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Meeting the Challenge of Globalization with Information and Communications Technology at an Emerging Multinational Enterprise

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ABSTRACT

Based on a survey and extended interviews with 78 domestic and international managers of a leading bank in India, this paper identifies some problems encountered with the utilization of Information and Communications Technology (ICT) by this enterprise in its global marketing strategy. A comparative analysis of the survey responses reveal recognizable differences among managers within and outside India concerning the problems and prospects of ICT as an instrument of global business strategy. Twenty problems that can diminish the influence of ICT in this strategy are identified and classified into four categories: Infrastructure, Regulation and Restrictions, Training and Culture, and Financial Constraints. The study finds that ICT has assisted the bank in maintaining its global competitiveness but the international managers of the bank do not agree that it has generated any competitive advantage. This paper contributes to the field by empirically exploring the prospects of ICT at an incipient global enterprise from an emerging economy.

Keywords

Enterprise Resource Planning, Global information technology, Global Information Technology strategy, ICT Problems in Emerging MNCs

INTRODUCTION

In today's contemporary business environment dominated by multinational corporations (MNCs) and ICT, globalization has become indispensable for corporate survival and growth. In recent years, the debate on globalization and the role of India as an emerging economy has focused primarily on private sector companies such as Infosys Technologies and Tata Consultancy Services that provide software development or Business Process Outsourcing (BPO) services to their clients in North America and Western Europe. The discussion of multinational companies originating from India and trying to use ICT in their global operations for strategic advantage has been absent from the academic debate on global issues. Some of these companies have effectively deployed ICT in their business processes to become successful Indian global corporations in a short period of two decades. Recent accomplishments of erstwhile notoriously inefficient and unprofitable Government-of-India (GOI) corporations such Indian Railways, and semi-autonomous organizations known as Public Sector Undertakings (PSU), have demonstrated that PSUs can be made efficient with information technology without utilizing the risky management practices of industrialized economies. ICT that addresses India's unique requirements is making it possible for the PSUs to compete effectively in the global markets while being sensitive to the public policy requirements of the country.

This study examines the role of ICT in the global strategy of a large PSU bank in India, identified in the paper as the Indian Public Sector Bank (IPSB). Headquartered in Mumbai, this bank controls a network of more than 2,000 branches, 1,000 ATMs, 12,000 employees, and 15 million customers in more than 15 countries around the world. Yet, compared to the large global multinational banks from the USA and Europe, the multinational operations of this bank are very small and just emerging. Due to the competitive pressures created by the liberalization of India's economy in the 1990's, IPSB recognized the need to differentiate itself in the marketplace as an international bank and the importance of ICT in implementing this strategy. The challenges of executing this strategy in a bank

founded on traditional business values and culturally unprepared to face the realities of the global markets are studied in this investigation. The relatively small size of its global operations compared to its revenues in India, its strict control by GOI, and the experimental nature of its ICT deployment as a strategic asset make the academic investigation of this organization unique and interesting.

ICT AND THE GLOBAL BUSINESS STRATEGY OF THE IPSB

IPSB started deploying ICT in 2001 to streamline its operations in India and expand its presence in the growing international markets. Despite fierce opposition from its employee unions, the bank hired a large international IT consulting firm operating in India to formulate its ICT strategy. The consulting firm recommended the implementation of an Enterprise System (ES) system known as “Finacle” Core Banking Solution from Infosys Technologies of Bangalore, India. This system has Service Oriented Architecture (SOA) and web-enabled technology for 24x7 banking operations in multi-country and multi-currency environments. The key modules of the system consist of Customer Relationship Management (CRM), Consumer Banking, Wealth Management, Corporate Banking, Trade Finance, and Functional Services. This system provides specialized services that include Non-resident External (NRE) accounts, Non-resident Ordinary (NRO) accounts, fixed deposit certificates, foreign currency deposits, money transfers, wire transfers, foreign currency drafts, and Indian currency drafts. These services are the mainstay of the bank because most of its customers in the countries outside India are non-resident Indians (NRI) who require them. Representatives of GOI and senior bank executives assessed the banking industry ICT environment in India and found that global corporations such as IBM, Accenture, and the Gartner Group were better prepared to meet the technology requirements of the bank. This was due to the superior experience of these companies with ICT in large banks around the world and their utilization of global best practices in their Indian projects. The expectation was that the bank’s employees, working with outside consultants, would improve IPSB’s processes and introduce innovative practices in due course. The knowledge obtained in the process would be diffused across the organization making it more competitive in India and abroad. Senior executives were expected to play a crucial role in motivating employees to make greater use of information technology. Executives were provided laptop computers and internet connectivity at their homes and offices with other required IT resources. Since the management salaries at PSU banks are lower than the private sector, non-pecuniary methods such as positive feedback and personal recognition were used as the tools of motivation.

