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The Impact of Management Information Systems on Decision-Making in Saudi Telecom Sector

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Abstract:

The objective of the study is to explore the impact of MIS on the process of decision-making in the telecommunications sector of Saudi Arabia and to determine whether decision-making is influenced by factors such as data, hardware, software and organizational skills. The study focuses on the telecommunication sector represented by STC, Mobily and Zain in Saudi Arabia. The primary data collected from 171 employees of the three companies in Qassim region has been analyzed using descriptive statistics, correlation analysis, multiple regression, and factor analysis. The study has achieved many objectives, most importantly, the validation of all hypotheses of research, thus, that use of information systems (Data, Devices, Software, Organizational Skills) positively affects the decision-making process. Correlation coefficients of all independent variables with the dependent variable range between 0.62-0.84 with statistically significance. Total variance explained by the four factors in Factor analysis is about 85% which is quite high. According to the regression result, Data has the highest impact on Decision Making with the relative coefficient size of 0.61, followed by Organizational Skills at 0.35. Software is the third most important factor. However, the Devices variable is statistically insignificant.

The study also reveals that most respondents are cognizant of the importance, advantages and benefits of applying management information systems in these companies. In addition, the study finds that the application of management information systems leads to efficient and effective decision-making in communications companies. Based on the results, it is recommended that companies should take interest in development of information systems by using the latest equipment and advanced programs. The study also recommends the need for flexibility in the flow and exchange of information between management levels and ensuring access to information for all staff. Another recommendation is that telecom companies should develop organizational skills of their staff to ensure the effectiveness of information systems in making decisions.

Keywords: Management Information Systems, Decision Making, Data, Devices, Software, Organizational Skills, Telecom Sector, Saudi Arabia.

1. Introduction

The importance of networks cannot be over-emphasized due to globalization of businesses. Exchange of data through fast communication networks are essential for quick decision making between companies as well as subsidiaries. The networks are essential to connect head offices with their branches quickly and inexpensively. It is utmost important for the senior management to stay informed regarding all the activities of a firm and databases are helpful in this regard. "An information management system can be defined technically as a set of interrelated components that collect (or retrieve), process, store, and distribute information to support decision making, coordination and control in an organization" (Laudon & Laudon, 2015). It is important to note that development of management information system starts with designing, testing and implementing of the system. However, it would not be beneficial if it does not solve the communication and decision making needs of the firm. A good system needs to be flexible so that it incorporates all possible variables within and outside the firm. The management information system needs to be reviewed and improved on a continuous basis in order to make optimal use of it.

With the technological developments in the business world and the start of third millennium, emphasis has been placed on designing policies, implementation, follow up and evaluation of performance. This process has created huge amounts of data in conjunction with human strategies and experiences. These data require sophisticated systems and techniques to explore and obtain meaningful outcomes. This creates a need to develop advanced information systems based on computing technology and softwares. This information system should be able to incorporate the information into the system in such a way that the organization may be able to develop required policies, their implementation and follow up with highest accuracy and speed.

The telecommunications sector in Saudi Arabia is one of the sectors that uses management information systems in its dealings with customers, which led the researchers to choose it as a target area for research. Three prominent telecom companies operating in Saudi Arabia, Mobily, STC and Zain, have been selected for this purpose.

Management Information System is a core asset of enterprises operating in the developed world and has played a significant role in the effective and efficient management of administrative departments to achieve long-term goals. Management information system has become the backbone of enterprises, providing administrative and technical aspects simultaneously. It also works to make available suitable information to various administrative levels, in order to support all administrative jobs, as well as improving and developing the communication and information flow between all administrative levels in the establishment. In this context, many companies in Saudi Arabia are seeking to apply this system, but there are a lot of problems faced by the companies in the applications, especially since they were previously depending on paper work and manual trading. Another obstacle is the lack of specialized competence in this area, and this also negatively affects the decision-making process.

In the light of the above discussion, the research problem has been shaped by the following question:

Does the MIS affect the decision-making process in the telecommunications sector for the companies like Mobily, STC and Zain?

Researchers seek to achieve the following objectives:

1. Knowledge of the extent to which MIS are being used in the decision-making process of STC, Zain, and Mobily decision makers.
2. Exploring the relative importance of the components of MIS (Devices, Software, Data, and Organizational Skills) in Saudi telecom companies.

