



Identification and ranking of effective factors on the use of information technology in subscribers of Golestan gas company using the AHP method

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Original Article:

Received 30 May. 2017 Accepted 02 Sep. 2017 Published 13 Oct. 2017

ABSTRACT

The purpose of this study was to identify and rank the effective factors on the use of information technology in subscribers of Golestan gas company using the AHP method. The research method used is descriptive and survey. The research data were collected using library and field method and the tools used were researcher-made questionnaire. Reliability and validity of the questionnaires have been approved. Also, for analyzing the data, the AHP model was used using Expert Choice and Excel software. The results of the calculated analysis show that the results of the calculated analysis show that the organizational factors with the relative weight of 0.513 were ranked first and then human factors with a relative weight of 0.298 in the second rank and environmental factors with a relative weight of 0.186 in the third place Is important.

Keyword:

Identification and ranking, Golestan province gas company, Application of information technology

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Peer review under responsibility of UCT Journal of Management and Accounting Studies

Introduction

The increasing use of ICT-based tools and development has created tremendous changes in the business world, especially in the field of financial accounting. Meanwhile, the increased need of companies to increase the level of communication and information, as well as the use of modern information and communication tools, has led to faster technology-driven advancements. Therefore, the use of these tools and management of financial resources as one of the most important organizational resources enables access to sustainable financial resources with less fluctuations for companies (Pourzrindi, 2012), resulting in savings. At the time and expense of accelerating financial transactions from a traditional paper-based environment to an electronic environment, the important achievements of using this technology and system (Arabic, 2009).

The expansion of economic relations between business units in line with the development of business conditions has become more complex and more cumbersome in the past, in the sense that the sustainability of a business unit is affected by having accurate, timely and accurate information. Hence the importance of accounting information systems for users to make informed judgments and decisions, in particular the acquisition of the latest state of assets and liabilities in companies whose operating activities have a direct relationship with financial issues. Has been very influential and has led to the use of computer-based management information systems. Therefore, since in most organizations, the majority of managerial decisions are in some way consistent with financial information, this information in most cases plays a key role in their success (Arab Mazar Yazdi, 2003).

However, with the ever-increasing volume of trading and exchanges with phenomena as a bang of information and its effects, this calls for the proper use of information technology as a dynamic and accurate instrument. Therefore, the companies were committed to studying performance and improving this important information system at the level of their business. By examining past research and based on the findings of the research, the elements of the information technology constituency. This description is provided:

1. Human factors 2. Organizational factors 3. Environmental factors (Yaqoubi et al., 2014). Therefore, by explaining the research model and taking into account the usefulness indicators as effective elements, we are going to advance the research process.

At this stage, using the research literature and literature on the subject of research, we will examine the indicators of using the factors affecting information technology in subscriber affairs units of the gas company in Golestan province. Identification and ranking of factors affecting the use of information technology (human factors, organizational factors, environmental factors) in subscribers of Golestan gas company using the AHP method?

Research questions

1. The ranking of effective factors on the use of information technology include: Organizational factors, human factors, environmental factors.

2. What is the ranking of factors influencing the use of information technology under the set of organizational factors?

3. How is the ranking of factors influencing the use of information technology below the human factor?

4. How is the ranking of factors influencing the use of information technology under the set of environmental factors?

Research Methodology

Type of research method

This research is, in terms of its nature and purpose, of the type of applied research. An applied research is an attempt to address a problem and scientific problem that exists in the real world (Khaki, 2002: 94). And in terms of collecting data, a descriptive survey is a type of survey.

Method of data collection

The method of collecting information is in two ways library and field.

Information gathering tool

In this research, the questionnaire is used as a research tool in relation to the subject matter and the research method that is a survey. In this research, a researcher-made questionnaire was used to measure the variables of the research based on the research components.

Information analysis method

The method of data analysis and information in this research is as follows:

1. Descriptive statistics have been used for estimating the central characteristics and frequency distribution tables.

2. Expert choice, excel software to identify and rank the factors affecting the use of information technology in subscriber units of Golestan Gas Company using the AHP method.

background research

- Mohammadi (1394) in a research entitled Identifying and Prioritizing the Influencing Factors on Information and Communication Technology at the Bank of Commerce in Zahedan. To collect information, this research has been used from field research and a questionnaire which has been extracted from the main questionnaire. The validity and reliability of the questionnaire are also verified. The statistical population of this study is all managers and experts of the Bank of Commerce, all of which were studied. AHP hierarchical analysis method was used to analyze the data. Exprt selection software is used for this purpose. The findings of the research show that among the three main components, human factors are in the first priority, that is, more investment in this field should be made.

