

Information Technology in Pakistan: An Analysis of Problems Faced in IT Implementation by Pakistan's Banking and Manufacturing Companies

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Abstract

Information Technology is being used both by developed and developing countries for performance improvements. Similar to other developing countries, this technology is also being applied aggressively in all the organizations of Pakistan. This study has examined the problems faced by different companies of Pakistan in manufacturing and banking sectors in implementation of IT, over last decade. The primary data was collected through in-depth interviews and field surveys of 48 companies, 24 in manufacturing sector(12 local and 12 foreign) and 24 in banking sector(12 local and 12 foreign). The data was tested by applying different statistical techniques. The results of the research have led to the conclusion that besides other problems inadequate telecommunication infrastructure has been found the major problem in proper IT implementation in the Pakistani organization. It is suggested that Pakistan must upgrade its IT infrastructure besides doing other things. The government is also needed to concentrate more efforts to overcome these problems.

Key Words: Information Technology, IT implementation problems. Banking and Manufacturing IT Systems.

I. Introduction

Information Technology (IT), as defined by William and Sawyar (2005) is “a general term that describes any technology that helps to produce, manipulate process, store, communicate, and/or disseminate information”. It includes hardware, software, databases, networks, and other related components which are used to build information systems (Shelly et al., 2004). IT as a tool of socio-economic development has been spreading very rapidly into developing countries. IT has become, within a very short time, one of the basic building blocks of modern industrial society. IT now is the major contributor to the progress of both developing and developed countries (Vasudevan, 2003; Long and Long, 1999).

Through declining cost, both in hardware and software, IT has spread now into all the industries of Pakistan. A company named “Packages Ltd.” was started using computers for its work in 1957 and it was the start of process of computerization in Pakistan. Since then, IT usage is increasing gradually. Though in the beginning Pakistani government was slow in adoption and diffusion of IT but now it is at forefront of all government priorities. Internet service which was started in 1995 in Pakistan is being enhanced constantly, along with upgrading telephone infrastructure. IT is widely being used in all government and private organizations for different task. IT ministry is now responsible for monitoring all the IT related issues (Kazmi, 2003; Rizvi, 2005). In addition many other departments/institutes like Electronic Government Directorate, Pakistan Computer Bureau, Pakistan Software Export Board, Pakistan Telecommunication Authority, Computer Society of Pakistan, Pakistan Software Houses Association (PASHA) etc. are also working side by side with the Ministry of IT to improve IT utilization in the country (Kazmi, 2005). In short, with all support of Government of Pakistan the intensity of use of IT in a variety of fields is increasing day by day.

All over the world the financial sector appears to be a clear leader in the growth of IT. Financial institutions are one of the larger investor in IT. IT was among the first to incorporate electronic data processing in its operations, through check handling, bookkeeping, credit analysis and ATMs (Bender, 1986; Vasudevan, 2003). Martini (1999) while narrating the history of computer usage in banking demonstrates that the use of computers in banking first started in the early 1950s, when Bank of America started using computer. Automated Teller Machine (ATM) (Don Wetzel developed ATM in 1973 and it was first installed at Chemical Bank in New York (Shelly and Cashman, 2004), is one of the most significant technological investments made by the commercial banks towards achievement of online, real time automation. There is a phenomenal progress in banking sector of Pakistan. The financial market in Pakistan is diversified comprising of local and multinational banks (Mahmood, 2006). However, most of the local banks are in private sector now, and many of them have started business since 1992 (SBP Report, 2005). The computer introduction in banks in Pakistan started in 1965 when the main commercial banks in private sector i.e. Habib Bank, United Bank and Muslim Commercial Bank started acquiring computers to regulate their banking work. Since then, there is a massive investment in IT in banking sector (Akhtar, 2006a, 2006b). The most recent automated banking systems like Misys, Sibel, and Fidelity etc have been installed in many of the Pakistani banks (Kazmi 2004, Khan, 2005).

