriminant Analysis: Summary of Comparison Between Manufacturing Sector and Service Sector

Independent Variables (Predictors)	Significant higher values in MS(manufacturing sector) or SS(service sector) as indicated in the applicable columns below			
	India		USA	
	Comput-erization	BPR	Comput-erization	BPR
V203: Human factor and user training			MS	MS
V204: Behavioral factor			MS	
V205:Project related factor			SS	MS
V206: Government policy and support in the country.	MS		MS	MS
V207: Severity of implementation problems.	MS		MS	
V209: Degree of complexity in project compared to the original estimated.	MS			
V210: Performance on projects.	MS			
V211: Satisfaction level.	SS	MS		
V221 (C8C): Individualism			SS	
V222 (C8D): Masculinity	SS			

replacement of hardware and software supported by suitable training programs. Because of growth in white collar workers, growth in knowledge workers, and potential cost savings in support functions driven by competition, in the past, the organizations initiated the IT applications in the service sector. In the service sector, the knowledge workers take the lead in computerization projects to offset the competition. Further, the integration in applications makes projects very complex, requiring sophisticated project management approaches.

All corporation problems can not be solved by using more and more IT applications.

Limitations of the Study

As with any other study, this research also has several limitations that need to be discussed. First, the list of variables pertaining to IT related issues might reflect some biases. Although the literature was thoroughly reviewed, and additional perspectives were obtained form IS academicians and managers, we do not claim that these are the only variables that could be included. Thus, it must be stressed that any interpretation of the findings must be made in light of the selected set of variables, issues, and categories. Availability of literature in the area of information technology in context to developing countries was found to be scarce and limited. Any research that uses data gathered for inferential statistics assumes that the data are collected randomly from the population. Random sampling was used in the case of organizations in the United States, while stratified judgment sampling has been used in the case of organizations in India. Further, the questionnaire survey involved people from various departments such as information systems, administration, accounting/finance, production, etc. A balance among the number of respondents from each department could not be achieved. Secondly, with organizations in India, multiple samples have been collected because the executives of these firms showed keen interest in this study, and in India there is a limited number of organizations with experience of IT applications for more than five years. In India, the choice of firms for questionnaire survey was restricted to technological hubs located in northern, southern, and western parts of the country. There exists a base of firms scattered in other parts of the country, which could not be included in the sample. Additionally, samples were collected from the manufacturing sector (telecommunication hardware, computer hardware, and other manufacturing industries) and service sector (banking, hotels, airlines, and computer software industries). Other types of organizations like insurance, financial institutions, etc. are not included in the sample. Thus, any inferences based on the results might be restricted to the companies listed in the directory.

Suggtestions for Further Work

As this study lays the foundation for further work in the area of number of IT-enabled business transformation, it provides several useful study opportunities for future research. The results suggest that it might be useful to develop a number of comprehensive models. Thus, future research can extend this study to include additional factors such as organizational maturity, IS sophistication, etc, and test a variety of such factors. In studying this, future research is recommended to use more rigorous methodologies using longitudinal approaches and non-linear relationships. Further, with a broader sample and number of variables, the more generalized model can be developed.

Concluding Remarks

The main objective of this study was to arrive at a better understanding of the number of issues pertaining to information technology in India and learning from the experience of the United States, who is the world leader in IT applications. This research has allowed us to investigate a number of issues pertaining to successful implementation of business process engineering and computer-based information systems. Factors contributing to the various trends/problems/opportunities have been identified. A framework has evolved to show the inter relationships among these factors.

References

Agrawal, V.K., Abid Haleem, And Sushil. (2003) Successful Implementation Of Business Process Reengineering And Computer Based Information Systems, *National Social Science Journal*, Volume 20 (# 2), 2003, pp 1-16.

Ambler, S. (1999) Comprehensive Approach Cuts Project Failure, *Computing Canada*. 25 (1), pp.15-16.

Bailey, J.E. And S.W. Pearson. (1983) Development Of A Tool For Measuring And Analyzing Computer User Satisfaction, *Management Science*. 29(5), May, 519-529.

Baroudi, J.J., M.H. Olson And B. Ives. (1986) An Empirical Study Of The Impact Of User Involvement On System-Usage And Information Satisfaction, *Communications Of The ACM*. (29:3), March, pp.232-238.

Baussel, R.B. (1986) *A Practical Guide To Empirical Research*,. New York, NY: Harper & Row.

Boehm, B.W. (1989) *Software Risk Management*, Los Alamitos, CA: IEEE Computer Society Press.

Bostrom, R.P. (1980) *A Socio-Technical Perspective On MIS Implementation*, Paper Presented At The National Conference Of ORCA/TIMS, Colorado Springs.

Bostrom, Robert P. And J. Stephen Heinen. (1977) *MIS Problems And Failures: A Socio-Technical Perspective:* Part 1: The Causes. MIS Quarterly, September, 17-32.

Broadbent, M. And P. Weil. (1997) Management By Maxim: How Business And IT Managers Can Create IT Infrastructures, *Sloan Management Review*, (38:3), Spring, pp 77-92.

Campbell, Christine M. (2000) Global IT Spending Expected To Be $2.6 Trillion, *INFO WORLD.Com*, September, 5.

Churchill, G.A., Jr. (1979) A Paradigm For Developing Better Measures Of Marketing Constructs, *Journal Of Marketing Research*. 16(1), 64-73.

