

THE CURRENT STATUS OF MARKETING INFORMATION SYSTEM IN TAIWAN*

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ABSTRACT

This paper surveys the marketing executives of the top 1000 companies in Taiwan, and reports the status of MKIS in their companies. One hundred and thirty-one companies participated in this study, giving a response rate of 13.1%. The data provide some insights into the strengths and weaknesses of the MKISs in Taiwan. Some viable actions are recommended to improve the MKIS usage and to reshape the future of MKISs in this country.

INTRODUCTION

The use of information systems to support marketing functions may be traced back to 1960's. Before there was a term of "marketing information system," marketers were using computer to run the mathematical models to solve marketing decision problems [Kotler, 1963]. In the Fall of 1966, Philip Kotler [1966] published an article to propose an architecture for building a marketing information system (MKIS) in a business firm. It is considered even today as one of the pivotal articles in the field of MKIS. Since then, several more MKIS models have been proposed and MKIS has been regarded as a nerve center of a company. However, not many companies have completely implemented an MKIS perhaps due to the high cost of development and operations. In today's business environment, more and more business executives have realized that corporate success depends mostly on marketing success, while marketing success depends on meeting the needs of customers. The information processing requirements of a company are changing and expanding as the business environment becomes more complex and competitive. To handle the ever-increasing amount of external and internal information and to improve decision quality, the need to establish an MKIS in one's company is never before so great. The purpose of this paper is to explore the current status of MKIS in Taiwan. The results reported may help us gain insights into the strengths and weaknesses of MKIS usage in Taiwan. This, in turn, may help the top management in Taiwan to reshape the future of MKIS in their companies.

RESEARCH METHOD

Subjects

Since it is expensive to implement an MKIS, we shall use larger companies as our survey sample because they are more likely to afford having MKISs in their companies. The subjects of this study are the marketing executives from the top 1000 companies in Taiwan. A questionnaire concerning the use of MKIS and a letter with instruction for completing the questionnaire were sent to these marketing executives. Six weeks later, a second wave of mailing was sent to the non-respondents. Eventually, one hundred and forty-two executives (14%) returned the questionnaire within three months. However, 10 of them are unusable due to excessive invalid or missing values. This leaves us on 131 usable samples, giving a response rate of 13%.

Among these usable samples, 42 were returned in the first wave while 89 were in the second wave. Table 1 displays the characteristics of these respondents.

Questionnaire

The questionnaire used by this study was adapted from Li (1995). However, several items regarding the use of state-of-the-art information technologies such as electronic data interchange, integrated service digital network, world wide web, object-oriented programming, among others, are added into the questionnaire. In addition, several demographic questions were included in order to validate the representativeness of the subject group.

Procedure for Analysis

In order to examine the representativeness of the data, the demographic distributions of the respondents (the sample) were tested against the same distributions of the 1000 companies (the population). No significant difference was found in any demographic distribution, indicating the sample is representative of the population. Next, a series of chi-square and 't' tests were then conducted between the samples with completed questionnaires from the two waves of mailing. This allows us to examine the existence of non-response bias. Since no significant difference was found on any question in the questionnaire between the two samples, we may conclude that there is no significant non-response bias and the two samples can be regarded as coming from the same population. This allows us to merge the two samples as one for further analyses in this study.

RESULTS AND DISCUSSIONS

CBIS and Marketing Plan

Many responding companies (71.9%) have formal written CBIS plans. Among these companies, 65.9% of them indicate that their CBIS plans are influenced by their marketing strategies. Meanwhile, almost 3/4 (97 companies) have formal written marketing plans. Among these companies, a surprising majority of them (97.9%, 95 companies) do exploit their information resources in their marketing plan. This reveals that the top companies in Taiwan already have healthy marketing systems. They not only value the information resources in their companies but also incorporate the use of these resources in their marketing plan.

Computer Networks

A large group of companies (87%) has a company-wide CBIS. Therefore, the use of communication networks (mostly LAN) is very common in Taiwan. Furthermore, 77.1% of the companies have integrated database accessible to the organizational units through computer network. There are many companies (84.1%) which would routinely route marketing intelligence information to those managers with a "need to know."