Automation in manufacturing organizations goes back to 1900. Around the year 1900, factory mechanization facilitated mass production to meet the consumers’ demands for improves products. In the year 1930, transfer lines and fixed automation were created to facilitate mass production (Sohal et. al, 2001). Now IT has become necessity for every manufacturing industry. It is becoming critical to many manufacturing organizations that want to be a world-class manufacturer as IT often provides a manufacturing based advantage (Ho, 1996). In manufacturing sector of Pakistan, Packages Ltd. was the first company, which started using computers in 1957. After that many other companies in this sector started using computer to increase their productivity. Now IT usage in manufacturing and industrial sector is very common (Mujahid, 2003). Within the industrial sector, the use of Enterprise Resource Planning (ERP) software (an integrated IT software system comprised of several modules that share a central database, designed

to automate business process across the enterprise(Thomas and Michael, 2001) packages such as SAP and Oracle have become commonplace(Rizvi, 2005; Shahid, 2005).

Though the Pakistan's organizations have achieved significant growth in IT but its diffusion has met many challenges. As yet the IT level of Pakistani organizations is lacking behind the world. The factors affecting the proper implementation of IT in the organizations are numerous. These may be of interest not only to academicians but also to managers working in the organizations. This study has tried to explore the impact/relationship of different problems in implementation of IT in Pakistan's banking and manufacturing organizations.

Ghauri (2006a, 2006b) noted that companies operating in banking and manufacturing sectors of Pakistan are having well established IT divisions / departments. In these companies high caliber staff is working but the diffusion of IT has been very slow because of the various problems. In the literature many problems which are normally faced by the companies while implementing any new technology have been identified by many researchers (McFarlan, 1992); Hanna, 1994, Hanna et.al, 1995; Hussain, 2003; Khan and Shah, 2004; Kazmi, 2005). This paper has grouped and then examined eight different problems and their impact on performance of each organization. The problems included are:

- i) Lack of adequate trained employees,
- ii) Pakistan inadequate telecommunication infrastructure,
- iii) Lack of proper IT planning,
- iv) Selection of proper IT systems,
- v) Judicious use of computer,
- vi) Management unawareness on IT systems,
- vii) Employees non cooperation and
- viii) Management shirks to investments.

II. Data and Methodology

The responses of different managers of the sample companies are recorded in 'yes' showing existence or 'no' non existence of problem. These responses then are dummy coded as '1' or '0' respectively for analysis purpose.

As described below, the following hypotheses have been framed statistically for this research;

Hypothesis

H₀: There is no association between a kind of problem and sectors.

H₁: There is an association between a kind of problem and sectors.

There are two population groups for this research. One is the banking sector and the other is the manufacturing sectors which are making use of latest IT. From these two sectors 48 companies, 24 in banking sector (12 foreign, 12 local) and 24 in manufacturing sector (12 foreign, 12 local) were taken. List of sample companies is given in Tables II and III. It is estimated that there are about 40 commercial banks operating in Pakistan.(State Bank Of Pakistan 2005) Out of these 40 banks, 24 banks are included in the sample because of the reasons that many other banks are either set up in few years

back or do not have well established network in Pakistan, therefore, they do not serve the purpose of this research. There is no definite information available relating to the size of large manufacturing sector. It is estimated however that about 1800 large-scale manufacturing units are operating in Pakistan (Saeed, 2005). Therefore, in the sample, from the manufacturing sector, a total of 24 big organizations were randomly included. All these companies have well established business standings and IT set up since long. The sample size could have been increased but the nature of problem seems to be similar in each case. So the chosen sample size is considered to be sufficient.

The participants in the study were categorized as follow; the staff and managers of finance, human resources, marketing and IT departments of the companies in sample. The data was captured from in-depth interviews using a structured close-ended questionnaire, and perusing official documents, detailing different aspects pertaining to the study.

The statistical software package named SPSS 12.0 has been used for analysis. According to the problem/ requirement, statistical techniques such as Chi-square test, cross tabulation of data have been applied for analysis.

III. Results and Discussions

The following discussion presents the analyses/results of the hypotheses of the study with conclusion at the end.