Compeau, Deborah R. And Christopher A. Higgins. (1995) Computer Self-Efficacy: Development Of A Measure And Initial Test, *MIS Quarterly*, June, 189-211.

Davenport, T.H. (1993) Need Radical Innovation And Continuous Improvement? Integrate Process Reengineering And TQM, *Planning Review*, Vol.21, (3), May/June, pp.6-12.

Davenport, T.H. (1993) Process Innovation: Reengineering Work Through Information Technology, Boston, MA: *Harvard Business School Press*.

Davidson, W.H. (1993) Beyond Reengineering: The Three Phases Of Business Transformation, *IBM Systems Journal*, 32(1), 65-79.

Davis, F. (1989) Perceived Usefulness, Perceived Ease Of Use, And User Acceptance Of Information Technology, *MIS Quarterly*, 13, 3, September, 319-340.

Dhir, K.S. (1992) The Challenge Of Introducing Advanced Telecommunication Systems In India: In Global Information Technology Management, *S. Palvia, P. Palvia And R. Zigli (Eds). Harrisburg, PA: Idea Group Publishing*.

Dillman, Don A. (1978) Mail And Telephone Surveys: The Total Design Method, New York, *NY: Wiley Intersciences*.

Dillman, Don A. (2000) *Mail And Internet Surveys:* The Tailored Design Method, (2nd Edition). New York, NY: John Wiley Co.

El Sawy, Omar A., Arvind Malhotra, Sanjay Gosain And Kerry M. Young. (1999) IT-Intensive Value Innovation In The Electronic Economy: Insights From Marshall Industries, *MIS Quarterly*, Vol.23, No.3, pp.305-335, September.

Fishbein, M. And I. Ajzen. (1975) Belief, Attitude, Intention And Behavior: *An Introduction To Theory And Research*, Readings, MA: Addison-Wesley.

Goodhue, D.L. And R.L. Thompson. (1995) Task-Technology Fit And Individual Performance, *MIS Quarterly*. 19(2), pp.213-236.

Goodwin, N.C. (1987) Functionality And Usability, *Communications Of The ACM*, (30:3), March, pp.229-333.

Green, P.F. And S.T. Donald. (1979) *Research For Marketing Decisions*, Englewood Cliffs, New Jersey: Prentice Hall, Inc.

Grover, V., J.T.C. Teng And K. Fiedler. (1995) *Technological And Organizational Enablers Of Business Process Reengineering In Business Process Change: In Reengineering Concepts, Methods And Technologies*, V.Grover And W.J.Kettinger (Eds), Idea Group Publishing.

Haire, M., E.E. Ghiselli And L.W. Porter. (1966) *Managerial Thinking: An International Study*. London: John Wiley And Sons.

Hammer, M. And S.A. Stanton. (1995) *The Reengineering Revolution: A Handbook*. New York, NY: Harper Collins.

Harrison, D.B. And M.D. Pratt. (1993) A Methodology For Reengineering Business, *Planning Review*. Vol.21 (2), March/April, pp.6-11.

Harrison, W.L. And C.K. Farn. (1990) *Comparison Of Information Management Issues In The Unites States Of America And The Republic Of China*, Information And Management, 18, 177-188.

Hayes, F. (1997) Managing User Expectation, *Computerworld*, 31(4), pp.8-9.

Henderson, John C. And Christine M.A. Lentz. (1995/96) Learning, Working And Innovation: A Case Study In Insurance Industry, *Journal Of Management Information Systems*, 12, 3, Winter, pp.43.

Herbig, P. And R.L. Day. (1990) *Putting Technological Innovations Into A Historical Perspective: A Quest For Better Understanding Of The Diffusion Process*, A Working Paper, Indiana University.

Hofstede, G.; And M.H. Bond. (1988) *The Confucius Connection: From Cultural Roots To Economic Growth. Organizational Dynamics*, Vol.16 (4), pp 4-21.

Hofstede, Geert. (1984) *Culture's Consequences*, London: Sage.

Huse, E.F. And T.G. Cummings. (1985), *Organization Development And Change*,. St. Paul, MN: West.

Ives, B. And S.L. Jarvenpaa. (1991) Applications Of Global Information Technology: Key Issues For Management, *MIS Quarterly*, Vol.15 (1), March, pp.33-49.

Jeong, Seung Ryul. (1995) *Business Reengineering Implementation: An Exploratory Study*, Ph.D Dissertation, University Of South Carolina.

Jeong, James J. And Gary Klein. (1999) *Risks To Different Aspects Of System Success*, Information And Management, 36, 263-272.

Jones, M. (1994) *Don't Emancipate, Exaggerate: Rhetoric, Reality And Reengineering: In Transforming Organization With Information Technology, R. Baskerville, S. Smithson, C. Ngwenyama And J.I.* Degross (Eds). North Holland: Elseiver Science B.V., pp. 357-378.

Kalakota, R. And M. Robinson. (1999) *E-Business: Roadmap For Success*,. Readings, MA: Addison-Wesley.

Keen, P.G.W. (1981) Information Systems And Organizational Change, *Communications Of The ACM*, 24 (1), 24-33.

Klein, M.M. (1994) *Reengineering Methodologies And Tools*, Information Systems Management, 11(2), 30-35.

Klein, M.M. (1994) The Most Fatal Reengineering Mistakes, Information Strategy: *The Executive's Journal*, 10 (4), 21-28.

Li, Eldon Y. (1997) *Perceived Importance Of System Success Factors: A Meta Analysis Of Group Differences*, Information And Management, 32, 15-28.