Motivation and Contribution

Motivation for the paper emanates from the fact that success of businesses depends on the use of management information systems. In the context of current competitive global business world, quick and proper decision making cannot be carried out without the proper use of MIS. Use of MIS by the telecom sector allows the delivery of fast, accurate, and comprehensive services for the customers of the telecom companies which leads to higher levels of quality. It is important to understand the role of MIS in decision making and to analyze the relative importance of MIS components in the decision making process.

This study is very important because it is carried out in one of the new research fields, especially in the light of the rarity of research targeting the effect of MIS on decision making in the Kingdom of Saudi Arabia. It will contribute to the improvement of decision-making process in Saudi companies, since the decision-makers can be carried out based on the correct technological basis.

Main contribution of the current study is that for the first time the role of components of MIS in decision making has been explored in the context of Saudi Arabia. Another important contribution is that role of MIS in telecommunication sector of Saudi Arabia has been studies for the first time. The results of the research point out that Data is the most important component of MIS that has the strongest impact on decision making. According to the empirical results, correlation coefficients of all independent variables with the dependent variable range between 0.62-0.84 with statistically significance. Total variance explained by the four factors in Factor analysis is about 85% which is quite high. According to the regression result, Data has the highest impact on Decision Making with the relative coefficient size of 0.61, followed by Organizational Skills at 0.35. Software is the third most important factor. However, the Devices variable is statistically insignificant.

The rest of the paper is organized as follows. Section 2 makes a thorough and up to date review of literature related to the research problem at hand. Section 3 briefly introduces model, methodology and data. Section 4 goes through data analysis and interpretation of results. The last section concludes.

2. The Literature Review

Management information systems play a fundamental part in operating any organization, in order to be able to link its various departments and achieve its goals. Information systems have been instrumental in providing the appropriate information

at the right place and time, to assist the administration in taking and implementing decisions of all kinds and monitoring the results. Also, problem solving requires a decision to be taken to define solutions and choose alternatives when appropriate and accurate information is available at the right time.

2.1 MIS in Educational Sector

It is very important to use MIS in decision making of educational institutions. There are many studies, all of which emphasize the necessity of using MIS in educational institutions.

Importance of MIS in decision making in the education sector has been highlighted by Forrester (2019) in the big data era. Using a conceptual model that helps administrative officials and educational leaders to take improved operational and strategic decisions, the paper attempts to find effective solutions to educational problems through the application of the school management information system.

In the context of private colleges in India, study by Shergill et al. (2012) analyzes the applications of MIS for decision making. The study shows that the private colleges don't make use of management information systems (MIS) in decision-making, so the researcher recommends funding and developing management information systems and training and directing managers to ensure optimum use of facilities for better decision-making in colleges.

Ajayi and Omirin (2007) explore the influence of MIS in decision making on budgeting and planning for the universities of South-West Nigeria. The results of the study reveal that MIS is not adequately used in decision making process in these universities. The study failed to find any significant difference between State and Federal universities in the use of MIS for planning in the short run and long run. However, Federal universities were significantly better in the use of MIS for budgeting. The study recommends giving proper guidance and training to managers to ensure appropriate use of management information systems to make better decisions in universities.

Sayedpoor and Hoveyda (2015) discuss the importance of MIS in Tehran University, Iran. The article tries to describe and identify the management information systems of universities and their impact on the decision making and problem solving. The study finds a positive impact of MIS on decision-making of the university.

Similarly, findings of the study by Oni et al. (2014) show that there is a positive relationship between MIS and employees' performance in a South African University. The researchers emphasize the importance of MIS training programs or sessions for the university employees periodically to develop their skills and improve their performance.

2.2 MIS in Financial Sector

Due to huge volumes of transactions in the financial sector and advances in financial engineering, several studies investigate the role of MIS in decision making in different financial institutions.

Alkhaffaf (2012) considers the status of the management information systems and the computer-based applications used in the Jordan Bank which play an important role in

decision-making. The results of this study show that the Jordan Bank depends in the decision-making process using several MIS techniques and MIS has a strong impact on achieving the set targets and objectives of Jordan Bank.

Another study in Iran by Noroozian (2016) evaluates the role of MIS in improving quality of decision-making of Persian banks' managers. The study endorses the existence of a strong positive association between MIS and quality of decision-making, especially the accuracy of the information results in a successful decision, where the decision-making process is analyzed and evaluated by providing the correct information.

