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A Phenomenological Investigation of Information and Communications Technology at a Public Sector Enterprise in India

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ABSTRACT: This paper applies the method of "phenomenology" to a comprehensive study of information and communications technology (ICT) deployment at one of the largest government sector banks in India. The efficacy of the phenomenological approach for academic investigation of global ICT issues is argued in this paper. The study finds that the emerging architecture of ICT strategy in this corporation contains five dimensions. In declining order of their importance, these dimensions are (1) organizational ICT culture, (2) organizational politics, (3) organizational sociology (4) economics of ICT, and (5) ICT infrastructure. The significance of these findings is discussed in the paper and an extended note on the methodology of phenomenology is included. The ranking of ICT strategy dimensions and demystification of phenomenology are the contributions of this research to the Information Systems discipline.

Keywords: Phenomenology, Global ICT strategy, Public sector enterprise in India

INTRODUCTION: With the rapid growth of software development and business process outsourcing (BPO) in the past 10 years, India's software and BPO service providers have become dominant players in the global market. However, India's domestic users have lagged behind in the deployment of information and communications technology (ICT) in their domestic and global strategies. The problem is more pronounced in government sector organizations, although they contribute a large share to India's gross domestic product. Quantitative and empirical methodologies of investigation frequently used in ICT research have been found to have serious limitations for revealing the hidden dimensions of ICT problems in Indian corporations. This paper, therefore, applies the qualitative method of "phenomenology" to a comprehensive study of ICT deployment at a large government sector bank in India. This bank has operations in 15countries and is identified in the study as Indian Public Sector Bank (IPSB) to protect its identity as required by unavoidable Government of India (GOI) regulations when sensitive research is conducted on its undertakings. Government sector global banks from India, such as IPSB, now have operations in Asia, Africa, Europe and the US, and are having to compete in their host countries with (a) local banks such as Barclays PLC in the United Kingdom, (b) private sector banks from other countries operating in the host countries such as the Hong-Kong Shanghai Banking Corporation (HSBC) in Singapore and the UK, (c) private sector banks and financial conglomerates from India such as the ICICI Limited, and (d) other government sector banks from India operating abroad in various host countries such as the State Bank of India in Africa, Europe, and North America. A study of the banking sector in India is thus relevant to understanding the larger issues of ICT deployment in emerging economies.

ICT AND GLOBAL STRATEGY OF IPSB: Confronted with declining profitability and rank among other public sector banks in India during the 1990's, IPSB embarked in 2001 on a major program of implementing ICT to streamline its operations in India and abroad. In the process, despite fierce opposition from its employee unions, the bank employed the services of a large international IT consulting firm to formulate a long term ICT implementation strategy. As a strategic information system for the bank, the consulting firm recommended an ERP system known as "Finacle," a core banking solution from Infosys Technologies of Bangalore, India. Competing effectively in global markets was the primary argument to convince the Government of India to spend more than 100 million dollars on ICT deployment in the bank.

Representatives of the Government of India and senior executives of the bank jointly reconnoitered the technology environment of the world either directly or through the use of banking industry IT consultants in India. Available technologies were thoroughly assessed and the systems were implemented in the bank by Indian ICT specialists working in the Indian subsidiaries of multinational consulting companies such as IBM, Accenture, and the Gartner Group. These companies were found to have the desired experience in the implementation of ICT in large banks

worldwide utilizing global best practices in their Indian projects. The expectation was that the bank's employees, working with well-informed outside consultants, would improve IPSB's operations and introduce some innovative methods in due course. The knowledge obtained in the ICT implementation process would be diffused across the organization, making the organization more competitive in India and abroad. This competitive advantage and enhanced productivity would strengthen the bank's resource position, encourage greater use of ICT, and create a spiral of performance improvement. Senior executives were expected to play a crucial role in motivating employees for greater use of information technology. Each executive was provided with a laptop computer, internet connectivity at home and in the office and other required IT resources. The relative competitive position of the bank, however, has not improved with the investment in ICT and the number of complaints from customers has increased steadily worldwide. To find the root causes of this phenomenon was the motivation for the bank to facilitate this study.

