

## Study of Role of Sales and Marketing Information Systems in Companies' Sales Rate Increase

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**Abstract:** The modern condition of business environments has made use of some processes and systems to control effects of such environments and continuity of activity through the organizations "inevitable". From among these processes and systems, it can be referred to the most important one i.e. sales and marketing information system. This research was carried out with the aim of studying role of sales and marketing information systems in increase of companies' sales rate through the use of descriptive-survey research method. The present study includes seven (7) hypotheses. Senior managers and marketing managers of four chocolate production companies are considered subject of this study, in which, its sample size was calculated 150 persons through the use of Cochran Formula. Simple random sampling method was used for selecting sample. Questionnaire was used for collecting data. The reliability of the questionnaire was obtained 0.96 through Cronbach's Alpha Method. The results of statistical tests showed that sales and marketing information systems are effective in increase of companies' sales rate.

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### Introduction:

Today communities are called knowledge communities. Information is of paramount importance and valuable in such communities. Since making different decisions in various conditions is the most significant duty of a manager, accessing effective and efficient information is the only factor which can attain success of organization and managers while facing these conditions especially at the Age that unstable competitive condition has put highly variable environment ahead of organizations. The information which requires making decision in contingency and strategic conditions.

Information systems can provide such information available to managers and users. Actually, sales and marketing information systems are the systems which support development management activities, services, appropriate distribution, pricing, promoting sales, effectiveness and anticipation of sales.

The first definition of marketing information systems (MkIS) was presented by Cox and Good(1967). MkIS was seen as a set of procedures and methods for the regular planned analysis and presentation of information for use in making marketing decisions. Brien and Stafford(1968), Smith et al.(1968) and Buzzell et al.(1969) further developed the definition. Marketing information was divided into control, planning and research information. The purpose of the earliest marketing systems was to gather, sort, analyse, evaluate and distribute pertinent, timely and accurate information for marketing decision makers to improve their planning, implementation and control. Uhl(1974) pointed out

that there is no one MkIS that will serve all organizations because of the unique information requirements of different organizations – they are composed of sub-systems and they have been built over a long period of time.

Marketing information system is efficient tool providing past, present and projected information relating to internal operations and external intelligence (Armstrong and Kotler, 2007). It supports the planning, control, and operational function in an organization by furnishing uniform information in the proper time frame to assist the decision maker.

Demand for acquiring information was increased in environments like economic, social, political environments, market conditions and rivals, etc. in this ever increasing complexity of internal and external environments of the organization. Today, significance of information is posed as an important tactical and strategic source at the organization and also as a major source for getting awareness of opportunities and threats in future. In addition, information is considered as a valuable source both in making short-term and tactical (daily activities of the organization) decisions as well as enjoying strategic advantages in long-term programs of the organization.

To help managers to foresee the changes in markets or customer's preferences, you need sound information system, which known as (MKIS) marketing information system. MKIS collect the relevant data; organize it into some thing meaningful, make recommendations based on these figures and then stock it up for future use (King, 2010). MKIS is a computerized system that designed to provide an organized flow of information to enable and support

the marketing activities of an organization; Which serves collaborative, analytical and operational needs, designed to be comprehensive and flexible in nature and to integrate with each other (Harmon, 2003). MKIS consist of four integrated sub systems, which serves the company's marketing and other managers, begins and ends with information users. So companies must design effective marketing information systems that give managers the right information, in the right form, at the right time to help them make better marketing decisions (Armstrong and Kotler, 2007). The marketing information systems increases the

number of options available to decision maker and support every element of marketing strategy; MKIS affects marketing interfaces with customers, suppliers, and other partners (Harmon, 2003). The primary benefits of the MKIS impact in the areas of functional integration, market monitoring, strategy development and strategy implementation.

The conceptual framework advocated by Kotler and Armstrong (2003) is presented in Figure (1). The framework examines the influence of the effective design of MKIS, on organizational design and behavioral decision-making.