According to the study by Olumoye (2013), MIS facilitates decision-making, planning process and helps achieve organizational goals and objectives in the Nigerian insurance sector. The results reveal that adoption of information systems increases the efficacy of decision-making which is shown by positive association between the variables. The research is in line with this paper as both report that the MIS has a positive influence on the decision making. Adoption of MIS in organizations leads to the accelerated pace of day-to-day operations, effective problem solving and decision making.

The study carried out by Karim (2011) aims to explain the effect of MIS on decision-making and achieving the goals of any company. Two financial organizations have been selected in Bahrain for the study with a sample of 190 employees. The study shows that MIS plays a significant role in enhancing strategic and tactical planning by supporting decision makers in the organization. The study finds a positive association between MIS and decision-making.

2.3 MIS in Private Business Sector

In the fast paced business world and due to increasing competition, private businesses have to employ MIS to succeed in business. Several studies have explored the impact of MIS on decision making in the context of different private business institutions.

The next three papers explore the role of MIS and its impact on the process of decision making in private companies in the context of India. Sonawane (2016) carries out analysis which shows the impact of the MIS on managerial decision making in industrial companies in India. According to the results, companies with small turnover do not give priority to the development and implementation of management information systems as they are not aware of the importance of MIS in decision-making compared to companies that have a large turnover. The author finds a significant relationship between MIS and decision making and concludes that information system is an important tool for decision making to achieve company goals. Similarly, according to the results of the study by Kiradoo (2020), large amounts of data and advancements of analytical tools make it possible to analyze the results of different strategies for decision making in case of Indian companies.

The objective of Bendre et al. (2017) is to explore the relationship between the use of information system in Indian organizations to take effective decision in the short term, and long term. The results show that MIS is one of the most important factors that lead to long-term and short-term benefits for decision-makers and organizations.

The issue of how the performance of business organization is affected by MIS is studied by Munirat et al. (2014) in Nigeria. The conclusion is that the development of MIS has a significant and positive impact on decision making. In the light of its findings, the study endorses that it is imperative to develop and finance good and effective management information system and improve managerial skills in the management information systems process as part of the organizational agenda through seminars, conferences and workshops.

Similarly, the study by Oladejo (2013) ascertains a positive relationship between MIS and decision-making and profitability in manufacturing firms of Nigeria. Also, management information system helps an organization to assess and solve problems, thereby increasing their profitability. Finally, the researcher recommends the involvement of all stakeholders, managers, supervisors and staff to develop, acquire suitable computer program and software to enhance effective decision-making.

A research study by Hashim et al. (2012) explores the impact of MIS on the productivity and performance of the employees in Peshawar, Pakistan. The independent variable is MIS training program, whereas employees' performance is the dependent variable. The researcher collected primary data through questionnaire as well as secondary data. The researchers note that the MIS training programs improve the efficacy of the employees, improve the performance of decision making and transform all operation to MIS from manual system. Finally, the authors discover that there is direct relationship of MIS training program with decision support. Also, the study recommends giving proper importance to the provision of MIS training and discouraging the manual work which often leads to lower quality of output.

Considering the perspective of developed countries, the study by Caniëls and Bakens (2011) reveal a positive impact of Project Management Information Systems (PMIS) on the decision making in a multi project environment. High quality information produced by PMIS leads to greatly enhanced performance of the project managers.

Papageorgiou and De Bruyn (2010) conduct a study to explore the effectiveness of executive information systems (EIS) and its role in problem solving and decision making as dependent variables. Data is collected by using both quantitative and qualitative research approach through distributing questionnaires to listed JSE companies in South Africa. According to the results EIS have a positive impact on decision making of the firms.

According to Alene (2018), MIS plays a major role in decision making, affecting the operational performance of employees in Debre Markos city administration revenue authority, Ethiopia. The author concludes that a lack or delay in information affects the operation of the organization. Similarly, Hassan et al. (2014) compare the role of MIS in decision making process in the public and private sectors of Sudan and find no difference between the two sectors. It is imperative for both public and private sectors to obtain accurate and timely information to make the right decision.

