



## The Role of Management Information Systems (MIS) to Increase Productivity in the Workforce (Case Study of Iran)

Nader Barzegar<sup>1\*</sup>, Alireza Araghieh<sup>1</sup> and Morteza Asgarani<sup>2</sup>

1. Department of Educational Administration, Islamshar Branch, Islamic Azad University, Islamshar, Iran

2. Department of Management and Economics, Science and Research Branch, Islamic Azad University, Tehran, Iran

\*Corresponding author's Email: Barzegar@iiu.ac.ir; Tel: +009891233538579

**ABSTRACT:** One of the most important goals in any organization is increasing work force productivity. Information systems, Systems are the responsibility of their data and their processing of information within the organization and managers to provide information on important economic decisions making. It will be achieved, using the systems, technology and training tools that are an integral part of modern management. Also; accurate, related, and on-time information are second most important factors in this regard. The purpose of this survey research was to study the role of Management Information System (MIS) in increasing human resource productivity. Statistical population included all 462 personnel in upper, middle and lower level of the organization under the study. Sample population by use of Morgan Table was 210, selected by random sampling. Instrument for data gathering was designed by researcher based on the six characteristics of information introduced. Data collected was analyzed by use of descriptive methods, central tendency measures, and T test. The study revealed that related information and cost-effectiveness of information were two most important factors associated with the productivity of human resources. The study has suggested the benefits of using on-the-job-trainings, management support of IMS distribution of information through networking.

**Keywords:** Information Management System, Human Resources, Productivity, Training

ORIGINAL ARTICLE

### INTRODUCTION

The human resource of an organization offered the potential synergy for sustained competitive advantage, when properly deployed, maintained and utilized. The organization therefore gains sustained competitive advantage through people, the organization workforce. Competitive advantage is simply defined as anything that gives an organization an edge over the competitors in its market. According to Porter (1985), the unique talents among employees, including flexibility, innovation, superior performance, high productivity and personal customer service are ways employees provide a critical ingredient in developing a firm's competitive position. There is a growing consensus that effective management of human capital is critical to an organization's success (Barney et al., 1998; Jackson et al., 2003; Akhtaret al., 2008). Each period of technological change carries with it high expectations of societal and organizational restructuring of various processes with the aim of increasing human resource productivity. Increasing the productivity is one of the critical prerequisites for socioeconomic development.

MIS provides enormous potential for enhancing productivity of human resources in both public and private sectors. These benefits from MIS to productivity can be categorized as tangible and intangible (Shenget al., 2005).

The tangible benefits include: Reduced cost, Improved productivity, Increased market share,

Savings in labor, Increased consumer surplus, Improved customer service quality, Improved organizational efficiency, Quicker response to customers, Deeper knowledge and understanding of customers.

Also, the intangible benefits include: Improved decision-making ability, Superior product quality, Knowledge /information management and sharing, improved coordination/relationships with partners and other forms of competitive advantages. (Kamuzora, 2006)

The conceptual and empirical work relevant to this research has progressed far enough to suggest that the role of human resources can be crucial. (Gerhart et al., 1990; Cutcher-Gershenfeld, 1991; Arthur, 1994; Ichniowski et al., 1994; Huselid, 1995; MacDuffie, 1995; Huselid et al., 1996).

### Literature Review

The new business context, which is characterized by increasing globalization, greater organizational complexity, market competitiveness and cutting-edge information communication technology, is prompting organization executives to take more interest in the deployment and utilization of their human resources (HR). The HR function is therefore playing a far more strategic role in the business or corporate strategic planning process in the organization (Inyang, 2010).

For Example, The Information Communication Technology (ICT) and MIS are the driving force behind

the Australian economy's productivity growth. According to a government report released in March 2006, the ICT and MIS in industry contributed to some 85% of productivity growth in the manufacturing sector and up to 78% in the services sector in the last two decades. Another set of research findings corroborating the above accounts inform that in the service industry environment, between 59 and 78 percent of productivity growth can be attributed to technological factors and between 22 and 41 percent to institutional reform (Hart, 2005).

Labor productivity experienced in the US in the 1990s was to a good extent attributed to the growth in MIS investment. For example, Oliner et al. (2000) stated that concluded that slightly over 20 percent of U.S.

