MEDINFO 2007
HISA Ltd Australia
© 2007 The authors. All rights reserved.

What Kinds of Intangible are Important to Identify and Measure?

Bahlol Rahimi

Department of Computer and Information Science, Linköping University, Sweden (PhD Candidate)
Department of Social Medicine, Urmia University of Medical Sciences, Iran

Abstract

Information technology has the power to increase the quality of work creating accurate and update data, but gives the organization the capacity reduce cost of coordination, communications, and information processing.

In this poster we identify a number of intangible outputs that can be important to measure in medical informatics area. Three categories of outputs, namely technical, individual and organizational, are suggested to specially give attention to and to consider when discussing the intangible effects of the implementation and use of IS.

Keywords:

information systems, intangibles, healthcare

Introduction

Information technology, defined as computers as well as related digital communication technology, has the power to increase quality of work creating accurate and update data, but also to give organizations the possibility to reduce cost of coordination, communications, and information processing. (1)

The increased need and pressure for implementing information technology in all healthcare domains increased also the need to evaluate IT-applications. This is because evaluations can give decision makers knowledge about the benefits, effects and impacts of IT. Evaluation can also gives key information about which areas are specially influenced and about which kind of outputs, both tangibles and intangibles, are important to valuate and evaluate. According to Devaraj and Kohli (2002), intangible outputs play important role in organizational success. They also state that investing in IT make organizations profitable. (2) However, despite the importance of the intangibles, evaluation of them have not yet been justified or accounted. In this poster we identify categories their intangibles are important for organizational effectiveness and thus important to measure, account and justified, especially in the area of medical informatics.

Definition of intangible

Kaplan and Norton (2004) have described intangibles as "knowledge that exists in an organization to create differential advantage" or "the capability of the company's employees to satisfy customer needs". Some examples from their point of view are: workforce knowledge, leadership, high quality products and services, motivated and skilled employees, responsive and predictable internal processes, and customer satisfaction.(3) Intangibles assets according the new International Accounting Standard IAS 38 are defined as an identifiable non-monetary asset without physical substance held for use in the production or supply of goods or services, for rental to others, or for administrative purposes such as skills, information systems, and satisfied customers.(4)

Methods

A literature review of current studies on the area of evaluation of intangible outputs both at the industry and healthcare areas has been done. The review covers scientific publication like journals, books, Internet. Literature was reviewed using the terms and combinations of terms such as intangible evaluation, information system, and medical informatics from 1990 upward. Journals like Journal of American medical informatics association, the proceeding of AMIA and Medinfo conferences, Journal of Management Information system, and The Electronic Journal of Information Systems Evaluation was reviewed.

Result

Ruland et al (2003) in their study entitled "Usefulness and effects on costs and staff management of a nursing resource management information system" showed that a significant improvement in information management after four months of implementation of the new system. It was also observed that it became easier to analyze the relationship between patient activities, staffing, as well as the cost of care. The positive results were revealed regarding the ease of use and user satisfaction. (5) Vontetsianos et al (2005) indicated that with introducing the new system, the user (nurse, physician, and other staff) satisfaction has improved. (6)

Zhang et al (2004) showed that by introduction of computerized patient record, improved hospital administration (with 80% positive response) and better presentation of information (with 75% positive responses); the overall optimistic attitude were found to be evident.(7) Breslow et al (2004) showed that management or administration of

hospital/ward/department as well as information management has been improved as a result of introducing the new information system. (8) Jonathan et al (2005) showed that accuracy and readability as well as uniformity and availability of data have increased after the new system implementation. (9) Pizziferri et al (2005) as results of their evaluation indicated that, the physician believed that the input of the new system on communication, access, efficiency, workload, and quality of care indicated that the new system resulted in an improvement in many domains. (10) Robert et al (2005) affirmed that the new e-health improved efficiency and safety of delivering cares in their studies. (11)

Identifying three categories their intangibles are important for organizational effectiveness and example of intangibles