In contrast, only 31.3% of the companies use computer network to send and receive information to and from their upstream or downstream business partners. This indicates that the use of information technologies is limited mostly to intra-organizational purpose. Using information technologies for inter-organizational communications and collaborations is not common in Taiwan. This condition may be attributed to the high telecommunication fee charge and poor telecommunication infrastructure in Taiwan.

Communications of Information

The pattern of communicating information between the main office and its branches, or between different organizational units, is exhibited in Table 2. It appears that most companies (96.9%) are transmitting data between the organizational units. Surprisingly, most of them use facsimiles (84.7%) to communicate. As for the more advanced information technologies such as hypertext, hypermedia, or digital multimedia conferences, they are not being use much (less than 4%) by these companies.

Table 2. Communications of Information

N=131	N	%
Data transmission	127	96.9%
FAX/facsimile	111	84.7%
Voice/phone mail	55	42.0%
Electronic mail	54	41.2%
Electronic data interchange	27	20.6%
Electronic bulletin board	26	19.8%
Telephone conferences	24	18.3%
Computer conferences	12	9.2%
Integrated service digital network	9	6.9%
Video conferences	8	6.1%
Digital multimedia conferences	5	3.8%
Hypertext conferences	3	2.3%
Hypermedia conferences	2	1.5%

Definition of MKIS

Most companies (87.8) have computerized MKIS. When the executives were asked to think of their MKISs, 30% of them first think of reports while 19.2% think of data retrieval (see Table 3). Table 4 shows that the most popular type of MKIS is "a group of subsystems, some gather data and others process it. The data gathering subsystems are marketing research, marketing intelligence, and internal accounting. The processing subsystems produce information about the major marketing activities--- product, price, distribution, and promotion." The second most popular type of MKIS is a simple system that allows users to inquire or update data in the system; no decision modeling capability is required.

Table 3. Perception toward MKIS

N=131	N	%
Computer equipment	15	11.5%
Computer models/programs	6	4.6%
Data/file storage	0	0.0%
Data/file retrieval	25	19.2%
Data/file processing	18	13.8%

Reports	39	30.0%
Different areas of marketing operations	10	7.7%
Different managers' information needs	17	13.1%

Computer Usage

There are almost 90% of the marketing executives who have been using computers for more than 5 years (see Table 5). Moreover, 93.1% of the executives indicate that they are using a computer or a terminal. Many of them (41.8%) are using computers to retrieve external resources through computer network. In terms of frequency of usage, majority of them (87.8%) are using the computers on a daily basis. They are mostly using computers for the purposes of storing data (79.5%), retrieving data (82%), processing data (82.8%), producing reports (82.8%).

Computer Hardware

According to Table 6, the most popular type of computer used in the MKIS is the personal computer (39.02%). This may be due to the price performance of a PC is much higher than that of a larger computer. Moreover, the cost of a PC has been dropping dramatically during the recent years, making it more affordable for a user.

Computer Software

Table 7 shows that the most popular software used in MKIS in sequence are: word processing (28.97%), decision modeling/spreadsheets (17.72%), and database management software (15.15%). Ironically, object-oriented programming (1.31%), 4th generation/integrated software (1.13%), system simulation (0.66%), and expert system shells (0.09%) are being used to a very little extent.

Information Contents

Over half of the companies (51.9%) maintain preprocessed information in the database for immediate response to manager queries. Many more companies (77.1%) realize the importance of economic trends and include such estimates in their marketing forecasts.

As for the types of environmental information collected for MKIS, the most popular ones are: customers (84%), competitors (51.2%), and prospects (51.1%). Many of them have computerized customer data (66.4%), but only some of them have computerized prospect data (25.2%) and competitor data (14.5%). Regarding the other types of information, they are not much computerized (see Table 8).

There are many sources of competitor data as shown in Table 9. Many of the sources are being utilized by over half of the companies. These include competitor's annual report (60.3%), competitor's other publications (52%), information given by customers (76.3%), newspapers/magazines (71%), information from business registries or member service organizations such as society, association, and union (66.4%), market survey results (68.7%), field study trips (54.2%), and trade shows (49.6%). However, most of the competitor information is not entered into a computerized database.