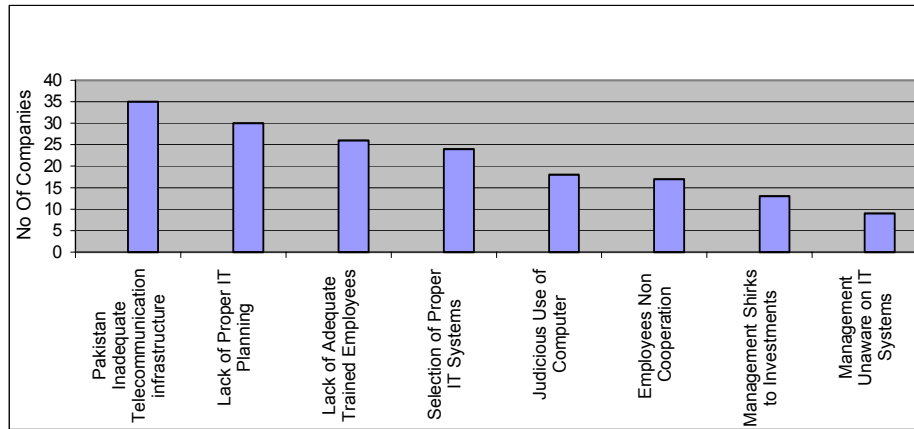
Table 1 Chi-Square Results of Different Problems

| S/No | Problems/Test Variables | Chi-Square (p-value) |
|------|-------------------------|----------------------|
| 1 | IT Adoption problems | 0.932 |

Table 1 shows the chi-square ($p\text{-value} = .932 > 0.05$). It implies that all the companies have faced the above identified problems while implementing IT with the same proportion.

Further, a comparative analysis Table 5 for all banking sector puts problem 2 (Pakistan inadequate telecommunication structure) at top followed by problem 3, 4, 5. The problems 1, 6, 7 and 8 come next in order. While in manufacturing companies problem 2 is rated at top then comes the problem 1, 3, 4, 7, 6 and 6 next in order. In local companies Table 6, problem 2 is at top then is problem 3 and 4 and then comes problem 1, 7, 5, 6, and 8. In foreign companies again problem 2 is at top then are the problem 3, 1, 5, 4, 8, 7 and 6.

Figure 1 IT Adoption Problem: All Companies



In overall comparison Table 4, of all the companies it was found that out of above eight problems, the inadequate telecommunication infrastructure (problem 2) has been the major problem in slow IT implementation in the organizations. Figure 1 depicts clearly results of all the eight problems for all the companies. The Government’s uncertain rules/regulations and its’ polices to create IT based economy had been bureaucratic in past. Though the government has liberalized its IT polices during the last 4-5 years but still there is lot to be done to remove present hindrances to boost IT. Many IT facilities including creating of communication links via DSL, Radio link, VSAT are still not available in many of the cities of Pakistan, thereby, creating major problem in the real time, on-line connectivity of various organizations for utilizing full fledge e-Commerce facilities. There is need to upgrade these systems. Lack of IT planning in the companies is the second major problem which is found in the organization.

It has been observed that in Pakistan, companies are usually making IT investment by following strategy of other companies not assessing their own real need. Thus some of them are still unable to achieve the desired results. The shortage of trained employees is the third major problem, as most of the institutions in Pakistan are just producing the ‘technicians’ or ‘user’ not the computer experts. The companies are forced to recruit out of these non-qualified personnel, who are unable to properly manage the advanced IT systems (Ghauri, 2003, Ayuab, 2006). Selection of proper IT systems is the fourth major problem which these companies are facing. The systems used in companies are selected without assessing the actual need. These are either acquired by copying other companies’ strategies or purchased on recommendations of the computer vendors. The companies must purchase their IT systems on their own need. More real computer use is also still limited, employee non cooperation, management’s unwillingness to invest more in IT systems, and management unawareness about the IT are also few of the barriers these companies are facing.

IV. Conclusions and Recommendations

It is concluded from above discussions that Pakistan is a developing country and is now on IT boom. There are obvious changes occurring in the organizational systems of

Pakistani companies in the recent years due to IT. But still there are lots of barriers which have direct impact on successful implementation of IT in Pakistan. The above discussion has shown that out of eight problems analyzed, inadequate telecomm infrastructure, lack of IT planning, lack of trained employees and improper IT systems are found to be the four top most problems Pakistani organizations are facing.

