



**CYRUS CHRONICLE JOURNAL (CCJ):**  
**Contemporary Economic and Management Studies in Asia and Africa**

*The flagship journal of the CYRUS Institute of Knowledge*

**THE CYRUS CHRONICLE  
JOURNAL (CCJ)**

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The CYRUS Institute of Knowledge (CIK) Journal is a refereed interdisciplinary journal. The editorial objective is to create opportunities for scholars and practitioners to share theoretical and applied knowledge. The subject fields are management sciences, economic development, sustainable growth, and related disciplines applicable to the Middle East, Central Asia (MENA) and North Africa. Being in transitional stages, these regions can greatly benefit from applied research relevant to their development. **CCJ** provides a platform for dissemination of high quality research about these regions. We welcome contributions from researchers in academia and practitioners in broadly defined areas of management sciences, economic development, and sustainable growth. The Journal's scope includes, but is not limited to, the following:

*Business Development and  
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**Editorial Advisory Board Members:**

Professor Tagi Sagafi-nejad is the editor of **CCJ**. Dr. Sagafi-nejad is ex-editor of International Trade Journal, the author, in collaboration with John Dunning of The UN and Transnational Corporations: From Codes of Conduct to Global Compact, (2008) and "The Evolution of International Business Textbooks" (2014). He was the Radcliffe Killam Distinguished Professor of International Business, founding Director of the PhD Program in International Business, and Director and Center for the Study of Western Hemispheric Trade at Texas A&M International University (2003-2013). Dr. Sagafi-nejad is well-known internationally and has outstanding credentials to develop The Cyrus Chronicle into a high quality publication. He will be assisted by an editorial board consisting of distinguished members from world-class institutions of higher learning, practice and industry.

**Submission Process:**

We invite authors to submit their papers and case studies to [Editor@Cyrusik.org](mailto:Editor@Cyrusik.org). We will have a quick turn-around review process of less than two months. We intend to begin with two issues per year consisting of about 5-8 papers and case studies per issue. The first issue is being planned for the fall of 2015. A selected number of papers submitted to the CIK conference will be double-blind reviewed for inclusion in **THE CCJ**. We intend to have special issues on themes that are within the scope of Journal. Also, we will have invited guest issues.

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#### **Background:**

This is a historical time for the mentioned regions, and The Cyrus Chronicle intends to offer what is most urgently needed. There is no question that organizations and businesses that are capable of analyzing and applying advanced knowledge in management sciences and development are in high demand, and especially during transitional periods. It is an unusual time in the target regions and the world, a time which requires active intellectual participation and contributions. It is the era of revolution in terms of communication, technology and minds for billions of people. It is a time for intellectuals, entrepreneurs, and philanthropists to help enlighten minds and therefore enrich the quality of life for millions. It is a time to focus intensely on the regions' historical characteristics, achievements, human and natural resources, and its significant deficit in development, management sciences, and democracy. CIK's vision, "to cultivate the discourse on human capital potentials for better living," is the appropriate response to current challenges, and the journal is a platform for sharing the perspectives of scholars and practitioner with a wider audience.

CYRUS associates tend to have a foot in two worlds. First, most of the associates possess a wealth of intellectual and experiential knowledge which is enhanced by their active involvement in business, consulting and scholarly research and collegiate teaching. Second, some associates are sons and daughters of the affirmation regions and possess an ethnic identity, language skills, and the insights only embraced by insiders. Third, most of the CIK board of directors' members and associates are well-known scholars, members of editorial boards of journals, and even editors. CYRUS possesses depth, breadth, and a competitive edge to successfully manage chronicle.

CYRUS is committed to developing knowledge that positively contributes to the life of the world citizens, especially, the target regions. CIK is a charitable, educational, and scientific organization that has been in operation since 2011. It is a secular and nonpartisan organization that has many scholars and practitioner as member.

