Commercial Banks Use of Decision Support System to Achieve Marketing Creativity

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Abstract

This study aimed to investigate commercial banks use of decision support systems to achieve marketing creativity. The study's population consisted from all the commercial banks operating in Jordan, totaling (19) banks according to the records of the Central bank of Jordan. To achieve the study's objectives, a questionnaire was developed and distributed to (19) marketing managers in the aforementioned banks. All the questionnaire forms were collected from the marketing managers. However, 5 questionnaire forms were disregarded, so (14) questionnaire forms were used for statistical analysis. Thus, the response rate was (73.7%). The following results were concluded by the researcher: 1)The commercial banks use of the decision support system contributed to achieving marketing creativity. 2)There are no differences that are considered statistically significant in the role of commercial banks use of the decision support system in achieving marketing creativity, which can be attributed to the marketing manager's qualifications. 3) There are no differences that are considered statistically significant in the role of commercial banks use of the decision support systems in achieving marketing creativity, which can be attributed to the marketing manager's practical experience. The researcher believed that there is a need for keeping up with the developments that concern decision support systems in a way that enables commercial banks to increase their efficiency in using these systems to achieve marketing creativity.

Key Words: *Decision Support System, Innovation, Creativity, Marketing Creativity, Commercial Banks.*

Introduction

Increased competition between organizations has led to having a development in the marketing activities. Companies do such activities to investigate the customers' needs and achieve their satisfaction. Organizations can benefit from customers' data analysis in identifying their preferences, which can contribute in the development of the marketing decision support systems (Noori & Salami, 2005).

Technological developments have contributed in providing data which are collected from customers and making them available to marketing decision makers (Bruggen et al. 2001). Marketing decision support systems contribute in helping the marketing decision makers obtain the data which were not available before and in expanding the using level of information in the field of marketing management. In addition, marketing decision support systems influence marketing managers' ability in transferring and analyzing data. Such systems also contribute in enhancing the process of marketing decisions making (Mcdonald, 1996).

Creativity is considered as one of the most important things for all the organizations which are facing a changing competitive environment. Encouraging creativity has become in the forefront of the goals that many organizations seek to achieve. The importance of marketing creativity has been increasing in the light of the increasing competitiveness between organizations in various sectors. Therefore, we can perceive the banking organization as an organization that aims to satisfy the needs and desires of its customers, and its continuation under intensive competition in the banking market leads to developing its business and achieving creativity in marketing. Therefore, it is important to investigate the role of commercial banks use of decision support systems to achieve marketing creativity.

The Study's Statement of the Problem

This study was conducted to be a follow-up study for the two studies of Hashem (2007) and Hashem & Al-Aqrabawi (2013), which were concerned in decision support systems and achieving marketing creativity in the banking sector. That showed that there is an interest in the decision support systems and marketing creativity. However, according to the researcher's knowledge, no relationship that is statistically significant was found between decision-support systems and the achieving of marketing creativity in commercial banks sector.

Therefore, the study's purpose can be achieved by answering the following questions:

1- What is the role of commercial banks use of the decision support systems in achieving marketing creativity?
2- Are there any differences that are considered statistically significant in the role of commercial banks use of the decision support systems in achieving marketing creativity, which can be attributed to the marketing manager's demographic information (educational level, and years of experience)?

Decision Support Systems

Decision support systems (DSS) can be defined as being an "information systems designed to support decisions- taking in the organization." (Jessup & Valacich, 2003, P. 183). The key feature of the decision support systems can be explained as follows: decision support systems increase interaction between the manager and computer systems, and thus there won't be a need for the manger to deal with decision support systems directly (Sultan, 2005, p 0.342). Decision support systems' characteristics are represented through: supporting the decision-making process, but not replacing it. It is organized by the middle and senior managements in the organization. It provides private data in all the aspects and areas that are related to the decision-making process (Greco & Hogue, 1990).

Advantages of the Decision Support Systems

Decision support systems provide a substantial support for the decision makers in the cases that aren't programmed, through combining human's judgment with computerized information. Liang & Hung's (1997) study showed that the most used software in the largest five hundred companies in Taiwan are: Excel , SAS , SPSS and SIGMA. The study's researchers also concluded that the reason behind the non-use of decision-making models is the lack of knowledge about models of development, and the difficulty in identifying the appropriate models.