A REVIEW OF THE GLOBAL ICT STRATEGY LITERATURE

Topics frequently addressed in academic publications in international business are cross cultural studies (Adler, 1989), structural issues of multinational corporations (Ghoshal, 1993; Gupta, 1991), managerial differences (Broadbeck, 2000; Keil, 2000), determinants of direct foreign investment (Chan, 2006), quality of corporate governance in host countries (Husted, 1999; Kimbro, 2002), and corporate social responsibility (Dennis, 2003; Kostova, 2003; Mani, 1998). Some of these well-known journals are the Administrative Science Quarterly, the Academy of Management Review, the Journal of International Business Studies and the Columbia Journal of World Business (Chan, 2006, Gupta 1991). Journals exclusively focusing on the investigation of global issues in information technology such as the Journal of Global Information Technology Management, the Journal of Global Information Management, the Journal of Cases on Information Technology, and the Journal of Information Technology Cases and Applications have also published numerous studies addressing global issues in information and communications technology. The broad issues addressed in these journals include business process outsourcing, organizational effectiveness in the software industry, competitive performance of companies, impact of ICT on organizations, foreign direct investment in ICT, the digital divide, and building partnerships with local ICT businesses in developing countries (Khanna, 2004; Sledge, 2007).

Another frequently addressed topic in recent years has been the implications of investment in ICT for the profitability of business organizations. It has been argued that investments in information technology and e-business systems contribute significantly to profitability and competitive advantage in organizations across industries (Algalith, 2007; Dewan, 1998; Pavlou, 2006; Villas, 2007). However, others have completely denied that ICT creates any competitive advantage in organizations at all (Carr, 2003). Most studies of global issues in information technology have investigated the outsourcing of software development and business processes to countries such as India from Western Europe and the United States (Aggarwal, 2008).

A review of 140 articles published since 2001 in MIS Quarterly, Information Systems Research, the Journal of MIS, Information & Management, the Journal of Global Information Management, and the Journal of Global Information Technology Management reveals the following taxonomical structure of global IT research. From the point of view of the geographical scope, published studies can be classified as (a) Single country issues, (b) Cross country issues, (c) Multi-country issues, (d) Cross-cultural issues, and (e) Multi-cultural issues. From the point of view of the conceptual scope or the topics, studies can be classified as (a) Software and business process offshore-outsourcing, (b) ICT adoption and diffusion, (c) ICT management and global virtual teams, (d) Global IT industry, (e) ICT inter-organizational issues, and (f) ICT in government sector and other topics.

As some examples of geographical scope, a study of 134 Chinese companies in the category of single country investigations showed that restricted access to computers, lack of trust in the Internet, lack of enterprise information sharing, and inability to deal with rapid change as characteristics of the Chinese culture are the most important barriers to the adoption of e-commerce in China (Tan, 2007). In cross country studies, a survey of 110 managers of Japan-China off-shoring projects indicates that trust has an important influence on project quality and that information sharing and communication quality create trust. In another cross-country study between India and the US, a laboratory experiment proved that collaborative conflict management has a positive influence on the performance of synchronous global virtual teams and group heterogeneity has no impact on collaboration style. Cross-country comparison of data from France and Germany shows that the decision to engage in full or quasi-outsourcing is based on internal factors such as organizational size, IT organization and IT assets, and external factors such as the institutional environment in which the organization functions (Barthelemy, 2005). In multi-country studies, an analysis of data from 339 companies in Europe showed positive correlation between the organization's competencies and its e-business success (Eikebrokk, 2007). In cross cultural studies, a survey of 722 knowledge workers found that usage behavior, intention to use computers, and organizational acceptance of IT are different in Saudi Arabia and the US. Studies of global outsourcing in India and other countries have found that national culture is an important variable that defines the success of outsourcing projects in remote countries (Carmal, 2005). A qualitative case study of a global financial firm that outsources to its wholly owned subsidiaries ("captive centers") in multiple global locations such as Russia and India found that cultural and status differences played a significant role in offshore outsourcing of work (Levina, 2008).

