# The Effect of Marketing Information System on Decision Making

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**Abstract: Problem statement:** This study aimed at highlighting the significance and importance of utilizing Marketing Information System (MKIS) on decision-making, as well as to describe the process of decisions taken by the managers using MKIS. The study also aims to lay out the necessary requirements for the successful implementation of MKIS in decision-making. **Approach:** MKIS shows that the roles for computer-based support for developing marketing strategy present a real challenge to individual computer-based techniques and technologies in a fast-changing environment supplemented by additional criteria relating to concerns the importance of the internal data base, marketing research and marketing intelligence criteria and their influence on organizational decision making success. The empirical research method was expert assessment, conducted by means of questionnaires. Correlation analysis was employed to test the validity of the procedure. **Results:** The empirical study findings confirmed positive relationships between top management adopting MKIS elements and the success of an organizational decision making. **Conclusion:** The study offer better understanding of performance-increasing market share as an organizational decision making based on marketing information system research by investigating structural MKIS among internal data base, marketing research and marketing intelligence.

**Key words:** Internal data base, marketing research, marketing Intelligence and decision-making

## Introduction

Successful business strategies and operations depend on successful decision-making. Marketing strategies are the means by which the company's marketing objectives will be achieved (McDonald, 1996). Marketing strategy development is concerned with devising the means by which the company can effectively differentiate itself from its competition, by capitalizing on its strengths to provide better value to its customers over time. The purpose of marketing strategy development is to establish, build, defend and maintain competitive advantage (McDonald, 1992). The development of marketing strategy requires both comprehensive analysis of internal and external environments and a synthesis of useful information (Mintzberg, 1994). It requires managers to deal with issues that involved a high degree of uncertainty and ambiguity (Brownlie and Spender, 1995). It also involves managers' intuition and judgment (Mintzberg, 1994).

The ultimate purpose of MKIS is to facilitate mangers mission to make decision at all levels of operations based upon the information flow. Information is the essential ingredient of management and decision-making for both external and internal factors. Higher level of management is concerned with external factors such as new and proposed government legislation, changes in the market, economic status, competitor's actions. At lower levels, external influences are considered less important. A value of information can be computed for decisions, which fits these frameworks of analysis.

Marketing strategy development needs much experience and extensive domain knowledge (McDonald and Wilson, 1990). Systematic analysis and strategic thinking are essential to the formulation of sound strategy. In recent years, the use of computer-based information systems in developing marketing strategy has gained attention from academic researchers. Decision Support Systems (DSSs) have been developed to assist with the formulation of marketing strategy using quantitative models and analytical techniques (Wilson and McDonald, 1994) Efforts have also been made to apply Expert Systems (ESs) in supporting strategic marketing by offering domain knowledge and intelligent advice (McDonald, 1989).

## The importance of the study

The research focus on highlighting the elements of MKIS and why MKIS is important to decision makers? Moreover, the study aims at exploring the followings:

- Present an overview for MKIS components and its importance to the decision makers

- Outline the necessary requirement for successful decision making by implementing MKIS

## Research objectives

This study attempt to examine the role of MKIS elements in taking the right decision in the right time, so the study seeks to answer the following questions:

- Does the company data base contribute positively to take the right decision by decision maker?
- Does the marketing research of the company contribute positively to take the right decision by decision maker?
- Does the marketing intelligence of the company contribute positively to take the right decision by decision maker?

## Research hypothesis

In order t investigate the effect of marketing information system criteria on decision-making. The researcher proposed the following research questions:

H1: There is a positive relationship between the data base utilizing and the right decision making
H2: There is a positive relationship between marketing research and the right decision making
H3: There is a positive relationship between marketing intelligence and the right decision making

## Conceptual approach

Market information includes all facts, estimates, opinions and other information used in marketing decisions, which affects the marketing of goods. Goods are produced or purchased for resale in anticipant of demand. Therefore, the success of a producer or a merchant depends upon the knowledge of the demands of his product or products in the market. In the modern method of marketing it is necessary for a

manufacturer to possess accurate information on the following points: What goods do consumers want? At what time do they want them? In what quantity is a product wanted? How the product of the consumers wants a particular product? How the product can be made available to the consumers? How many new customers can be attracted to purchase a product and how? Whether there is any competition already in the market.

