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The Effect of Establishment of Accounting Information Systems on Decisions Made by Administrators

Case Study: Gas Company of Bushehr Province

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Abstract: The aim of the present study is to study the effect of establishment of Accounting Information Systems on decisions made by top administrators of Gas Company of Bushehr province. The research is descriptive - survey. The study population consists of 80 employees of Gas Company of Bushehr province. Due to limited population, 80 samples were selected. Data collection tools include a questionnaire of decisions by administrators, validity of the questionnaire based on expert opinion and confirmation of supervisor and their reliability through Cronbach's alpha have been reviewed and approved. To test the hypothesis, Kolmogorov-Smirnov tests and regression and software spss 22 have been used. Based on results, the establishment of Accounting Information Systems has a significant relationship on decisions made by top administrators of Gas Company of Bushehr province. Also, understandability, relevance, reliability, timeliness and comparability of accounting information systems have a significant relationship on decisions made by top administrators of Gas Company of Bushehr province.

Keywords: Accounting Information, Accounting Information Systems, Decision-Making.

Introduction

Corporate administrators as a key element of any organization play a very important role in the process of achieving goals and also success of the organization and using tools they have at their disposal and they can lead the corporate to fruition provided the requirement for efficient use of these tools. To implement their ideas and knowledge, administrators take on tasks which they could provide indispensable for achieving the goals of the development process by performing these tasks. The most important tasks considered for administrators in management texts include planning, organizing, directing, controlling and stewardship (Rezaian, 2011). The relationship between these tasks using the management decisions is formed and today, due to the complexity of environmental conditions and difficult conditions, it seems that the secret to achieving the goals of the organization is correct and rational decisions that using them overcome the difficulties. In fact, decision-making is a process through which certain solution to the problem is selected (Rezaian, 2011) or in other words, decision-making process is to identify the problem, find different solutions to the problem, compare possible results of solutions with each other, choose the best answer from among them and effective implementation of the decision (Alvani, 1999).

Also, decision making needs to have correct information and relevant to the issue to be able to run its due process and lead to the desired results (Mckeown, 1992).

Among the wide variety of information that administrators need for their decisions are financial information and accounting in a special place, because the vast majority of decisions of administrators have directly financial consequences or indirectly affect the financial situation of the institution. Financial and accounting information provides a valuable tool for decisions regarding allocation and control of economic resources in the hands of the managers because enhancing knowledge and the ability to apply this tool is a very important topic in education administrators. This information is often presented as a report in financial statements, reports and specific analysis (Badri, 1993). Due to the increasing growth of computer systems, today, according to technological and technical fields, information and applying are possible in less time and with the highest accuracy. Accounting information systems have been developed for this purpose so that the accounting information is placed for administrators to make decisions in the best time possible and with the best quality and capacity of greater reliance at their disposal (Mehdifard, 2003).

According to their capabilities, AIS can easily increase decisions made by administrators significantly and compared to administrators who do not use such systems, certainly more correct decisions will be taken (Dastgir et al., 2003). Given the importance of accounting information systems and also using administrators of this information, it is imperative that corporates take an effective step to improve the quality of financial and non-financial decisions by implementing this system. Subsidiary companies of Bushehr Province Gas Company required implementing this matter in order to achieve their vision and goals, as well as increase their management decisions. The aim of the present study is to study the effect of establishment of Accounting Information Systems on decisions made by top administrators of Gas Company of Bushehr province.

Theoretical basics and review of literature

At the heart of any company, regardless of location or industry, there is an accounting activity, accounting responsible for collecting, recording and reporting of all financial transactions conducted are by the company. Using complex transactions, Accountants aggregate financial activities including business activities, and record a summary of transactions in the ledger. In the ledger, data are organized in chart of accounts which show physical structure of activity. Business units, departments, products and accounts are examples of parts of the chart of accounts. Then, accounting provides financial statements (including balance sheet and income statement) of data from the general ledger and financial statements are distributed to evaluate the company's performance among internal and external stakeholders. This method of collecting and organizing data works well, however, when we discuss about reporting and analyzing, restrictions are created. Transaction systems are not designed for dynamic analysis. Complex data models make difficult to search the matter for data bases. In addition, reporting of the data from the general ledger chart of accounts is restricted. Accordingly, the principles and methods of the new accounting system are not much different than the previous systems, although software applications and computer servers have been replaced for the accounting offices, typewriters and archiving systems.

Review of literature

Dastgir et al (2003) discussed in the study, "to study the effect of accounting information to improve decision-making management system features: the case of Bahman group "on the characteristics of accounting information systems and its impact on the decisions of the directors of Bahman group". The results indicate that the accounting information system is effective to improve management decisions.