The plausible solutions to overcome these problems could be that the

- i. present era of globalization is built around falling telecommunication costs but the cost of telecommunication in Pakistan is still higher. Though PTCL has already reduced tariffs but it should bring the charges/tariffs further down for all existing services.
- ii. The bandwidth should further be increased, prompt delivery and quality of services also be assured.
- iii. The Pakistan has state-of-the-art telecommunication network but needs immediately an overhaul to the old PTCL organizational structure to make it line with the world standard.
- iv. It is an urgent need that PTCL should further enhance its communication network and other telecommunication infrastructure to all cities of the country to provides extended communication dial up, DSL, dedicated bandwidth, VOIP applications, cheaper call rate and domain server to the companies by replacing/enhancing the current infrastructure of the current PTCL network for increase its services and revenues.
- v. The country has abundant pool of young talents but they are lacking with competency for using new IT products. The Government of Pakistan has been supportive to all digital initiatives in the recent past but it urgently needs to further revolutionize its IT infrastructure. It needs to educate and train and bring its workforce to the international standard. It should bring intense focus on building an information based economy by upgrading the technical and managerial skill of people.
- vi. Though the top management of every organization is now fully aware of IT importance and open to its investments but overall still there exist its incapability for IT strategic planning. Plans are made in isolation of IT heads.

As a result these plans don't work properly when IT department refuse to provide support for various projects due to certain limitations, so leaving the chance for failure of many projects. The top management must realize the importance and changing role of IT department from facilitator to strategy maker. They should involve IT managers in strategic decision making.

In addition, to above to overcome these problems the experience of advance countries who have successfully adopted Information Technology can help by taking guidance. The advanced countries have been accumulating experience not only in formulating and adopting policies and programs that promote the generation and diffusion of IT, but also in assessing their effectiveness. Such experiences can be shared with advanced countries. Such programs which transform their business to overcome challenge into opportunities would have to be carried out by the organizations.

No doubt, with all out support of government the organizations and people in Pakistan are learning fast to use Information Technology but still there is a need for the government to act more quickly with new plans to overcome all existing barriers. The Pakistan's IT policy planners must also devise some newer IT plans and implement them in letter and spirit to compete in the world which is changing at an unprecedented and uncontrollable pace. The government must also consult IT experts first before launching any new IT policy.

Table 2 List of companies in sample: Banking Sector.

| List Of Local Banks | | List Of Foreign Banks | |
|---------------------|-----------------------------|-----------------------|-------------------------------------|
| 1 | Habib Bank Ltd. | 1 | American Express Bank Ltd. |
| 2 | National Bank Ltd. | 2 | Citibank N.A. |
| 3 | United Bank Ltd. | 3 | Habib Bank AG Zurich |
| 4 | Muslim Commercial Bank Ltd | 4 | Algemene Bank Netherland (ABN Amro) |
| 5 | Bank Al Habib Ltd | 5 | Internaional Islamic Bank |
| 6 | Metropolitan Bank Ltd. | 6 | Deutsche Bank A.G. |
| 7 | Bank Of Punjab | 7 | Rupali Bank Ltd. |
| 8 | Askari Commercial Bank Ltd. | 8 | Standarad Charterd Bank |
| 9 | Bank Alfiah Ltd. | 9 | Oman International Bank Ltd. |
| 10 | Allied Bank Ltd. | 10 | Bank Of Tokyo Ltd. |
| 11 | Faisal Bank Ltd. | 11 | Mashraq Bank Ltd. |
| 12 | First Women Bank Ltd. | 12 | Hong Kong & Shangai Bank Ltd. |

Table 3 List of companies in sample: Manufacturing Sector.