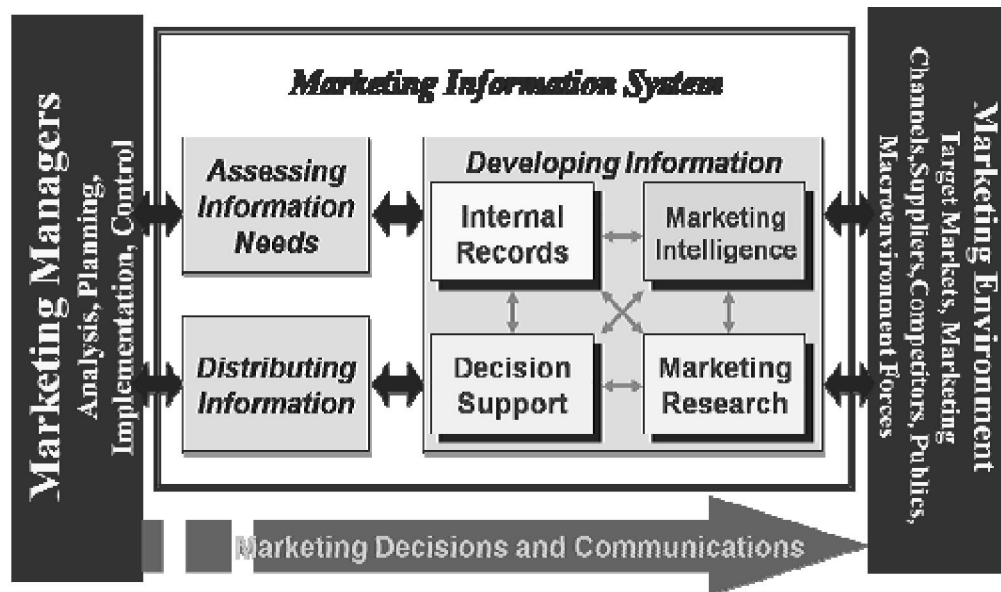


Fig 1. conceptual framework of Marketing Information System , Turki Ismai (2011)

### Sales and Marketing Information System Components

MKIS design is important since the quality of marketing information system has been shown to affect the effectiveness of decision- making (Jobber and Fahy, 2006). The MKIS comprises the following four elements:

#### A. Internal Records (Data Bases)

Many companies build extensive internal data base, electronic collections of consumers and market information obtained from data source within the company network. Marketing managers can readily access and work with information in the data base to identify marketing opportunities and problems, plan programs, and evaluate performance (Kotler and Armstrong, 2008). Internal data bases usually can be accessed more quickly and cheaply than other information sources (Pride and Ferrell, 2006).

#### B. Marketing Intelligence

Marketing intelligence (MI) systems increasingly provide the data that drivers both strategic and tactical decision for enterprise. Many businesses have already invested heavily to aggregate data from diverse system and applications in order to create a whole-enterprise view to fully reflect the daily state of business, as well as support more effective, informed decisions (Jazdtech, 2010, pride and Ferrell, 2006). A marketing intelligence system is a set of procedures and data sources used by marketing managers to sift information from the economic and business environment that they can use in their decision making ( Fao.Org., 2010).

#### C. Marketing Research

Marketing research is a proactive search for information to solve a perceived marketing problem; Marketing research is the systematic and objective identification, collection, analysis, dissemination, and use of information and solution of problems and opportunities in marketing (Malhotra N. K, 2007). The American Marketing Association formally defined

marketing research as a function that links the consumer, customer, and public to the marketer through information- information used to identify and define marketing opportunities and problems; generate, refine, and evaluate marketing actions; monitor marketing performance; and improve understanding of marketing as a process.

