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Examine how to use data mining in updating the required data for decision making of managers of Telecommunication Company of West Azarbaijan province

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ABSTRACT

The objective of this research was examine how to use data mining in updating the required data for decision making of managers of Telecommunication Company of West Azarbaijan province. The method of the research was survey-descriptive. The Statistical Society of the research were managers, assistants and financial managers of Telecommunication Company of West Azarbaijan province which they were 43 people. Due to limitations of statistical Society Sarmary method was used for select the sample.Taghavi Fard et al questionnaires (2007) was used for collect information about the measurement data mining. Scott and Bruce (1995) questionnaires were used for measuring decision making of managers. Comments of supervisors and a number of professors in management field were used to validity of the questionnaire. Cronbach's alpha was used to reliability of the questionnaire which is obtained 0.89 and 0.91 respectively for data mining and decision making questionnaires that indicates the desirable reliability of the questionnaires. To analyze the data, Pearson correlation and regression test were used. Results indicated that data mining has positive and meaningful effect on updating required information for decision making and the aspects of decision making of managers.

Introduction

For some, decision making is considered as the heart of the organization and management and believe that all functions of management and organization aspects can be explained in terms of decision-making processes (Griffin, 2001). Today, both large and small companies are faced with increase the number of

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suppliers, partners, employees, shareholders and foreign consumers. These companies not only in the external environment have to compete with foreign companies but also must be faced in their own country with them. Such changes in the corporate environment requires that leaders to acquire necessary skills in the field of global business such as marketing, finance, human resource management, information management and research and development (Kalygivry and Di Santo,2001). The success of any organization depends on the allocation and proper use of tools and equipment, raw materials and human resources of the organization in its programs. This will be possible when these organizations apply the skills, abilities and characteristics of their employees in achieving organizational goals. Thus it is said that the organization, is a regular order for people to achieve certain goals (Abbas Pour, 2003).

On the other hand, Given that telecommunications companies have always face with so much information about the data and telecommunications, other agencies and organizations, customers, personnel, material resources … and in most cases this data can carry valuable information and data, thus the managers of telecommunications companies must to access arguments associated with data how to acquisition of knowledge and wisdom about it and finally archive to procedures ,policies and strategies resulting from these wisdoms. One of the tools used by organizations that are faced with large volumes of data is data mining. Data mining means extracting knowledge from large amounts of data and is presented as the most important step in the knowledge discovery process. It simultaneously uses from several scientific disciplines such as database technology, statistics, artificial intelligence, machine learning, neural networks, pattern recognition, knowledge-based systems, knowledge acquisition, information retrieval, high-speed computing and visual representations of data and as the most efficient techniques in organizational useful knowledge discovery has attracted the attention of many researchers (Ahmadvand & Akhondzadeh, 2010) according to modern science at MIT developing data mining will be one of the top ten students that would face the next decade with the technological revolution (Maghsodi et al,2011).

Many researches has done about factors effective on the decision improvement of organizations managers each of researchers according to their expertise and theoretical perspectives know many factors involved in this field. Given to features of current period it seems taking advantage of modern information and communication technology capacities that data mining is one of them can be helpful in the in updating required information for decision making and improvement and enhance by managers. However, there is disagreements among experts and researchers about this issue. Due to mentioned reasons the main question of research has presented. Thus the purpose for doing this research was examining how to use data mining in updating the required data for decision making of managers of Telecommunication Company of West Azarbaijan province.

Research Methods

The method of the research was survey-descriptive. The Statistical Society of the research were managers, assistants and financial managers of Telecommunication Company of West Azarbaijan province which they were 43 people. Due to limitations of statistical Society Sarmary method was used for select the sample. Taghavi Fard et al questionnaires (2007) was used for collect information about the measurement data mining. Scott and Bruce (1995) questionnaires were used for measuring decision making of managers. Comments of supervisors and a number of professors in management field were used to validity of the questionnaire. Cronbach's alpha was used to determine reliability of the questionnaire which is obtained 0.89 and 0.91 respectively for data mining and decision making questionnaires that indicates the desirable reliability of the questionnaires. To analyze the data, Pearson correlation and regression test were used.

Findings

Results of Kolmogorov-Smirnov test in Table 1 shows that for all research's variables the meaningfulness level of the test is larger than error level of 0.05 (P-value=sig>0.05). This means that the distribution of all the variables with %95 confidence is normal. And null hypothesis of the test is approved. According to Kolmogorov-Smirnov test results showed that the variables follow a normal statistical distribution. So parametric tests can be used to test the hypothesis.