Nikoumorad and Mahmoudi (2012) discussed in the study, "assessment of the effect of management accounting information system based on decision support and business intelligence management decisions of economic entities" to study the impact of information systems on decision-making of administrators. The test results of nonparametric regression shows Spearman's rank correlation coefficient that most components of management accounting information system based on decision support and business intelligence in the form of systems based on communication and reasoning, warning systems and reporting, tools of analysis and decision making of effective decisions with variables of decision making had not a significant relationship but, some components such as the use of backward and forward reasoning process and optimizing the decision-making process based on business with optimal efficiency, the use of group decision-making and a summary of the process of decision making and risk-taking and the use of intelligent agent, graphical reports, group decision making and a summary with decision-making process based on environmental conditions had a significant relationship at the level of 95%.

Mauldin and Ruchala (1999) believe that usefulness of accounting information system features with a wide timely, aggregated and integrated range can be effective on satisfaction of administrators from this information which is for an understanding of the characteristics of accounting information system. Organizational characteristics

and organizational tasks such as conditional variable of task uncertainty (variability of duty) or analyzability of tasks is as a facilitator in decision making which have a direct relevance for the promotion of accounting information system.

Ed (2000) evaluated in the study, "the use of AIS by administrators in projects of management accounting" on the effect on the characteristics of the information system of arbitration decisions. Finally, he concluded that accounting information systems provide basic information for management decisions.

Materials and Methods

The research method is descriptive-survey. The research is applied based on the aim. This study was conducted in 2015 in Bushehr Province Gas Company. The study population consists of 80 employees of Gas Company of Bushehr province. Due to limited population, 80 samples were selected.

Hypothesis

Main hypothesis

Establishment of AIS has a significant effect on the decision of Bushehr province gas company administrators.

Sub-hypotheses

Understandability of AIS has a significant effect on the decision of Bushehr province gas company administrators.

Relevance of AIS has a significant effect on the decision of Bushehr province gas company administrators.

Reliability of AIS has a significant effect on the decision of Bushehr province gas company administrators.

Comparability of AIS has a significant effect on the decision of Bushehr province gas company administrators.

Timeliness of AIS has a significant effect on the decision of Bushehr province gas company administrators.

Results

Table 1. Descriptive statistics of variables.

	Decisions made by administrators	Relevance of AIS	Timeliness of AIS	Understandability of AIS	Reliability of AIS	Comparability of AIS
Number	80	80	80	80	80	80
No response	0	0	0	0	0	0
Mean	3.0595	2.5475	2.5750	2.6875	2.5250	2.3417
Standard deviation	0.54232	0.85492	0.72085	1.02307	0.60883	0.75748
Variance	0.294	0.731	0.520	1.047	0.371	0.574
Minimum	1.80	1.00	1.50	1.00	1.33	1.00
Maximum	3.96	4.60	4.00	4.50	3.67	4.33
Domain	2.16	3.60	2.50	3.50	2.33	3.33

Main hypothesis

There is a significant relationship between establishment of AIS and the decision of Bushehr province gas company administrators.

Table 2. Pearson correlation results.

First variable	Second variable	Number	Correlation coefficient	Significance level	Test result
Decisions made by administrators	Establishment of AIS	80	0.757	0.000	Significant relationship

Pearson correlation coefficient between variable of decisions made by administrators and establishment of accounting information systems is 0.757 and significance level of the test is (0.000). Given the significant level of correlation is less than 0.05, so null hypothesis is rejected and with the confidence of 99%, it can be said that there is a significant relationship between these two variables. Given that the correlation coefficient is positive, so we can conclude there is a direct relationship between the two variables.

Results from regression

Table 3. Statistics of multiple regression analysis and summary of fitted regression model.

Multiple correlation coefficient	Coefficient of determination	Adjusted coefficient of determination	Standard error of estimation	Durbin Watson
0.757	0.573	0.570	0.39251	1.80

Correlation between variables of accounting information systems and decisions made by administrators is 0.757. Coefficient of determination is obtained 0.573 and this value shows that 57% of decisions made by administrators are related to improve accounting information systems. Given that the Durbin-Watson statistic is at a standard distance of 1.5 to 2.5, thus we conclude the remaining independence.

Table 4. Results of regression multivariate analysis of variance.

	Sum of squares	Degrees of freedom	Mean of squares	F	Sig
Regression	35.706	1	35.706	231.706	0.000
Residual	26.654	78	0.154		
Total	62.360	79			

The significant level calculated for this statistic is 0.000 and shows significant regression in the level of 0.99. Histograms drawn on the regression model confirmed the normal distribution hypothesis; therefore, a linear regression model estimated is accepted.