Accurate information about the market may help in sound sales forecast and to plan buying policies on the basis of such sales forecast. If risk is minimized, solution of the problem of market financing is made easier. Smaller amount of capital would be required for stocks, expenses of selling may be reduced and loans can be optioned and credit extended more freely. Further, accurate market information may be helpful in price-stabilization because with the correct knowledge of demand, production may be so planned that the equilibrium of demand and supply is least disturbed. Thus, market information help a manufacturer to create, retain and expand the market for his products.

Brien defined MKIS as "A structured, interacting complex of persons, machines and procedures designed to generate an orderly flow of pertinent information collected from both intra and extra-firm sources for use as the bases for decision making in specific responsibility areas of marketing management.

Kotler and Armstrong (2003) define MKIS as: "A marketing information system is a continuing and interacting structure of people, equipment and procedures designed to gather, sort, analyze, evaluate and distribute pertinent, timely and accurate information for use by marketing decision makers to improve their marketing planning, execution and control". Kotler and Armestrog (2003) suggests that the organization 'should design the marketing information system in a way that reconciles what executives would like to have, what executives really need and what is economically feasible to offer, with the information being precisely related to the major decisions which marketing manager have to make-the decisions concerning the product, place, price and promotional aspects of market performance. He therefore, proposes that the system design should be based on a survey of user needs, covering such issues as: types of decisions being taken; types of information needed to make the decisions; types of information presently being supplied regularly; types of information

which would be liked but which are not yet supplied; types of special studies being periodically requested; types of information required daily, weekly, monthly, yearly; types of magazines, trade reports required regularly; types of special, topic on which information is thought useful; types of data analysis programs to be made available.

From the above discussion, we can see that MKIS is more comprehensive than marketing research. Berenson state that, "A marketing information system involves broader and more inclusive activity than marketing research. It includes: (I) determining specifying the data needed; (II) the generation of this information by means of marketing research; distribution cost, analysis, or some other tool and then (III) processing of these data. Marketing intelligence suggests a process, while marketing research is often concerned with techniques.

According to Stanton (1971) marketing intelligence is a system concept, whereas marketing research usually deals with fragmented, unrelated research projects, done to solve an existing problem identified by some executive. Thus, a marketing system is conducted on continuing basis serving as a prognosis as well as diagnosis; it is preventive as well as curative medicine for marketing. Jutkins (1994) defined database marketing as gathering, saving and using maximum amount of useful knowledge about your customers and prospect to their benefit and your profit. Database is a collection of data arranged for computer retrieval.

**An overview of decision-making**
Decision-making is a conscious human process. The verbs 'decide' is derived from the Latin Prefix 'de' meaning 'off' and the word 'caedo' meaning 'to cut'. In this sense, some cognitive process cuts off as preferred, or selects, a particular course of action from among a set of possible alternatives. To decide means to come to a conclusion or resolution. Fremount (1970) have defined decision-making as the "conscious and human process, involving both individual and social phenomenon based upon factual and value premises, which concludes with a choice of one behavioural activity from among one or more alternatives with the intention of moving toward some desired state of affairs". It represents a course of behaviour or action about what must or must not be done. Three aspects of human behaviour are involved in decision making: (i) cognition, activities of the mind associated with knowledge; (ii) the action of the mind implied by such words as

willing, desire and a version and (iii) the aspect of mind associated with emotion, feeling, mood and temperament. All these factors go into decision-making. Thus, decision-making is defined as the selection of the one course of action. It is a choice making activity and the choice determines our action or in action.

Simon (1977), says that "Management and decision-making are the same thing" Decision-making begins with the recognition of problem and once it is recognized and defined, alternatives to change the unfavourable situation into a more favourable one are sought. Decision-making is globally thought to be "selection from alternatives". If is deeply related with all the traditional functions of manager, such as planning, organizing, staffing, directing and controlling. When he performs these functions, he makes decisions. However, the traditional management theorists did not pay much attention to decision-making.

**Empirical studies on using MIKS in decision making**

Simate (1973) has stated that information system could be linked with the manufacturing activity. His theory on information system described various components of such a subsystem, their interactions and relations to other subsystems within the integrated information system. He has surprisingly disregarded the relationship of information system with three other major functional aspects of an organization that is finance, marketing and personal. Mensah (1984) has discussed various techniques for classification of information needs of a business organization and progressing an information system design to address their need, they illustrate a formal method for deciding on the configuration of the information subsystems.