Mathews, Ryan. (1995) Reengineering: Wrong Bridge Over Troubled Waters, *Progressive Grocer*, 74,2, February, pp 29.

Menon, M. (1990) India And Computers: A Necessity For Modernization And Growth, *India Tribune*, July 21.

Mody, A. And C. Dahlman. (1992) Performance And Potential Of Information Technology: An International Perspective, *World Development*, 20 (12), 1703-1719.

Montealegre, Ramiro. (1998) Managing Information Technology In Modernizing 'Against The Odds': Lesson From An Organization In A Less-Developed Country, *Information And Management*, 34, pp.103-116.

Morris, D. And J. Brandam. (1993) Reengineering Your Business, New York, *NY: Mcgraw-Hill;* Inc.

Nolan, R.L. (1979) Managing The Crises In Data Processing, *Harvard Business Review*, 57 (2), March-April, 115-126.

Palvia, Prashant And Pien Wang. (1995) An Expanded Global Information Technology Issues Model: An Addition Of Newly Industrialized Countries, *Journal Of Information Technology Management*, Vol. 4 (2), 29-39.

Palvia, Prashant C. And Shailendra Palvia. (1992) MIS Issues In India, And A Comparison With The United States, *International Information Systems*, April,100-110.

Porat, M.U. (1977) *The Information Economy, Washington*, DC: US Department Of Commerce.

Schoderbek, P.P., C.G. Schoderbek, And A.G. Kefalas. (1986) *Management Systems: Conceptual Considerations. Homewood*, IL: BIT/ Irwin.

Shabana, Ahmed Abdelfattah. (1995) *Business Process Reengineering: Testing An Integrative Model Of Successful Implementation*, Ph.D. Dissertation, University Of California, Los Angeles.

Schein, Edgar H. (1985) *Organizational Culture And Leadership*, Jossey-Bass, San Francisco.

Scott-Morton, Michael S. (Ed) (1991) The Corporation Of The 1990s: Information Technology And Organizational Transformation, *Oxford University Press*, New York, NY.

Shore, E.B. (1992) *Business Reengineering: Fast Track To Operational Excellence*. (Critical Technology Report No. C-2-2), Chantico Publishing Company, Inc., Carrollton, TX.

Stanton, S., M. Hammer And B. Power. (1992) From Resistance To Results: Mastering The Organizational Issues Of Reengineering, *Insights Quarterly: The Executive Journal Of Business Reengineering*, Vol.4 (2), Fall, pp. 6-16.

Sutcliffe, Norma Gail. (1997) *The Role Of Leadership In Business Process Reengineering: An Empirical Study Of The Relationship Between Leadership Behavior And The Reengineering Outcome*, Ph.D Dissertation, University Of California, Los Angeles.

Turban, E., E. Mclean, J. Whetherbe. (2001) *Information Technology For Management: Making Connections For Strategic Advantages*, (2nd Updated Edition). John Wiley And Sons, Inc.

Venkataraman, N. (1994) IT-Enabled Business Transformation: From Automation To Business Scope Redefinition, *Sloan Management Review* (35:2), Winter, pp 73-87.

Westwood, Robert I. (1995) Culture, Information And MIS: The United States And East Asia Compared, *Journal Of Management Information Systems*, Vol.7 (1), pp.29-44.

Appendix I : Factor Analysis : Factors and Variables through the Construct of Items Loaded

Factor	Eigen Value	Variances %	Cumulative %	Variable Construct Loaded
ORGANIZATIONS IN INDIA–FAILURE IN COMPUTERIZATION				
1	4.834	19.338	19.338	D (9**, 14, 16**, 17, 19**, 20, 21)
2	2.58	10.32	29.657	D(8, 15, 19, 22**)
3	2.032	8.126	37.783	D(5, 7, 13, 21**)
4	1.619	6.475	44.258	D(3, 4, 9)
5	1.375	5.501	49.759	D(6, 11, 18)
6	1.227	4.907	54.666	D(24, 25)
7	1.138	4.552	59.218	D(12, 22, 23)
8	1.103	4.414	63.632	D(2, 10, 11**, 16)
9	1.064	4.257	67.889	D(12**, 26)
ORGANIZATIONS IN INDIA–FAILURE IN BPR				
1	5.472	21.888	21.888	D(4, 5**, 6**, 14, 15, 21, 22, 25)
2	3.631	14.523	36.411	D(3, 9, 22**, 24)
3	2.14	8.559	44.97	D(6, 13, 17**, 19)
4	1.877	7.51	52.48	D(7, 14**, 18**, 22**, 23)
5	1.751	7.003	59.483	D(10**, 14**, 16, 17, 21**, 22**)
6	1.488	5.953	65.436	D(5, 8, 14**, 18**, 20)
7	1.251	5.003	70.439	D(10, 13**, 18, 26)
8	1.132	4.526	74.965	D(11, 12)
9	1.087	4.35	79.315	D(2, 5**, 17**, 25**)
ORGANIZATIONS IN USA–FAILURE IN COMPUTERIZATION				
1	5.281	21.124	21.124	D(2, 4, 7, 14**, 16**, 18, 19**, 23**)
2	3.393	13.571	34.695	D(10, 13, 14, 15**, 17, 22)
3	2.122	8.489	43.184	D(6, 8, 15, 17**)
4	1.808	7.207	50.391	D(3, 5, 7**, 11, 19)
5	1.601	6.402	56.794	D(23, 24, 25)
6	1.388	5.553	62.346	D(2**, 11**, 12, 16**, 17**, 23**, 26)
7	1.218	4.874	67.22	D(8**, 9, 16, 22**)
8	1.094	4.376	71.596	D(10**, 18**, 19**, 21)
9	1.044	4.177	75.773	D(7**, 10**, 20)
ORGANIZATIONS IN USA–FAILURE IN BPR				
1	6.683	26.733	26.733	D(3, 4, 5**, 7, 10**, 11**, 13**, 14, 16, 26)
2	3.53	14.121	40.853	D(3**, 4**, 6, 8**, 13**, 14**, 15, 17)
3	1.967	7.868	48.721	D(5, 11, 18, 19, 20, 22**, 23**)
4	1.775	7.098	55.82	D(4**, 10, 12, 23, 24, 25)
5	1.649	6.597	62.417	D(8, 9, 10**)
6	1.182	4.727	67.144	D(2, 13, 22)
7	1.043	4.171	71.315	D(5**, 13**, 17**, 21)