In terms of the conceptual scope, software and business process outsourcing has been the most frequently addressed topic in the academic literature since 2002. The published works range from journalistic books such as Tom Friedman's (2005) book *The World is Flat* to scholarly publications such as the special June 2008 issue of MIS Quarterly addressing the global issues of information technology. A unique article on "two-stage outsourcing," where companies from the United States outsource to Ireland and the Irish companies then outsource to India, proves that off-shoring tends to progress through a sequence of stages towards a multistage paradigm of global outsourcing (Olsson, 2008). Global IT studies of ICT dissemination have concentrated on the diffusion of the Internet in various countries. A study of Kuwaiti ministries indicates that the technology acceptance model is not universally applicable in government organizations (Almutairi, 2007) and another study finds that national culture is the central issue in the success of ICT diffusion (Gefen, 2006).

Although implementation of ICT in municipalities, ministries, and government-controlled corporations has been addressed in recent publications, the role of ICT for global competitive advantage in government controlled corporations from emerging economies is not adequately addressed in the literature (Ke, 2006; Sanford, 2007). One possible reason is that corporations from developing countries opening branches and subsidiaries in international markets is a relatively recent phenomenon. Identifying the problems and prospects of ICT in these organizations is an issue that will become important with the rapid growth of smaller MNCs, known as micro-multinationals, in the world economy (Matthews and Zander, 2007; Varian, 2011). This paper represents an exploratory effort in filling this visible gap in the academic literature on global information technology.

METHODOLOGY

Extended discussions were held with 7 senior executives, 9 managers with previous experience in multinational operations of the bank, 12 branch managers in India, and 13 ICT-employees at the headquarters of the bank to identify the predominant concerns of the organization regarding the utilization of ICT in its global operations. With 37 surveys from international branches and 41 from Indian sources, 78 completed questionnaires were analyzed in the study. Table 1 lists the branches surveyed in various countries.

From this joint exploration, twenty areas of concern were identified. These are listed in Table 2 and classified into four categories (a) ICT Technical Infrastructure, (b) Regulatory and Ethical Environment, (c) ICT human resources infrastructure, and (d) ICT financial constraints. After the joint exploration, a five point Likert-scale questionnaire containing 20 items was administered to managers of all international branches of the bank outside India and the managers in India who participated in the joint exploration through a directive from the bank headquarters in Mumbai. In this questionnaire, managers were asked to indicate how satisfied they were with the problems occurring and being solved in each category. The score of 5 is the highest level of satisfaction and 1, the lowest. Two questions at the end asked managers to indicate whether ICT is generating competitive advantage or just fulfilling a competitive necessity. An open-ended question solicited information about some of the solutions used by managers.

| Region (number of countries) | Countries Represented | Branches Responding |
|------------------------------|---|---------------------|
| Africa (5) | Botswana, Kenya, South Africa, Tanzania, and Uganda | 11 |
| Europe (2) | Belgium and United Kingdom | 13 |
| East Asia (5) | China, Hong Kong, Malaysia, Singapore, and Thailand | 5 |
| Middle East (2) | Oman and United Arab Emirates | 6 |
| Other (2) | Bahamas and Mauritius | 2 |
| INDIA | Mumbai and Delhi areas | 41 |
| TOTAL | 17 | 78 |

Table 1: International branches surveyed in various countries and regions

DATA ANALYSIS AND INTERPRETATION

Table 2 contains the four categories of issues investigated in this project. These categories are: (a) ICT Infrastructure, (b) Regulation and Restrictions, (c) ICT Human Resources, and, (d) ICT Financial Constraints. The regional averages for the level of satisfaction with various problems are summarized in the table followed by an interpretation of the findings and their implications. The overall mean score of greater than 3.0 in the last column of the table indicates level of moderate level of satisfaction with ICT. This would imply that no serious problems were being encountered in this area. However, a closer look at the averages for individual problems indicates discernible differences between the perspectives from various regions and India. Table 2 summarizes the averages for each region and provides a framework for comparison.

