

Assessing the Relationship Between MIS¹ and Customers' Retention in Tehran Dey Computer Company

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Abstract

Customers are one of the most important resources of any organization especially in today's market, where every organization has to pay specific attention to. It would be one of managers' most critical roles, assisting toward the use of management information systems and obtaining interest and desires of customers in a great way that helps result in customer retention. Following is the investigation of *impact of implementation of management information systems in order for customers' retention at Tehran Dey computer company*. In compliance with this goal, four factors of customer retention are known that are *customer satisfaction, price, customer involvement, and service quality*. Then the relationship between these factors and MIS is analyzed. The results illustrated that MIS implementation has a statistical relationship with customer retention factors. It also shows that the relationship between MIS and independent variables is linear and this relationship is shown by regression model. This linear model shows price has the highest effect on MIS. Other variables have been ranked based on their effect on MIS which are: *service quality, customer satisfaction and customer involvement*. This research is a survey of descriptive and inferential type. The statistical population of this study is the customers of Dy Computer company. The sample size is selected by formula $n/170$ by simple random sampling. The tool for collecting data in this study is a demographic questionnaire with Cronbach's alpha coefficient of 0.8.4. Data Analysis has been done using the methods of descriptive statistics as well as tests to investigate the Pearson correlation coefficient, independent t-test with the help of SPSS and generally the results of this study show that there is a significant and positive relationship between management information systems and its customers' retention.

Keywords

MIS, Management Information Systems, Customers Retention, Customer

1. Introduction

Management Information System (MIS) is in fact the application of information technology in support of business operations, because the business is changing every day and meanwhile there are some people with the high power of analysis and with business backgrounds and perspectives required to take more productive business processes. Managers today are faced with a multitude of information, information that should have been processed as system data and to be understandable, maintenance & recovery. The

quality of information system can be measured as the real contribution of an information system in achieving organizational objectives. In the literature of information systems, information system quality can be measured by user satisfaction and retention rate therefore the purpose of this study is to evaluate and explain the effect of Assessing the Relationship Between MIS and Customers Retention in Tehran Dey computer company according to the fact that one of the indicators of excellence and development of organizations is to have management information systems, therefore we tried to examine its impact on service quality and uptake of Customers Retention.

¹- management information systems

2. Distribute Information

The management information system refers to the set of titles and tools that provide necessary information for organization managers in their professional fields and areas of responsibility, carefully, in optimal shape and at the right time. Management information system can be defined as following: management information system is an integrated, united and continuous set of human and machine which is aimed at providing information for support and supporting tasks of running operations, applying management and decision making in the organization. (Rezayian, 2006) MIS or management information systems are commonly computerized information systems that are used within organizations and include all information and communication channels in that organization. An information system contains all ideals that play roles in the data collection and dissemination of information and usually includes hardware, software, communication channels and data and information. The system operations, including data collection, data processing and converting raw data into valuable information, store and retrieve data and producing outputs such as management reports. (Ranjbarian, 2008)

Mis is responsible for controlling and reproduction of information from environmental worlds and internal operations of the organization in a way that organizing and selecting data provides necessary information for decision-making, planning and controlling the managers of information systems preparation. Changes management information systems in operations, activities and duties of the world companies are as follows: 1. centralized management and depending on information concentration pivots and enjoying advanced information technology 2. Information design and providing necessary reports required for management decision making, planning and control of organization 3. Designing Management Information System based on the control and management information systems project control and results of these concepts are called management information systems or MIS (Baofeng Huo and et al, 2015). That can also reveal images of contrasts and deviations of determined programs; such information will be available to management through preparing management reports in logical and interpretable forms and images. Sometimes starting up of MIS in the company is scaring employees and even managers. The company management can reduce staff fear by implementing the following measures:

1. Using the computer as a means of job promotion with giving boring and repetitive tasks to computer, tasks that challenge their ability.
2. The use of formal communications to keep employees informed of the company's justifications.
3. Creating a trust relationship between employees, information experts and management
4. Determining the company objectives along with the needs of employees. (Sarrafizadeh, 2010)

