

The effect of Accounting Information System on Performance (Innovation and productivity) of Listed Companies in Iran Stock Exchange

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Abstract—This study investigates the use of the Accounting Information Systems (AIS) in firms' improved Innovation and productivity. This study is based on a survey carried out listed companies of Iran Stock Exchange from 2013 to 2016. The Aim of study is to determine the influence of modern technologies in AIS to increase the performance of companies (innovation and productivity). The result shows that AIS have become an important tool in ISE. Companies continue to invest in these technologies as a measure to improve their performance (Innovation and Productivities). This research indicates that has influence enterprises' technological infrastructure on their organizational performance from an innovation and productivity point of view through the daily use of AIS.

Keyword: Innovation, productivity, Accounting Information Systems (AIS) and Iran Stock Exchange.

1. INTRODUCTION

we live in the age of information: Information Technology, Information Superhighway, E-mail, Fax, Telephone, Management Information System, Accounting Information System and etc. its show important of information in the business world. The study of Accounting Information System (AIS) is an important part of accounting field that provide financial information for users. As AIS cover wide range and include all the parts in which a firm acts, this research work has focused on a specific part of them, Innovation of AIS to show that computerized accounting tools are directly related to the economic and financial results and performance in business organizations.

AIS are systems used to record the financial transactions of an organization. This system combines the methodologies, controls and accounting techniques with the technology of the IT industry: user interface, computers and sophisticated software. The software used to track transactions provides

internal reporting data, external reporting data, financial statements, and trend analysis capabilities.¹

The spread of Information technology (IT) and AIS is central for an organization's development and change. According to Gordon and Trader (2007)², IT entails information, project management, collaboration, communication, and their involvement helps enterprises improve their ability to innovate, as the technological developments are the result of innovative processes. However, there are insufficient constructs, models, methods and tools to represent accurately the link between business and technology³.

Innovation and AIS

Innovation is process of translating an idea or invention into a good or service that creates value or for which customers will pay. In other word, innovation is an idea that must be replicable at an economical cost and must satisfy a specific need.⁴

Varies researches are mad in AIS and innovation that some of them are included:

¹ -Elena Urquía Grande and ..., The impact of Accounting Information Systems (AIS) on performance measures: empirical evidence in Spanish SMEs, The International Journal of Digital Accounting Research Vol. 11, 2011 pp. 25 - 43. -

² Gordon, S.R., and M. Tarafdar, 2007. How do a company's information technology competences influence its ability to innovate? *Journal of Enterprise Information Management*, 20(3), pp. 271-290

³ Jose Melchor Medina-Quintero' Alberto Mora' Demian Abrego,2015, ENTERPRISE TECHNOLOGY IN SUPPORT FOR ACCOUNTING INFORMATION SYSTEMS. AN INNOVATION AND PRODUCTIVITY APPROACH, JISTEM J.Inf.Syst. Technol. Manag. vol.12 no.1 São Paulo Jan./Apr.

⁴<http://www.businessdictionary.com/definition/innovation.html>

Dillon, T.W., and S.E. Kruck, 2004, indicate that Accounting is the engine that moves an enterprise forward, and helps it face its competitors' efforts, trade agreements, fiscal issues, etc. The accounting's aim is to mirror an enterprise's state, financial statements, and outcomes. Decision makers in a company benefit from this information when they receive it. For example, they can decide what direction they can give to the company or what policies they can develop. Similarly, information related to accounting is also beneficial for enterprise's partners as a good performance of the company can determine the benefits they will obtain from it. The American Institute of Certified Public Accountants in the United States of America has made a call for the need to incorporate the concepts of information technology (IT) into the accounting professionals' knowledge, skills, and abilities.⁵