Gupta (1989) addressed the wide use of computer in marketing and management of materials in an organization, thus enabling a materials manager to engage in more creative pursuits that the daily routine work. Light has also been thrown on the doubts, distrust reservations associated with the use of computer. Cespedes (1993) in his study entitled "coordinating sales and marketing in consumer goods firms" found that information systems currently in place often hinder information flows between functional units and that there is a lake of relevant information available for decision makers concerning customers and channels, leading to difficulties in allocating resources effectively.

O'Brien *et al*. (1998) mentioned that the volume of data available to the marketing function in customer products companies has grown exponentially throughout the past decade. With this explosive growth has come a corresponding need to transform the data into information, which is usable to assist marketing managers in making business decisions.

Demery (1999) mentioned that database marketing is now evolving to the point that the credit-card industry can actually deliver its long-standing promise of providing products tailored to each individual customer. It might however be a technological game limited to the largest of players. Lehaney (1999) succeeded the definite value of technology-enabled database marketing and also concluded that its success rests on participative, human centred approaches to development. A marketer tackling specific marketing challenges should not focus on technology, but rather, the business problem. When solving business problems, human experience and creativity provide critical insights and at times viable solutions without costly investment or expansion in the technology. Stone and Good (2002) in their study analyse the impacts of computer use on marketing operations, as a result indicate that using these technologies will help in exploit opportunities, improve work quality and quantity, solve problems and it will improve communication.

Roge and Chakrabarty (2002) discussed the different methods to measures the efficiency and success of information technology in marketing operations. They were used to support the constructs used in testing relationships between IT assisted communications, productivity of work, operations, decision-making and strategy. They suggest that IT adoption by marketing managers may follow a two-stage process: The first, marketing managers augment their operational capabilities by using IT. Second, these improved operational capabilities lead to a second stage in which marketing managers use IT to improve marketing strategies. Their model of IT in the marketing organization was structured as follows. Organizational communication was conceptualized as IT related improvements in inter-organizational and intra-organizational communications.

Yu-Hui Toa and Chu-Chen Rosa (2003) introduce two simple yet essential database-marketing tools: (i) Usage Segment Code (USC). (ii)

Net Revenue Equation (NRE). And their applications in the top ten US credit card business. The promising results further demonstrate that simple yet creative ideas can be converted into powerful database marketing tools to increase the return on investment in a marketing database.

You-Ping Yu and Shu-Qin Cai (2007) present a new model for customer targeting when the information in customer databases is limited.

The research found that   describing a computer-based support system for the implementation of the model, shows that the user company strengthened its customer service strategy, won higher satisfaction and loyalty levels and achieved sales growth 50% above the industry average.

Henry (2009) concerning marketing standardization is  still developing. A new research theme has recently emerged, wherein it is suggested that the structure of marketing decision making is likely to be a factor of marketing standardization strategy. This study aims to add insights to this new research field. Based on the outcome of previous studies, it aims to propose and test a research framework concerning the relationships among environmental factors, the structure of decision making and marketing standardization/performance. This study seeks to focus on the two most important programmed elements: Promotion and product.

It is suggested that, with the absence of direct influence, the structure of decision making is still likely to have an indirect effect on marketing standardization strategy.

Sheng Zhao (2009) on his study examine the nature of common sense, its application in decision-making and possibility of developing common sense more effectively.

The study provides how to understand properties of common sense from managerial perspective, analyzes its value in aiding decision making, explains how mangers utilize common sense of target group or employees for decision making and creativity and proposes some points for boosting development of common sense.


 **Method**

 A total of 100 fully completed questionnaires were processed, the response rate of this survey is 80% which was desirable and higher than corresponded research in social science.

**Hypothesis testing**

The aim of this project is to study the relationship between MKIS elements and decision-making. The result will display by following hypothesis:

**H1:** There is a positive relationship between the degree of data base adopting and the right decision making.

To investigate hypothesis number one of the study, descriptive statistics of variables were computed, Table 2 shows that descriptive analysis shows that the mean value of Adopting internal data base was (4.28) with SD value (0.91) and the mean value for right decision making was (4.27) with SD value (0.85) which means that there are positive attitudes toward these variables because their means are above mean of the scale (3).