For more information on the Institute, please contact: [Editor@Cyrusik.org](mailto:Editor@Cyrusik.org); [Sagafinejad@loyola.edu](mailto:Sagafinejad@loyola.edu); [Nasgary@Cyrusik.org](mailto:Nasgary@Cyrusik.org). *CYRUS Institute of Knowledge (CIK), Box 380003, Cambridge, MA 02238-0003, USA*

## **Editor's Introduction**

Welcome to the premier issue of *Cyrus Chronicle Journal (CCJ): Contemporary Economic and Management Studies in Asia and Africa*. The journal intends to cover scholarship pertaining to the two vibrant and rapidly growing continents, Asia and Africa. They tend to be either ignored or misunderstood; and there are limited outlets for scholars who work on these countries to share their scholarly outputs. Focusing on these two continents will help researchers from both developed countries as well as these two continents - which together account for the largest portion of the world population and growth. The CCJ intends to fill these gaps. An examination of our mission may shed some light on this question. The primary purpose of the journal is four-fold:

1. To share and promote knowledge of economic, management, and development issues facing countries of Asia and Africa. Focusing on assessment, evaluation, and possible solutions help advance countries in this two continent which has the largest world habitants. Development challenges are global; virtually every country faces problems concerning economic development, sustainability, food and water, population and environmental degradation. Yet no country gains by shunning opportunities that globalization can provide, with the possible exception of a few countries whose leaders lack a full understanding of the opportunities that globalization can offer. To take advantage of such opportunities, knowledge is the primary requisite. And this journal aspires to make a contribution to this body of knowledge.
2. To encourage the generation and dissemination of knowledge by local scholars whose access to mainstream academic outlets may be limited? We know many scholars from academic, public and private sector organizations whose first-hand knowledge of problems and solutions isn't being shared for lack of an appropriate outlet for dissemination. The CCJ may provide an opportunity for spreading such knowledge.
3. To focus on countries that span the northern band of Asia – from China to Turkey – to the northern tier of Africa, areas that have not previously been the subject of much attention. In the past these countries have tended to gain the attention of scholars and the media only in times of manmade or natural crises. But in fact, these nations have many challenges similar to those of others. They wrestle with shortages of food and water and the growth of population and pollution. Although they have educated their own citizens, especially in countries that had been under the shackles of dictatorship for decades, now they have become freer to express ideas in journals such as this.
4. Academic scholarship emanating from the region under the journal's coverage tend to get lost in the academic jungle where the pressure of "publish or perish" leaves behind the younger and less experienced members. This journal will give an opportunity to the scholars with first-hand knowledge of these areas to publish their research and thereby make important contributions to the management and development body of scholarship on which the journal will concentrate. We need to know more about these topics in countries such as Afghanistan, Kazakhstan and Tunisia as well as other countries covered by this journal. The CCJ will provide a platform for established as well as younger scholars who might collaborate with them in their research.

On the journal's operational side, we want to make the publication more accessible to a wide audience across the world, and so, consistent with the 21<sup>st</sup> century trend toward electronic media, we will publish this journal online. To maintain rigor and originality, articles submitted to the journal will undergo the standard blind review process. Reviewers' anonymous comments are shared with authors, as appropriate.

Submission guidelines and procedures are delineated on the journal's website <http://www.cyrusik.org/research/the-cyrus-chronicle/>.

As the first editor of the journal, I am pleased and proud to accept this challenge. I bring some experience; my first editorial assignment was as an undergraduate at then Pahlavi University in Shiraz, Iran, a top ranking institution in the region. A few students and I founded and published *Danesh-Pajouh* (knowledge seeker). In those days when freedom of expression was severely limited, we managed to publish one issue in March 1965 before the censors put a stop to the enterprise.

Years later, while directing a doctoral program in international business in Texas in the early 2000s, I also was the co-editor - and eventually editor - of the *International Trade Journal* (ITJ) until my retirement in 2013. Under my leadership ITJ acceptance fell below 10%.

