

Original Paper

Factors affecting the introduction of ICTs for ‘healthcare decision-making’ in hospitals of developing countries

Najam Afaq Qureshi¹, Qamar Afaq Qureshi², Dr. Muhammad Zubair Khan², Dr. Bahadar Shah³, Irfan Marwart²

¹Sarhad University, Pakistan, ²Gomal University, Pakistan, ³Hazara University, Pakistan

Abstract

Background & objectives: Several studies have evaluated the impacts of ICTs on decision-making process in both public and private health organizations but there is a dearth of such studies that integrate ICTs and effective decision making in Pakistan. Since the Pakistani governments continue to provide huge IT investment for its designated e-government agencies, the need to comprehend the impacts of ICTs on effective decision making becomes more important.

Methods: This study strives to ameliorate the comprehension of the impacts of ICTs for decision-making process at all management levels of both public and private health organizations in Pakistan. Research on the information and communication technologies for decision-making is tabling new tools and techniques in the marketplace.

Results: This study attempts to unearth literature review-based definition of the local decision-situations to help private and public sector organizations in Pakistan.

Interpretation & conclusion: In the emerging ICTs environment, IT elements such as e-mail and group support facilities improve the coordination among the members of an organization in decision making. The use of these ICTs improves the organizational communication, which ultimately leads to effective decision-making

Key words: ICTs; adoption factors; decision-making; healthcare; developing countries.

1. Introduction

The concept of ‘global-village’ indicates high levels of interaction between nations of the world. It also reflects impacts of globalization with global culture on the organizational life of public and private organizations working in both developed and developing societies (Luthans, 2002: 47).

Modern organizational life is characterized with complex environments demanding the processing of huge data to analyze and diagnose complex situations (Robbins, 1998:6). It is the “fast-paced, global, highly competitive and information-intensive environment, due to which managers are facing new decision-

making challenges (Boiney, 2000:33).

Despite these environmental pressures, the decision-making is unanimously considered as the most important and unique function of every manager (Drucker, 1974:465; Loomba, 1978:3). In this modern age traditional decision-making approach has been replaced by a systematic decision making process (Wehrich and Koontz, 1999:199), which is a key factor driving the quest for information and development of supporting technologies (Boiney, 2000:32; Turban et al., 2004:544). Digital technology has influenced all sectors like business, government utility services and personal life.

1.1 ICTs in health sector

One of the most significant impacts of the ongoing information revolution has been on the health sector. In the field of health care, ICTs have emerged as key instruments in solving many of the most pressing problems. ICT has helped to bridge the gap between the provider and seeker through telemedicine and remote consultations, enabled health knowledge management by institutions and agencies, and facilitated in the creation of networks between providers for exchange of information and

experiences. In fact, globally, the e-Health or health telematics sector is fast emerging as the third industrial pillar of the health sector after the pharmaceutical and the medical (imaging) devices industries (Macleod, 2007). From a development perspective, ICTs are key instruments towards meeting the Millennium Development Goals (MDGs) related to health. In this respect, the increasing adoption of ICT in health care services of developing countries, by both public and private sectors, has been a welcome trend. All across the world, governments are pledging and pooling more and more of their resources towards developing ICT tools and systems with the ultimate aim of facilitating management, streamlining surveillance and improving health care through better delivery of preventive and curative services (Turban et al., 2004). In line with this trend the government of Pakistan in August 2000, announced an integrated policy of Information Technology, which has been welcomed as step towards modernization and globalization.

2. Factors affecting adoption and use of ICTs in hospitals

The increasing pressure of business environment of the

information age is forcing the organizations of the entire world to adopt and use Information and communication technologies (ICTs) in decision making. It is well reported that private sector organizations are using information system for achieving strategic advantages and gaining financial and business benefits more than its public counterpart. The influence of some factors on the information system (IS) success is well documented (see for example, Ahlan, 2005; Michel & Betty, 2003); Andrew Georgiou et al., 2002). Various studies have pointed out Users, executives, Proper Organization, and external environment as the key crucial factors that influence implementation of ICTs in any organization.

2.1 Users

Human relations movement (behavioral approach to management) stresses that human element in an organization must be given importance in order to increase the organizational efficiency (Certo, 2001:37-38). It also emphasizes that effective human relations generate commitment of workers and high productivity in organizations. Thus management must build appropriate relationships with its people, as ability to work with people enhance organizational

success. A manager under interpersonal role motivates, directs people and performs duties of social nature i.e. generates respect for each other, trusts the workers. likewise the success of ICTs is not possible in the organizations whereby the human element is not given importance and where exists a lack of participation of end users in IS (Information system) development proceedings as asserted by Macleod (2007) that design and implementation of the hardware/software have greater success rates in the organizations whereby end users and IT-staff/professionals jointly develop an information system and as Bradly (2006) says that it is the human element which is related with the adoption and success of new technologies.