(a) ICT Infrastructure

The five problems identified in this category are related to computer equipment, software malfunction, user (employee) errors, and general system design. Higher overall scores of 3.68 and 3.33 from Europe and South East Asia as compared the lower averages of 2.25 and 2.83 for East Africa and India clearly indicate that infrastructure problems are more acute in some regions of the world. The ICT infrastructure available to managers outside of Europe and South East Asia requires upgrading to meet the needs of the bank's multinational operations. Averages on individual problems are not being explained due to the limitations of space in this paper.

Indian government sector banks have been lagging behind private sector banks in the effective deployment of ICT in general. Electronic mail, Microsoft Office applications, SWIFT for inter-bank communication, and AS400 for accounting applications are commonly identified IT applications at IPSB's international branches. These systems, however, are considered no match for what is available to the bank's competitors. Managers in all regions indicated that ICT available to them is considerably less sophisticated, which often prevents the dissemination of timely information on market research and other crucial issues to global branch managers. Although the old systems at the bank are now being replaced with more effective ES, many branches are facing "teething" problems with ICT deployment at this stage. Frequently occurring problems in India and East Africa are computer equipment

malfunction, inadequate support from service providers, and breakdown of leased telecommunications channels. These problems seem to be aggravated during the extended monsoon seasons. In East Africa, severe problems were encountered in migrating to the new system and even simple telephones were down at the branch for two weeks in 2004 during the tenure of at least one manager.

| PROBLEM CATEGORY | REGION | | | | | OVERALL |
|--|-------------|-------------|-------------|-----------------|-------------|-------------|
| | Africa | Europe | Middle East | South-East Asia | INDIA | |
| (a) ICT Infrastructure | | | | | | |
| Computer equipment malfunction | 2.23 | 3.91 | 2.84 | 3.83 | 2.96 | 3.15 |
| Telecommunications network down | 1.85 | 3.46 | 3.62 | 3.83 | 2.41 | 3.03 |
| Software malfunction | 1.99 | 3.84 | 2.97 | 2.58 | 2.87 | 2.85 |
| User (employee) errors | 2.13 | 3.75 | 2.96 | 3.06 | 2.85 | 2.95 |
| Improper design of strategic systems | 3.07 | 3.46 | 3.18 | 3.34 | 3.05 | 3.22 |
| A- Overall | 2.25 | 3.68 | 3.11 | 3.33 | 2.83 | 3.04 |
| (b) Regulation and Restrictions | | | | | | |
| Excessive GOI regulation | 2.81 | 2.74 | 2.73 | 2.81 | 2.67 | 2.75 |
| Excessive host country regulation | 3.88 | 3.25 | 3.07 | 3.16 | 3.14 | 3.30 |
| Lack of top management ICT support | 2.73 | 2.94 | 2.82 | 2.75 | 2.67 | 2.78 |
| Employee resistance to ICT use | 2.78 | 4.15 | 3.67 | 4.12 | 3.13 | 3.57 |
| Customer resistance to ICT Use | 2.82 | 4.24 | 2.93 | 3.91 | 2.95 | 3.37 |
| B-Overall | 3.00 | 3.46 | 3.04 | 3.35 | 2.91 | 3.15 |
| (c) ICT Training and Culture | | | | | | |
| Inadequate employee training | 2.33 | 3.71 | 2.92 | 3.54 | 2.86 | 3.07 |
| Inadequate ICT staff training | 2.92 | 2.85 | 3.63 | 3.75 | 3.62 | 3.35 |
| Inadequate training of managers | 3.14 | 3.36 | 3.21 | 3.52 | 3.64 | 3.37 |
| Inadequate number of ICT personnel | 3.85 | 3.93 | 3.96 | 4.07 | 2.97 | 3.76 |
| Lack of ICT Culture at the branch | 3.38 | 3.48 | 4.05 | 4.19 | 2.75 | 3.57 |
| C-Overall | 3.12 | 3.47 | 3.55 | 3.81 | 3.17 | 3.43 |
| (d) ICT Financial Constraints | | | | | | |
| Inadequate funding of ICT by IPSB | 2.63 | 2.83 | 2.52 | 2.45 | 2.61 | 2.61 |
| GOI restrictions on ICT funding | 2.85 | 2.90 | 2.49 | 2.61 | 2.53 | 2.68 |
| High cost of customer ICT complaints | 3.91 | 3.62 | 4.11 | 4.26 | 3.93 | 3.97 |
| High cost of equipment and services | 4.01 | 2.76 | 3.98 | 2.45 | 4.02 | 3.44 |
| High cost of Managing ICT | 4.11 | 3.10 | 4.13 | 2.99 | 4.18 | 3.70 |
| D-Overall | 3.50 | 3.04 | 3.45 | 2.95 | 3.45 | 3.28 |
| Is ICT maintaining global competitiveness? | 3.38 | 3.55 | 3.63 | 3.11 | 3.43 | N/A |
| Is ICT generating competitive advantage? | 2.33 | 2.15 | 2.16 | 2.83 | 3.65 | N/A |