** Items loaded on multiple factors, but having relatively lower significance and are above the cut-off value of 0.32 (absolute value).

Appendix II : Results of Statistical Correlation

INDIA-Comp Failure							
Correlations		**V201CF**	**V202CF**	**V203CF**	**V204CF**	**V205CF**	**V206CF**
A9A	Pearson Correlation	-0.20	-0.24	-0.33	-0.32	-0.18	-0.32
	Sig. (2-tailed)	0.04	0.02	0.00	0.00	0.06	0.00
	N	110.00	103.00	109.00	109.00	110.00	108.00
A9B	Pearson Correlation	-0.26	-0.33	-0.24	-0.41	-0.20	-0.16
	Sig. (2-tailed)	0.01	0.00	0.01	0.00	0.04	0.09
	N	109.00	102.00	108.00	108.00	109.00	107.00
A9C	Pearson Correlation	0.01	-0.26	-0.37	-0.25	-0.12	-0.29
	Sig. (2-tailed)	0.91	0.01	0.00	0.01	0.23	0.00
	N	108.00	101.00	107.00	107.00	108.00	106.00
A9D	Pearson Correlation	0.12	-0.13	-0.25	-0.15	0.03	-0.03
	Sig. (2-tailed)	0.22	0.19	0.01	0.13	0.77	0.78
	N	108.00	102.00	107.00	107.00	108.00	106.00
A9E	Pearson Correlation	-0.01	-0.12	-0.02	0.06	0.04	0.05
	Sig. (2-tailed)	0.94	0.24	0.80	0.56	0.68	0.61
	N	108.00	100.00	107.00	107.00	108.00	106.00
C8A	Pearson Correlation	0.12	0.17	0.24	0.07	0.25	0.35
	Sig. (2-tailed)	0.21	0.09	0.01	0.47	0.01	0.00
	N	108.00	102.00	107.00	107.00	108.00	106.00
C8B	Pearson Correlation	0.16	0.31	0.43	0.35	0.32	0.32
	Sig. (2-tailed)	0.09	0.00	0.00	0.00	0.00	0.00
	N	109.00	103.00	108.00	108.00	109.00	107.00
C8C	Pearson Correlation	-0.27	-0.46	-0.47	-0.38	-0.22	-0.16
	Sig. (2-tailed)	0.00	0.00	0.00	0.00	0.02	0.09
	N	110.00	103.00	109.00	109.00	110.00	108.00
C8D	Pearson Correlation	-0.03	-0.22	-0.36	-0.11	0.02	-0.20
	Sig. (2-tailed)	0.77	0.03	0.00	0.26	0.80	0.04
	N	109.00	103.00	108.00	108.00	109.00	107.00

INDIA-Fail BPR							
Correlations		**V201BF**	**V202BF**	**V203BF**	**V204BF**	**V205BF**	**V206BF**
A9A	Pearson Correlation	0.14	-0.24	-0.23	-0.29	0.13	0.10
	Sig. (2-tailed)	0.38	0.11	0.13	0.05	0.42	0.52
	N	43.00	43.00	43.00	43.00	43.00	43.00
A9B	Pearson Correlation	-0.33	-0.18	-0.23	0.01	-0.48	-0.14
	Sig. (2-tailed)	0.03	0.25	0.14	0.94	0.00	0.36
	N	43.00	43.00	43.00	43.00	43.00	43.00
A9C	Pearson Correlation	0.30	-0.16	-0.15	-0.27	0.19	0.31
	Sig. (2-tailed)	0.05	0.31	0.33	0.08	0.22	0.04
	N	43.00	43.00	43.00	43.00	43.00	43.00
A9D	Pearson Correlation	0.03	-0.16	-0.28	-0.20	0.03	0.05
	Sig. (2-tailed)	0.85	0.31	0.07	0.19	0.87	0.74
	N	43.00	43.00	43.00	43.00	43.00	43.00
A9E	Pearson Correlation	0.00	0.15	0.06	0.06	-0.18	-0.12
	Sig. (2-tailed)	0.98	0.35	0.70	0.69	0.24	0.45
	N	43.00	43.00	43.00	43.00	43.00	43.00
C8A	Pearson Correlation	-0.31	0.35	0.05	0.07	-0.08	-0.07
	Sig. (2-tailed)	0.04	0.02	0.74	0.65	0.61	0.64
	N	43.00	43.00	43.00	43.00	43.00	43.00

Appendix II : Cont...