- Hosseini Rad et al. (1393) The study and ranking of factors affecting the success of information technology and their impact on usefulness indicators using the DEMATEL technique. In this research, we tried to study the dimensions and elements affecting the success of information technology by presenting a questionnaire tool and consulting the experts and using the Daimalt technique to study it. In this regard, by integrating the structure of the accounting information system with the indicators of usefulness and making a comparative comparison between them, the effect of each element of the accounting information system with the effect of the effectiveness of

the indicators of usefulness Ranking on success in the system. According to the results of this study, respectively, the manpower, procedures and instructions, data and software have the most impact on the success of IT.

- Salehi et al. (1393) In a research study, the effect of ICT on quality management in high school principals in Fasa has been studied. The statistical population of this study was the total number of 317 male and female high school graduates of Fasa in the academic year of 2010-2010. The statistical sample of the study, based on the Morgan table, was 111 teachers who were selected by simple random sampling method. Two questionnaires, a quality management questionnaire and a researcher-made information and communication technology questionnaire were used for collecting data. Instrument validity was assessed through internal consistency and reliability through Cronbach's alpha, which was 0.97 for the quality management questionnaire and 0.19 for the information and communication technology questionnaire. The most important results of this research showed that there is a significant relationship between ICT and quality management in high school principals in Fasa.

- Fathian and Salehi (1392) A research on the role of information technology on the agility of small and medium enterprises in Iran. The results of this research show that in Iran's small and medium enterprises, the average impact of information technology on the axis: Human Resource Development and Service Organizations Influence of Information Technology on the Axes: Effective communication with the inside and outside of the organization and rapid response to changes in the environment and market are more than other agility axes. According to the results of this research, the impact of IT on the development of agility in the organization has not yet been achieved in Iran's small and medium enterprises, and in particular, it is necessary to pay more attention in some agility areas.

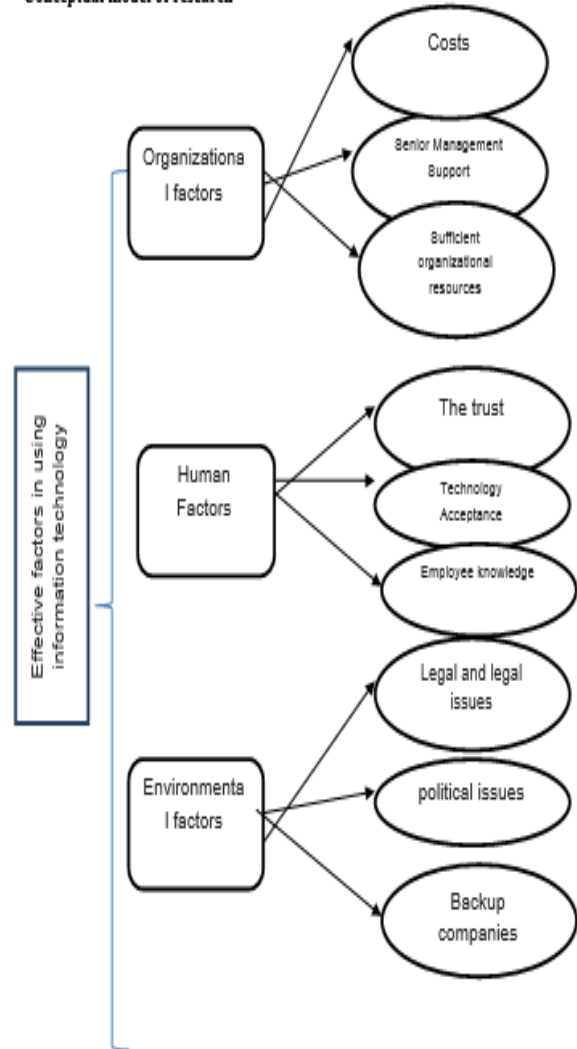
- Sharifi and Islamiyah (2011) conducted a study on the relationship between the use of ICTs and organizational learning at Garmsar Azad University. The purpose of this study was to investigate the relationship between the use of ICTs and organizational learning in Garmsar Islamic Azad University. The population of the study consisted of faculty members of Garmsar Azad University. 100 students were selected by simple random sampling method. To collect data, two closed questionnaires were used. For analyzing the data, descriptive statistics and inferential statistics such as Chi square and Spearman correlation were used. The results showed that there was a meaningful relationship between application of communication and information technologies with organizational learning and Garmsar Branch in Islamic Azad University. There was a significant correlation between direct and positive correlation between two variables.