According to Pérez-Méndez and Machado-Cabezas (2013), there is an improvement in the profitability of the company if the MIS is part of the decision-making process. According to the results there is a strong positive correlation between management

information systems and decision making and MIS has a clear impact on the improvement of the profitability of the company.

The paper provides a comprehensive survey of studies that explore the role of MIS in decision making using data from different countries in the fields of educational sector, government sector, banking and insurance sectors, and private firms. There seems to be consensus among all studies that MIS performs a very significant part in decision making. Components of MIS including data, software, organizational skills and devices positively affect decision making.

2.4 Studies Related to Saudi Companies

There are very few studies exploring the role of MIS in decision making for educational institution, health sector, Border Guard Directorate and private business organizations in the context of Saudi Arabia. However, none of these studies explore the impact of MIS on telecom sector in Saudi Arabia, hence this study is the pioneering one targeting the telecom sector of Saudi Arabia.

In the context of Tabuk University, Saudi Arabia, Alotaibi (2021) explores how the implementation of administrative decisions can be enhanced through information systems so that any obstacles may be removed in their implementation. According to the study, a good infrastructure of information system and proper data exists which plays important role in implementing the administrative decisions. However, lack of training, lack of funds, inappropriate organizational structure, and routine procedures are notable obstacles in implementation. However, this paper is different from our research because it takes overall MIS as an independent variable whereas our paper carries out a deeper study by taking four components of MIS.

In the field of health information system, the study conducted by Alfawaz & Alharthi (2019) discusses the role of health information systems in enhancing decision-making in Saudi hospitals and health care sectors. According to the results, it is important to establish a management information system that provides relevant information, accurately and at an appropriate speed that helps in making effective business decisions which will save the hospitals many potential losses, enhance the company's competitiveness and efficiency. However, this paper is focused on health information system, HIS, with a focus on health sector, which makes the scope of this paper different from our paper.

Nesseef (2014) ascertains a strong role of MIS applications to improve the organizational performance of private business organizations in Saudi Arabia. However, it is imperative to make sure that costs are minimized, operations are improved by reducing errors. This process will also improve customer satisfaction. Our research is different from this study because it has organizational performance as a dependent variable, whereas our study has decision making as the dependent variable which explores the role of MIS from a different perspective.

The objective of Al-Zahrani (2010) is to assess the role of MIS to make decisions and to explore the constraints and obstacles that limit the role of MIS in decision-making during crises in General Directorate of Border Guard (GDBG) in Saudi Arabia. The responses from 250 officers in the GDBG have been used for decision-making as a

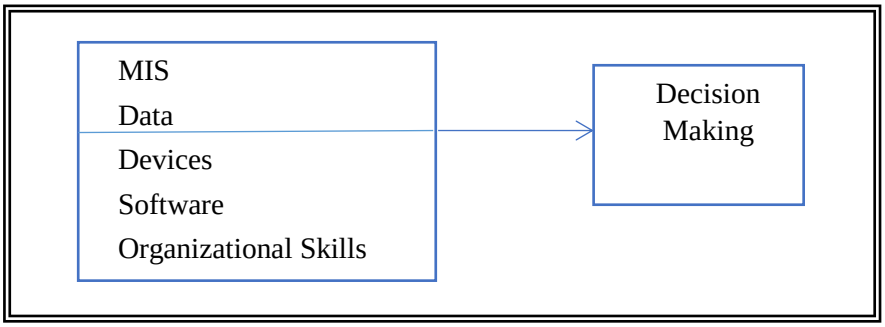
dependent variable and management information systems as an independent variable. The researcher concludes that MIS is positively related to decision-making. This paper is also different from our research because we take four important components of MIS which gives detailed insight into the problem, whereas this article takes overall MIS as an independent variable.

3. Methodology and Data

3.1 The Model

MIS as an independent variable has been represented by its four most important components including Data, Devices, Software and Organizational Skills. Whereas decision making is the dependent variable.

Figure 1: The Model



The model can be written as:

$$DM = a + b1\ (D) + b2\ (DE) + b3\ (S) + b4\ (OS) + U$$

Where DM represents the decision making, a represents the constant, D represents Data, DE represents Devises, S represents Software, and OS represents Organizational Skills. Coefficients b1-b4 are attached to the four independent variables, and U represents the random error of regression model.

