

Studying Role of Information Systems at Strategy Formulation Process

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ABSTRACT

Nowadays there are few persons neglecting role of modern information technology in different organizational and social processes. Organizations of Iran according to this necessity shall move toward global markets and observe more importance for these technologies. One of the most important success factors of organizations is existence of information systems at different sectors of organization including: marketing. These systems collect required information of managers through different methods and offer them to senior managers of organization through official and unofficial methods. On this basis, the present research deals with effect of marketing information systems on strategy formulation of organization. Statistical universe of the present research is 100 excellent companies in year 2002 and 4 questions are raised in relation to effect of marketing information systems, method of obtaining information, information technology that are used at marketing unit and output of these systems. In order to collect information it was used from questionnaire which was distributed among senior managers of marketing and commercial section of company.

KEY WORDS: Marketing Information Systems, Strategy Formulation, Knowledge, Information Obtain Methods, Information Technology.

INTRODUCTION

In modern theories the issues such as marketing, marketing unit and marketers has strategic status. Within these theories, marketing is regarded as unit of organization that not only deals with selling service but also deals with specialists of marketing unit due to concentration of companies on customers and complete familiarity with market, attempting to strategy formulation of company (Khodadad Hosseini and Fathi 2002). One of the most important factors that results in improving strategic role of different units of organization is ability of easy access to strategic information as a result of environmental and organizational evolutions of organization. Marketing unit due to benefiting from excellent property of direct communication with environment and its evolutions may have access to this information and in this way to play its effective role at making strategic decisions of organization. It is to be noted that strategic decisions of organization and strategy formulation requires using special resources and skills in total sections of organization. These skills and resources shall be compatible with properties of making decision. Basically strategic planning and strategy formulation as analytical process requires experience, insight, judgment, motivation and suitable preferences compatible with strategic planning for senior managers of organization. Within strategy formulation process it is necessary to attention that each company shall distinguish from its rivals, through making investment on weak points and offering better value for customers (Jain & Puni 1987). Due to specific complexities of this process, senior managers of organization require to analyze their environment, its changes and integrating useful information and making complicated decision activities is mandatory for senior managers of organization (Mintzberg 1994; 1994c). In addition due to high level of uncertainty and ambiguity of this process for organization, it requires using broad organizational knowledge and strategic information (McDonald & Wilson, 1990; Mintzberg, 1994). Necessity of using broad information at different stages of strategic planning, have made companies to inevitably use from advantages of information technology. During recent years, the issue of information technology has broad application in marketing. Most researchers believe that information systems based on information technology only have suitable structure, coherence and standard. Whereas specific property of strategic planning that was already mentioned within different strategic planning stages of an organization, these systems in addition to other human and organizational factors may have effective performance. Effectiveness of these computer information systems and marketing unit on strategy formulation is an important issue that is studied in the present research.

Statement of Problem

Modern condition of commercial environments for using some processes and systems has made companies to enviably influence from these environments and continuation of activities. Among these processes and systems the important of them is strategic management and information systems. Information enables to make relevant all duties

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of units of companies and create basis for all managerial decisions. At the present time, commerce is very competitive and strategies shall inevitably develop their planning and attempt to make decision under unsafe condition. Consequently, for strategy formulation it is required to obtain more information (David, 2001). Goal of using these systems is improving effectiveness of strategy formulation process (Keen & Scottmorton 1995). These systems are very useful for preparing and interpreting strategic information for being used at process of developing useful organizational strategies (McDonald & Wilson 1995). Creating abilities for easy access to specialty knowledge is regarded as key factor for strategy formulation in comparison to other information systems. Therefore each of the sections of organization require information systems for strategy formulation process in order to prepare their required information and certainly degree of importance and effectiveness of this information within strategy formulation process are not equal. In order to study effectiveness of information systems on strategic decision, it is required to exactly attention these systems with respect to type of application, type of system, components of system, properties of organizational structure and methods of obtaining information. Due to diversity of application it is required to determine whether these systems act in the way of making strategic decisions and organizational strategy formulation or not. Newman believes that type of information system (TPS, MIS, DSS, EIS, ES etc) do not determine whether these systems are useful for strategic goals or not; rather they determine type of using them (Neumann 1994). On the other hand, others believe that systems including ES (Sees Neumann), EIS (Executive Information System) and DSS (Decision Support System) are useful for strategic goals (Abbasi & Movahedi 1998, Telvinen 1995). Among other problems related to marketing information systems we may refer to official or unofficial methods of obtaining information. Mac Loud 1999 has defined marketing information systems: they are set of official and unofficial systems that prepare required marketing information. Therefore, it seems so important to attention that organization obtain its required marketing information either through official or unofficial methods. Another most important point is paying attention to organizational structure and informational necessities. While organization is divided into operational, middle and strategic, the section of information system has specific property for operational sector at data, middle, information and strategic sector (Burrell 1995, Talvinen 1995). Another important issue that shall be studied in relation to marketing information systems is that these systems are more suitable for each of the strategic goals. Components of these systems are very important. Some researchers believe that according to informational requirement the marketing managers shall benefit from components of hardware and software of these systems for other sections of organization (Collgate 1998). Therefore it is necessary to study type and role of information technology of these systems. The present research attempts to answer this question that, is marketing information system of desired companies in the present research (IMI-100 list) were effective on strategy formulation process?