**Table 2: Regional Levels of Satisfaction with ICT Problems
(1= Lowest and 5 = highest level of concern)**

(b) Regulation and Restrictions

The five problems contained in this category are: (a) Excessive GOI regulation, (b) Excessive host country regulation, (c) Lack of top management ICT support, (d) Employee resistance to ICT use, and (e) Customer resistance to ICT use. Managers often indicated that aside from the older and more senior employees resisting the use of ICT, established Indian diaspora customers consider technology a hindrance in cultivating personal relationships with the bank and resist its use. The lower overall scores of 3.00, 3.04 and 2.91 from Africa, 2.91, 3.0 and 3.1 respectively for India, East Africa, and the Middle East indicate that the organizational culture in these regions appears to have a lower degree of preparation for the success of ICT in the global strategy of IPSB. This is in stark contrast to the fact that so many ICT outsourcing companies from India have demonstrated world-class organizational cultures to adopt these technologies.

(c) ICT Human Resources

It is widely acknowledged in organizations that without properly prepared human resources, sophisticated technologies and systems cannot succeed. The five problems of human resources preparedness for ICT utilization are (a) Inadequate employee training, (b) Inadequate ICT staff training, (c) Inadequately trained managers, (d) Inadequate number of ICT personnel, and (e) Lack of ICT Culture. A simple example of questionable ICT related cultural behavior at IPSB is that branch managers in East Africa, the Middle East and India often failed to respond to customer emails in a timely manner although the volume of such emails was very low compared to private sector banks from India.

The overall scores of 3.12 and 3.17 from East Africa and India compared to 3.47, 3.55, and 3.81 from the other regions of the world distinguish then on the severity of these problems. This observation appears to confirm the pattern emerging from the previous categories. The human resources at IPSB appear to be less adequately prepared for effective utilization of ICT in India and East Africa as compared to Europe and the Middle East. Part of the reason is that the bank posts its best educated and highly trained managers to its branches in Europe and South East Asia. Also the governments in these regions have more stringent and strictly enforced laws against violations of their codes.

(d) ICT Financial Constraints

The problems examined in this category are (a) Inadequate funding of ICT at branches by IPSB headquarters, (b) GOI restrictions on ICT funding, (c) High cost of customer ICT related complaints, (d) High cost of equipment and Services, and (e) High Cost of Managing ICT.

This is the only category for which the averages of scores of 3.04 and 2.95 are lower for Europe and South East Asia as compared to East Africa, Middle East, and India. ICT services in general are more expensive in Europe and South East Asia due to a chronic shortage of trained IT personnel in these regions, and the budgets allocated to the branches of the bank are often considered insufficient by international managers. This is because the budget allocations are often decided at the headquarters in Mumbai and the special requirements of the more highly competitive regions such as Europe are not addressed properly in the allocation process. With the declining growth of India's economy and the profitability of banks, these problems are likely to be more severe in the future.