However, there are different factors which play a role in influencing the use of decision support systems that were addressed by Wierenga & Ophuis (1997), M c Donald (1996), Buttery & Tamaschke (1996) and Hashem (2007). These factors can be summarized through the following factors: External environment factors, organizational factors, task-related environment factors, and user-specific factors, factors related to implementation, product-specific factors, and factors related to marketing information.

Marketing Creativity

Creativity is a process which produces modernity that is perceived as something useful. Creative analysis can be made from the perspective of 4p: Person, product, press (environment), and process. This perspective can be considered as being a basis for achieving creativity in the field of marketing management (Jerzyk, 2014).

In banking sector Ozyilmuz's (2001) study showed the impact of service strategy on the performance of innovation services in commercial banks. It also showed the impact of information technology on innovation services in banks. Roberts and Amit's (2003) study showed that most of the banks' creative activities sources were from outside the bank. That is done in the aim of achieving a competitive advantage the Australian banking market. The study of Alsamydai et al. (2010) demonstrated the role of creativity in marketing mix. It also demonstrated the role of other factors in achieving a competitive advantage between Jordanian commercial banks.

The Study's Hypotheses

The following null hypotheses were tested:

1- Commercial banks use of decision support systems does not contribute in achieving marketing creativity.
2- There are no differences that are considered statistically significant in the role of commercial banks use of decision support systems in achieving marketing creativity that can be attributed to the marketing manager's qualifications.
3- There are no differences that are considered statistically significant in the role of commercial banks use of decision support systems in achieving marketing creativity that can be attributed to the marketing manger's years of experience.

Data Collection Methods

The researcher used two types of data collection methods, which are as follows:

First: Primary data sources: Sample survey method has been used by using a questionnaire. This questionnaire consisted from three main sections; the first aimed to collect demographic data (such as: gender, age, education, and years of experience), while the second part aimed to collect information related to decision support systems. Studies of Hashem (2007) and Hashem & Al- Aqrabawi (2013) were both used in developing the study's questionnaire.

Second: Secondary data sources: These sources included theoretical and previous studies, which are related to marketing strategy, information technology and knowledge. That's with referring to, periodicals and specialized research Arab and foreign bangles.

The Study's Methodology's

The researcher used the descriptive analytical approach to conduct this study in order to investigate the role of commercial banks use of decision support systems in achieving marketing creativity.

The Study's Population and Sample

The study's population consisted from all the commercial banks operating in Jordan, totaling (19) banks according to the Central Bank of Jordan records. Nineteen (19) questionnaire forms were distributed to the marketing managers. All questionnaire forms were collected. However, (5) questionnaire forms were

excluded, so the final numbers of questionnaire forms that were analyzed statistically was (14). Thus, the response rate was (73.7%).

Table No. (1)

The Study's Sample According to the Distribution of Personal Information

Sample's Distribution According to their Demographic Information

Variable	Frequency	Percent
1. Gender		
Male	7	50
Female	7	50
Total	14	100
2.Age		
Less than 30	4	28.6
30-less than 35	4	28.6
35-less than 40	1	7.1
40-less than45	4	28.6
45_+	1	7.1
Total	14	100
3.Qualification		
Diploma	-	-
BSC	12	85.7
MSC	2	14.3
PHD	-	-
Total	14	100.0
4.Years of experience		
Less than 5 years	-	-
5 to less than 10	8	57.1
10 to less than15	1	7.1
15+	5	35.7
Total	14	100.0

Table (1) showed that the number of males is equal to the number of females within the study's respondents. The table also showed that 85.7 % of the respondents held a bachelor's degree, while the rest held a master's degree. It showed that the majority of the study's respondents were under 40 years, which represented 64.3 % of the sample. It can be seen that 57.1 % of the study's respondents had an experience that ranges between (5- 10 years), while the rest of the sample had more than 10 years of experience.