#### D. Analyzing Marketing Information: (Decision Support System)

A decision support system (DSS) is an integrated set of computer tools allowing a decision maker to interact directly with computer to retrieve information useful in making semi structured and unstructured decisions (Power, 2002,. Ezine, 2010,. James, 1998). A decision support system (DSS) is an interactive computer system that is easily accessible to, and operated by non computer specialists to assist them in planning and decision-making functions. While DSSs may differ in their emphases on data-access and modeling functions, there is an overriding emphasis in all such systems on user accessibility to data for decision-making (Power, 2002,. Ezine, 2010). This decision-making applicability permits managers to simulate problems using formal mathematical models and to test the outcomes of various alternatives for reaching the best possible decision (Bernard, 1985). The term decision support system refers to a class of systems, which support the process of making decision DSS allow the decision maker to retrieve data and test alternative solutions during the process of

problem solving (Ezine, 2010). The meaning of DSS is based on following assumptions about the role of the computer in effective decision-making (Power, 2002,. Ezine, 2010,.James, 1998). This research was carried out with the aim of studying role of sales and marketing information systems in increase of companies' sales rate.

#### Research Methodology

Five vegetable oil production companies of "Bahar", "Nastaran", "Ladan", "Aftab" and "Nina" with total 247 managers in charge of sales and marketing departments of the companies are subject of the present study. The sample size was calculated 150 persons based on Cochran's Formula and simple random sampling method was used for the selection of sample.

$$n = \frac{N^2pq}{N d^2 t^2 pq} = \frac{247 \times 3/84 \times 0/5 \times 0/5}{247 \times 0/0025 + 3/84 \times 0/5 \times 0/5} = 150$$

The primary data collection was made through studying books, articles, papers, thesis and searching in internet sites. In fact, the first part of the study is related to the library study while "field study" was carried out at the second part. The researcher-made questionnaire was used for collecting data, in which, managers of sales and marketing departments of the said companies responded to the questions. Formal validity, i.e. using experts' views, was used with the aim of determining validity of the questionnaire. The reliability of the questionnaire was obtained 96% through the use of Cronbach's Alpha Test.

Table (1): Reliability of Questions Related to the Studied Structures

Structure	Questions of Each Structure	No. of Questions	Alpha Value
Marketing information systems	1 - 30	30	0.963

Alpha Test.

#### Research Hypotheses

General Hypothesis:

Sales and marketing information systems cause increase of companies' sales rate.

Partial hypotheses:

- 1- Application of sales and marketing information technologies is effective in companies' sales rate increase.
- 2- Value of sales and marketing information systems is effective in companies' sales rate increase.
- 3- Improvement of product quality is effective in companies' sales rate increase.
- 4- Application of appropriate distribution system is effective in companies' sales rate increase.
- 5- Application of appropriate promotional strategies is effective in companies' sales rate increase.

- 6- Appropriate pricing is effective in companies' sales rate increase.

#### Data Analysis

Kolmogorov-Smirnov Test was used in order to study normality of research variables. One-Sample T-Test was used for testing hypotheses of the research.

As it is observed in Table (2), significant level in each of variables is as follows:

- Sales and marketing information systems: 0.306
- Application of sales and marketing information technologies: 0.114
- Value of sales and marketing information systems: 0.250
- Improvement of product quality: 0.052
- Application of appropriate distribution system: 0.219
- Application of appropriate promotional strategies: 0.228
- Appropriate pricing: 0.231

All the figures obtained in above is larger than 0.05  
i.e.  $0.231 > 0.05$ .

With 95 percent confidence, it can be said that these  
variables are normally distributed

Table No. 2: Results of Kolmogorov-Smirnov Test for Normal Distribution Fitness

Variables	Information systems	Application of technology	Value of information systems	Improving product quality	Application of distribution system	Application of promotional strategies	Pricing
Kolmogorov-Smirnov Statistics	0/968	1/197	1/020	1/352	1/051	1/042	1/038
Significant level	0/306	0/114	0/250	0/052	0/219	0/228	0/231
Total	93	93	93	93	93	93	93

### Main Hypothesis:

The main hypothesis of sales and marketing information systems cause increased sales rate of companies. As it is observed in Table 3, test significant level stands at 0.000 and below 0.05. With 95 percent confidence, it can be said that test null hypothesis i.e. lack of effect of sales and marketing information systems has not been confirmed on the increased sales rate of companies and research hypothesis, i.e. sales and marketing information systems causes increased sales rate of company, is confirmed. In other words, research main hypothesis is confirmed.