Goals of Research

Principal Goal:

1) Determining role of marketing information system within strategy formulation process of companies available at IMI-100 list

Subsidiary Goal:

- 1) Determining official or unofficial goals of obtaining marketing information that are used at strategy formulation process of companies available at IMI-100 list
- 2) Determining role of marketing information technology in strategy formulation process for companies available at this process
- 3) Determining property of marketing information system with respect to output (data, information, decision making choices and knowledge) for strategy formulation process of companies available at IMI-100 list

Research Questions

Is marketing information systems are effective on strategy formulation process for companies available at IMI-100 list?

Subsidiary Questions:

- 1) Is marketing information used at strategy formulation process of companies available at IMI-100 list are offered to company through official methods?
- 2) Is information technology of marketing information of companies available at IMI-100 list is effective on strategy formulation process?
- 3) Is output (data, information, decision making and reward) of marketing information system of companies available at IMI-100 list are effective on strategy formulation process?

Research Variables

A) Independent Variables:

- 1) Marketing information systems
- 2) Official or unofficial canals of obtaining marketing information
- 3) Information technology of marketing information systems
- 4) Output of marketing information systems

B) Dependant Variables:

Strategy formulation

Studying Research Questions:

Information analysis in the present research is descriptive-inferential. Required data of this research was collected by using questionnaire having several general questions dealing with some properties of statistical universe including: marketing unit, position of this section in organizational chart, number of personnel having direct communication with this unit, number of personnel having indirect communication with this unit and total number of personnel of organization. In the present research there is 1 principal question and 3 subsidiary questions. In order to obtain required data to offer answer for questions of the questionnaire, it was used from research literature, foreign researchers and designing title of research. In order to design questionnaire it was used from some operational criterions and indices and are useful for measuring variables of research. Therefore, questions have 5 choices such as very high, very low, completely agree and completely disagree with the following priorities: 5(very high), 4(high), 3(medium), 2(low) and 1(very low). Under cases that goal is studying existence of non-existence of systems, the models and methods were designed and number 1 is observed for existence and 0 is for non-existence. In order to extend results it was used from T-TEST and finally by using this test, the average for total results of universe was studied. It is to be noted that statistical universe of the present research is all senior managers of commercial unit or marketing unit of 100 excellent companies in year 2002. Among distributed questionnaires, 42 of them were returned and 40 questionnaires were analyzed.

First Section: Properties of Statistical Universe

First Property: Number of personnel of companies

Table 1: Frequency and percentage of companies based on number of personnel

Number of personnel	Number of companies	%
0-1300	17	42.5
1300-2600	14	35
2600-3900	2	5
3900-5200	3	7.5
5200-6500	1	2.5
6500-7800	0	0
7800-9100	2	5
9100-11000	1	2.5
Sum	40	100

Second Property: Number of personnel of marketing unit

Number of personnel	Number of companies	%
1-9	21	52.5
9-18	10	25
18-27	5	12.5
27-36	2	5
36-45	0	0
45-55	2	5
Sum	40	100

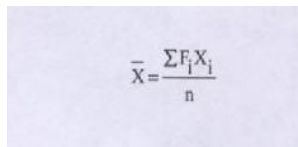
Studying Principal Research Question:

Is marketing information system is effective on strategy formulation of companies available at IMI-100 list?

Independent variable: marketing information systems

Dependant variable: strategy formulation

Due to importance of this question in final conclusion of research, questions 1 to 26 of questionnaire have dealt with this specialty question. Within these questions, attitude of managers in relation to status of marketing unit, regarding at center of activities, duties of this unit, strategy of organization and its definitions were mentioned. Average response based on calculation was 3.41.



$$\bar{X} = \frac{\sum F_i X_i}{n}$$

X: average response

Fi= number of response

N=40

Statistical Definition of Hypothesis Related to this Question:

H0= marketing information systems is not effective on strategy formulation of companies available at IMI-100 list

H1: marketing information systems is effective on strategy formulation of companies available at IMI-100 list

H0: $\mu \leq 3$

H1: $\mu \geq 3$

Therefore response to this question is as follows:

Marketing information systems is effective on strategy formulation of companies available at IMI-100 list

Studying First Subsidiary Question:

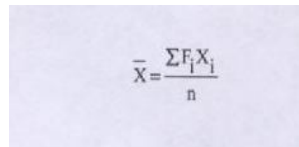
Is marketing information used at strategy formulation of companies available at IMI-100 list are offered to company through official methods:

Independent variable: official method

Dependant variable: strategy formulation

Questions 27 to 31 of questionnaire were allocated to this question. Within this question method of obtaining marketing information, method of collecting information, type of information, official or unofficial methods of obtaining information with respect to attitude of managers is studied. In addition diagram for 2 choice questions related to this question deals with method of obtaining information, method of collecting information, type of information, official and unofficial methods of obtaining information

		Average	Standard deviation	Degree of freedom	T-test	Principal research question
Low limit	High limit					
0.2856	0.5517	3.4136	0.4318	39	6.059	1



$$\bar{X} = \frac{\sum F_i X_i}{n}$$

X: average response

Fi= number of response

N=40

Statistical Definition of Hypothesis Related to this Question:

H0: marketing information in strategy formulation process of companies available at IMI-100 list do not offer to company managers through official methods

H1: marketing information in strategy formulation process of companies available at IMI-100 list are offered to company managers through official methods

H0: $\mu \leq 3$

H1: $\mu \geq 3$

		Average	Standard deviation	Degree of freedom	T-test	Principal research question
Low limit	High limit					
0.3236	0.6514	3.4875	0.5125	39	6.016	1

Therefore, response to the first subsidiary research question is as follows:

Marketing information in strategy formulation process of companies available at IMI-100 list are offered to company managers through official methods

Studying Second Subsidiary Question:

Is information technology of marketing information systems of companies available at IMI-100 list is effective on strategy formulation?

Independent variable: information technology

Dependant variable: strategy formulation

Questions 32 to 36 of questionnaire deal with this question and attempt to study following issues: decision making models used at marketing unit, goals of using computer at this unit, software used at marketing information systems, type of computers, type of information system used at marketing unit.

Although data of this research in relation to research question are not possible to make inference from statistical tests; it shows that information technology of marketing units is not compatible with strategy formulation process.

Studying Third Subsidiary Research Question:

Is output (data, information, decision making and knowledge) of marketing information systems of companies available at IMI-100 list are effective on strategy formulation process of companies?

Independent variable: output of marketing information system

Dependant variable: strategy formulation

Questions 24 to 37 of questionnaire deal with this question.

$$\bar{X} = \frac{\sum F_i X_i}{n}$$

X: average response

Fi= number of response

N=40

Statistical Definition of Hypothesis Related to this Question:

H0: output of marketing information system of companies available at IMI-100 is not effective on strategy formulation of such companies

H1: output of marketing information system of companies available at IMI-100 is effective on strategy formulation of such companies

H0: $\mu \leq 3$

H1: $\mu \geq 3$

		Average	Standard deviation	Degree of freedom	T-test	Principal research question
Low limit	High limit					
-0.6201	-0.0924	2.6438	0.8251	39	-2.731	3

Therefore response to this question is:

Output of marketing information system of companies available at IMI-100 is not effective on strategy formulation of such companies

RESEARCH MODEL

Research model attempts to determine effective factors and find relationship of these factors with creating role of information system for strategy formulation of organizations. These factors are as follows:

- 1) Status of marketing section in organization
- 2) Attitude of senior managers of organization for strategy formulation and marketing information system
- 3) Method of input data and marketing information to information system of organization
- 4) Tools and methods of analyzing information
- 5) Output of marketing information systems

It is to be noted that aforesaid factors are determined according to analytical framework of R David for strategy formulation. Therefore, 3 last factors (input, methods and tools, output) are related to entrance, comparison and decision making stages of this model.

RESULTS OF RESEARCH

- * Information that has application at strategic decisions or not kept or are available at different units through manual or computer mode, is not able to transfer or kept at computer based systems
- * Internet is neglected as powerful and strategic tool for obtaining information
- * Software compatible for strategic decisions, including; artificial intelligence and simulators have less application
- * Type of computer used at most of marketing units is not able to process great size of information related to strategic decisions
- * It is less applied from personal and group marketing decision making systems, support systems and information of senior managers for making strategic decisions
- * Most of decision making models are not applied in marketing unit and generally it was applied from models related to pricing, anticipating supply and demand and analyzing sale profit
- * Computers are less applied at modeling and simulating decision making at marketing unit and only were used to keep and process data
- * There is positive attitude of managers in relation to marketing information systems and establishing strategic planning
- * Importance of strategic marketing duties in organization under this study is at medium level.

Suggestions

- * Developing organization culture based on marketing and creating positive attitude among personnel in all sections of organization dealing with marketing
- * Creating suitable grounds for active partnership of marketing personnel for making strategic decisions of organization
- * Attention to strategic marketing duties (targeting and market division, analyzing industry and market, strategic planning of company, analyzing opportunities, threats and rivals)
- * Creating suitable grounds for strategic thought among all sections of organization
- * Investment on developing application of IT in marketing activities of companies
- * Planning in relation changing Internet as principal method of collecting information at different stages of strategic decision
- * Applying diverse decision making models at marketing unit
- * Applying advanced software and hardware as prerequisite for using marketing information systems and strategy formulation
- * Developing informational system with suitable compatibility for strategy formulation
- * Developing knowledge based systems in organization specially marketing unit as most principal tool of competitive advantage at business environment

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