The literature reveals that private health organizations in Pakistan are more inclined to e-government initiatives and whereby the executives of these hospitals are more interested in the adoption and use of IT in their decision making process than the management of public sector hospitals. Furthermore, private health organizations are involving the doctors, physicians and other healthcare workers in information system (IS) development. Literature also highlights that to

date the private sector's use of information systems for achieving strategic advantages and gaining financial and business benefits is much greater than its public counterparts (Ahlan, 2005)". According to Macleod et al. (2007) people have no participation in the IS development due to concept prevailing in public health organizations that their suggestions for IS development and implementations are neither welcomed nor entertained and also increases the time duration of IS development. Similarly Certo (2001: 37-38) argues that organizational success can be enhanced by building appropriate relationships with the people.

2.2 Executives

Literature reveals that in private organizations management arranges and provides proper training to the people, the environment is friendlier, management has trust in their employees and people have respect for each other. Furthermore, results of the different studies validate the assertion that human force in private health organizations is highly qualified, professional, trained and well experienced as well as more committed to the adoption and use of IT in decision making process than the managerial staff of public health

organization (see for example, Keri, 2007; Michel & Betty,2003); Avital, 2003).

Executives are responsible for overall management of the organization. They establish operating policies and guide the organization's interaction with its environment (Stoner and Wankle, 1986:15) and play different roles such as interpersonal, informational and decisional. Thus under information role they are responsible for transmitting the information received from outside or from other subordinates to the members of the organization and transmits information to outsiders on organization's plans, policies, actions and results (Robins and Decenzo, 2006: 37). To play an informational role successfully, executives require and make the use of ICTs but our study reveals that executives of public organizations do not take interest in the adoption and use of ICTs as pinpointed by Ahlan (2005) that the executives in public health organizations do not take much interest in the adoption and use of ICTs, they do not possess awareness about ICTs and have no experience of using the same for solving their unstructured problems.

2.3 Proper Organization

Proper organization helps the smooth running of administration. It provides an opportunity to direct employees and coordinate their efforts. It facilitates the distribution of work among different units. It provides channels of communication, command and coordination. It fixes authority and responsibilities for each individual of an organization. All this indicates that organization has many roles to play in administrative processes. Despite all such theoretical claims literature study reveals that there is poor organization mechanism in the public health organizations, however, reasons to which are multifarious and playing different roles such as highly centralized system, limited participation, unclear role and responsibilities, lack of cooperation and coordination, absence of time work, lack of interest and commitment. This highly centralized system of administration with non-participatory approach of the public sector organizations is the main obstacle in the ICTs success (Hage & Aiken, 1969).

2.4 External environment

The environment of an organization contains both supportive and antagonistic

forces. An organization system derives support from clients or customers who need its products and services and from society's protection of property and other rights. But the organization is also subject to the constraints of public regulations, demands for social responsibility, and meeting multiplicity of demand that are often conflicting (McFarland, 1979: 290). It is part of every manager's responsibility to be alert about the forces of external environment that affect an organization and its goal. However, findings of the study indicate that the management of private health organization is more capable to fight with both external and internal environment to meet their desired objectives than to its counterparts.

3. Discussions

ICTs refer to how an organization transfers its inputs into outputs. Every organization has information technology that converts financial, human and physical resources into products or services (Robbins, 1998). But ICTs in private health organizations are fully compatible with the organizational systems because they are designed, developed and implemented according to an existing work patterns and requirements of an

organization Hughes (2003). Similarly, Macleod (2007) argues that design and implementation of the information technology have greater success rates in the private organizations because of user's participation in information system development process. The literature reveals that information technology is making the greatest impact on the nature of management thereby forcing the managers to adapt themselves with the emerging new trends (Haiman et al., 1985:37). Similarly, Boiney (2000:32) and Turban, et al. (2004:549) argues that the need to speed up, coordinate and improve the aspects of decision-making has led managers to adopt enabling technologies. In the emerging ICTs environment, IT elements such as e-mail and group support facilities improve the coordination among the members of an organization in decision making. The use of these ICTs improves the organizational communication, which ultimately leads to effective decision-making (Rockart and Short, 1989). Furthermore ICTs are very useful means for collection and dissemination of information that is why most of the executives and the managers of private health organizations use e-mails frequently because they believe that ICTs can convey things more effectively Keri (2007).