Table 1: Definition of Variables

Management Information Systems	A group of individuals or devices working together in a specific format to reach a goal that serves in administrative processes.
Data	A raw material that is transformed after it is processed into useful information.
Devices	Computers and related devices such as printer and fax.
Software	Systems and applications used in device operation, data processing and information collection.
Organizational Skills	Include human experience and skills to ensure the effectiveness and efficiency of the system.
Decision Making	Alternative available after study and reflection.

Source: (Laudon & Laudon, 2015).

3.2 Methodology

The study employs Pearson correlation to find the association between all variables. Their significance has also been estimated. Factor analysis has been applied to reduce the number of questions to underlying dimensions, and for analysis and interpretation of the correlated variables. A common variance from all questions is extracted so that factor analysis assigns a common score to them. This score of index for all questions is used for further analysis. Assumptions of no multicollinearity and linear relationship apply being a part of general linear model (GLM). Kaiser-Meyer-Olkin measure of sampling adequacy is estimated to examine the suitability of variables for factor analysis. Principal component analysis method employed reduces the questions to four dimensions. Finally, Cronbach's Alpha is estimated to test the reliability of data for factor analysis estimates.

Multiple regression analysis determines the linear effect of independent variables on the dependent variable. Both unstandardized and standardized coefficients have been estimated along with their statistical significance at 5 percent level. Statistical software, SPSS has been used to carry out the statistical analysis techniques.

3.3 Research Hypotheses

Research includes one main hypothesis represented in:

HA: All components of MIS positively affect the decision making.

This hypothesis branches into four sub-hypotheses:

H1A: Data positively affects the decision making.

Explanation: The importance of data for decision making cannot be over emphasized. It is almost impossible to make decisions without data. We hypothesize the positive effect of data on decision making.

H2A: Organizational Skills positively affect the decision making.

Explanation: Decision making is a coordinated activity. It is important to have organizational skills for effective decision making.

H3A: Software positively affects the decision making.

Explanation: Advanced specialized softwares have been in practice for each field of business. These are effective for faster decision making process.

H4A: Devices positively affect the decision making.

Explanation: Faster computer devices are required for handling large amounts of data and latest softwares. Hence, devices are important for quick decision making.

3.4 The Data

Primary data has been collected using a standardized questionnaire. The research sample is chosen by using the random sampling method. The questionnaire was distributed to 280 randomly selected employees of telecom sector (Zain, STC, and Mobily) as a percentage of the total number of individuals who work in communication sector in Buraidah city out of which 171 responded.

There were 63 respondents from STC, 35 from Mobily and 73 from Zain employees. There were 102 female and 69 male respondents from which 62 were below age 30 whereas a majority of 91 were between 30-40 year. A huge majority of 112 respondents held a bachelor's degree or above. There were 75 respondents with experience less than 5 years, 67 had experience between 5-10 years, and 29 had experience more than 10 years. From the respondents, 76 belonged to operational management, 69 were from middle management and 26 from senior management.

The study uses several statistical methods to analyze the results of the field study and to test the validity of the hypotheses and the methods including multiple linear regression and factor analysis.

4. Analyses and Interpretation

In order to create a scientific clear vision of the research problem and the possibility of achieving its goals, this section tests and analyzes the data to illustrate the effectiveness of MIS in decision-making process in telecom companies including STC, Mobily, and Zain. The data was analyzed through statistical analysis and tests using SPSS. The first part in this section presents the results of correlation analysis followed by factor analysis and reliability analysis. Finally, the results of multiple regression have been presented. The largest number of respondents, 73, was from Zain employees comprising 42.7% of sample size.