Table 3: Test Related to Efficacy of Sales and Marketing Information Systems on Sales Increase

	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Marketing Information Systems	46/273	149	.000	3/92043	3/7522	4/0887

### 1<sup>st</sup> Hypothesis:

Application of sales and marketing information technologies is effective on the increased sales rate of companies. As it is observed in Table 4, test significant level stands at 0.000 and below 0.05. With 95 percent confidence, it can be said that test null hypothesis i.e. lack of effect of application of sales and marketing information technologies has not been confirmed on the increased sales rate of companies and research hypothesis, i.e. application of sales and marketing information technologies causes increased sales rate of companies, is confirmed. In other words, first hypothesis of the research is confirmed.

Table No. 4: Test Related to the Efficacy of Application of Sales and Marketing Information Technologies on Sales Increase

	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Application of Sales and Marketing Information Technologies	42/373	149	.000	3/95054	3/7654	4/1357

### 2<sup>nd</sup> Hypothesis:

Value of sales and marketing information systems is effective on the increased sales rate of companies. As it is observed in Table 5, test significant level stands at 0.000 and below 0.05. With 95 percent confidence, it can be said that test null hypothesis i.e. lack of effect of value of sales and marketing information systems has not been confirmed on companies' sales rate increase and research hypothesis, i.e. value of sales and marketing information systems causes increased sales rate of companies, is confirmed. In other words, 2<sup>nd</sup> hypothesis of the research is confirmed.

Table No. 5: Test Related to the Efficacy of Value of Sales and Marketing Information Systems on Sales Increase

	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Value of Sales and Marketing Information Systems	38/340	149	.000	3/80430	3/6072	4/0014

**3<sup>rd</sup> Hypothesis:**

Improving product quality is effective in the companies' sales rate increase. As it is observed in Table 6, test significant level stands at 0.000 and below 0.05. With 95 percent confidence, it can be said that test null hypothesis i.e. lack of effect of improving product quality has not been confirmed on the companies' sales rate increase and research hypothesis, i.e. improving product quality causes increased sales rate of companies, is confirmed. In other words, third hypothesis of the research is confirmed.

Table No. 6: Test Related to Efficacy of Improvement of Product Quality on Sales Increase

	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Improvement of Product Quality	45/006	149	.000	4/02366	3/8461	4/2012

**4<sup>th</sup> Hypothesis:**

Application of appropriate distribution system is effective in the companies' sales rate increase. As it is observed in Table 7, test meaningful level stands at 0.000 and below 0.05. With 95 percent increase, it can be said that test null hypothesis i.e. lack of impact of application of appropriate distribution system has not been confirmed on the companies' sales rate increase and research hypothesis, i.e. application of appropriate distribution system causes increased sales rate of company, is confirmed. In other words, the fourth hypothesis of the research is approved.

Table No. 7: Test Related to Efficacy of Application of Appropriate Distribution System on Sales Rate Increase

	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Appropriate Distribution System	46/273	149	.000	3/92043	3/7522	4/0887

**5<sup>th</sup> Hypothesis:**

Application of appropriate promotional strategies is effective on the increased sales rate of companies. As it is observed in Table 8, test significant level stands at 0.000 and below 0.05.

With 95 percent confidence, it can be said that test null hypothesis, i.e. lack of impact of application of appropriate promotional strategies has not been confirmed on the increased sales rate of companies and research hypothesis, i.e. application of appropriate promotional strategies causes increased sales rate of companies, is confirmed. In other words, the fifth hypothesis of the research is confirmed.