Moreover, 37 percent of labor-productivity growth is attributed to "capital deepens" from the use of ICT. Also, Jorgenson et al. (2000) calculated even a higher contribution of approximately 43 percent to total labor-productivity growth.

Canada is another country with discernable information on the impact of ICT and MIS on labor productivity. For example, in a study by the Bank of Canada, revealed that over the 1996- 2000 period, ICT contributed 0.53 percentage points of the 4.75 per cent growth in business sector output. (Khan et al., 2002). Also, Goldstein et al. (2002) assert that introduction of ATMs has definitely increased labor-productivity but not necessarily the total factor productivity. This demonstrates that effects of computer diffusion on growth were concentrated in a number of industries (OECD, 2003a).

The impact of MIS on the overall growth of the economy can be observed by looking at the multifactor productivity factor (MPF) measurement. In OECD countries, MPF coefficients have been found higher in economies and more specifically in sectors with higher investments in MIS. (Irene Bertschek, et al., 2004). Evidence from several countries suggests that the MIS revolution is skill-biased and increases demand for high-skilled relative to low-skilled workers.

Jorgenson et al. (2000) point out that high-skilled workers are likely complementary to ICT, while low-skilled workers are substitutable.

The following are some of the processes for improving productivity of Knowledge Workers : E-Learning ICT, Enabled Education, Empowering the Knowledge Worker with Internet Learning, Information Technology, Information and communications technology (ICT) & Internet, Mobile & Wireless ICT, Integration of IT Related Technologies or Support Groups, Weblogs, Knowledge Management (KM) and Change in Attitude (Mohanta, et al., 2006).

Therefore, by implementing the productivity improvement processes, an organization can improve the productivity of Knowledge Workers. Knowledge worker's performance and productivity can be improved by providing access to relevant information; environments that promote this information's desired use, continuing educational opportunities, and a balance between guidance and autonomy.

#### **Research Purposes**

The main purpose of the present research is the identification of the role of MIS in increasing efficiency of manpower in the Tehran Municipality. Also its sub-purposes are consisted from the identification of the related role of information, accuracy and correctness, security, speed and economy of the information in increasing efficiency of manpower.

#### **Research Questions**

What is the role of MIS in increasing efficiency of manpower in deputy of coordination and programming of the Tehran Municipality?

#### **MATERIALS AND METHODS**

In the present research descriptive research method from measurement type has been used. The statistical inferential of this research has been formed from all employed manpower in groups of Top Managers, MiddleManagers and supervisors and experts in deputy of coordination and programming Tehran Municipality. Statistical Population was 462 persons that 210 persons by using Morgan Table through accidental classification sampling have been selected between all of them.

#### **RESULTS**

In order to analyze the data and answering to the questions of the research, descriptive and inferential statistics have been used. In the descriptive section, frequency, percent, average, variance and deviation standard have been used and in inferential section T Test of one sample has been used. In tables (1) and (2) the obtained results have been shown.

The table 1 shows that the average of security element of information (16.24) is lower compared to the other elements. In total, the averages and the amount of scattering in each element is nearly close to each other. Of course, economic element of information and speed of information have the highest average which are 17.76 and 17.25 respectively.

**Question-** What is the role of MIS in increasing efficiency of manpower in deputy of coordination and programming of the Tehran Municipality?

The results of data in table (2) show that the average of variable of management information has

meaningful difference with the theoretical average and is higher than the experimental average.

Based on these results, MIS Lead to increase efficiency of manpower.

**Table1:** Descriptive Indicators of Management Information System Elements

Management Information Systems Factors	Average	Standard Deviation	Minimum score	Maximum score
Related information	17.41	2.83	10	24
Accuracy of information	16.60	3.08	6	24
Correctness of information	16.79	3.13	6	24
Security of information	16.24	3.22	6	23
Speed of information	17.25	3.08	7	24
Economy of information	17.76	3.38	6	24
Elements MIS	102.45	15.33	54	136

**Table 2:** Results of T Test with a Related Sample with the Management Information System Variable

Indicator of measurement variable	T	Freedom degree	Meaningful level	Difference of test average
Management information system	87.20	178	0.001	99.95

**DISCUSSION**

The findings of the research show that role and effectiveness of MIS in the dimension of human resources includes: training human resources, giving speed to the assigned duties and better usage from the resources of MIS and technology are effective in increasing efficiency and productivity. For better effectiveness and efficiency, measures such as; teaching information and concepts, methods of working with computer, designing and database establishment, comprehensive and integrated data for all units, proper culture making for complete set of systems for analyzing MIS and considering Strengths and weaknesses points, financial and spiritual support of senior managers should be taken into consideration.