4.1 The Correlation Analysis

Table 2: Pearson Correlations

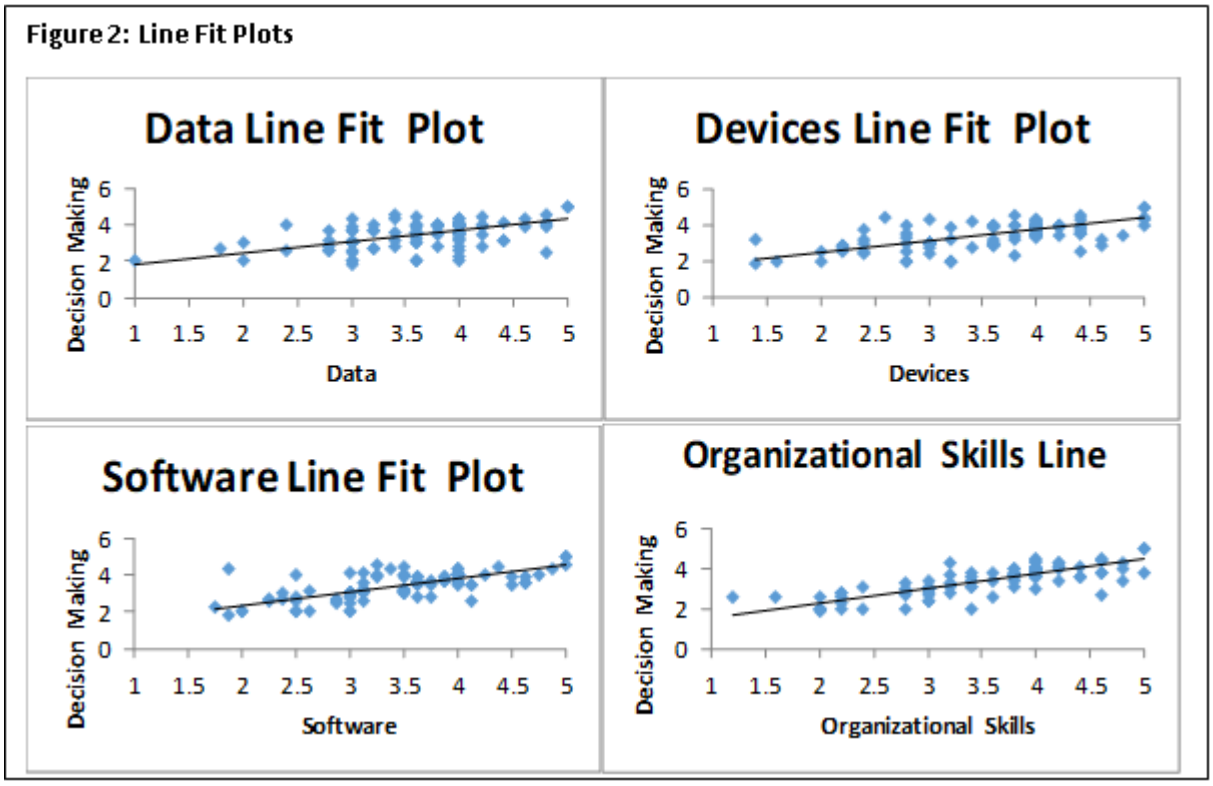
		Data	Devices	Software	Requirement	Decision
Data	"Pearson Correlation"	1	.752**	.781**	.642**	.841**
	Sig. (2-tailed)		.000	.000	.000	.000
Devices	"Pearson Correlation"	.752**	1	.811**	.720**	.704**
	Sig. (2-tailed)	.000		.000	.000	.000
Software	"Pearson Correlation"	.781**	.811**	1	.683**	.763**
	Sig. (2-tailed)	.000	.000		.000	.000
Organizational Skills	"Pearson Correlation"	.642**	.720**	.683**	1	.622**
	Sig. (2-tailed)	.000	.000	.000		.000
Decision Making	"Pearson Correlation"	.841**	.704**	.763**	.622**	1
	Sig. (2-tailed)	.000	.000	.000	.000	

** Significant at the 1% level.

Pearson's correlations are all significant with the results shown in table 2. The highest correlation is 0.84 between the data and decision-making which shows strong relationship. It is followed by a score of 0.76 between software and decision-making. The next highest correlation is 0.7, between devices and decision which shows high correlation. Finally, the correlation score between the organizational skills and decision-making is 0.62, which shows medium correlation. Correlations among the independent variables is also high but not high enough to cause multicollinearity problem. Multicollinearity has been tested and VIF results in table 8 show that there is no multicollinearity problem between independent variables.

Finally, we can conclude that the use of management information systems (data, devices, software, and organizational skills) is positively correlated with the decision making. It is recommended to use MIS for decision making in the telecom sector Saudi Arabia.

Figure 1: Line Fit Plots of Independent Variables with the Dependent Variable.



The four figures express the relationship of each independent variable with the dependent variable, decision making. It is clear from these graphs that there is positive effect of each of the independent variables on the decision making.