INDIA-Fail BPR

Correlations		V201BF	V202BF	V203BF	V204BF	V205BF	V206BF
C8B	Pearson Correlation	0.16	0.54	0.52	0.51	0.13	0.31
	Sig. (2-tailed)	0.31	0.00	0.00	0.00	0.41	0.04
	N	43.00	43.00	43.00	43.00	43.00	43.00
C8C	Pearson Correlation	-0.47	-0.43	-0.54	-0.32	-0.27	-0.06
	Sig. (2-tailed)	0.00	0.00	0.00	0.04	0.08	0.69
	N	43.00	43.00	43.00	43.00	43.00	43.00
C8D	Pearson Correlation	-0.10	-0.36	-0.35	-0.39	0.12	0.01
	Sig. (2-tailed)	0.53	0.02	0.02	0.01	0.46	0.97
	N	43.00	43.00	43.00	43.00	43.00	43.00

INDIA-NO BPR

Correlations		V201BN	V202BN	V203BN	V204BN	V205BN	V206BN
A9A	Pearson Correlation	-0.22	0.28	0.34	0.10	0.12	-0.04
	Sig. (2-tailed)	0.12	0.44	0.01	0.46	0.39	0.76
	N	53.00	10.00	52.00	52.00	53.00	51.00
A9B	Pearson Correlation	-0.58	-0.18	0.06	-0.16	0.09	0.18
	Sig. (2-tailed)	0.00	0.59	0.68	0.25	0.54	0.22
	N	52.00	11.00	51.00	51.00	52.00	50.00
A9C	Pearson Correlation	-0.09	0.49	0.27	-0.07	0.13	0.12
	Sig. (2-tailed)	0.55	0.13	0.05	0.61	0.38	0.41
	N	51.00	11.00	50.00	50.00	51.00	49.00
A9D	Pearson Correlation	-0.03	0.30	0.25	0.07	-0.03	-0.05
	Sig. (2-tailed)	0.86	0.37	0.08	0.64	0.82	0.76
	N	51.00	11.00	50.00	50.00	51.00	49.00
A9E	Pearson Correlation	-0.13	0.48	0.13	-0.01	0.07	-0.03
	Sig. (2-tailed)	0.36	0.16	0.39	0.95	0.61	0.83
	N	51.00	10.00	50.00	50.00	51.00	49.00
C8A	Pearson Correlation	-0.14	-0.31	-0.30	-0.08	-0.08	0.09
	Sig. (2-tailed)	0.31	0.41	0.04	0.59	0.59	0.55
	N	51.00	9.00	50.00	50.00	51.00	49.00
C8B	Pearson Correlation	-0.07	0.13	-0.21	-0.02	0.00	-0.01
	Sig. (2-tailed)	0.64	0.71	0.13	0.87	0.98	0.96
	N	52.00	11.00	51.00	51.00	52.00	50.00
C8C	Pearson Correlation	0.03	-0.54	-0.06	0.47	0.15	0.06
	Sig. (2-tailed)	0.81	0.11	0.66	0.00	0.29	0.69
	N	53.00	10.00	52.00	52.00	53.00	51.00
C8D	Pearson Correlation	0.29	0.29	0.03	0.36	-0.03	-0.11
	Sig. (2-tailed)	0.03	0.42	0.84	0.01	0.84	0.44
	N	52.00	10.00	51.00	51.00	52.00	50.00

USA-Comp Fail

Correlations		V201CF	V202CF	V203CF	V204CF	V205CF	V206CF
A9A	Pearson Correlation	-0.02	0.11	0.25	-0.01	0.08	0.11
	Sig. (2-tailed)	0.85	0.32	0.02	0.95	0.49	0.31
	N	87.00	83.00	87.00	86.00	87.00	87.00
A9B	Pearson Correlation	-0.08	0.24	0.22	-0.12	0.11	0.10
	Sig. (2-tailed)	0.46	0.03	0.04	0.27	0.33	0.37
	N	86.00	82.00	86.00	85.00	86.00	86.00

Appendix II : Cont...

USA-Comp Fail

Correlations		V201CF	V202CF	V203CF	V204CF	V205CF	V206CF
A9C	Pearson Correlation	0.22	0.28	0.11	0.16	0.40	0.20
	Sig. (2-tailed)	0.04	0.01	0.32	0.14	0.00	0.07
	N	88.00	84.00	88.00	87.00	88.00	88.00
A9D	Pearson Correlation	-0.06	0.43	0.13	0.22	-0.17	0.09
	Sig. (2-tailed)	0.60	0.00	0.22	0.04	0.11	0.39
	N	88.00	84.00	88.00	87.00	88.00	88.00
A9E	Pearson Correlation	0.01	-0.04	-0.02	-0.10	0.11	-0.01
	Sig. (2-tailed)	0.93	0.73	0.84	0.35	0.32	0.90
	N	87.00	83.00	87.00	86.00	87.00	87.00
C8A	Pearson Correlation	0.17	0.24	0.20	0.15	0.23	0.09
	Sig. (2-tailed)	0.12	0.03	0.06	0.17	0.03	0.40
	N	86.00	81.00	86.00	85.00	86.00	86.00
C8B	Pearson Correlation	-0.04	0.24	0.14	0.06	0.22	-0.05
	Sig. (2-tailed)	0.70	0.03	0.21	0.61	0.04	0.67
	N	86.00	81.00	86.00	85.00	86.00	86.00
C8C	Pearson Correlation	0.04	-0.11	-0.16	0.02	-0.17	-0.18
	Sig. (2-tailed)	0.74	0.34	0.14	0.83	0.13	0.10
	N	87.00	84.00	87.00	86.00	87.00	87.00
C8D	Pearson Correlation	0.05	-0.07	0.00	0.12	0.00	-0.29
	Sig. (2-tailed)	0.65	0.50	1.00	0.29	1.00	0.01
	N	86.00	84.00	86.00	85.00	86.00	86.00