5. Systematic Model of the Organization and the Role Information System in its Management
6. The organization can be shown as an open system and a closed loop control system as follows. (McLeod, 1994)
7. The control element of organization system consists of two parts: the management and processor of information. Processor of data is referred to a series of peoples and information systems and decision support which help in management decisions. In addition, the main role of information processor is that it is the producer of organization data (as a process or a subsystem of a larger system) to provide upstream or external entities. Sometimes the minor role of information processor may become a major role. This role change will occur in conditions where management for different reasons doesn't use the information processor in decision making and in return for various reasons; he pays more attention to other main entities in the organization environment. Each of the major and minor roles of a data processor require its specific features, capabilities, and specifications and executing data processor should be designed and adjusted according to the dominant role. (McLeod, 1994)

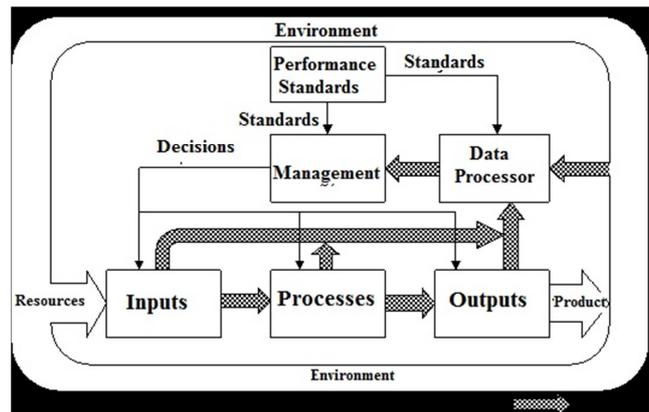


Figure 1. Systematic Model of the Organization.

3. Customer & Customer Retention

One of the preconditions of success of organizations and companies is to put the customer and try to retain him at the epigraph of organization.

A complete understanding of the customer, prioritizing him and providing quality services, is success factors in today's business market.

In these days, the competition among companies for maintaining a customer is more than finding a new customer. Some of researchers emphasize on customer retention and try to assess the relationship between customer retention and MIS (Wu & Hung 2009, Sophonthummapharn 2009, Goldenberg 2008, Kim et al.2003, Mendoza 2007). We assess service quality, customer involvement, customer satisfaction and price as the main components of customer retention in this study.

3.1. Service Quality

The concept of service quality was introduced by Zeithaml *et al.*, (2002). This concept is defined as “the extent to which a Classification of information facilitates efficient and effective shopping, purchasing and delivery of products and services”. Studies show that quality is connected to customer satisfaction, customer retention and loyalty (Afsar *et al.*, 2010).

3.2. Customer Involvement Plays a Key Role in Developing New Services and Products of the Process Innovation

(Alajoutsijärvi *et al.*, 2012) Despite lots of written researches about concept of customer involvement, till now, there is no well-define concept about it (Magnusson *et al.* 2003). Alam and Perry (2002) demonstrate that the core element of customer involvement in new service development highlights the objective/purpose of involvement, the stages of involvement in the organizational innovation process, the intensity of involvement and the modes of involvement.

3.3. Price

Researches show that loyal customers are less sensitive to price changes and are more vulnerable to being charged premium prices (Reichheld and Sasser's, 1990). Conversely, a MIS implementation is costly because this system is situated in all enterprise and it need for a comprehensive information.

3.4. Customer Satisfaction

There are lots of researches about describing relationship between MIS and customer satisfaction (McKinney *et al.* 2002, Chen *et al.*, 2000; Peppard, 2000). Customer satisfaction is high when customer receives maximum profit at his/her minimum input (Afsar, June, 2010). The application of MIS increases the income of company which leads to an increase in the customer satisfaction (Tohidi, Jabbari 2012).

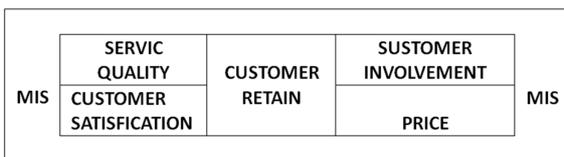


Figure 2. Research Hypotheses.

The research framework from literature is shown in Fig. 2.

4. Research Questions

Based on the research model, we assumed four research questions to show relationships between MIS and customer retention. These questions are:

- Main question
Is there any meaningful relationship between application of MIS and customer retention?
- Secondary questions
 - Q1. Is there any meaningful relationship between application of MIS and customer satisfaction?
 - Q2. Is there any meaningful relationship between application of MIS and service quality?
 - Q3. Is there any meaningful relationship between application OF MIS and price?
 - Q4. Is there any meaningful relationship between application of MIS and customer involvement?