Jose Melchor Medina-Quintero' Alberto Mora' Demian Abrego ,2015,state that Innovation affects firms' ability to compete successfully in an increasingly global market, as innovation is central to organizations' modernization and transformation. In this sense, organizations not only need to pay attention to efficiency and productivity, but also they need to promote innovation and their mechanisms to develop it which support knowledge generation, sharing and integration. These researchers define innovation as the use of knowledge that offers a new product or service needed by customers. However, the concept of innovation is complex; and from the technological and administrative point of view, it requires time, devotion and investment.⁶

Gordon, S.R., and M. Tarafdar, 2007, investigate during the decade of the 1990's and indicate that IT proved to be a particularly powerful innovation tool as it enabled the development of new products and helped improve business processes; but the learning of new creative techniques is an ongoing process within an organization and will result in an improvement of processes, products and methods. This raises the following questions: How to innovate with information technology and AIS in an enterprise? How to gain competitive advantages through AIS? Therefore, those organizations wishing to innovate should cultivate the identification of IT competences.⁷

Joseph B. O'Donnell, Paul L. Sauer,2006, investigate An Innovation Perspective Of Accounting Information Systems Student Characteristics. This research involves a study of students selecting the AIS major from the perspective of innovation theory. The results suggest that AIS majors have a higher level of domain specific innovation than accounting and other traditional majors. AIS majors were found to have higher high school averages and Math SAT scores than traditional non-accounting majors, but no significant differences in verbal SAT scores. AIS majors did not differ significantly from accounting majors in any of these three measures⁸.

Ahani Mahin.A, Rakhshani,M.H.R.,2015 examine The Study of Information and Communication Technology Innovation In Accounting Education. In this paper, they investigate ICT Innovation in Accounting Education helps to prepare and present useful financial information to users.⁹

2. PRODUCTIVITY AND AIS

Productivity define as a measure of the efficiency of a person, machine, factory, system, etc., in converting inputs into useful outputs. Productivity is computed by dividing average output per period by the total costs incurred or resources (capital, energy, material, personnel) consumed in that period. Productivity is a critical determinant of cost efficiency.¹⁰

Varies researches are mad in AIS and Productivity that some of them are included:

Sala-I-MARTIN, X., J. Blake, M. Drezeniek, T. Geiger, I. Mia, and F. Puaa, 2008, Stated that enterprises will depend to a great extent on their ability to adapt themselves to the existing technologies in order to increase their productivity. For this research, productivity enables enterprises to develop better decision-making processes, more effective information and technology usage and more efficient ways to align the organizational strategies with IT.¹¹

Feller, J. P. Finnegan, and O. Nilsson, 2011. Investigate Open innovation and public administration: transformational typologies and business model impacts. They indicate that the impact of investments in IT, at organizational productivity

⁵ - Dillon, T.W., and S.E. Kruck, 2004. The emergence of accounting information systems programs. *Management Accounting Quarterly*, 5(3), pp. 29-36

⁶ - Jose Melchor Medina-Quintero' Alberto Mora' Demian Abrego' ENTERPRISE TECHNOLOGY IN SUPPORT FOR ACCOUNTING INFORMATION SYSTEMS. AN INNOVATION AND PRODUCTIVITY APPROACH, *JISTEM J.Inf.Syst. Technol. Manag.* vol.12 no.1 São Paulo Jan./Apr. 2015

⁷ - Gordon, S.R., and M. Tarafdar, 2007. How do a company's information technology competences influence its ability to innovate? *Journal of Enterprise Information Management*, 20(3), pp. 271-290

⁸ - *Joseph B. O'Donnell, Paul L. Sauer,2006*, An Innovation Perspective Of Accounting Information Systems Student Characteristics, Review of Business Information Systems (RBIS), Vol 10, No 2

⁹ Ali Ahani Mahini ,Rakhshani.M.H.R.,2015, The Study of Information and Communication Technology (ICT) Innovation In Accounting Education, *GMP Review*, 2015; V17(1)