4.2 Factor Analysis

Factor analysis has been applied to reduce the number of questions to underlying dimensions, and for analysis and interpretation of the correlated variables. The scores in the following table are used to examine the suitability of variables for factor analysis.

Table 3: KMO and Bartlett's Test

"Kaiser-Meyer-Olkin Measure of Sampling Adequacy"		.903
"Bartlett's Test of Sphericity"	"Approx. Chi-Square"	3133.523
	df	253
	Sig.	.000

The table shows that value of KMO test is 0.9 which is above 0.5 this means sampling adequacy is acceptable. And significance of Bartlett's Test of Sphericity is equal to 0.00 which indicates that suitability and validity are high, and the data that have been collected is suitable to conduct factor analysis.

Table 4: Total Variance Explained

"Component"	"Initial Eigenvalues"			"Extraction Sums of Squared Loadings"			"Rotation Sums of Squared Loadings"		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.896	55.653	55.653	3.89	55.653	55.653	2.74	39.207	39.207
2	1.002	14.318	69.971	1.00	14.318	69.971	2.15	30.764	69.971
3	.573	8.186	78.157						
4	.464	6.626	84.783						
5	.402	5.748	90.532						
6	.384	5.487	96.019						
7	.279	3.981	100.00						

Extraction Method: Principal Component Analysis.

The results presented in Table 4 are important to shed light on the variation in dependent variables caused by independent variable. The results show that cumulative variance in Decision Making explained by the four components is 84.78% which is sufficiently large. The remaining variation of about 15% is caused by the remaining 3 components, which can be easily ignored.

Table 5: Rotated Component Matrix[a]

	Component			
	1 Data	2 Devices	3 Software	4 Organization
1. The availability of appropriate and efficient data increases the effectiveness of the decision.	.566			
2. Availability of data in an conveniently increases the effectiveness of the decision.	.618			
3. Provision of accurate and clear data contributes to decision-making.	.686			
4. Easy access to data increases the effectiveness of decision making.	.729			
5. Provision of data with the appropriate level of detail helps in decision-making.	.591			
6. The appropriate computers are available to accomplish the required work.		.754		
7. The system provides enough storage space for information.		.781		
8. Data entry is available to suit the business needs of the company.		.745		
9. The means of output of the information and the work needs of the company are appropriate.		.732		
10. The speed of the devices is commensurate with the volume of work required to be accomplished.		.727		
11. Software used with the business requirements of the company are suitable.			.605	
12. Software is updated to suit the needs of work in the company.			.646	
13. The software used is compatible with the equipments used in the company.			.778	
14. Computer software and applications are easy to use.			.804	
15. I have all the instructions necessary to run the programs that I need in the performance of my work.			.839	

16. Programs provide the appropriate quantitative and accurate information.			.738	
17. The software used helps to retrieve information quickly.			.695	
18. There is control over the programs used to ensure the integrity of EDP.			.627	
19. The information available is compatible with the job needs.				.698
20. There is no exaggeration in the confidentiality of information between different administrative levels.				.791
21. Senior management is interested in developing the information systems used.				.746
22. The senior management follows up the work process based on the use of computerized information system.				.734
23. Senior management encourages to use the computerized information system.				.724

Extraction Method: Principal Component Analysis.

a. 4 components extracted.

Component Matrix assigns uniquely one variable to only one factor. It represents the correlation between variables and the factors. Question 1-5 measure the variable Data, and are grouped in factor one with high correlation scores between 0.73-0.57. Question 6-10 measure the variable Devices, and are grouped in factor two with high correlation scores between 0.78-0.73. Question 11-18 measure the variable Software, and are grouped in factor three with high correlation scores between 0.84-0.60. Question 19-23 measure the variable Organization, and are grouped in factor four with high correlation scores between 0.79-0.70. Table 5 shows that all the variables' correlation values are above 0.3, which means that all the data are valid and used for interpretation.

4.3 Reliability

Table 6: Reliability Statistics

"Cronbach's Alpha"	No of Items
.946	37

In a reliability test, Cronbach alpha value greater than 0.7 is considered good, and it is acceptable if it is more than 0.5. As shown in table 6, Cronbach's Alpha is equal to 0.946 which mean that all the data collected through the questions is reliable.