The Instrument's Validity and Reliability

Content validity was conducted by giving the instrument to a panel of experts who are specialized in the field of marketing and information systems. Their constructive suggestions regarding the instrument's amendment were taken into consideration.

Cronbach Alpha test was conducted to measure the stability of the measuring instrument. The (α) value of the questionnaire as a whole is 0.917, which exceeds the accepted percentage (60%). That reflects the instrument's stability, which is acceptable for internal consistency purposes (Malhotra, 2004).

The Normal Distribution Test:

(K-S) test has been conducted to test the extent of data correspondence with the normal distribution. The Sig values of the study's variables were higher than 0.05, which indicates that the concerned data correspond with the normal distribution (Malhotra, 2004).

Discussion of the Study's Results

Means and standard deviations of the study's variables and statements were summarized as follows:

1-Decision Support System

Table No. 2

Means and Standard Deviations of the Sample's Responses to the Statements that concern the Decision Support System

Statement	Arithmetic Mean	Standard Deviation
1. Technological development is utilized to reach sound decisions.	4.7857	.42582
2- The company depends on decision support system when making strategic decisions.	4.6429	.63332
3. Data collection and classification is made in a manner that helps me in using decision support system.	4.3571	.63332
4. Decision support system helps in concluding right decision by conducting data analysis on each alternative.	4.3571	.74495
5. Style simulation is used in the company.	4.1429	.66299
6. Prediction models are used in the company.	4.2143	.57893
7. The information is provided to the marketing manager through periodic reports.	4.3571	.74495
8. The applied decision support system is in line with company's internal conditions	4.2143	.80178
9. Decision support system helps in concluding an ideal solution for the problem.	4.0714	.73005
10. There is an interest in developing information data bases, which are related to the decision support system used in the company.	4.2143	.80178
General Mean	4.3357	
Standard Deviation	0.50931	

The above table shows that the arithmetic means of the sample's responses. These means range between (3.67-5) and all are classified as being high level means. This shows that there is a high level of using decision support system, and that can be seen through having a general mean of (4.3357) for all statements. That reflects the high level of decision support systems use by the study's sample.

2-**Marketing Creativity**

Table No. (3)

Means and Standard Deviations of the Sample's Responses to the Statements that concern Marketing Creativity

Statement	Arithmetic Mean	Standard Deviation
1. The Bank develops its banking products according to the customers' needs and desires.	3.4286	1.08941
2.There is an interest in diversifying the bank's loans for customers.	4.4286	.64621

3. The bank focuses on achieving creativity when promoting its banking products.	4.6429	.63332
4. The bank focuses on achieving creativity in the prices of the provided banking services in a way that attracts customers.	4.5714	.64621
5. The bank is invocative in its banking promotion methods which are used to persuade the customers to deal with it.	4.6429	.63332
6. The bank creates technological means to provide its customers with the banking services	4.1429	.66299
General Mean	4.3095	
Standard Deviation	0.48858	

The above table shows that the means of the sample's responses ranges from (3.67 to 5). Thus, they are classified as being high means, except for statement (1). Its mean is within the medium level, because it falls within the category of (2.33 – 3.66). The means of this table reflects a high level of interest in marketing creativity, and that is confirmed by having a general mean of (4.3095).

Hypothesis Test

Hypothesis (1)

Ho: Commercial banks use of decision support systems do not contribute in achieving marketing creativity.

Table No. (4)
Hypothesis testing (1)
Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.746[a]	.556	.519	.33888

a. Predictors: (Constant), DSS

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1.725	1	1.725	15.022	.002[b]
	Residual	1.378	12	.115		
	Total	3.103	13			

a. Dependent Variable: MC
b. Predictors: (Constant), DSS

Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.208	.805		1.501	.159
	DSS	.715	.185	.746	3.876	.002

a. Dependent Variable: MC

Simple regression test was conducted to test this hypothesis. Tables show that the calculated t value is (3.876), which is considered statistically significant at the significance level of (0.05). Furthermore, the correlation coefficient value is (r = 0.746), which reflects a strong relationship. The independent variable explains 55.6 % of the change in the dependent variable, because r2 = 0.556. This means that commercial banks use of decision support systems contributes in achieving marketing creativity.