REVIEW OF THE RELEVANT LITERATURE: Academic publications in international business have traditionally covered topics such as cross cultural studies, organization of multinational corporations, differences in management practices, determinants of direct foreign investment, quality of corporate governance in host countries, and corporate social responsibility. These studies have appeared in prestigious journals such as the Administrative Science Quarterly, the Academy of Management Review, the Journal of International Business Studies and the Columbia Journal of World Business. Since the late 1990's, however, established journals in the information systems discipline such as MIS Quarterly, the Journal of Information Systems Research, and Information & Management have published many articles on the global issues of ICT. Underscoring the importance of this discipline, at least two academic journals are now exclusively devoted to global issues in ICT – the Journal of Global Information Management, published by the Information Resources Management Association since 1993, and the Journal of Global Information Technology and Management, published by Ivy League Publishing since 1998.

A careful review of 135 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, (b) Cross country, (c) Multi-country, (d) Cross-cultural, 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) the 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 that 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 [Carmel, 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 offshore outsourcing has been the most frequently addressed topic in the academic literature since 2002. The range of published works includes journalistic books that have captured the popular imagination of countries to the special June 2008 issue of MIS Quarterly that addresses a

range of topics with academic rigor. A unique article on "two-stage outsourcing," where companies from the United States outsource to Ireland and the Irish companies, in turn, 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 in banking and other industries has been addressed in recent publications, the role of ICT deployment for global competitive advantage by any public or private corporation in emerging economies is not addressed in the literature [Ke, 2006; Sanford, 2007]

METHODOLOGY: Despite the widespread criticism of positivism and numerous appeals to broaden the methodological scope of the discipline, empiricism has been the regnant method of investigation in ICT [Klein, 1999; Swap, 2001]. Opponents of empiricism have questioned the dualistic ontological belief of positivists that the object of investigation and the researcher as the subject are absolutely separate entities. Interpretive researchers believe in the phenomenological arguments of European philosophical giants such as Hegel, Husserl and Heidegger that the subject's perceptions of reality and life experiences are inextricably linked. The positivist epistemological belief that creation of knowledge is independent of the intentionality of the researcher is also questioned by interpretive researchers.   The positivist requirements of statistical validity of constructs and conclusions are countered by interpretive researchers with the argument that informed readers should be allowed to judge these issues without being prejudiced by statistical evidence.   The methodology employed in this investigation is PHENOMENONLOGY, which combines empirical data gathering and methodical observation of a phenomenon with hermeneutic interpretation of the observations.

What is phenomenology: The Encyclopedia Britannica defines phenomenology as a philosophical movement whose primary objective is "the direct investigation and description of phenomenon as consciously experienced, without theories about their causal explanations and as free as possible from unexamined preconceptions and presuppositions" [Britannica, 1]. J.H. Lambert, a German philosopher contemporaneous with Kant, is supposed to have used the term first in the 18th century. Kant broadened its definition by classifying objects as they appear in human sense perception as "phenomena," and as they in reality are, independent of cognitive constraints, as "noumena" or "things-in-themselves" [Edwards, 1972].

In his famous work *Phenomenology of Mind*, G.F.W. Hegel, one the foremost philosophers of the Western world in the 19th century, traced the development of the human mind (or spirit) starting from mere sense experience and culminating in a clear understanding of the ultimate reality through observation that is completely devoid of conceptual presuppositions [Baillie, 1967]. This work also describes Hegel's dialectical approach to reasoning where "thesis" and "antithesis" are applied to achieve a "synthesis" of ideas to discover the "hidden harmony" of things. Hegel's phenomenology is based on the premise that essential knowledge of objects cannot be reduced or confined to sense perception. This is in contrast to the prevailing reductionist approach of scientific investigation characterized by the empirical method of observation and logical positivism as the underlying philosophy. Phenomenology begins with the data obtained through observation, but it does not restrict this data to sense experience. Non-sensory data, *a priori* statements, intuition, imagination, judgment and even illusions and dreams can play a role in developing a multidimensional understanding of the observed phenomenon. Hegel's approach was a modification of Kant's analysis of experience and implies that a fuller sense of awareness is obtained only when the mind is aware of itself in relation to the perceived object. With this intensified sense of perception, the mind is directly aware of itself as "noumenon" and is in conscious unity with its perceived object.