**Table 1:** Cronbach's coefficient alpha of MKIS criteria

| Criteria | Cronbach's Coefficient alpha |
|---|---|
| Data base | 0.8433 |
| Marketing research | 0.8697 |
| Marketing intelligence | 0.8721 |

**Table 2:** Descriptive statistics for utilizing market concept

| Variable | Mean | SD |
|---|---|---|
| Data base | 4.28 | 0.91 |
| Decision-making | 4.28 | 0.85 |

**Table 3:** Regression analysis for utilizing market concept

| Model | Adopting data base |
|---|---|
| r | 0.79 |
| $R^2$ | 0.6241 |
| β | 0.65 |
| t | 8.55 |
| Sig. | 0.00 |
| F | 73.103 |
| Sig. | 0.00 |
| Result | Reject null |

**Table 4:** Descriptive statistics of adopting data base

| Variable | Mean | SD |
|---|---|---|
| Marketing research | 3.65 | 0.84 |

**Table 5:** Regression analysis for marketing research

| Model | Marketing research |
|---|---|
| r | 0.65 |
| $R^2$ | 0.4225 |
| β | 0.55 |
| t | 6.15 |
| Sig. | 0.00 |
| F | 37.82 |
| Sig. | 0.00 |
| Hypothesis result | Reject null |

To investigate first hypothesis simple regression analysis was applied Table 3 shows that the analysis shows that there is a relationship between Data base and decision making, r-value reached (0.79), f-value reached (37.103) by significant (0.00), this indicate there is a positive relationship between the two variables. So null hypothesis was rejected.

**H2:** There is a positive relationship between the degrees of marketing research a adopting and the right decision making.

To investigate hypothesis two of the study, descriptive statistics of variables were computed Table 4 shows that the mean value of the degree of Adopting marketing research was (3.70) with SD value (0.84). Which means that there are positive Relationship between MKG research and decision-making.

To investigate second hypothesis simple regression analysis was applied; Table 5 shows that there is a relationship between degree of Adopting MKG research and decision-making. R-value reached (0.65), f-value Reached by significant (0.00), this indicate there is a relationship between MKG research and decision-making. So Null hypothesis was rejected.

**Table 6**: Descriptive statistics for marketing intelligence

| Variable | Means | SD |
|---|---|---|
| Marketing intelligence | 3.47 | 0.93 |

**Table 7**: Regression analysis for marketing intelligence

| Model | Marketing research |
|---|---|
| r | 0.74 |
| $R^2$ | 0.54 |
| β | 0.59 |
| t | 22.6 |
| Sig. | 0.00 |
| F | 510.76 |
| Sig. | 0.00 |
| Hypothesis result | Reject null |

**H3:** There is a positive relationship between degree of marketing intelligence adopting and the right decision making.

To investigate hypothesis three of the study, descriptive statistics of variables were computed, Table 6 shows that the mean value of adopting MKG intelligence was (3.47) with SD value (0.93), which means that there are positive relationship MKG intelligence and decision making. Their means are above mean of the scale (3). To investigate hypothesis three simple regression analyses was applied. Table 7 shows: That shows there is a relationship between degree of Adopting marketing intelligence and decision-making. r-value reached (0.54), f-value reached (510.76) by significant (0.00), this indicate there is a relationship between Adopting marketing intelligence and decision-making. So hypo Null hypothesis was rejected.

**Result s**

For investigating the MKIS elements of the questionnaire, the most common index of reliability, namely Cronbach's coefficient alpha for each criterion of MKIS elements was computed. The result of alphas that exceeded the threshold of 0.7 has been listed in Table 1. The scores in the range of 0.8 are considered good providing support for the reliability of the questionnaire.

## Conclusion

The summary result will be as following:

- There is a relationship between the degree of adopting internal data base and the right decision-making. whenever (r-value) reached (0.79) and  (f-value) reached (73.103) by significant (0.00), this indicate there is a relationship between the two variables
- There is a relationship between the degree of adopting MKG research and the right decision taken by marketing manager. Whenever (r-value) reached (0.65) and (f-value) reached (37.82) by significant (0.00), this indicate there is a Positive relationship between the two variables
- There is a relationship between the degree of adopting MKG intelligence and the right decision taken by marketing manager. Whenever (r-value) reached (0.74) and (f-value) Reached (510.76) by significant (0.00), this indicate to a positive relationship between the two variables

## Recommendations

The importance of adopting MKIS elements by decision maker, which help them to take the right decision at the right time to minimize cost and to maximize profit.

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