The averages reported in the last two rows of Table 2 lead to an interesting but not-unexpected-conclusion about ICT for organizational competitiveness. Most managers agree that ICT is important for maintaining global competitiveness as indicated by the averages for every region being above 3.0. The average of 3.65 on the second question indicates that managers and executives in India generally agree that ICT plays an important role in generating competitive advantage for the bank. The managers of international branches and subsidiaries, however, appear to be less enthusiastic about this premise as indicated by a lower average of 2.15 to 2.83 in the other regions of the world where the bank operates.

The problems uncovered in this study are not unique to India but the solutions employed at the branches can be considered quintessentially Indian. Table 3, summarizes some typical solutions employed by global branch managers.

IMPLICATIONS OF THE STUDY AND CONCLUSION

Four possibilities relevant to global ICT became evident from this exploratory investigation. First, in the future many private and PSU companies from India are likely to expand in international markets either through conscious organizational redesign for growth or due to the compulsions of the global marketing circumstances. Second, overseas managers of PSU companies such as IPSB will rely increasingly on ICT to compete successfully in spite of the disdain some senior executives or employee-union bosses have for this technology. Third, ICT by itself will be insufficient to generate sustainable competitive advantage in these organizations, and fourth, the global managers of government sector enterprises from India will have to develop adequate infrastructural, regulatory, cultural, human resources, and financial capabilities to find optimal solutions to growing ICT problems. An excessive reliance on antiquated ICT, inadequate financial resources and constrained decision making flexibility in a global economic environment will be a serious hindrance in the global expansion strategy of these organizations. Government sector companies from countries like India can counter these disadvantages more effectively by improving their organizational structures and developing methods of motivation that go beyond higher salaries and self-actualization possibilities prevalent in many advanced industrialized countries. This will require a systemic understanding of the underlying managerial, technological, and socio-cultural factors that motivate managers from traditional cultures to achieve their objectives with limited resources. Assimilation of best information technology and systems practices with innovative techniques of management and motivation can provide a solution to the pervasive problems of global ICT.

| Problem Category | Problems reported | How the solution is applied |
|--------------------------------|---|---|
| 1. ICT Infrastructure | Antiquated equipment Unreliable software Untrained users | Special relationships developed with local businesses and individuals providing technical services and assistance Highly trained specialists from India are deputed at multinational branches for short duration Less expensive locally available technology is purchased |
| 2. Regulation and restrictions | Host country regulation Excessive GOI regulation | Local banking regulations are strictly observed by managers Inconvenient Indian banking regulations are observed with flexibility and discretion |
| 3. ICT Training and culture | Lack of ICT culture among employees Lack of discipline Slow organizational learning | Senior managers exhorting employees to use ICT more effectively Citizens of host countries employed to enrich cultural environment and change work ethics |
| 4. ICT Financial constraints | Inadequate funds for ICT Inability to borrow locally | More funds being allocated from the headquarters and more flexibility given to expatriate managers to spend locally generated revenues on ICT |

Table 3: Solutions applied to global ICT problems

This exploratory investigation suggests that deploying sophisticated information and communications technology in the organization is not sufficient by itself to generate competitive advantage. Expatriate managers from India appear

to be recognizing that limitations of ICT can also be overcome by effective use of intellectual capital and greater emphasis on organizational learning. Technology improvisation is recognized as a classic Indian solution to all kinds of problems. It is frequently utilized at the international branches of the bank to solve the socio-technical problems of ICT. But this solution may not be optimal when ICT equipment prices are rapidly declining and customers are demanding speedy responses to their problems worldwide.

The limited scope of this study has generated observations that have limited applicability. However, the methodology employed in it is sufficiently sound for undertaking larger studies encompassing multiple corporations, industries and countries to study the problems of ICT deployment at small and medium enterprises (SME). A glaring need for a comprehensive investigation of these issues with innovative methodologies is established by this empirical study.

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