- Axana Vlupina (2014) in a research entitled "Ranking of Factors Influencing Information and Communication Technology". The purpose of this research was to rank the influential factors in ICT. To collect information, this research has been used for field studies and questionnaires. The validity and reliability of the questionnaire are also confirmed. In this research, three main components of information and communication technology were studied.

The results showed that among the three main factors of organizational factors are ranked first.

- Scudder (2014) began a research entitled Identification of Acceptable Indicators in Information Technology Productivity and tried to provide well-known standards that, according to the results, and the direct relationship between IT systems with non-negative factors such as force human, Making it impossible to provide fully technical specifications. Because the two sides of this issue, the IT system and the human resources, interact and can not ignore these connections.

Conceptual model of research



Conceptual model of research (Yaghoubi et al., 2014).

Research results

Calculating the weight of the main factors (level one)

Table 1: Integrated matrix (geometric) Group 1 pairwise comparisons

Factors Influencing the Use of Information Technology	B1	B2	B3	Weight
B1	1	2.266	2.166	1.810
B2	0.441	1	2.10	1.180
B3	0.461	0.476	1	0.645
IR=0.07<0.1				

Analysis results:

The results of the calculated analysis show that the organizational factors with the relative weight of 0.513 are ranked first and then human factors with a relative weight of

0.298 are in the second rank and environmental factors with a relative weight of 0.186 are in the third rank.

Calculate the weight of organizational sub-factors

Table 2: Normalized matrix of paired comparisons

	B1	B2	B3	Row summers	That woman	Rating
B1	0.542	0.649	0.433	1.624	0.541	1
B2	0.176	0.211	0.341	0.728	0.242	2
B3	0.280	0.139	0.224	0.643	0.214	3

Analysis results:

The results of the calculated analysis show that among the components of the organizational factors, the cost factor with the relative weight of 0.541 was ranked first and then the senior management support with a relative weight of 0.242 in the second rank and adequate organizational resources with a relative weight of 0.214 Third place is important.

Calculate the weight of sub-human factors

Table 3 Normalized Matrix Paired Comparisons

	B1	B2	B3	Row summers	That woman	Rating
B1	0.234	0.183	0.413	0.83	0.276	2
B2	0.672	0.550	0.394	1.616	0.538	1
B3	0.103	0.302	0.191	0.596	0.198	3

Analysis results:

The results of the calculated analysis show that the factor of acceptance of technology with relative weight of 0.538 was ranked first among the human factors and then the trust factor with the relative weight of 0.276 was ranked second and the knowledge of the employees with a relative weight of 0.198 was in the third place.

Calculation of peripheral subfamily weight

Table 4 Normalized Matrix Paired Comparisons

	B1	B2	B3	Row summers	That woman	Rating
B1	0.224	0.545	0.131	0.90	0.30	2
B2	0.101	0.247	0.473	0.821	0.237	3
B3	0.673	0.206	0.394	1.273	0.424	1

Analysis results:

The results of the calculated analysis show that among the components of the environmental factors, the companies with the relative weight of 0.424 were ranked first and then the legal and legal issues with the relative weight of 0.30 in the second rank and the factor of political issues with the weight Relative 0237 is ranked third.

Discussion and commentary

In this research, the AHP method was used to identify and rank the factors affecting the use of information technology in subscribers of Golestan Gas Company.