Table 5. Multivariate statistical methods applied in the regression model.

	Non-standardized coefficients		Partial correlation coefficient		Significance level
	B	Std. Error	Beta	T	Sig
Fixed value	1.647	0.111		14.897	0.000
Establishment of accounting information systems	0.535	0.035	0.757	15.224	0.000

The variable in the regression equation is the main core of regression analysis mentioned in above Table. Regression equation can be calculated by using the column of non-standardized coefficients as follows:

Decision made by administrators = 1.647 + establishment of accounting information systems (0.535)

It can be said that dependent variable will be enhanced to improve one unit of each independent variable to the value of coefficient written. Or in other words, by enhancing a unit of AIS, 0.535 of the unit of standard deviation of decisions made by administrators will be enhanced, as a result, there is a positive relationship.

First sub-hypothesis

There is a significant relationship between understandability of AIS and the decision of Bushehr province gas company administrators.

Table 6. Correlation test.

First variable	Second variable	Number	Correlation coefficient	Second variable of the significance level	Test result
Decisions made by administrators	Understandability of AIS	80	0.675	0.000	Significant relationship

Pearson correlation coefficient between variable of decisions made by administrators and understandability of accounting information systems is 0.675 and significance level of the test is (0.000). Given the significant level of

correlation is less than 0.05, so null hypothesis is rejected and with the confidence of 90%, it can be said that there is a significant relationship between these two variables.

Results from regression

Table 7. Statistics of multiple regression analysis and summary of fitted regression model.

Multiple correlation coefficient	Coefficient of determination	Adjusted coefficient of determination	Standard error of estimation	Durbin Watson
0.675	0.455	0.452	0.44321	1.811

Correlation between variables of understandability of accounting information systems and decisions made by administrators is 0.675. Coefficient of determination is obtained 0.455 and this value shows that 45% of changes of decisions made by administrators are related to understandability of accounting information systems. Given that the Durbin-Watson statistic is at a standard distance of 1.5 to 2.5, thus we conclude the remaining independence. According to the indices mentioned, the model enjoys necessary sufficiency.

Table 8. Results of regression multivariate analysis of variance.

	Sum of squares	Degrees of freedom	Mean of squares	F	Sig
Regression	28.376	1	28.376	144.456	0.000
Residual	33.983	78	0.196		
Total	62.360	79			

The significant level calculated for this statistic is 0.000 and shows significant regression in the level of 0.99.

Table 9. Multivariate statistical methods applied in the fitted regression model.

	Non-standardized coefficients		Partial correlation coefficient		Significance level
	B	Std. Error	Beta	T	Sig
Fixed value	1.806	0.126		14.316	0.000
Understandability of accounting information systems	0.453	0.038	0.675	12.224	0.000

The variable in the regression equation is the main core of regression analysis mentioned in above Table. Regression equation can be calculated by using the column of non-standardized coefficients as follows: Decision made by administrators = 1.806 + understandability of accounting information systems (0.453). It can be said that dependent variable will be enhanced to improve one unit of each independent variable to the value of coefficient written.

Second sub-hypothesis

There is a significant relationship between relevance of AIS and the decision of Bushehr province gas company administrators.

Table 10. Correlation test.

First variable	Second variable	Number	Correlation coefficient	Significance level	Test result
Decisions made by administrators	Relevance of AIS	80	0.678	0.000	Significant relationship

Pearson correlation coefficient between variable of decisions made by administrators and relevance of accounting information systems is 0.678 and significance level of the test is (0.000). Given the significant level of correlation is less than 0.05, so null hypothesis is rejected and with the confidence of 99%, it can be said that there is a significant relationship between these two variables.

Results from regression

Table 11. Statistics of multiple regression analysis and summary of fitted regression model.

Multiple correlation coefficient	Coefficient of determination	Adjusted coefficient of determination	Standard error of estimation	Durbin Watson
0.678	0.459	0.456	0.44148	1.678

Correlation between variables of relevance of accounting information systems and decisions made by administrators is 0.678. Coefficient of determination is obtained 0.459 and this value shows that 45% of changes of decisions made by administrators are related to relevance of accounting information systems. Given that the Durbin-Watson statistic is at a standard distance of 1.5 to 2.5, thus we conclude the remaining independence. According to the indices mentioned, the model enjoys necessary sufficiency.

Table 12. Results of regression multivariate analysis of variance.