USA– BPR Fail

Correlations		V201BF	V202BF	V203BF	V204BF	V205BF	V206BF
A9A	Pearson Correlation	0.05	0.16	0.29	0.11	0.10	0.25
	Sig. (2-tailed)	0.65	0.17	0.01	0.35	0.39	0.03
	N	77.00	76.00	77.00	77.00	77.00	77.00
A9B	Pearson Correlation	-0.03	0.23	0.38	-0.01	0.09	0.18
	Sig. (2-tailed)	0.77	0.05	0.00	0.95	0.44	0.13
	N	76.00	75.00	76.00	76.00	76.00	76.00
A9C	Pearson Correlation	0.27	0.24	0.12	0.09	0.41	0.14
	Sig. (2-tailed)	0.02	0.03	0.28	0.41	0.00	0.22
	N	78.00	77.00	78.00	78.00	78.00	78.00
A9D	Pearson Correlation	-0.20	0.38	0.20	0.24	-0.12	-0.03
	Sig. (2-tailed)	0.07	0.00	0.07	0.03	0.28	0.77
	N	78.00	77.00	78.00	78.00	78.00	78.00
A9E	Pearson Correlation	0.14	0.05	0.32	0.10	0.16	0.05
	Sig. (2-tailed)	0.23	0.65	0.00	0.41	0.15	0.70
	N	77.00	76.00	77.00	77.00	77.00	77.00
C8A	Pearson Correlation	0.09	0.23	0.19	0.03	0.28	-0.05
	Sig. (2-tailed)	0.46	0.04	0.11	0.80	0.01	0.67
	N	76.00	75.00	76.00	76.00	76.00	76.00
C8B	Pearson Correlation	-0.03	0.25	0.15	0.12	0.21	-0.08
	Sig. (2-tailed)	0.77	0.03	0.21	0.29	0.06	0.51
	N	76.00	75.00	76.00	76.00	76.00	76.00
C8C	Pearson Correlation	-0.08	-0.42	-0.47	-0.32	-0.34	-0.28
	Sig. (2-tailed)	0.50	0.00	0.00	0.00	0.00	0.01
	N	77.00	76.00	77.00	77.00	77.00	77.00
C8D	Pearson Correlation	-0.10	-0.18	-0.17	-0.07	0.07	-0.31
	Sig. (2-tailed)	0.39	0.12	0.14	0.56	0.55	0.01
	N	76.00	75.00	76.00	76.00	76.00	76.00

Appendix III : Correlation Analysis of Variables

		India						USA					
		V201	V202	V203	V204	V205	V206	V201	V202	V203	V204	V205	V206
A9A	Fail. COMP	NEG05	NEG05	NEG05	NEG05	NEG10	NEG05			POS05			
	Fail.BPR				NEG05					POS05			POS05
	No.BPR			POS05									
A9B	Fail. COMP	NEG05	NEG05	NEG05	NEG05	NEG05	NEG10		POS05	POS05			
	Fail.BPR	NEG05				NEG05			POS05	POS05			
	No.BPR	NEG05											
A9C	Fail. COMP		NEG05	NEG05	NEG05		NEG05	POS05	POS05			POS05	POS05
	Fail.BPR	POS05			NEG10		POS05	POS05	POS05			POS05	
	No.BPR			POS05									
A9D	Fail. COMP			NEG05					POS05				
	Fail.BPR			NEG10				NEG10	POS05	POS10	POS05		
	No.BPR			POS10									
A9E	Fail. COMP												
	Fail.BPR									POS05			
	No.BPR												
C8A	Fail. COMP		POS10	POS05		POS05	POS05		POS05			POS05	
	Fail.BPR	NEG05	POS05						POS05			POS05	
	No.BPR			NEG05									
C8B	Fail.COMP	POS10	POS05	POS05	POS05	POS05	POS05		POS05			POS05	
	Fail.BPR		POS05	POS05	POS05		POS05		POS05			POS10	
	No.BPR												
C8C	Fail.COMP	NEG05	NEG05	NEG05	NEG05	NEG05	NEG10						NEG10
	Fail.BPR	NEG05	NEG05	NEG05	NEG05	NEG10			NEG05	NEG05	NEG05	NEG05	NEG05
	No.BPR				POS05								
C8D	Fail.COMP		NEG05	NEG05			NEG05						NEG10
	Fail.BPR		NEG05	NEG05	NEG05								NEG05
	No.BPR	POS05			POS05								

NEG = Negative; POS = Positive; Suffix 05 = Correlation is Significant at 0.05 level (2-tailed); Suffix 10 = Correlation is significant at 0.1 level (2-tailed). Fail.COMP = Failure in CBIS Project, Fail.BPR = Failure in BPR Projects, No.BPR = BPR projects not undertaken.

