

# ICT Development and Its Impact on e-Business and HRM Strategies in the Organizations of Pakistan

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**Abstract**—The Information and Communication Technologies (ICTs) create globalization that affect business environment and revolutionize the structure and performance of the organizations around the globe. Its frequent advancement affects the business strategies and management functions of the human resource within the organizations. Many researchers found that the development of ICT and its impact on effective e-business and human resource management (HRM) strategies need intense focus from the scholars in developing countries including Pakistan. Therefore, this paper aims to provide the literature analysis on the ICT development and its impact on e-business and HRM strategies in the organizations of Pakistan. The findings of the study reveals that the development of ICT in e-business and HRM strategies in Pakistan is still lagging behind as compared to the developed countries of the world.

**Index Terms**—e-business, human resource management strategies, information and communication technology (ICT), Pakistan

## I. INTRODUCTION

Today, we are in the world where information and communication technology (ICT) has been penetrated into almost all activities of human beings. Theoretical and empirical studies have revealed the necessity to adopt and exploit the outcomes of ICT in various organizations. While, internet usage that causes the frequent improvement in information and communication technologies (ICTs) also have been addressed by various scholars. In consequence, ICT and its impact in the social, economic and personal development has become the area of interest for many scientific researchers during recent decades.

### A. Overview of ICT and E-Business in Pakistan

ICT refers to the various technologies, which help people to communicate via sending and receiving

information wherever they are [1]. On the other hand, e-business refers to the interaction and serving the customers via online services [2]. Pakistan is a developing country of South Asia with population of 156.77 million growing at 2.7% per annum [3]. In the industrial base, Pakistan has invested considerably and has recently pooled up resources to cope with digital world. The government of Pakistan has announced information technology (IT) policies and action plan 2000 to promote digital opportunity initiatives in the country by focusing on attracting the foreign interments in the field of information technologies [4]. As in [4] the scholars demonstrated the studies regarding the e-business are limited to small and medium enterprises (SMEs) only, and due to little information availability about the adoption and growth of e-business in Pakistan, it is facing many challenges to develop (as it still has not grown in the country). The organizations that are offering online business are limited and few of them are generating sufficient revenues. However, economic theories suggest that the diffusion of new technologies can have significant impact on economic growth and development. The ongoing diffusion of new information and communication technologies is an example of dynamics of technological change and economic growth [5]. These changes affect almost all aspect of the economy, together with the dynamics of innovation, productivity and growth, firm performance, the development of market structure and the demand for labor.

### B. Overview of ICT and HRM Strategies

Commonly, it is believed that human resource is most crucial and core asset for the development of any organization [6]. On the other hand, ICTs enhanced the competitiveness of human resource of the organizations and play an influential role in the functioning of the organizations by coordinating the work environment as it plays major role in human development itself [7].

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Manuscript received June 12, 2014; revised August 13, 2014.

Organizations and the human resource management (HRM) strategies are almost changed and positively affected by ICT ranging from paperless office, time attendance, databanks, automating work practices, tele working, transaction processing, reporting and tracking applications, e-recruiting, using internet for staffing, employee development using internet and others [8]. In general, the development of ICT in the modern world has greatly influenced the e-business environment and human resource management within the organizations.

On other hand, As in reference-[5] ICT has been determined as a major technological innovation for developed countries. There has been little research on ICT usage in developing countries due to various legal, cultural and regulatory elements that limit technological capabilities, reduce research and development (R&D) and excessive use of foreign technology [5].

Thus, due to lack of research on innovation in Pakistan, this paper contributes to explore the current state of ICT development and its impact on business environment (i.e. e-business and human resource strategies) of the country.

## II. LITERATURE REVIEW

### A. Development of ICT in Pakistan

The development in the application of ICTs (for example, broadbanding, internet, teledensity, cellular mobiles) has increased frequently from the past decades. There is increasing trend of internet users which reached 12 million in 2007 from 0.01 million in 1997 till 1998 with 2,389 cities connected to the internet [4]. As in [4], the researcher found that growth rate of personal computers in Pakistan is almost 30% per year, meanwhile, Pakistan, imported 350,000 new systems in 2002 to 2003, out of which 65% were non branded, where the sales of laptops grew to 35% from 15%. At the same time, the number of personal computers in the country accounts between 1.5 to 1.6 million, and software export reached to \$2.2 billion in 2001. Similarly, the teledensity of the country has reached 71.7% (year 2013), which indicates the sign of continuous growth in the industry. However, cellular industry has 94% share in total telecom teledensity. At the end of year 2013, the cellular subscribers reached 128.93 million showing a net addition of 1 million subscribers from the 2012 to 2013 [9]. Fig. 1 demonstrates the growth rate in teledensity and cellular penetration in Pakistan.