Category 1, examples of Technical intangibles	Category 2, examples of Individual intangibles	Category 3, examples of organizational intangibles
-Accuracy of data -Access and availability of data -Readability and uniformity of data	-IT proficiency for employee -Improving of decision-making -Clearer understanding of problem -Increasing of user satisfaction	-Improvement in communication (improved organizational teamwork) -Better organizational planning and control -Utilization of management time -Improved organizational learning

Discussion and conclusion

Managers or decision makers become more cautious about approving new investment, particularly investment in information system. It might be due to their less knowledge about the benefits arising by information system, especially the intangible one. They are often familiar with tangible output measurement like cost-benefit analysis that illustrates everything in numerical data, which are more defendable to executive board but it seems that considering intangible benefits is not common when decision maker going to justify.

The identification of categories of intangible outputs can make clearer the payoff mechanism and help decision makers and managers to know more about the impact of medical information system both at individuals and organization level.

It could be conclude that developing methods and models to evaluate intangible is a challenge that medical informatics will need to continue to improve and discus.

Acknowledgment

The author thanks Dr. Vivian Vimarlund for her great supporting for preparing and presenting this poster.

References

[1] Brynjolfsson E, Hitt LM. Beyond computation: information technology, organizational transformation and business performance. The journal of economic perspectives 2000:14(4): 23-48.
[2] Devaraj S, and Kohli R. Information technology payoff in the health care industry: A longitudinal study. Journal of Management Information system 2002:16(4) 41-68.
[3] Kaplan RS, Norton DP. Strategy Maps: Converting Intangible Assets into Tangible Outcomes. Boston: Harvard Business School Press, 2004.
[4] International Accounting Standard IAS 38. Revised march 2004 www.iasplus.com/standard/ias38.htm
[5] Ruland CM, and Ravn IH. Usefulness and effects on costs and staff management of a nursing resource management information system. J Nurs Manag 2003: 11(3):208-215.
[6] Vontetsianos T, Giovas P, Katsaras T, Rigopoulou A, Mpirmpa G, Giaboudakis P, Koyrelea S, Kontopyrgias G, and Tsoulkas B. Telemedicine-assisted home support for patients with advanced chronic obstructive pulmonary disease: preliminary results after nine-month follow-up. J Telemed Telecare 2005: 11:S1:86-8.
[7] Zhang WP, Yamauchi K, Mizuno S, Zhang R, and Huang DM, Analysis of cost and assessment of computerized patient record systems in Japan based on questionnaire survey. Med Inform Internet Med. 2004: 29(3-4):229-238.
[8] Breslow MJ, Rosenfeld BA, Doerfler M, Burke G, Yates G, Stone DJ, Tomaszewicz P, Hochman R, and Plocher DW. Effect of a multiple-site intensive care unit telemedicine program on clinical and economic outcomes: an alternative paradigm for intensivist staffing. Crit Care Med 2004 : 32(1):31-8.
[9] Hobson JC, Khemani S, and Singh A. Prospective audit of the quality of ENT emergency clinic notes before and after introduction of a computerized template. J Laryngol Otol 2005: 119(4):264-6.
[10] Pizziferri L, Kittler AF, Volk LA, Honour MM, Gupta S, Wang S, Wang T, Lippincott M, Li Q, and Bates DW. Primary care physician time utilization before and after implementation of an electronic health record: a time-motion study. J Biomed Inform 2005: 38(3):176-88.
[11] Ohsfeldt RL, Ward MM, Schneider JE, Jaana M, Miller TR, Lei Y, and Wakefield S. Implementation of hospital computerized physician order entry systems in a rural state: feasibility and financial impact. J Am Med Inform Assoc 2005: 12(1):20-7.
[12] Vimarlund V, and Olve NL. Economic analyses for ICT in elderly healthcare: questions and challenges. Health Informatics J 2005: 11(4):309-321.

Corresponding address

Bahlol Rahimi, department of computer and information sciences, Linkoping University, SE-58183 Linkoping, Sweden.
Email: bahra@ida.liu.se