Table No. 8: Test Related to the Efficacy of Application of Appropriate Promotional Strategies on Increased Sales Rate

	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Application of Appropriate Promotional Strategies	40/699	149	.000	3/86667	3/6780	4/0554

**6<sup>th</sup> Hypothesis:**

Appropriate pricing is effective in the increased sales rate of the company. As it is observed in Table 9, test significant level stands at 0.000 and below 0.05. With 95 percent confidence, it can be said that test null hypothesis i.e. lack of impact of appropriate pricing has not been confirmed on the increased sales rate of companies and research hypothesis, i.e. appropriate pricing causes increased sales rate of companies, is confirmed. In other words, the sixth hypothesis of the research is confirmed.

Table No. 9: Test Related to the Efficacy of Appropriate Pricing on Increased Sales Rate

	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Appropriate Pricing	41/686	149	.000	3/88602	2/7009	4/0712

**Conclusion:**

The results of the main hypothesis of the research showed that sales and marketing information system will cause increased sales rate of the companies i.e. companies' sales rate is increased with the promotion of sales and marketing information systems.

The results of the first hypothesis showed that application of sales and marketing information technologies causes increased sales rate of companies. It can be said that effect of information technologies exceeds production affair. This issue can change all marketing equations of the company and also can add a new life to the trade name of the company.

The results of the second hypothesis showed that value of sales and marketing information system causes increased

sales rate of companies. It can be said that customer's satisfaction depends on two factors: performance of product in presenting desired value to the customer thanks to the expectation of purchaser and quality of product. If performance of the product is found less than expectation of customer, purchaser will be dissatisfied and if product performance is found identical with the expectation of customer, purchaser will be satisfied.

The results of the third hypothesis of the research showed that improving product quality causes increased sales rate of companies. In other words, appearance of product should boost quality of product. So, quality is presented through other marketing elements like price, product trade name, packing, distributing, and promoting advertisement and all these elements help creation of an appropriate mental image of product. In the same direction, producer should select a high quality level for his products in order to meet requirements of target market and rival goods. It should be noted that each feature of product can be considered as a competitive tool for differentiating the desired product from other product of rivals.

The results of the fourth hypothesis showed that application of appropriate distribution system causes increased sales rate of the companies. That is to say that making decision on product distribution channel is of the most important decisions which managers are facing. Product physical distribution affects other marketing decisions directly and pricing policy and product publicities depend on distribution systems and intermediary sales channels completely. Distribution channels are a set of institutions which are dependant on each other and have been tasked with presenting goods or services.

Distribution channels are not merely limited to the distribution of physical goods. Producers of new ideas and services should be able to provide their products available to the target population appropriately. For this purpose, they should use training systems and presenting health services. So, they also should set up specific centers and branch offices for this aim. For example, hospitals and training centers should be set up at the areas to offer training and health services in the best form possible. The distribution channels enjoy complicated behavioral systems, in which, both people and companies affect each other mutually with the aim of realizing their objectives.

The results of the fifth hypothesis showed that application of appropriate promotional strategies causes increased sales rate of the companies. In other words, these methods are classified in four groups: Publicity (like publishing catalogue), promoting sales (like distribution of discount coupon), public relations (like participating in exhibitions), and personal sales (negotiated in person with customers)

Companies can expand their promotional programs with very low cost across the globe through the use of marketing information systems especially internet and satellite. But we should bear in mind that principles of advertising in Internet differ from the principles of advertising in traditional media like TV, Radio and magazines.

In Internet, advertising message reaches hardly to the customer's notice, unless, the very customer intends to receive the message. He, i.e. customer, can control type and duration of displaying advertisement and also can disconnect the program when desired. Hence, customer is not merely listener at the internet environment, but he should be listener in setting up companies.

The results of the sixth hypothesis showed that appropriate pricing causes increased sales rate of companies. That is to say that a company can follow up specific objectives through accurate pricing. For example, entrance of rivals to the market can be barred through setting low price. Stability can be created at the market with assimilating the product price. So, accurate determination of price of a product can help marketing of other products and also can meet other objectives of the company. Creating loyalty and attracting more customers will be possible through supporting sales agents.

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