5. Data Analysis

To collect information, questionnaires were distributed among all of Dey computer company and 170 numbers of these customers answered the questionnaire. Data from these questioners are used to analyze the research questions. First, we showed that a relationship between MIS and customer retention factors exists (step one). Then we assessed the assumptions of regression model. It is shown that the relationship between MIS and independent variables (customer satisfaction, service quality, price, customer involvement) is linear (step two). Then, in step three, we used this model to show the equation between dependent variable and independent variables. The results are shown in the following sections.

5.1. Step One

Is there any meaningful relationship between application of MIS and customer retention?

The Pearson correlation and the significant level between MIS and customer satisfaction, service quality, price and customer involvement (that is zero (Table 1)) indicates that there is a meaningful relationship between application of MIS and customer satisfaction, service quality, price and customer involvement. This relationship is shown in Fig 2.

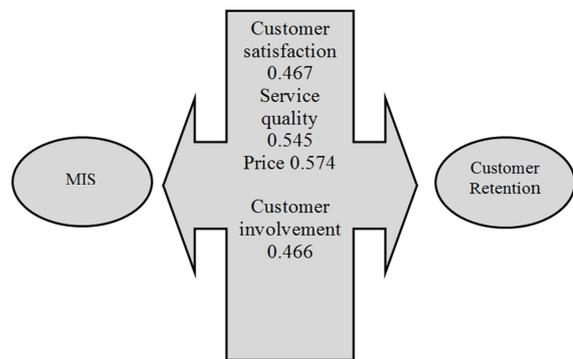


Figure 3. The relationship between MIS and customer retention.

Table 1. Results from analyzing correlation between MIS and customer retention.

	MIS	Customer Satisfaction	Service Quality	Price	Customer Involvement
Pearson Correlation	1	0.467**	0.545**	0.574**	0.466**
Sig. (2-tailed)		0.000	0.000	0.000	0.000
N	170	170	170	170	170

5.2. Step Two

5.2.1. Regression Model Assumptions

In this part, we assess the assumptions of regression model. This assessment shows that it is possible to use the regression model to predict relationships among the following factors: MIS and customer satisfaction, service quality, price and customer involvement. We can use this linear regression model in the following situations:

1. When the distribution of errors are normal.

We should evaluate the values of standard errors. We should plot the chart of data distribution and also plot the normal curve. Then we should compare them against each other. In this research, the distribution of errors is normal. The mean value that is presented on the right side of the chart is very small. The standard deviation is close to one.

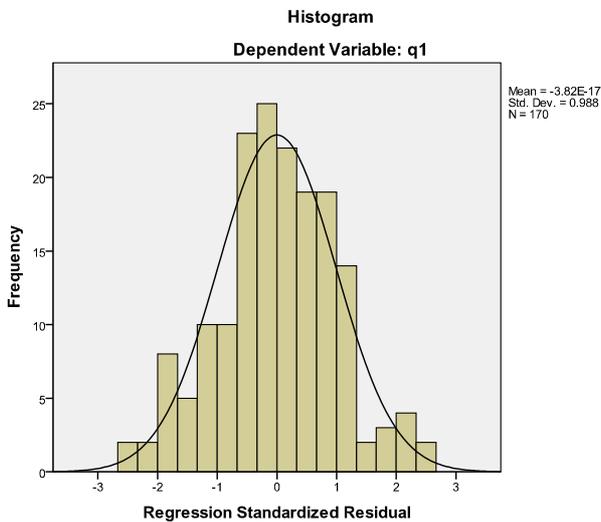


Figure 4. Histogram dependent variable: q 1.

2. There is no correlation between errors of model.

To evaluate the errors of independence assumptions, Durbin-Watson test is used. Results of this test show that the statistic of this analysis is 2.2 that are in the range of 1.5 to 2.5. Thus, there is no correlation between errors.

3. There is no correlation between independent variables (No collinearity).

Collinearity is a condition which indicates that an independent variable is a linear function of other independent variables. When collinearity of a regression equation is high, there is a high correlation between independent variables. This high collinearity means, with a high determination coefficient, the model doesn't have a high validation. In Table 3, there are five rows. The first row is the constant element. Other rows are variables that are effective in forecasting customer satisfaction, service quality, price and customer involvement. We assess the Eigenvalues. An Eigenvalue close to zero indicates high correlation between forecast conditions. When it is greater than 15, it indicates possibility of collinearity between independent variables. When it is greater than 30, is indicates a serious problem in regression analysis. Because the eigenvalues are less

than 15 but not close to zero, the regression model is correct.