¹⁰ - <http://www.businessdictionary.com/definition/productivity.html>

¹¹ - Sala-I-MARTIN, X., J. Blake, M. Drezeniek, T. Geiger, I. Mia, and F. Puaa, 2008. The Global Competitiveness Index: Prioritizing the Economic Policy Agenda, In *The Global Competitiveness Report 2008-2009*. Ed. Porter, M., and L. Schwab. World Economic Forum. Switzerland

levels, positive and significant relationships have been observed and recognized lately, especially with the IS and AIS in particular. This situation is even present in those organizations which have been successful in adopting IS; they are normally looking for ways of improving their business processes, considering the IS as a means of increasing productivity.¹²

3. THE OBJECTIVES OF STUDY

The goal of study is to determine the influence of modern technologies in AIS to increase the performance of companies (innovation and productivity) and include:

- To increase Innovation in AIS
- To increase productivities in AIS

4. THE HYPOTHESES OF STUDY

The main hypothesis is Use of the Technology in AIS can increase Innovation and productivities in it. This hypothesis divided to two Sub-hypotheses that investigate various dimensions AIS. Those are:

- 1- Use of the Technology in AIS can increase Innovation.
- 2- Use of the Technology in AIS can increase productivities.

5. METHODOLOGY OF THE STUDY

Data collected on the base of questionnaire was designed and reviewed by professionals in the Accounting field. The constructs of the independent and dependent variables have been operationalized with the use of the AIS and the information generated through it, as follows:¹³

- Independent variables: Technological Alignment (aims and achievement of objectives, perception of improvement in the performance of activities, definition of strategies in cooperation with organizations and IT)
- Dependent variables: Innovation (select the most promising innovations, making the most of the market opportunities, higher level of products and services innovation), and Productivity (perception of activity improvement, information for decision-making, the AIS information is considered as an asset to the organization).

¹² Feller, J., P. Finnegan, and O. Nilsson, 2011. Open innovation and public administration: transformational typologies and business model impacts. *European Journal of Information Systems*, 20, pp. 358-374. Open innovation and public administration: transformational typologies and business model impacts. *European Journal of Information Systems*, 20, pp. 358-374

¹³ Jose Melchor Medina-Quintero, Alberto Mora, Demian Abrego, 2015, ENTERPRISE TECHNOLOGY IN SUPPORT FOR ACCOUNTING INFORMATION SYSTEMS. AN INNOVATION AND PRODUCTIVITY APPROACH, *JISTEM J.Inf.Syst. Technol. Manag.* vol.12 no.1 São Paulo Jan./Apr.

Statistical society of study is listed companies in Iran Stock Exchange Markets (ISEM) from 2013 to 2016. We selected five companies of ISEM as statistical sampling on the base of SAS software. After that, we have used various tests in SAS software such as: P-Value, R2, Correlation tests and etc.

6. STATISTICAL ANALYSIS

From the 40 valid questionnaires, the *experience* rank was classified into three levels: Up to 10 years old (39%), 11-20 years old (36%), 21-30 years old (25%). *Use of the system (monthly)*, four groups work from the sample: 0-100 hours (25%), 101-200 hours (41%), 201-300 hours (31%), and 301 or more hours (3%). Regarding educational level: high school (5%), undergraduate (38%), graduate (57%). Correlation coefficient and R2 are include:

Table 1 Individual reliability of the reflective indicators' loading and coefficients' convergent validity

Construct Item	Item Loading	Composite Reliability	Correlation coefficient	AVE	R ²
Innovation		0.84	0.86	0.79	0.36
Inno_A	0.82				
Inno_B	0.88				
Inno_C	0.79				
Inno_E	0.91				
Productivity		0.83	0.79	0.70	0.48
Prod_A	0.89				
Prod_B	0.83				
Prod_C	0.85				

7. CONCLUSION

The result shows that AIS have become an important tool in ISE. Companies continue to invest in these technologies as a measure to improve their performance (Innovation and Productivities). This research indicates that has influence enterprises' technological infrastructure on their organizational performance from an innovation and productivity point of view through the daily use of AIS.

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