Hypothesis (2)

Ho: There are no differences that are considered statistically significant in the role of commercial banks use of decision support systems in achieving marketing creativity, which can be attributed to the marketing manager's educational level.

Table No. (5)
Tests of Between-Subjects Effects

Dependent Variable: MC

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.
Corrected Model	3.089[a]	12	.257	18.536	.180
Intercept	1.690	1	1.690	121.702	.058
Delve	.014	1	.014	1.000	.500
DSS	3.063	11	.278	20.045	.173
Error	.014	1	.014		
Total	263.111	14			
Corrected Total	3.103	13			

a. R Squared = .996 (Adjusted R Squared = .942)

ANOVA test was conducted to test this hypothesis. The table above shows that the calculated F value for the decision support systems variable and for the academic qualification is not statistically significant at the significance level of (0.05). This means that there are no statistically significant differences in the role of commercial banks use of decision support systems to achieve marketing creativity, which can be attributed to the marketing manager's educational level.

Hypothesis (3)

Ho: There are no differences that are considered statistically significant in the role of commercial banks use of decision support systems in achieving marketing creativity, which can be attributed to the marketing manager's years of experience.

Table No. (6)
Tests of Between-Subjects Effects

Dependent Variable: MC

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.
Corrected Model	3.078[a]	12	.257	10.261	.240
Intercept	5.982	1	5.982	239.270	.041
expert	.003	1	.003	.111	.795
DSS	2.872	11	.261	10.445	.237
Error	.025	1	.025		
Total	263.111	14			
Corrected Total	3.103	13			

a. R Squared = .992 (Adjusted R Squared = .895)

ANOVA test has been conducted. It was concluded that the calculated F value for each variable of the decision support systems and for the years of practical experience is not statistically significant at the significance level of 0.05. This means that there are no differences that can be considered statistically significant in the role of the use of commercial banks to decision support systems to achieve marketing creativity, which can be attributed to the number of years of practical experience of the marketing manager.

Summary of the Results

The following results were concluded by the researcher:

- Commercial banks use of decision support systems contributes in achieving marketing creativity, because the value of the correlation coefficient is r = 0.746, which reflects the existence of a strong relationship . Furthermore, the independent variable explains 55.6% of the change in the dependent variable, because r2 = 0.556.
- There are no differences that can be considered statistically significant in the role of commercial banks use of decision support systems to achieve marketing creativity, which can be attributed to the marketing manager's qualification (educational level).
- There are no differences that can be considered statistically significant in the role of commercial banks use of decision support systems to achieve marketing creativity, which can be attributed to the marketing manager's practical experience.

Implications for the Study of Marketing

The researcher concluded the following marketing implications:

- The study showed that commercial banks should implement decision support marketing systems due to their contribution in making important decisions.
- -Results showed that commercial banks are in need for benefiting from the technological developments which positively affect the use of marketing decision support systems in general.
- It was clear that there is a need to activate the use of decision support systems in a way that contributes to the achievement of marketing creativity in banks.

Recommendations

The researcher recommended the following recommendations:

1. The research suggested that there is a need for keeping up with the developments of decision support systems in a way that enables commercial banks to increase their efficiency in using these systems to achieve marketing creativity.
2. Although, that there are no differences that can be considered statistically significant in the role of commercial banks use of decision support systems to achieve marketing creativity which can be attributed to the marketing manager's educational level and years of experience, it is necessary to focus on selecting marketing managers who have proper expertise and qualification, in order to avoid the negative impacts which might occur in case of choosing manager who do not have an adequate experience
3. Banks have to pay attention for training their marketing department staff about how to use decision support systems according to their work requirements, through holding training courses on a regular basis about the various programs that are related to the marketing decision support systems.
4. To diversify the means of collecting data and information from the surrounding environment, and that contributes in promoting the use of decision support systems in banks.
5. It is necessary to allocate provisions for the development of decision support systems in banks.

6. Conduct further studies on other systems from marketing perspective to benefit commercial banks more.
7. Conduct further studies regarding the study's subject on other economic sectors.

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