4. Conclusion

Quick access to relevant and valid information is possible through information and communication technologies. Furthermore these new technologies provide information that is needed for better decision-making on the issues affecting an organization regarding human and material resources. Majority of the managers try to be rational while making decisions but to do so they must follow the steps of rational making process i.e. defining the problem situation, develop the alternatives, evaluate the alternatives and select the best one available and finally implementation and monitoring of the decision. In addition the 'development of the alternatives - phase' of decision-making process will not be effective until the availability of timely and accurate information to analyze the decision situation and generate as many alternatives as possible too stresses the importance of information and developing alternatives for effective decisions.

References

1. Adebayo, F.A. (2007). *Management Information System for Managers*. Ado-Ekiti: Green Line Publishers.

2. Agerfalk, P. J., Göran, G., Brian, F. and Liam, B. (2006). Reflecting on action in language, organizations and information systems. *European Journal of Information Systems* (15): 4-8, [Available at: <http://iet.ucdavis.edu/index.cfm>].
3. Ahlan, A.R. (2005). Information Technology Implementation: Managing IT Innovation in the Malaysian Banking Industry, Proceedings of the 12th European Conference on IT Evaluation (ECITE), Turkey, Finland.
4. Andrew, G. and Michael, P. (2002). The role of health informatics in clinical audit: part of the problem or key to the solution? *Journal of Evaluation in Clinical Practice*, Volume 8 (2) :183-188.
5. Archer C., Jo-Anne., and D. K. (2006). Evading technological determinism in ERP implementation: Towards a consultative social approach, *Australasian Journal of Information Systems* Volume 13 (2).
6. Boiney, L G. (2000). Decision making and IT/S. In: Zeleny, Milan (ed.) *The IEIBM handbook of information technology in business*. Business Press. Thomson Learning. US. 32-39.
8. Bradley, N., Doebbeling M.D., Ann, F. C., William M. and Tierney, M.D. (2006). Priorities and Strategies for the Implementation of Integrated Informatics and Communications Technology to Improve Evidence-Based Practice *Journal of General Internal Medicine*, Volume 21 (2):50-57.
9. Certo, S.C. (2001) *Modern management* Prentice Hall, Case Western Reserve University ISSN 1535-6078
10. Drucker, P.F. (1974). *Management: Tasks, responsibilities, practices*. Heinmann: London.
11. Hage, J. and Aiken, M., 1969, *Routine Technology, Social Structure, and Organization Goals*, *Administrative Science Quarterly*, Volume 14 (1): 366-376.
12. Haiman, T., WG. Scott and PE. Connor. (1985). *Management*. 5th ed. Houghton Mifflin Co. Boston.
13. Keri, K. S. (2007). *The Successive Use of Information and Communication Technologies at Work*, *Communication Theory*, Volume 17 (4): 486-507.
14. Loomba, N.P. (1978). *Management, A quantitative perspective*. Macmillan.
15. Luthans, F. (2002). *Organizational Behavior*, McGraw-Hill.
16. MacFarland, D.E. (1979). *Management: foundations and practices*. Mac Millan publishing co., INC, New York.
17. Matthew, I. E (2005). *Executive Information Systems and the top-officers' roles: An exploratory study of user-behavior model and lessons taught*, *Australasian Journal of Information Systems*, Volume 13 (1).
18. McLeod, L. Stephen, G. MacDonnell and Bill, D. (2007). *User participation in contemporary IS development: An IS management perspective*, *Australasian Journal of Information Systems*, Volume 15 (1).

20. Michel, A. and Betty, V. (2003) Ownership Interaction: A Key Ingredient of Information
21. Technology Performance Sprouts: working papers on information Environments, Systems and organizations Volume 2 (1).
22. Robbins, S. P. (1998) Organizational behavior: Concepts, controversies and applications. Prentice-Hall.
23. Rockart, J.F. and Short, J.E. (1989). IT in the 1990s: Managing interdependence. Sloan Management Review, Volume 30 (3): 7- 17.
24. Stephen P., Robins and David. D. (2006). Fundamentals of management, Pearson Education.
25. Stoner, J. A. and Charles, W., 1986, Management, prentice hall.
26. Turban, E., Ephraim, M. and James, W. (2004). Information technology for management: Transforming organizations in the digital economy. 4th Edition. John Wiley & sons, Inc.
27. Weihrich, H. and Harold, K., 1999, Management: A global perspective. 10th ed. McGraw-Hill. Inc.