4.4 Multiple Regression:

Table 7: Model Summary

"Model"	R	"R Square"	"Adjusted R Square"	"Std. Error of the Estimate"	F-value
1	.859[a]	.739	.732	.32939	117.33

a. Predictors: (Constant), Data, Devices, Software, Organizational Skills.

As illustrated in table 7, value of R = 0.859 indicates a good level of relationship of independent variables with the dependent variable. R^2 measures the percentage change in dependent variables explained by the independent variables, which means (Data, Devices, Software, Organizational Skills) explain about 74% of the total variance in the decision-making. F-Value is sufficiently large which shows that the model is significant overall.

Table 8: Regression Coefficients

"Model"	"Unstandardized Coefficients"		"Standardized Coefficients"	t	Sig.	"Collinearity Statistics"	
	Beta	Std. Error	Beta			Tolerance	VIF
(Constant)	.458	.153		2.98	.003		
Data	.548	.061	.609	8.99	.000	.343	2.91
Devices	.063	.060	.062	1.05	.295	.445	2.24
Software	.233	.075	.238	3.09	.002	.267	3.74
Organizational Skills	.342	.133	.351	2.56	.018	.151	3.68
Dependent Variable: Decision-Making							

Results in table 8 show that the three independent variables, Data, Organizational Skills and Software are statistically significant and their beta values are 0.55, 0.34 and 0.23 respectively. The results of standardized coefficients show that Data has the highest impact on Decision Making. This result intuitionally makes sense because it is impossible to make proper decisions in the absence of reliable data. Organizational Skills is the second most important variable that affects Decision Making, which emphasizes the importance of improving organizational skills in the telecom sector of Saudi Arabia.

The third most important factor is Software. This is also an important result which shows that with the help of up-to-date softwares, decision making can be improved in the telecom sector of the Kingdom of Saudi Arabia. Finally, the coefficient results show

that Devices variable is statistically insignificant. There could be two possible explanations for this result. One possibility could be that the sample collected was not sufficient to establish the significance of electronic devices. The second possibility could be that since STC, Mobily, and Zain are already using state of the art devices, the respondents did not fully realize the importance of devices in the decision making process.

Based on the results of above table, all the values of Variance Inflation Factor VIF are less than 10, which indicate that there is no multicollinearity issue between the independent variables, accordingly VIF is acceptable because it is less than 10.

5. Summary and Conclusions

The role of management information systems in influencing decision-making has been emphasized in the previous literature. The decision-making process in the area of business management is the starting point for achieving the desired goals, and how successful they are in planning and organizing their work. This makes it necessary for the organizations to provide accurate, appropriate, comprehensive, integrated, timely, and cost-effective information, which provides basis for the adoption of rational decisions.

In today's business world, it can be argued that the absence of management information systems in modern business organizations means the absence or impossibility of taking proper decisions in difficult situations. This study has been conducted in order to investigate the impact of MIS on decision-making in the three major communication sector companies; Zain, STC, and Mobily in Saudi Arabia, and to illustrate the importance of management information system for these companies. The primary data has been collected by using a questionnaire. The questionnaire was distributed to 280 employees of communication sector (Zain, STC, and Mobily) selected as a percentage of the total number of individuals who work in communication sector in Buraidah city, out of which 171 responded. The data was analyzed through statistical analysis and tested using SPSS including descriptive analysis, correlation analysis, factor analysis, reliability and multiple regressions.

After the data is collected, analyzed, and interpreted, the results show a strong relationship between management information systems and decision-making through the impact of Data, Devices, Software, and Organizational Skills in communication sector in Buraidah. So, the researchers accepted the three alternative hypotheses that Data, Organizational Skills and Software components positively and significantly affect the Decision Making. The results show that it is immensely important to apply MIS for decision making in the telecommunications sector of Saudi Arabia.

Recommendations:

All organizations seek success and to achieve this goal, they must be concerned about development of their information systems through the use of latest available Data, Devices and Advanced Software. In addition, role of human resources is also a significant element in the success of adopting MIS system in the form of Organizational Skills. Hence the companies need to adopt flexibility in sharing information between

administrative structures in the organization and ensure access of information for all the decision makers.

Similarly, organizations in communication sector must improve the technological skills of employees to ensure the effectiveness of information systems and to enhance their performance. Organizations should also develop an effective infrastructure to monitor the impact of MIS on decision-making.

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