As editor of the *CCJ*, I hope to accomplish the goals of the journal elucidated above. In the premier issue, we have already reached a threshold of about 20% in acceptance. Still, *CCJ* needs your support and so I ask for your help in the following ways:

1. Contribute articles;
2. Encourage your colleagues to do the same;
3. Spread the word, especially in countries where *CCJ* can be most effective;
4. Cite the articles published in this journal in your own research when applicable;
5. Attend the annual conferences of the CIK (<http://www.Cyrusik.org>) that serve as a spawning ground for articles that may ultimately be published in this journal;
6. Give us your feedback by telling us how we can further promote and improve the journal?

Welcome and thank you.

Tagi Sagafi-nejad, Editor

# Information Technology in the Global Strategy of a Multinational Bank from an Emerging Economy

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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. Using a qualitative methodological approach, this paper systematically explores the problems and prospects of ICT as an important supporting factor in the global strategy of a multinational bank from India.

**Keywords:** Global Information Technology, Information Technology Strategy, Multinational banking

## **INTRODUCTION**

In the 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, demonstrated known as Public Sector Undertakings (PSU), have and semi-autonomous organizations

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). 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 offshoring 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 India. 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.

#### **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.

#### **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.

#### **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.

### **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.

### **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 of the bank in India 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.

### **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 IPSEB 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.

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 are relevant only to the highly regulated government sector banks in India. However, the methodology employed in the investigation is sufficiently sound for undertaking larger studies encompassing multiple government sector and private sector banks within a country or across countries. Private sector banks such as Hong Kong and Shanghai Banking Corporation (HSBC) and Industrial Credit and Investment Corporation of India (ICICI) Bank have the reputation of being some of the most successful global banks in India. These banks utilize ICT in their trans-national operations with remarkable efficiency and effectiveness. Studies can be conducted to compare the ICT strategies of global private banks with the government-sector banks to enhance the competitiveness of government sector banks. A glaring need for a comprehensive investigation of these issues with innovative methodologies is established by this exploratory study.

**Table 1: International branches surveyed in various countries and regions**

Region	Examples of Countries Represented	Branches Responding
Africa	Kenya, South Africa, Tanzania, and Uganda	11
Europe	Belgium and United Kingdom	13
East Asia	China, Hong Kong, Malaysia, and Singapore	5
Middle East	Oman and United Arab Emirates	6
Other	Mauritius, Bahamas, etc.	2
<b>INDIA</b>	<b>Mumbai and Delhi regions</b>	<b>41</b>
<b>TOTAL</b>		<b>78</b>

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

PROBLEM CATEGORY	REGION					Overall
	Africa	Europe	Middle East	South-East Asia	India	
<b>(a) ICT Infrastructure</b>						
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
<b>A- Overall</b>	<b>2.25</b>	<b>3.68</b>	<b>3.11</b>	<b>3.33</b>	<b>2.83</b>	<b>3.04</b>
<b>(b) Regulation/Restrictions</b>						
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 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>B-Overall</b>	<b>3.00</b>	<b>3.46</b>	<b>3.04</b>	<b>3.35</b>	<b>2.91</b>	<b>3.15</b>
<b>(c) ICT Training/Culture</b>						
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

<b>C-Overall</b>	<b>3.12</b>	<b>3.47</b>	<b>3.55</b>	<b>3.81</b>	<b>3.17</b>	<b>3.43</b>
<b>(d) Financial Constraints</b>						
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 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	<b>3.70</b>
<b>D-Overall</b>	<b>3.50</b>	<b>3.04</b>	<b>3.45</b>	<b>2.95</b>	<b>3.45</b>	<b>3.28</b>
<i>Is ICT maintaining global competitiveness?</i>	3.38	3.55	3.63	3.11	3.43	N/A
<i>Is ICT generating competitive advantage?</i>	2.33	2.15	2.16	2.83	3.65	N/A

**Table 3: Solutions applied to global ICT problems**

<b>Problem Category</b>	<b>Problems reported</b>	<b>How the solution is applied</b>
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

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