Table 1: The results of Kolmogorov-Smirnov test (k-s test) to measure the normal distribution of variables

Variable	Number of observations	KS statistics	Meaningful level (sig)	Result of test
Intuitive decision making	43	066.0	200.0	Distribution is normal
Rational decision making	43	126.0	084.0	Distribution is normal
Dependence decision making	43	117.0	158.0	Distribution is normal
quick decision making	43	132.0	056.0	Distribution is normal
avoidance decision making	43	132.0	057.0	Distribution is normal
decision making	43	118.0	148.0	Distribution is normal
Data mining	43	057.0	200.0	Distribution is normal

The main hypothesis test

Using data mining is effective in updating required data for decision making of managers of Telecommunication Company of west Azabaijan. As can be seen in Table 2. The coefficient of determination for the regression model suggests that

3.26 percent of changes in updating the required information for management decisions can be explained by the use of data mining. The regression coefficient (not standard) is 0.217 means that an increase of one unit of data mining update the information needed for management decisions increases to the size of screw 0.217. T test with value of 3.82 in the error level of %5 is meaningful (P-value=sig<0.05). This means that a simple linear regression coefficient is statistically significant with confidence of 95%. The simple linear regression model showed that the use of data mining to update the information needed for management decisions Telecommunications Company in Western Azerbaijan province has a significant positive impact. Therefore, the main hypothesis is confirmed with %95 confidence.

Table2: The simple linear regression model to test the main hypothesis

Independent variable	Independent variable	ANOVA (analysisof variance)		The coefficient of determination	Adjusted coefficient of determination	Standardized regression coefficients	The standard error	Standardized regression	t	Meaningful level sig
		F	sig							
Data mining	Decision making	14.65	0.000	0.263	0.245	0.217	0.057	0.513	3.82	0.000

The first sub-hypothesis test

Using data mining is effective in updating required data for intuitive decision making of managers of Telecommunication Company of west Azabaijan. As can be seen in Table 3. The coefficient of determination for the regression model suggests that 11.3 percent of changes in updating the required information for manager's intuitive decision making can be explained by the use of data mining. The regression coefficient (not standard) is 0.177 means that an increase of one unit of data mining update the information needed for management decisions increases to the size of screw 0.177.T test with value of 2.28 in the error level of %5 is meaningful (P-value=sig<0.05). This means that a simple linear regression coefficient is statistically significant with confidence of 95%. The simple linear regression model showed that the use of data mining to update the information needed for management decisions Telecommunications Company in Western Azerbaijan province has a significant positive impact. Therefore, the main hypothesis is confirmed with %95 confidence.

Table3: The simple linear regression model to test the first sub- hypothesis test

Independent variable	Independent variable	ANOVA (analysis variance)	of	The coefficient of	Adjusted coefficie	Standardized regressi	The standard	Standardized	t	Meaningful level sig

		F	sig							
Data mining	Decision making	5.22	0.027	0.113	0.091	0.177	0.077	0.513	3.28	0.027

The second sub-hypothesis test

Using data mining is effective in updating required data for rational decision making of managers of Telecommunication Company of west Azabaijan. As can be seen in Table 4. The coefficient of determination for the regression model suggests that 11.6 percent of changes in updating the required information for manager's intuitive decision making can be explained by the use of data mining. The regression coefficient (not standard) is 0.395 means that an increase of one unit of data mining update the information needed for management decisions increases to the size of screw 0.395.T test with value of 2.31 in the error level of %5 is meaningful (P-value=sig<0.05). This means that a simple linear regression coefficient is statistically significant with confidence of 95%. The simple linear regression model showed that the use of data mining to update the information needed for management decisions Telecommunications Company in Western Azerbaijan province has a significant positive impact. Therefore, the main hypothesis is confirmed with %95 confidence.

Table4: The simple linear regression model to test the second sub-hypothesis test

Independent variable	Independent variable	ANOVA (analysis of variance)		The coefficient of determination	Adjusted coefficient of determination	Standardized regression coefficients	The standard error	Standardized regression coefficients	t	Meaningful level sig
		F	sig							
Data mining	Decision making	5.37	0.025	0.116	0.094	0.395	0.170	0.341	2.31	0.025

The third sub-hypothesis test

Using data mining is effective in updating required data for dependence decision making of managers of Telecommunication Company of west Azabaijan. As can be seen in Table 5. The coefficient of determination for the regression model suggests that 10.8 percent of changes in updating the required information for manager's intuitive decision making can be explained by the use of data mining. The regression coefficient (not standard) is 0.370 means that an increase of one

unit of data mining update the information needed for management decisions increases to the size of screw 0.370.T test with value of 2.23 in the error level of %5 is meaningful (P-value=sig<0.05). This means that a simple linear regression coefficient is statistically significant with confidence of 95%. The simple linear regression model showed that the use of data mining to update the information needed for management decisions Telecommunications Company in Western Azerbaijan province has a significant positive impact. Therefore, the main hypothesis is confirmed with %95 confidence.