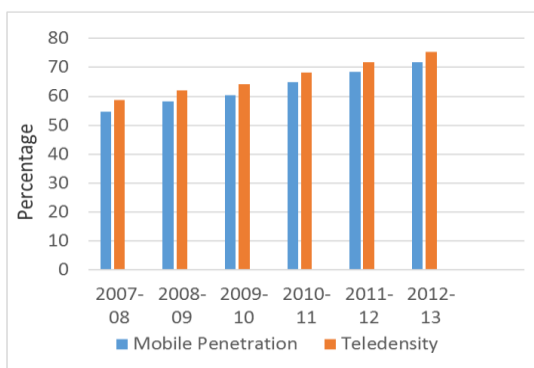


Figure 1. Development in the teledensity and cellular penetration of Pakistan (Source: Pakistan Telecommunication Authority (PTA), 2013)

Correspondingly, in terms of broadband and internet access, broadband is frequently compared with the cellular industry in Pakistan due to the significant growth of cellular industry in the past few years. Business Monitor International (BMI) in its last quarterly report (Q3, 2009) has mentioned that there will be a 12% broadband penetration by the end of 2013 but the revised report estimate to 33% by end of 2014 in the most recent publications [10]. Moreover, the economic survey of Pakistan (2009 - 2010) has highlighted that the broadband market of Pakistan has experienced unmatched growth rates and steadily rising penetration coupled with the latest technologies like WiMAX and EvDo (the number of broadband subscribers of Pakistan is shown in Fig. 2).

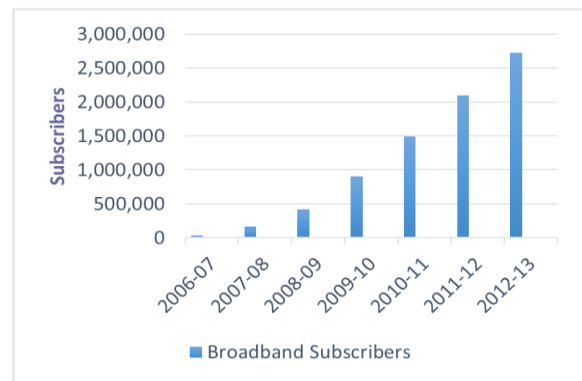


Figure 2. Broadband subscribers in Pakistan (Source: Pakistan Telecommunication Authority (PTA), 2013)

Meanwhile, regarding the internet usage and its subscription, the survey of 1,100 respondents revealed that a vast majority (i.e. 97% of respondents) use high speed internet connections that make more than Rs1500 expenditure on internet access. However, from the survey it has been confirmed that the 83% of population is active on social networking, 76% mostly use internet for email purposes, 63% use to access internet for education or research purposes. Though, the least response was found on the online purchases via internet which constitutes 11% only (that indicates low e-business adoption by the population of the country) [11].

At the same time, the government of Pakistan uses various tactics to compete the modern age of technologies, such as, under the national IT policy, the government has also established seven "IT universities" and one virtual university in order to produce more qualified and knowledgeable employees or professionals in conformity with the current needs of ICT age.

While, National Education Policy (1998-2010) seeks to modernise the education through the use of ICT and to ensure that students of all ages become aware of ICTs. The government is providing a lucrative tax relaxation for software imports and abolished custom duties on computer and network equipment [12].

### B. Impact of ICT on E-Business in Pakistan

From the last two decades, there is massive and explosive growth in the use of internet technologies for the business purposes globally. E-business has not only restructured the current businesses but also created

incredible opportunities for new businesses. The study [10] added that the organizations, regardless of their size, have applied new technological tools in wide range of business activities including advertising, online delivery of good and services via e-business process. Today, conventional businesses have moved towards e-businesses, which requires the exchange of information for communication, and coordination both inside and outside of the organizations and to manage the interorganizational process and external relationships with customers, suppliers and business partners [2], while, most of the organizations in developing countries are still doing business conventionally, yet in the latest past, the trend has moved towards conducting business via ICTs [10].

Generally, the impact of ICT on organizations are found as; it lowers the operationg cost and increase productivity and quality, respond to the increased requirements of their customers and other business partners, the firms adopt advanced technologies. The other main reason to adopt the advanced technologies (i.e.

ICTs) is to enhance the product quality, increase productivity and be cost competitive in the market [13]. Adjunct, low cost communication and accuracy of information can be listed in the benefits of ICTs as well [14].