	Sum of squares	Degrees of freedom	Mean of squares	F	Sig
Regression	28.641	1	28.641	146.952	0.000
Residual	33.718	78	0.195		
Total	62.360	79			

The significant level calculated for this statistic is 0.000 and shows significant regression in the level of 0.99.

Table 13. Multivariate statistical methods applied in the regression model.

	Non-standardized coefficients		Partial correlation coefficient		Significance level
	B	Std. Error	Beta	T	Sig
Fixed value	1.786	0.127		14.103	0.000
Relevance of accounting information systems	0.439	0.036	0.678	12.122	0.000

Regression equation can be calculated by using the column of non-standardized coefficients as follows: Decision made by administrators = 1.786 + relevance of accounting information systems (0.439). It can be said that dependent variable will be enhanced to improve one unit of each independent variable to the value of coefficient written.

Third sub-hypothesis

There is a significant relationship between reliability of AIS and the decision of Bushehr province gas company administrators.

Table 14. Correlation test.

First variable	Second variable	Number	Correlation coefficient	Significance level	Test result
Decisions made by administrators	Reliability of AIS	80	0.758	0.000	Significant relationship

Pearson correlation coefficient between variable of decisions made by administrators and reliability of accounting information systems is 0.758 and significance level of the test is (0.000). Given the significant level of correlation is less than 0.05, so null hypothesis is rejected and with the confidence of 99%, it can be said that there is a significant relationship between these two variables. Given that the correlation coefficient is positive, so we can conclude there is a direct relationship between the two variables. It means that reliability of accounting information systems led to improving decisions made by administrators.

Results from regression

Table 15. Statistics of multiple regression analysis and summary of fitted regression model.

Multiple correlation coefficient	Coefficient of determination	Adjusted coefficient of determination	Standard error of estimation	Durbin Watson
0.758	0.575	0.572	0.39151	1.674

Correlation between variables of reliability of accounting information systems of accounting information systems and decisions made by administrators is 0.758. Coefficient of determination is obtained 0.575 and this value shows that 57% of changes of decisions made by administrators are related to reliability of accounting information systems. Given that the Durbin-Watson statistic is at a standard distance of 1.5 to 2.5, thus we conclude the remaining independence. According to the indices mentioned, the model enjoys necessary sufficiency.

Table 16. Results of regression multivariate analysis of variance.

	Sum of squares	Degrees of freedom	Mean of squares	F	Sig
Regression	35.843	1	35.843	233.842	0.000
Residual	26.517	78	0.153		
Total	62.360	79			

The significant level calculated for this statistic is 0.000 and shows significant regression in the level of 0.99.

Table 17. Multivariate statistical methods applied in the regression model.

	Non-standardized coefficients		Partial correlation coefficient		Significance level
	B	Std. Error	Beta	T	Sig
Fixed value	1.315	0.131		10.036	0.000
Reliability of accounting information systems of accounting information systems	0.553	0.036	0.758	15.292	0.000

Regression equation can be calculated by using the column of non-standardized coefficients as follows: Decision made by administrators = 1.315 + reliability of accounting information systems of accounting information systems (0.553).

Forth sub-hypothesis

There is a significant relationship between timeliness of AIS and the decision of Bushehr province gas company administrators.

Table 18. Correlation test.

First variable	Second variable	Number	Correlation coefficient	Significance level	Test result
Decisions made by administrators	Timeliness of AIS	80	0.431	0.000	Significant relationship

Pearson correlation coefficient between variable of decisions made by administrators and timeliness of accounting information systems is 0.431 and significance level of the test is (0.000). Given the significant level of correlation is less than 0.05, so null hypothesis is rejected and with the confidence of 99%, it can be said that there is a significant relationship between these two variables. Given that the correlation coefficient is positive, so we can conclude there is a direct relationship between the two variables. It means that timeliness of accounting information systems led to improving decisions made by administrators.

Results from regression

Table 19. Statistics of multiple regression analysis and summary of fitted regression model.

Multiple correlation coefficient	Coefficient of determination	Adjusted coefficient of determination	Standard error of estimation	urbin Watson
0.431	0.186	0.180	0.31647	2.068

Correlation between variables of timeliness of accounting information systems of accounting information systems and decisions made by administrators is 0.431. Coefficient of determination is obtained 0.186 and this value shows that 18% of changes of decisions made by administrators are related to timeliness of accounting information systems. Given that the Durbin-Watson statistic is at a standard distance of 1.5 to 2.5, thus we conclude the remaining independence. According to the indices mentioned, the model enjoys necessary sufficiency.

Table 20. Results of regression multivariate analysis of variance.