**REFERENCES**

Akhtar, S. Ding, D. Z. &Ge, G. (2008). "Strategic HRM practices and their impacts on company performance in Chinese enterprises". *Human Resource Management*, 47(1), 15-32.

Arthur, J. B. (1992). The link between business strategy and industrial relations systems in American steel minimills. *Industrial and Labor Relations Review*, 45: 488-506.

Barney, J. B. & Wright, P. M. (1998). "On becoming a strategic partner: The role of human resources in gaining competitive advantage". *Human Resource Management*, 37(1), 31-46.

Gerhart, B. &Milkovich, G. T. (1990). Organizational differences in managerial compensation and firm performance. *Academy of Management Journal*, 33: 663-691.

Gershenfeld, J. C. Cutcher (1991). The impact on economic performance of a transformation in workplace relations. *Industrial and Labor Relations Review*, 44: 241-260.

Goldstein, A. & O'Connor, D. (Eds.). (2002). *Electronic Commerce for Development*. Paris: OECD.

Hart, D. (2005). The "Wise" Supply Chain: Knowledge as a Component of its Success. Retrieved July 29, 2005, from [www.rangelands-australia.com.au/publications/005\\_Wise\\_Supply\\_Chain\\_ARS\\_DH](http://www.rangelands-australia.com.au/publications/005_Wise_Supply_Chain_ARS_DH).

Huselid, M. A. (1995). The impact of human resource management practices on turnover, productivity, and corporate financial performance. *Academy of Management Journal*, 38: 635-672.

Huselid, M. A., & Becker, B. (1995). High performance work systems and organizational performance. Paper presented at the annual meeting of the Academy of Management, Vancouver.

Ichniowski, C. Shaw, K., &Prennushi, G. (1994). The effects of human resource management practices on productivity. Working paper, Columbia University Graduate School of Business, New York.

Inyang, J. Benjamin . (2010). Strategic Human Resource Management (SHRM): A Paradigm Shift for Achieving Sustained Competitive Advantage in Organization. *International Bulletin of Business Administration* ISSN: 1451-243X Issue 7.

Irene Bertschek, I.Fryges, H., & Kaiser, U. (2004). B2B or Not to Be: Does B2B Ecommerce Increase Labor Productivity? Discussion Paper No. 04-45. Retrieved September 7, 2006, from [ftp://ftp.zew.de/pub/zew-ocs/dp/dp0445](http://ftp.zew.de/pub/zew-ocs/dp/dp0445).

Jackson, S. Hitt, M. &DeNisi, A. (2003). "Managing knowledge for sustained competitive advantage:

- Designing strategies for effective human resource management". San Francisco: Jossey-Bass.
- Jorgenson, D. &Stiroh, K. (2000). Raising the Speed Limit: U.S. Economic Growth in the Information Age. *Brookings Papers on Economic Activity* 1(125-236).
- Kamuzora, Faustin. (2006). Enhancing Human Resource Productivity Using Information and Communication Technologies: Opportunities and Challenges for Tanzania. Paper presented at MzumbeUniversity - CAFRAD Regional Conference, Arusha, Tanzania, and February 26-28.
- Khan, H. & Santos, M. (2002). Contribution of ICT Use to Output and Labour Productivity Growth in Canada. Ottawa and Ontario: Bank of Canada.
- MacDuffie, J. P. (1995). Human resource bundles and manufacturing performance: Organizational logic and flexible production systems in the world auto industry. *Industrial and Labor Relations Review*, 48: 197-221.
- Mohanta G.C. Kannan, V. Thooyamani, K.P. (2006). Strategies for Improving Productivity of Knowledge Workers - An Overview. *Strength Based Strategies*.
- OECD. (2003a). *ICT and Economic Growth: Evidence from OECD Countries, Industries and Firms*. Paris: Organization for Economic Cooperation and Development.
- Oliner, S. &Sichel, D. (2000). The Resurgence of Growth in the Late 1990's: Is Information Technology the Story? *Journal of Economic Perspectives*, 14, 2-22.
- Porter, M. (1985). "Competitive advantage". New York: Free Press.