The rapid change and innovation is expected by those societies and companies that use advanced and innovative technologies [15]. However, as far as the e-business in Pakistan is concerned, the study [14] shows Pakistan is gradually moving toward the digital modes and facing good and bad experiences.

On other side, is was declared by [16], there are 3,424 branches in Pakistan that are providing real time online banking facility to the account holders of the country as against 7,406 branches of 41 banks which means that 47.27% branches are providing online services only [16] which comprises nearly 50% of the total propotion of the banks. Table I shows the total banks and number of branches that are providing e-banking services in the country.

TABLE I. BRANCHES OF DOMESTIC AND FOREIGN BANKS IN PAKISTAN (SOURCE: KUNDI & SHAH, 2009; SHAMSHAD, 2006)

Categories of Banks	June-2001	June-2002	June-2003	June-2004	June-2005	Dec-2005	No. of Branch (with e-banking service)	% of banks provide e-banking
Domestic Banks	7,272	72,80	6,829	6,872	7,089	7,301	3,424	47.27%
Foreign Banks	80	78	70	67	82	105		
Total	7,352	7,358	6,889	6,939	7,171	7,406		

By comparing e-business of Pakistan with the one of the innovative country (i.e. America), it is estimated that 75% of American internet users use online transactions for buying or selling online product and service. While, most of the population of Pakistan is reluctant to rely on e-business [17] due to factors of unsatisfaction, unsecurity and lack of awareness of Advanced ICTs resist many people from making transactions via e-business or e-banking [17].

Thus, in general, the relationship between e-business and ICT is positive, namely existing range of benefits obtained from the cordination and level of ICT support [18] but the trend has not been followed by many developing countries including Pakistan. Thus, Pakistan in terms of e-business is placed at early stages with growing pace, banking and telecom sectors, however, playing foremost role in the country [2].

### C. Impact of ICT on HRM Strategies of Pakistani Organizations

Various researches have stressed the crucial importance of employees for organization's success [2], while technology gives people the operative power to act, lead humans to control, to liberate and compel people to get more powerful [19]. As the study [20] describes there are ample studies that make the association, theoretically and empirically between the employment effect and ICT

investment of the firms, aslo impact of ICT diffusion in organizational aspect related to the HRM strategies. The use of ICTs in HRM strategies and e-business has initiated by the innovative countries and then being adopted through out the globe, but still, there are no such studies that has been identified by researchers in Pakistan. ICT has been linked with many changes in internal business processes including various HRM strategies such as, job design, requisite skills of the employees and organization's human resource structure as whole intended at improving flexibility [20]-but organizations of Pakistan seem far away from these human resource strategies to gain the competitive advantage.

Moreover, investment in technologies due to low budget, acceptabilty of change among people and lack of innovation adoption can be listed as main hindrance for the use of ICT within the strategic HRM of the organizations. Businesses in Pakistan are adopting for ICT in human resource strategies and expect the improvement in the efficiency of the organization since ICT could help in e-recruiting staff via internet, teleworking, reporting and tracking job applications, and employees development trainings via online connection to the world [21]. As in the study [22], the financial analysis of the ICT industry, the researcher identified the technological effeciency of ICT in 52 countries and able to conclude that the productivity growth in the ICT sector

(towards efficiency and innovation change) in developing and new industrialized countries is lower than the growth in innovative countries.

As in [8], the e-HRM strategies has adopted by the state Bank of Pakistan, and the study has focused on the information technologies related changes that are being adopted as main strategies by the human resource (HR) department and how these human resource strategies are contributing to the professional competence of HR department of the bank. The result of the study confirms that the e-HRM (i.e. use of ICT in human resource strategies) is not fully visible in Pakistan. Though, the employees of the bank wanted more innovative technology usage since it helps to improve the capabilities of the employees and make them more efficient at work. It has been obvious from the mentioned

researches that the the availability of the ICTs would make employees better informed and would promote the mutual understanding between them and open new opportunities for cooperation and sharing [16].

The study [23] described the organizations of Pakistan and found that there is strong evidence that all the changes by ICT are not only time efficient but also cost efficient. However, due to the change of ICT, factors of satisfaction and motivation were found among the employees of the organization. The employees seem satisfied with the advanced system as they get record of their working hours, production contribution so that will give their best to follow all the rules to get rewards and annual allowances. The model of Zehra (2012) showed the overall impact of ICT within the organizations of Pakistan (see Fig. 3) [23].