In the early part of the 20th century, Edmund Husserl, a German mathematician and philosopher, became the central figure in the phenomenological movement. Husserl changed the concept of philosophy into a science where nothing can be taken for granted, no statements can be admitted as true without scrutiny, and no concepts applied without proper examination   He also introduced the notions of "intentionality" and "transcendental reduction" in his methodology [Schmitt, 1967]. Intentionality implies that the observer's intentions influence the observed mental phenomenon, although not necessarily physical phenomenon. The observed objects thus cease to be just "external" to the observer and are "reduced" or "bracketed" by the perceptions of the observer. Husserl's phenomenological method is known as "transcendental phenomenology." In the mid 1920's, Martin Heidegger modified Husserl's approach into "hermeneutic phenomenology" which emphasizes the meaning of phenomenon obtained through its

correct and thoughtful interpretation. Based on the belief that life is intrinsically interpretative, Heidegger argued that human beings project themselves through intelligibility and reason, and that their mode of understanding is related to this "being there" in the overwhelming world. Phenomenology thus becomes the quest for the understanding of existence itself through the understanding and interpretation of phenomenon [Dahlstrom, 1994]. Heidegger's hermeneutic phenomenology, with numerous modifications, has now become a widely employed methodology in psychological, social and medical research in the US [Laverty, 2003]. The rapid growth of the Internet and cellular phones, globalization of business and culture, and the natural tendency of human beings to describe the phenomena they encounter is enhancing the importance of this methodology for investigation of all kinds of human experiences.   It can also be applied to comprehensive investigations of organizational processes since it encourages extended conversations with constituents, careful observation of operational procedures, critical examination of documents, and a multifaceted contemplation of the motives of the individuals whose decisions have an inexorable impact on the strategy of the organization.   Table1 below contrasts the empirical and phenomenological approaches on various dimensions:

| Dimension of Comparison	Empirical method	Phenomenology
1. Foundations	Newtonian physics; Cartesian Philosophy; Bacon's method; Positivist logic	Hegel's dialectics and phenomenology of mind; Husserl's "transcendental reduction"; Heidegger's hermeneutic interpretation
2. Ontology	Absolute separation between the observer and the observed phenomenon	No separation between the observer and the observed phenomenon
3. Epistemology	Creation of knowledge independent of the intentionality of the researcher	Creation of knowledge influenced by the intentionality of the researcher
4. Data collection	Obtained by sense perception alone	Non-sensory data, *a priory* statements, intuition, imagination, judgments and even illusions and dreams can play a role
5. Analysis	Narrowly constructed models	Broad perspective and deep metaphysics of the phenomenon
6. Presuppositions	Hypotheses to be tested	None
7. Conclusions	Statistically valid and deterministic	Stochastic and interpretive – reader allowed to judge the meaning and significance of data

Table 1:
A Comparison of Empirical and Phenomenological Methodologies

The methodology employed in this investigation contains three parts. (1) In August 2007 and July 2008, the author conducted in-depth interviews with 13 senior executives, 11 managers of multinational branches, 14 branch managers in India, 22 ICT employees at the headquarters and branches, and 27 ICT user employees in 12 branches of the bank. A total of 93 interviews were thus conducted. In addition, various operations in the bank were closely observed and important ICT-related documents were examined. (2) From these observations, five major categories of dimensions of ICT phenomena at the bank were identified. Figure 1 contains these dimensions with their associated sub-dimensions, and Figure 2 contains a model that shows how the five dimensions interact with one another while impacting the ICT strategy of the organization. (3) To validate the phenomenological conclusions, the

aforementioned 93 respondents were then asked to indicate the perceived level of importance of each category by selecting a choice on a four-point Likert-type scale indicating 1=somewhat important, 2=important, 3=very important, and 4=extremely important. Since the importance of these factors in ICT implementation is widely accepted, as explained later in the section on Analysis and Interpretation, a five point dichotomous Likert scale was considered unnecessary for ranking the variables. Table 2 contains the aggregated results of the survey for the sake of brevity.