	Sum of squares	Degrees of freedom	Mean of squares	F	Sig
Regression	3.426	1	3.426	34.210	0.000
Residual	15.023	78	0.100		
Total	18.450	79			

The significant level calculated for this statistic is 0.000 and shows significant regression in the level of 0.99.

Table 21. Multivariate statistical methods applied in the regression model.

	Non-standardized coefficients		Partial correlation coefficient		Significance level
	B	Std. Error	Beta	T	Sig
Fixed value	2.919	0.153		19.070	0.000
Timeliness of accounting information systems of accounting information systems	0.268	0.046	0.431	5.849	0.000

Regression equation can be calculated by using the column of non-standardized coefficients as follows: Decision made by administrators = 2.919 + timeliness of accounting information systems of accounting information systems (0.268)

Fifth sub-hypothesis

There is a significant relationship between comparability of AIS and the decision of Bushehr province gas company administrators.

Table 22. Correlation test.

First variable	Second variable	Number	Correlation coefficient	Significance level	Test result
Decisions made by administrators	Comparability of AIS	80	0.404	0.000	Significant relationship

Pearson correlation coefficient between variable of decisions made by administrators and comparability of accounting information systems is 0.404 and significance level of the test is (0.000). Given that the correlation coefficient is positive, so we can conclude there is a direct relationship between the two variables.

Results from regression

Table 23. Statistics of multiple regression analysis and summary of fitted regression model.

Multiple correlation coefficient	Coefficient of determination	Adjusted coefficient of determination	Standard error of estimation	Durbin Watson
0.404	0.163	0.157	0.32088	1.845

Correlation between variables of comparability of accounting information systems of accounting information systems and decisions made by administrators is 0.404. Coefficient of determination is obtained 0.163 and this value shows that 16% of changes of decisions made by administrators are related to comparability of accounting information systems. Given that the Durbin-Watson statistic is at a standard distance of 1.5 to 2.5, thus we conclude the remaining independence.

Table 24. Results of regression multivariate analysis of variance.

	Sum of squares	Degrees of freedom	Mean of squares	F	Sig
Regression	3.005	1	3.005	29.184	0.000
Residual	15.445	78	0.103		
Total	18.450	79			

The significant level calculated for this statistic is 0.000 and shows significant regression in the level of 0.99.

Table 25. Multivariate statistical methods applied in the regression model.

	Non-standardized coefficients		Partial correlation coefficient		Significance level
	B	Std. Error	Beta	T	Sig
Fixed value	2.876	0.153		16.592	0.000
Comparability of accounting information systems of accounting information systems	0.237	0.044	0.404	5.402	0.000

Regression equation can be calculated by using the column of non-standardized coefficients as follows: Decision made by administrators = 2.876 + comparability of accounting information systems of accounting information systems (0.237).

Conclusion

Given that the correlation coefficient between variable of decisions made by administrators and establishment of accounting information systems is positive, so we can conclude there is a direct relationship between the two variables. It means that by improving establishment of accounting information systems, decisions made by administrators will be improved. The results of this study are consistent with the results of Dastgir et al (2003).

Pearson correlation coefficient between variable of decisions made by administrators and understandability of accounting information systems is 0.675 and significance level of the test is (0.000). It can be said that there is a significant relationship between these two variables. The results of this study are consistent with the results of Dastgir et al (2003).

Pearson correlation coefficient between variable of decisions made by administrators and relevance of accounting information systems is 0.678 and significance level of the test is (0.000). Given the significant level of correlation is less than 0.05, so null hypothesis is rejected and with the confidence of 99%, it can be said that there is a significant relationship between these two variables. The results of this study are consistent with the results of Dastgir et al (2003).

Pearson correlation coefficient between variable decisions made by administrators and reliability of accounting information systems is 0.758 and significance level of the test is (0.000). It can be said that there is a significant relationship between these two variables. It means that reliability of accounting information systems leads to improving decisions made by administrators. The results of this study are consistent with the results of Dastgir et al (2003).

Pearson correlation coefficient between variable of decisions made by administrators and timeliness of accounting information systems is 0.431 and significance level of the test is (0.000). So we can conclude there is a direct relationship between the two variables. It means that timeliness of accounting information systems leads to improving decisions made by administrators. The results of this study are consistent with the results of Dastgir et al (2003).

Pearson correlation coefficient between variable of decisions made by administrators and comparability of accounting information systems is 0.404 and significance level of the test is (0.000). Given that the correlation coefficient is positive, so we can conclude there is a direct relationship between the two variables. It means that comparability of accounting information systems leads to improving decisions made by administrators. The results of this study are consistent with the results of Dastgir et al (2003).

Conflict of interest

The authors declare no conflict of interest

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