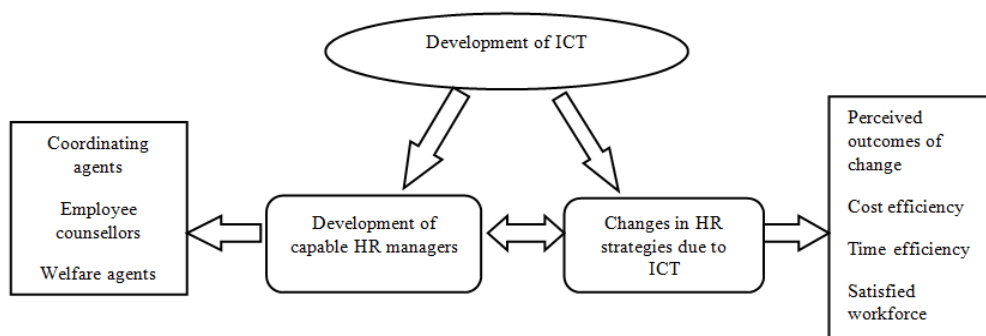


Figure 3. Impact of ICT on HRM strategies in the organizations of Pakistan (Source: Zahra, 2012)

The impact of ICT on human resource strategies is also examined by [5] that indicates based on the results from 1,169 firms, companies that invest in ICT employ vast numbers of educated and trained workers, which allows the researchers to confirm that the firms that use ICT have a higher level of educated workers, present higher level of specific training and higher level of wages. In conclusion, it can be said that the companies that invest and adopt ICT, employ more qualified and better paid workers [5] that allow the strategic human resource to be more beneficial and advantageous for the organizations.

#### D. Status of Human Resource Management Information Systems (HRMIS) in Organizations of Pakistan

Technology has dramatically changed the lives of the human resource professionals over past few decades. In this era, the manual processes are performed by computers and technology which seems to be more time efficient for the human resource professionals [24]. The study [24] shows that the local or wide area networks and internet or IT system opened the doors for the human resource management information system (HRMIS) development. These integrated system made human resource management functions more reliable and efficient for the organizations.

Unfortunately, HRMIS has attracted little attention in organizations of Pakistan. Few of the organizations recognized the critical importance of HR element in the competitive advantage of the organizations [24]. However, [24] also describes the present business environment overshadowed by intense competition,

globalization, emergence of knowledge workers, emphasis on customer relationship management, has added new dimensions for HRM strategies.

Being the developing country, Pakistan confronts many obstacles in terms of HRMIS [23].

### III. DISCUSSION

Based on the literature analysis, the study concludes that the application of ICTs (e.g. broadband, internet, teledensity, and cellular mobile subscriptions) are moving steadily from past couple of years. The internet, personal computer adoption rate, sales of the laptops, usage of teledensity and cellular mobile penetration are gradually increasing every year in the country. Nevertheless, the government of Pakistan is also taking many tactics in order to spread the knowledge of information technologies across the country. Social networking, broadband subscription, and internet usage are increasing at extraordinary rate in the country as well.

Moreover, the literature also reveals that alike many other developing countries, Pakistan does not seem hasty in innovative technology adoption as compared to the innovative societies. Globally, researchers believe that the most influential impact of ICT on e-business is, it helps organizations to boost the productivity, quality and response of the customers and simultaneously reduce the operating cost or cost competitiveness for the organizations. Another impact that e-business receives from the ICTs is on the financial performance of the organizations. Thus, in general, researchers have found

the positive impact of ICT on e-business. But to be very specific in terms of Pakistan, it would not be wrong to say in the light of literature (except, telecom and banking sectors), e-business is at embryonic stage throughout the country. E-banking in the country, though, is also adopted by late era but with the passage of time it is gradually moving forward. Considerably, it is also visible (see Table I) that the proportion of banking with respect to the online service is in constant from the year 2001 to year 2005. There are more than 7,406 banks branches found in the country by 2005 but the governor of the State Bank of Pakistan has declared in the 2006 that only 3,424 branches in Pakistan are providing the online banking facilities to their customers (which constitute almost 50% of the total). In addition to this, Pakistan ranked a low 105 out of 144 countries by 'The world economic forum's Global information technology Report 2013' in terms of overall networked Readiness. This clearly shows that Pakistan still needs long way to gain competitive advantage in ITs adoption.

On the other hand, scholars also affirmed that most of the population of Pakistan is reluctant to rely on the e-business or online transactions within the country premises, this is because the individuals seem unsatisfied, unsecure and unaware regarding e-business environment of the country. Thus, it has been clearly indicated that Pakistan lies far away in terms of e-readiness (adoption of e-business by the population of the country) as compared to the other innovative world.