Figure 1: Dimensions of ICT Phenomenology
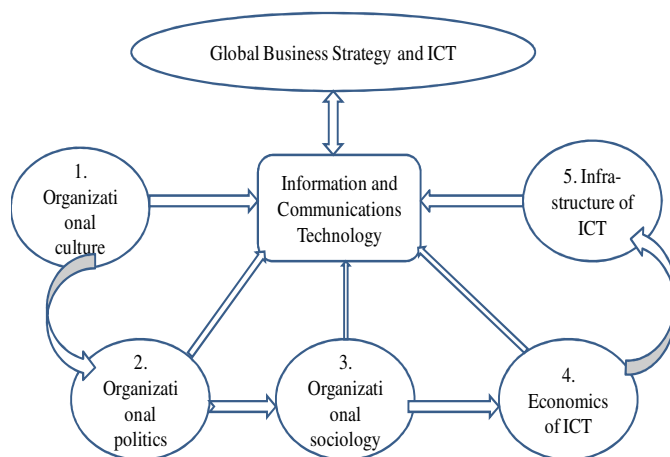
**Figure 2: Phenomenology of Information and Communications Technology:
An Emerging Model**

ANALYSIS AND INTERPRETATION: Table 2 below confirms the results of the phenomenological finding that the relative order of importance of the categories of dimensions is as follows: (a) Organizational culture, (b) Organizational politics, (c) Organizational sociology, (d) ICT Economics, and (e) ICT infrastructure. Various statistical means indicating the level of importance of each category of dimensions for different groups of respondents are summarized in the table followed by detailed interpretation of the findings. In contrast to logical positivism, the phenomenological approach does not encourage the use of statistical analysis for drawing conclusions. Consequently, descriptive statistics beyond the means are not reported in the table.

Critical factors **for ICT success**	**Executives at the HQ N=11**	**Inter-national Managers N=14**	**Branch managers in India N=22**	**ICT employees in India N=19**	**ICT-Users (employees in India) N=27**	**Overall N=93**
Organizational Culture	3.52	2.72	3.48	2.84	3.53	**3.22**
Organizational Politics	3.47	2.18	3.46	1.84	3.70	**2.93**
Organizational Sociology	2.81	3.32	2.87	2.39	2.81	**2.84**
Economics of ICT	3.02	3.48	2.98	2.16	2.35	**2.80**
Infrastructure of ICT	2.20	3.12	2.65	3.44	2.41	**2.76**

Table 2
Perceptions of ICT deployment at different levels of organizational hierarchy
[1= Lowest level of importance; 4 = Highest level of importance]

Organizational ICT Culture: Culture is a composite term consisting of acquired or inherited collective beliefs, traits, values, and behavioral patterns shared by a group [Hofstede, 1991]. Culture as an important determinant of ICT implementation success has been examined in many studies [Ein-Dor, 1993; Zhang, 2007]. Some studies have found that the three dimensions of organizational culture most important for global IT deployment are (1) global marketing orientation, (2) global entrepreneurial orientation, and (3) organizational learning orientation [Zang, 2007]. A new culture of information technology has pervaded the global work-place since the last decade of the 20th century with e-mail, cell phones, high-speed networks, wireless platforms and iPods giving rise to issues such as technophobia, techno-stress, information overload, spam, and the multitasking paradox.

A closer investigation at IPSB indicated that the cultural propensity of an organization to utilize ICT effectively is influenced by numerous factors not assimilated in the prevailing management theories. The highest score of 3.22 substantiates the perceived highest importance of culture in ICT adoption. Public sector banks in India often symbolize a culture of hierarchy, conformity, bureaucracy, technology apathy, and risk aversion. The two groups with the lowest score on this dimension are international managers and ICT employees. A deeper look revealed that the high degree of cohesiveness of these groups, conditioned by their advanced education and Westernized cultural outlook, makes them oblivious to the influence of cultural diversity on ICT orientation. The groups of employees with less cohesive culture and greater day-to-day unpleasant encounters with ICT in the organization consider the lack of technology culture as a serious impediment to the success of ICT in IPSB's global business strategy.

ICT and Organizational Politics: The indispensable role of organizational politics in the implementation of Enterprise Resource Planning (ERP) technologies has been extensively recognized and studied in the Scandinavian countries and Germany [Koch, 2001]. ERP implementation in Scandinavian organizations often involves political coalition-building among external consultants, project managers, shop stewards, and employees. Technology-oriented leaders succeed in these organizations by acquiring "soft" political skills. The practice of politics was found to be more pervasive and detrimental to the success of ICT in IPSB. For example, when the bank awarded a multi-million dollar ICT contract to an international consulting firm, the employee unions sent representations to

GOI that the management was bringing back the East India Company to colonize the corporation. This delayed the ICT deployment by 6 months.