Today, in service organizations, due to the emergence of the phenomenon of information technology and attention to its knowledge, all of the critical factors of these organizations have been overshadowed, as the use of technology has been added as an existing requirement Has transformed the organization's function in the transfer of knowledge and information, and the concept of learning has evolved, and even managers in these organizations are familiar with how they are used, in order to make use of learning tools such as information technology and the Internet in their organizations. Provide. Information Technology in Golestan Gas Company as a Tool for Knowledge and Skills for Students' Readiness to Achieve Economic Development Goals. Harvey also evaluated the effectiveness of computer use in gas companies in Golestan province as the main determinants of success in achieving this goal. Knows for a long time. Based on the results, the following suggestions are presented.

Suggestions based on research results

According to the research, identification and ranking of factors affecting the use of information technology in subscriber units of Golestan Gas Company using the AHP model requires planning and implementation at micro and macro level. The most important applications are:

- Commitment and support of top managers of the organization to promote the use of the most important factors in the use of information technology in subscribers of Golestan Gas Company.
- Provide specialized training related to IT strategies in the Golestan gas company subscriber units.
- The type of training related to IT strategies is such that it can identify the specialized skill to serve in this field.
- Knowledge Development Knowledge sales strategy requires the development of specialized facilities that should be addressed by Golestan gas company's educational

authorities.

- Based on the scientific principles contained in the educational planning, it is necessary to focus on the principle of the need-to-measure in the field of information and communication technology.
- Based on the scientific principles contained in the educational planning, it is necessary to pay more attention to the principle of educational objectives in the field of IT implementation.
- In the process of training to control and evaluate, monitor the information technology debate in the Golestan gas company.
- Increasing the perceptual skills of managers is one of the key elements in the success rate of knowledge-based organizations
- Quantitative and qualitative development of ICT-related software is one of the important requirements for organizational excellence. Therefore, due to the importance of software tools in the success of an enterprise-oriented excellence, it is necessary to extend and update software features. At the company.

References

- Arab Mazar Yazdi (2003) Creativity and Innovation in People and Organizations - Tehran - Publishing Terme.
- Hosseini Rad, Hamed (2014). Investigation and ranking of the factors affecting the success of the accounting information system and their effect. Journal of Management and Management Accounting, Seventh, Seventh, Seventh.
- Khaki, Gholamreza (2002), Research Methodology with Dissertation Approach, Fifth Edition, Tehran, Rebecca Publishing.
- Salehi et al (2014), Research Methods in the Social Sciences: Quantitative Methods of Advanced Statistics, Fifth Edition, Tehran, Visit.
- Fathian& salehi, Asghar (2013), Information Technology Organization, Mir-e-mail, Tehran.
- sharifi, Mohammad Ebrahim, Islamiyah, Majid (2011) Designing a Model to Assess the Effectiveness of Banks' Accounting Information Systems, Journal of the 10th National Accounting Conference of Iran, Khordad 1391, pp. 111-104.
- Arabic, Mehdi (2009) Influence of Information Technology on Accounting Information System, Tadbir Magazine No. 210, pp. 48-51.
- Axana Vlpina,(2014) Designing and explaining the pattern of employing learning organizations in building Jihad, PhD dissertation, University of Tehran.
- Surgery, Mohammad Hussein (2011) "Electronic Government, Opportunities, Challenges and Future Trends" (Tehran Website of the Associates System.
- Hosseini, Fatemeh (2011), "Relationship between Relative Capital and Knowledge Management at the Level of Directors of the Islamic Azad University of Birjand", Azad University of Birjand.
- Seyed Nejadan, Soleiman (2009) Globalization and Strategic Transformations in Management and Organization, Tabriz,
- Senge Peter, (2001) The fifth commandment, translated by Kamal Hedayat and Mohammad Roshan, Tehran Industrial Management Organization.

- Mohammadi (2014), Measurement and Analysis of Productivity and Information Technology (fourth model of the training package for productivity management and information technology quality).

- Nekovei Moghaddam: Mahmoud, Beheshti Far: Milekhe (2007), Learning Organizations, Tehran, Parsa Publications.
- Scudde (2014) A. 21st Century Universities and Effective far education. 1st national virtual University Seminar. Kashan: Kashan University2013. (In Persian).
- Yaghoubi M, Agharahimi Z, Daryabeygi M, Javadi M. (2014) The relationship between application of organizational learning and .