5.2.2. Regression Model

In this part, we answer to the following question:

Is the relationship between MIS and independent variables (customer satisfaction, service quality, price, customer involvement) linear?

Table 2. ANOVA^b.

Model	Sum of Squares	df	Mean Square	F	Sig.
R12egression	134.253	4	33.563	31.579	0.000 ^a
1 Residual	175.370	165	1.063		
Total	309.624	169			

According to Table 3, significant level is zero which is less than 0.05. Thus, the null hypothesis (i.e. there is no linear relationship between dependent and independent variables) is rejected and hypothesis H1 is accepted. This result shows a linear relationship between independent variables and dependent variable.

5.3. Step Three

What is the equation between the dependent variable and independent variables?

The SPSS results are shown in Table 4. The dependent variable in the equation of regression line is «MIS» that is shown by Y. Independent variables are: customer satisfaction (X₁), service quality (X₂), price (X₃), Customer involvement (X₄)

Table 3. Coefficients^a.

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	0.326	0.279		1.170	0.244
customer satisfaction	0.170	0.091	0.165	1.863	0.044
service quality	0.152	0.081	0.162	1.800	0.042
price	0.386	0.084	0.381	4.608	0.000
Customer involvement	0.215	0.077	0.198	2.804	0.006

Note that each significant values that is greater than 0.05 should be removed from the equation. Because if it is greater than 0.05, the assumption of equality of regression coefficients and constant value of zero would be accepted. The regression line is shown in Equation (1):

$$y = 0.170x_1 + 0.152x_2 + 0.386x_3 + 0.215x_4 \quad (1)$$

In this study, according to the column Beta, price has the highest effect on MIS. Because a change in per unit of this variable creates a change of 0.381 on MIS variable. Other variables are ranked based on the effect on MIS in this range which are: service quality, customer satisfaction and customer involvement.

Independent t-test:

There was a significant difference between male and female customer loyalty.

$$H_0: \mu_1 = \mu_2$$

$$H_1: \mu_1 \neq \mu_2$$

Table 4. Independent t-test.

	Number	Average	Standard deviation	T	Df	Sig	Test result
Man	100	3.26	1	-1.84	168	0.288	There is no significant difference
Woman	70	3.50	0.78				

According to the results shown in Table4, because sig = 0.288 and is bigger than 0.05, therefore H_0 is accepted, which means there is no significant difference between male and female customer loyalty.

6. Conclusions

This paper investigates the implementation of MIS from the customer's perspectives and emphasizes on customer retention. The results of this research show that there is a meaningful relationship among the following variables: application of MIS and customer satisfaction, service quality, price and customer involvement. This relationship is shown in Fig 3.

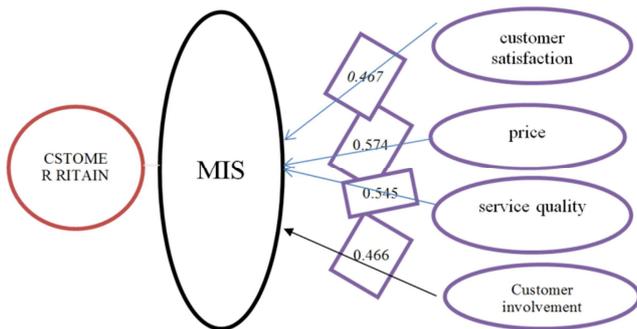


Figure 5. Research conclusions.

The analysis of regression indicates that there is a linear relationship between independent variables and the dependent variable. This relationship is shown in Equation (2):

$$y = 0.170x_1 + 0.152x_2 + 0.386x_3 + 0.215x_4 \tag{2}$$

Also according to column Beta in regression analysis (Table 4) the price has the highest effect. Because every unit change in this variable causes a change of 0.381 in the MIS variable. Other variables have been ranked in order to assess their effect on MIS. This ranking is: service quality, customer satisfaction and customer involvement. We suggest to study this model further in other services such as post services, travel agencies, and educational centers.

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