- Frequent changes in marketing practice:

Appendix IV : Conclusion of Hypothesis and Goal

H1: The severity in environmental pressures (frequency of changes in marketing practices, rate of product obsolescence, prediction of competitors actions, prediction of consumer test/product demand, and frequency of changes in mode of production/services) are negatively correlated with severity of implementation problems (technological factor, managerial factor, human factor and user training, behavioral factor, project related factor, and government policy and support in the country).

	India	U.S.A.	Comments
Frequency of changes in marketing practices is negatively correlated with severity of technological factor.	Accept (Fail. Comp)		
Frequency of changes in marketing practices is negatively correlated with severity of managerial factor.	Accept (Fail. Comp)		
Frequency of changes in marketing practices is negatively correlated with severity of human factor and user training.	Accept (Fail. Comp) Do Not Accept (No.BPR)**	Do Not Accept (Fail. Comp)** Do Not Accept (Fail.BPR)**	** Significant positive correlation
Frequency of changes in marketing practices is negatively correlated with severity of behavioral factor.	Accept (Fail.Comp) Accept (Fail.BPR)		
Frequency of changes in marketing practices is negatively correlated with severity of project related factor.	Accept (Fail. Comp)		
Frequency of changes in marketing practices is negatively correlated with severity of government policy and support in the country.	Accept (Fail. Comp)	Do Not Accept (Fail.BPR)**	** Significant positive correlation
Rate of obsolescence of the product is negatively correlated with severity of technological factor.	Accept (Fail. Comp) Accept (Fail.BPR) Accept (No.BPR)		

Appendix IV Cont...

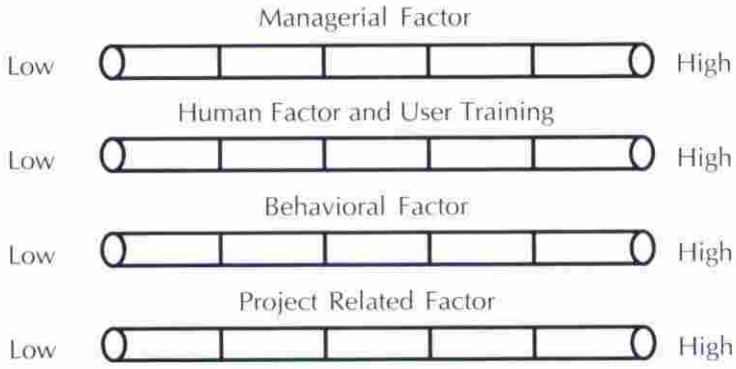
	India	U.S.A.	Comments
Rate of obsolescence of the product is negatively correlated with severity of managerial factor.	Accept (Fail. Comp)	Do Not Accept (Fail. Comp)** Do Not Accept (Fail.BPR)**	** Significant positive correlation
Rate of obsolescence of the product is negatively correlated with severity of human factor and user training.	Accept (Fail. Comp)	Do Not Accept (Fail. Comp)** Do Not Accept (Fail.BPR)**	** Significant positive correlation
Rate of obsolescence of the product is negatively correlated with severity of behavioral factor.	Accept (Fail. Comp)		
Rate of obsolescence of the product is negatively correlated with severity of project related factor.	Accept (Fail. Comp) Accept (Fail.BPR)		
Rate of obsolescence of the product is negatively correlated with severity of government policy and support in the country.	Accept (Fail. Comp)		
Prediction of competitor's actions is negatively correlated with severity of technological factor.	Do Not Accept (Fail.BPR)**	Do Not Accept (Fail. Comp)** Do Not Accept (Fail.BPR)**	** Significant positive correlation
Prediction of competitor's actions is negatively correlated with severity of managerial factor.	Accept (Fail. Comp)	Do Not Accept (Fail. Comp)** Do Not Accept (Fail.BPR)**	** Significant positive correlation
Prediction of competitor's actions is negatively correlated with severity of human factor and user training.	Accept (Fail. Comp) Do Not Accept (No.BPR)**		** Significant positive correlation
Prediction of competitor's actions is negatively correlated with severity of behavioral factor.	Accept (Fail. Comp) Accept (Fail.BPR)		
Prediction of competitor's actions is negatively correlated with severity of project related factor.		Do Not Accept (Fail. Comp)** Do Not Accept (Fail.BPR)**	** Significant positive correlation
Prediction of competitor's actions is negatively correlated with severity of government policy and support in the country.	Accept (Fail. Comp)	Do Not Accept (Fail.BPR)** Do Not Accept (Fail. Comp)**	** Significant positive correlation
Prediction of consumer test/product demand is negatively correlated with severity of technological factor.	Accept (Fail.BPR)		
Prediction of consumer test/product demand is negatively correlated with severity of managerial factor.	Do Not Accept (Fail. Comp)**	Do Not Accept (Fail.BPR)**	** Significant positive correlation
Prediction of consumer test/product demand is negatively correlated with severity of human factor and user training.	Accept (Fail. Comp) Accept (Fail.BPR) Do Not accept (No.BPR)**		** Significant positive correlation
Prediction of consumer test/product demand is negatively correlated with severity of behavioral factor.		Do Not Accept (Fail.BPR)**	** Significant positive correlation
Prediction of consumer test/product demand is negatively correlated with severity of project related factor.			
Prediction of consumer test/product demand is negatively correlated with severity of government policy and support in the country.			
Frequency of changes in mode of production/services is negatively correlated with severity of technological factor.			
Frequency of changes in mode of production/services is negatively correlated with severity of managerial factor.			
Frequency of changes in mode of production/services is negatively correlated with severity of human factor and user training.		Do Not Accept (Fail.BPR)**	** Significant positive correlation
Frequency of changes in mode of production/services is negatively correlated with severity of behavioral factor.			
Frequency of changes in mode of production/services is negatively correlated with severity of project related factor.			
Frequency of changes in mode of production/services is negatively correlated with severity of government policy and support in the country.			