| List Of Pakistani Manufacturing Companies. | | List of Foreign Manufacturing Companies | |
|--|------------------------|---|---------------------------------|
| 1 | Packages Ltd | 1 | Uni Lever Pakistan Ltd. |
| 2 | General Tyres Ltd. | 2 | Reckett Benkiser Pakistan Ltd |
| 3 | D.G. Khan Cement Ltd | 3 | Procter & Gamel Pakistan Ltd. |
| 4 | Atlas Honda Cars Ltd. | 4 | Philips Electrical Company Ltd. |
| 5 | Pakistan Steel Ltd. | 5 | Siemens Pakistan Ltd. |
| 6 | P.E.C.O Ltd. | 6 | I.C.I Pakistan Ltd. |
| 7 | Lakson Tobacco Ltd. | 7 | Nestle Pakistan Ltd. |
| 8 | Indus Motor Ltd. | 8 | Colgate Pakistan Ltd. |
| 9 | Service Industries Ltd | 9 | Pakistan Tobacco Ltd. |
| 10 | P.E.L Ltd. | 10 | Suzuki Pakistan Ltd. |
| 11 | Dawllance Pakistan Ltd | 11 | Bata Pakistan Ltd. |
| 12 | Honda Atlas Ltd. | 12 | L.G Pakistan Ltd. |

Table 4 IT Adoption Problems: Sector Wise

| Sr. No. | Sector | Lack of Adequate Trained Employees | Pakistan Inadequate Telecommunication infrastructure | Lack of Proper IT Planning | Selection of Proper IT Systems | Judicious Use of Computer | Management Unaware on IT Systems | Employees Non Cooperation | Management Shirks to Investments | Total for each Sector |
|---------------------------|-----------------------|------------------------------------|--|----------------------------|--------------------------------|---------------------------|----------------------------------|---------------------------|----------------------------------|-----------------------|
| 1 | Local Banks | 6 | 8 | 9 | 9 | 4 | 5 | 5 | 3 | 49 |
| 2 | Foreign Banks | 4 | 10 | 8 | 5 | 7 | 2 | 2 | 4 | 42 |
| 3 | Local Manufacturing | 6 | 9 | 5 | 4 | 2 | 0 | 5 | 0 | 31 |
| 4 | Foreign Manufacturing | 10 | 8 | 8 | 6 | 5 | 2 | 5 | 6 | 50 |
| Sum of all Sectors | | 26 | 35 | 30 | 24 | 18 | 9 | 17 | 13 | 172 |

Order of Occurrence 2,3,1,4,5,7,6,8

Table 5 IT Adoption Problems: Banking Vs Manufacturing

| Sr. No. | Sector | Lack of Adequate Trained Employees | Pakistan Inadequate Telecommunication infrastructure | Lack of Proper IT Planning | Selection of Proper IT Systems | Judicious Use of Computer | Management Unaware on IT Systems | Employees Non Cooperation | Management Shirks to Investments | Total for each sector |
|---------|--------------------------------------|------------------------------------|--|----------------------------|--------------------------------|---------------------------|----------------------------------|---------------------------|----------------------------------|-----------------------|
| 1 | Banking | 10 | 18 | 17 | 14 | 11 | 7 | 7 | 7 | 91 |
| 2 | Manufacturing | 16 | 17 | 13 | 10 | 7 | 2 | 10 | 6 | 81 |
| | Sum of all sector | 26 | 35 | 30 | 24 | 18 | 9 | 17 | 13 | 172 |
| | Order of Occurrence of Banking | 2,3,4,5,1,6,7,8 | | | | | | | | |
| | Order of Occurrence of Manufacturing | 2,1,3,4,7,5,8,6 | | | | | | | | |

Table 6 IT Adoption Problems: Local Vs Foreign Companies

| # | Sector | Lack of Adequate Trained Employees | Pakistan Inadequate Telecommunication infrastructure | Lack of Proper IT Planning | Selection of Proper IT Systems | Judicious Use of Computer | Management Unaware on IT Systems | Employees Non Cooperation | Management Shirks to Investments | Total for each sector |
|---|--|------------------------------------|--|----------------------------|--------------------------------|---------------------------|----------------------------------|---------------------------|----------------------------------|-----------------------|
| 1 | Local companies | 12 | 17 | 14 | 13 | 6 | 5 | 10 | 3 | 92 |
| 2 | Foreign Companies | 14 | 18 | 16 | 11 | 12 | 4 | 7 | 10 | 80 |
| | Sum of all sector | 26 | 35 | 30 | 24 | 18 | 9 | 17 | 13 | 172 |
| | Order of Occurrence of Local Companies | 2,3,4,1,7,5,6,8 | | | | | | | | |
| | Order of Occurrence of Foreign Companies | 2,3,1,5,4,8,7,6 | | | | | | | | |

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