ICT and Organizational Sociology: Sociology is the study of relationships, communication and interaction among persons and groups. It is distinct from "culture," whose broader realm includes languages, ideas, beliefs, customs, tools and the arts in a society or organization. Very few studies of organizational sociology in the ICT context have been conducted, and social issues are often addressed as part of organization theory and structures in general management literature. Wigand (2008) argues that ICT is revolutionizing organizational structures by dissolving spatial and temporal constraints and creating novel forms of organization such as virtual organization, peer-to-peer networking, and modular organization. Other studies of ICT have concentrated on the impact of ICT on inter- and intra-organizational relationships in the context of marketing [Ryssel, 2004]. The sociology of IPSB was found to include not only the relationships at work but also families, friends, former colleagues and bosses. All of these groups were influencing, directly or indirectly, the ICT-related decision making of executives and the adoption proclivities of the users.

ICT Economics: The benefits derived by organizations from IT investments have been extensively studied in ICT research [Anderson, 2006; Ranganathan, 2006]. None of the studies has, however, addressed the process of procuring financial resources for ICT projects in public sector corporations in emerging economies. After a surge in IT investments in the early part of the decade, the availability of financial resources for ICT has diminished everywhere due to the general deterioration of the global financial climate. The five dimensions in this category are financial constraints imposed on mobilization of internal resources, constraints imposed by GOI on the public sector banks to ensure the health of the exchequer, cost incurred by ICT-related customer complaints, ICT process management costs, and finally, the growing concerns about returns on IT investments. Surprisingly, none of the branches of IPSB collects any credible data or performs any formal ROI analysis concerning ICT, although everybody seems to recognize its importance. The relatively high scores of 3.02 and 3.48 for senior executives and international managers, respectively, are perfectly reasonable since these groups are directly responsible for convincing the GOI bureaucracy to provide sufficient funds for the bank's strategic ICT initiatives.

ICT Infrastructure: For this study, a broad definition of ICT infrastructure comprising the underlying technical and non-technical foundation on which information collection, storage, analysis, design, management, dissemination and protection depends was adopted. This definition includes ICT equipment, network facilities, software and systems, ICT processes, and ICT human resources. Very few studies of organizational ICT infrastructure and its relationship with organizational governance have appeared in the literature [Dai, 2007; Santhanam, 2003]. In one recent example, a study of ICT infrastructure intended to improve productivity at the Washington Metropolitan Area Transit Authority found ICT related human resources as the most important determinant of success [Redshaw, 2007].

Perhaps the most surprising deduction of this research is that ICT infrastructure is considered the least important determinant of ICT deployment success at IPSB, as indicated by the lowest overall mean of 2.76 in Table 2. Except for the groups of international managers and ICT employees, all categories of workers concur with this conclusion. A deeper investigation revealed that the reason behind this observation was a general feeling of disaffection with ICT in the rank and file of the organization. The lower-level employees, except those who were directly related to ICT operation, performed most of their functions manually despite having computers on their desks. Most customers of the bank also continued banking on the basis of personal relationships and showed a general reluctance to substitute ICT for personal conversations and cups of tea with the managers of the bank. The figures derived from the empirical analysis could not explain it because customers were unwilling to divulge their innermost psychological tendencies in the survey.

5. IMPLICATIONS OF THE STUDY AND CONCLUSION: This study finds that the reasons behind the limited success of IPSB's global ICT strategy are not related to the technical infrastructure of the organization. A glaring absence of ICT culture, pervasive interference from political relationships in purely business decisions, and the influence of social relationships on executive decision making are the primary factors that impede or enhance the success of ICT in this type of organization. ICT, although a competitive necessity, has yet to prove itself an effective instrument of global business strategy. This exploratory investigation suggests that deploying sophisticated information technology at strategic points in the organization is not sufficient by itself to generate competitive advantage. The ability of senior management to assimilate a "culture of information technology" in the

fabric of the organization is a *sine qua non* of success in the quest for commercial opportunities in the increasingly turbulent world of globalization. Effective deployment of ICT for global competitive advantage also requires a readjustment of political processes at the national, local, and organizational levels. A robust ICT infrastructure is a necessary but not sufficient condition for generating competitive advantage and it needs to be reinforced with intellectual capital, organizational learning, motivated human resources, and a social environment that is conducive to the use of ICT.

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