Appendix IV Cont...

	India	U.S.A.	Comments
H2: Power distance and uncertainty avoidance are positively correlated with severity of implementation problems (technological factor, managerial factor, human factor and user training, behavioral factor, project related factor, and government policy and support in the country).			
Power distance is positively correlated with severity of technological factor.	Do Not Accept (Fail.BPR)**		** Significant negative correlation
Power distance is positively correlated with severity of managerial factor.	Accept (Fail.Comp) Accept (Fail.Comp)	Accept (Fail.Comp) Accept (Fail.BPR)	
Power distance is positively correlated with severity of human factor and user training.	Accept (Fail.Comp) Do Not Accept (No.BPR)**		** Significant negative correlation
Power distance is positively correlated with severity of behavioral factor.			
Power distance is positively correlated with severity of project related factor.	Accept (Fail.Comp)	Accept (Fail.Comp) Accept (Fail.BPR)	
Power distance is positively correlated with severity of government policy and support in the country.	Accept (Fail.Comp)		
Uncertainty avoidance is positively correlated with severity of technological factor.	Accept (Fail.Comp)		
Uncertainty avoidance is positively correlated with severity of managerial factor.	Accept (Fail.Comp) Accept (Fail.BPR)	Accept (Fail.Comp) Accept (Fail.BPR)	
Uncertainty avoidance is positively correlated with severity of human factor and user training.	Accept (Fail.Comp) Accept (Fail.BPR)		
Uncertainty avoidance is positively correlated with severity of behavioral factor.	Accept (Fail.Comp) Accept (Fail.BPR)		
Uncertainty avoidance is positively correlated with severity of project related factor.	Accept (Fail.Comp)	Accept (Fail.Comp) Accept (Fail.BPR)	
Uncertainty avoidance is positively correlated with severity of government policy and support in the country.	Accept (Fail.Comp) Accept (Fail.BPR)		
H3: Individualism and masculinity are negatively correlated with severity of implementation problems (technological factor, managerial factor, human factor and user training, behavioral factor, project related factor, and government policy and support in the country).			
Individualism is negatively correlated with severity of technological factor.	Accept (Fail.Comp) Accept (Fail.BPR)		
Individualism is negatively correlated with severity of managerial factor.	Accept (Fail.Comp) Accept (Fail.BPR)	Accept (Fail.BPR)	
Individualism is negatively correlated with severity of human factor and user training.	Accept (Fail.Comp) Accept (Fail.BPR)	Accept (Fail.BPR)	
Individualism is negatively correlated with severity of behavioral factor.	Accept (Fail.Comp) Accept (Fail.BPR) Do Not Accept (No.BPR)**	Accept (Fail.BPR)	
Individualism is negatively correlated with severity of project related factor.	Accept (Fail.Comp) Accept (Fail.BPR)	Accept (Fail.BPR)	
Individualism is negatively correlated with severity of government policy and support in the country.	Accept (Fail.Comp)	Accept (Fail.Comp) Accept (Fail.BPR)	
Masculinity is negatively correlated with severity of technological factor.	Do Not Accept (No.BPR)**		** Significant positive correlation
Masculinity is negatively correlated with severity of managerial factor.	Accept (Fail.Comp) Accept (Fail.BPR)		
Masculinity is negatively correlated with severity of human factor and user training.	Accept (Fail.Comp) Accept (Fail.BPR)		
Masculinity is negatively correlated with severity of behavioral factor.	Accept (Fail.BPR) Do Not Accept (No.BPR)**		** Significant positive correlation
Masculinity is negatively correlated with severity of project related factor.			
Masculinity is negatively correlated with severity of government policy and support in the country.	Accept (Fail.Comp)	Accept (Fail.Comp) Accept (Fail.BPR)	
Goal 1: Determine the critical factors of the failure of computer-based information systems/business process reengineering projects (Note: In this research, failure of CBIS and BPR also includes those projects that were not undertaken).			
Ranking of variables and data items	Tables: 9 and 10	Tables: 9 and 10	
Note : In all remaining blank cells : Do Not Accept because of insignificant results.			

Flexibility Mapping : Practitioner's Perspective

1. What types of flexibilities you see in the practical situation of factors for "*Successful Implementation of BPR*" on the following planes :
   - Flexibility in terms of ***"options"***
   - Flexibility in terms of ***"change mechanisms"***
   - Flexibility in terms of ***"freedom of choice"*** to participating actors.
2. Identify and delineate the types of flexibilities in "Implementation of BPR" that are relevant for your own organizational context? On which planes does the flexibility needs to be enhanced ?
3. Try to map your own organization on the following continua.
   (Please tick mark in the appropriate box(es)).



4. Develop a SAP-LAP (Situation Actor Process-Learning Action Performance) model of *"Implementation of BPR"* relevant to your organization.

Reflecting Applicability in Real Life

1. What is the status of 'growth' and 'change' flexibility in your organization? How will you utilize the findings of this study to enhance them?
2. Design a strategic transformation plan for your organization by using the findings of this article.