Table 5: The simple linear regression model to test the third sub-hypothesis

Independent variable	Independent variable	ANOVA (analysis of variance)		The coefficient of determinati	Adjusted coefficient of determinati	Standardized regression coefficients	The standard error	Standardized regression coefficient	t	Meaningful level sig
		F	sig							
Data mining	Decision making	4.98	0.031	0.108	0.087	0.370	0.165	0.329	2.23	0.031

The fourth sub-hypothesis

Using data mining is effective in updating required data for quick decision making of managers of Telecommunication Company of west Azabaijan. As can be seen in Table 6. The coefficient of determination for the regression model suggests that 12.1 percent of changes in updating the required information for manager's intuitive decision making can be explained by the use of data mining. The regression coefficient (not standard) is 0.124 means that an increase of one unit of data mining update the information needed for management decisions increases to the size of screw 0.124.T test with value of 2.37 in the error level of %5 is meaningful (P-value=sig<0.05). This means that a simple linear regression coefficient is statistically significant with confidence of 95%. The simple linear regression model showed that the use of data mining to update the information needed for management decisions Telecommunications Company in Western Azerbaijan province has a significant positive impact. Therefore, the main hypothesis is confirmed with %95 confidence.

Table 6: The simple linear regression model to test the third sub-hypothesis

Independent variable	Independent variable	ANOVA (analysis of variance)		The coefficient of	Adjusted coefficient of determinati	Standardized regression coefficients	The standard	Standardized	t	Meaningful level sig
		F	sig							
Data mining	Decision making	5.63	0.022	0.121	0.099	0.124	0.052	0.457	2.37	0.002

The fifth sub-hypothesis

Using data mining is effective in updating required data for avoidance decision making of managers of Telecommunication Company of west Azabaijan. As can be seen in Table 7. The coefficient of determination for the regression model

suggests that 20.9 percent of changes in updating the required information for manager's intuitive decision making can be explained by the use of data mining. The regression coefficient (not standard) is 0.324 means that an increase of one unit of data mining update the information needed for management decisions increases to the size of screw 0.324.T test with value of 3.28 in the error level of %5 is meaningful (P-value=sig<0.05). This means that a simple linear regression coefficient is statistically significant with confidence of 95%. The simple linear regression model showed that the use of data mining to update the information needed for management decisions Telecommunications Company in Western Azerbaijan province has a significant positive impact. Therefore, the main hypothesis is confirmed with %95 confidence.

Table 7: The simple linear regression model to test the fourth sub-hypothesis

Independent variable	Independent variable	ANOVA (analysis of variance)		The coefficient of determination	Adjusted coefficient of determination	Standardized regression coefficients	The standard error	Standardized regression	t	Meaningful level sig
		F	sig							
Data mining	Decision making	10.81	0.022	0.209	0.189	0.324	0.099	0.457	3.28	0.022

Discussions and Conclusion

The purpose of this research examine how to use data mining in updating the required data for decision making of managers of Telecommunication Company of West Azarbaijan province. Results indicated that using data mining is effective in updating required data for decision making of managers of Telecommunication Company of west Azabaijan. And these findings are consistent with findings of Syeed Hosseini (2012), Azer et al (2010) and Fath nejhad and Izadparast (2012). To justify the finding can be said that data mining of extracted information and knowledge and discovery the hidden patterns from provides large databases for managers so improves the speed of decision-making of managers.

Also results indicated that using data mining is effective in updating required data for intuitive decision making of managers of Telecommunication Company of west Azabaijan and these findings are consistent with findings of Syeed Hosseini (2012), Azer et al (2010) and Fath nejhad and Izadparast (2012). To justify the finding can be said that data mining provides for managers the possibility of extraction and producing knowledge from the very large data sources for managers thus causes to speed and improvement and updating required data for intuitive decision making of managers.

Also results indicated that using data mining is effective in updating required data for rational decision making of managers of Telecommunication Company of west Azabaijan and these findings are consistent with findings of Syeed Hosseini (2012), Azer et al (2010) and Fath nejhad and Izadparast (2012). To justify the finding can be said that the duty of data mining is exploring and

extraction from large resources of data to extract valuable information that are covered in the massive amounts of surface data. Thus managers must take better rational decisions by access to required data.

Also results indicated that using data mining is effective in updating required data for dependence decision making of managers of Telecommunication Company of west Azabaijan and these findings are consistent with findings of Syeed Hosseini (2012), Azer et al (2010) and Fath nejhad and Izadparast (2012). To justify the finding can be said that data mining is extracting the covert data and specified patterns and relations in a massive volume of data in one or more large databases. Thus the managers by access to required and updated data can take better dependence decisions.

Also results indicated that using data mining is effective in updating required data for quick decision making of managers of Telecommunication Company of west Azabaijan and these findings are consistent with findings of Syeed Hosseini (2012), Azer et al (2010) and Fath nejhad and Izadparast (2012). To justify the finding can be said that data mining provides the possibility of access to high volume and useful information for administrators. Thus the managers by access to required and updated data can take quick decisions.

Also results indicated that using data mining is effective in updating required data for avoidance decision making of managers of Telecommunication Company of west Azabaijan and these findings are consistent with findings of Syeed Hosseini (2012), Azer et al (2010) and Fath nejhad and Izadparast (2012). To justify the finding can be said that data mining collects, explores and searches the required data for managers and makes available for manager's. thus managers can take better avoidance decisions by access to required data.

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