Besides, in terms of the HRM strategies in Pakistan, it was found that the most of the organizations of Pakistan (except few multinationals) are also lacking behind the strategic tactics driven by ICT in human resource management. The communication gap, inconsistency, implementation in policies and dissatisfied employees' behaviour has commonly found in the many organizations. Literature has indicated some policies in few sectors among such huge number of organizations.

Although, ICT globally has positive impact on the HRMS of the organizations such as, it enhanced the efficiency of the organizations, helps in e-recruiting, staff management, teleworking, and job designing and so on. But the mostly researches agreed on the fact that the impact of ICT on growth productivity in developing countries (including Pakistan) is lesser than innovative countries. Lack of e-HRMS was also indicated as major deficiency of the country. Pakistan is still moving progressively unlike innovative countries toward the use of ICT in their strategic HRM.

Lastly, the paper tried to give HRMIS overview in the organizations of Pakistan, in order to get the distinct picture of usage of ICTs. Thus the literature also revealed that the organizations of Pakistan still practice the manual tactics in order to keep record of the employees. HRMIS does not gain ample attraction by the organizations. Table II summarizes the results of the study based on the literature analysis.

TABLE II. RESULTS OF THE STUDY BASED ON LITERATURE ANALYSIS

Objectives of the Study: To explore:	Status in Innovative Countries	Status in Pakistan
i. ICT Development	High	High
ii. ICT impact on e-business	High	Low
iii. ICT impact on HRM strategies	High	Low

#### IV. CONCLUSION

After analysing the outcomes of the study, it is crucial to draw a reflective image on the study. As discussed earlier, the consequences of the literature analysis showed that ICT developed in the country increases at constant rate annually. Now the most crucial question that can jumps into our mind; despite the development in ICT, there is no significant impact seem on either e-business and on HRM strategies of the organizations of Pakistan. What can be the reason? To answer this question in the light of literature analysis, it is necessary to figure out the most probable reasons that can reduce the adoption rate of ICT in the country. The probable reasons behind the low adaption of e-business and implementation on HRM strategies may vary significantly such as awareness, annual income rate, social and cultural influences.

Literature rate of Pakistan is almost 55% (comprises half of the population of Pakistan). So this may affect the e-business of the country in a way that the most of the population is not fully aware of the innovative technologies used by other developing countries. Similarly, the effect of awareness goes side-by-side as half of the population is under uneducated rate.

However, in terms of income level; it can be stated that personal computer penetration is e-business indicator (i.e. leading to successful e-business by online transactions of business). As personal computer penetration seems important indicator of readiness for e-business, but it is also the matter of common observation that the computer ownership is related to income level of the individuals. A low-end personal computer in Pakistan may cost Rs.30,000, that represents more than two months wages for average internet user. So, this may also lower down the adoption of e-business within the country. While, the reasons behind lack of ICT usage in HRM strategies are probably the unemployment rate and lowered budget set for the advanced technologies. Unemployment rate effect the lowered ICT usage in HRM strategies as the fresh graduates from different fields do not get many opportunities to enter in the organizations. Today, the young professionals are well trained at the use of ICTs within their personal lives but they do not get chances to explore their capabilities in their professional lives due to high unemployment rate in the country. At the same time, the 'Gen-X' population that are already been in the organizations at managerial levels do not promptly alter the behavior towards the advanced ICTs. They seem satisfied with the traditional method for management

strategies. They seem more comfortable without HRMIS in their organizations.

However, the other reason behind the lack of ICT involvement in HRM strategies in organizations of Pakistan could be the low budget allocation by the organizations on ICT and HRMIS because many organizations in Pakistan are based on the labor work (low income earners). Therefore, the organizations might not allocate such budgets on higher technologies to overcome the manual methods for management purposes.

Now, another question is regarding how Pakistan can improve such deficiencies in terms of innovation? In order to improve the scarcities, government and organizations must take attempts for the basic need of the population of Pakistan. At this stage, along with the formation of IT universities, and import computer's hardware and softwares from innovative countries, government of Pakistan should reduced the unemployment rate, allocate more budgets and tactics on education because it is obvious that education is considered as the indicator of expansion of awareness. At the same time, in order to compete with modern world, organizations should hire the employees with higher knowledge of ICTs and make sure to increase the awareness among the employees or workers to utilize the new and advanced technologies like HRMIS. In conclusion, spreading awareness, budget allocation on education, providing opportunities to fresh enthusiastic graduates, and reduction in poverty rate can help government of Pakistan and organizations to be active competitors in the global market in terms of innovative technologies.

#### ACKNOWLEDGEMENTS

The authors would like to acknowledge the support by the Universiti Teknologi Malaysia.

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