Many of the companies have a dedicated office of which the primary responsibility is to collect information on customers (88.5%), competitors (81.7%), and prospects (59.5%). Only some of the companies have a dedicated office for collecting information on national economy (37.4%), governments (36.6%), and global economy (19.1%).

Sources of Information in MKIS

Many of the companies (53.1%) regard internal accounting/data processing is the most important source of information for MKIS. Based on the average ranks in Table 10, the degrees of importance of the information sources in sequence are: internal accounting/data processing (1.75), marketing intelligence (2.09), and marketing research (2.18).

Support for Marketing Management

Table 11 reveals that the level of management which most often uses decision models is the top management, followed by the middle management. Low-level managers have the least usage of decision models.

In terms of supporting management activities, Table 12 indicates that most support goes to planning activities, followed in sequence by controlling, directing, organizing, and finally, staffing.

Support for Marketing-Mix Decisions

The marketing-mix decisions are related to product, price, distribution, and promotion. Many companies store in the database the description of pricing decisions (74.8%) and product decisions (65.6%), as shown in Table 13. Moreover, the most MKIS support goes to pricing decisions (41.4%) and product decisions (37.5%), followed by promotion decisions (11%) and distribution decisions (10.2%).

Types of Marketing Management Decisions

There are many types of decisions made by marketing managers as listed in Table 14. The three most frequent decisions made by top marketing management are: computing operating budgets (64.9%), new product evaluation (63.4%), and pricing strategy (61.8%). Those made by middle management are: pricing strategy (52.7%), computing operating budgets (51.9%), and new product evaluation (43.5%). Those made by low-level management are: computing reorder points (28.2%), routing of salesperson or deliveries (26%), and computing economic order quantities (22.9%). Many types of decision may be assisted by computers. These include: product deletion (22.1%), pricing strategy (35.1%), computing economic order quantities (27.5%), approving customer credit (31.3%), computing operating budgets (39.7%).

CONCLUSIONS

The current status of MKIS in Taiwan is quite encouraging. Many marketing executives are experienced computer users. They are using computers (especially PCs) or terminals on a daily basis. The purposes of using computer are primarily to store, retrieve, process data in order to produce reports. The most commonly used software are word processing, spreadsheet,

and data management software. Many companies have company-wide CBISs as well as formal written CBIS plans. They also have formal written marketing plans which are linked with the CBIS plans. Many companies routinely route marketing intelligence information to those managers with a need to know. They use mostly facsimiles to communicate or transmit data between different remote offices. Many companies have dedicated offices to maintain data about customers, potential customers, and competitors. They collect competitor's information from customers, newspapers/magazines, annual reports, market survey results, business associations, and field study trips. The support of MKIS mostly goes to top management for planning activities such as new product evaluation, product deletion, and pricing.

Nevertheless, there are some downsides of the current conditions. First, the use of information technologies is limited mostly to intra-organizational purpose. Not many companies use the computer network technologies to communicate between remote offices and between them and their upstream or downstream business partners. The fee structure of telecommunications services in Taiwan should be revamped and reduced enough to engender using information technologies for inter-organizational communications and collaborations. Second, most of the marketing information (especially about competitors) are not entered into a computerized database. Much of the data about national and global economies are not being collected. Not many companies use marketing research and marketing intelligence as the source of information for MKIS. This indicates that the companies in Taiwan are not using the available information efficiently and effectively. They should enter more marketing information into computerized databases and use more information technologies to make the needed information readily available at their finger tips.

Third, most of the companies are not using the new software technologies such as artificial intelligence/expert system software, CASE tools, fourth generation integrated software, or object-oriented programming languages. They do not even use presentation or statistical analysis software as much as they should. They need to use more of these software to help them organize data, present data, and make decision in a most effective way. Finally, the support provided by the MKISs to marketing management levels and decisions in these companies are not balanced. Middle and low-level management are not using enough decision models provided by the MKIS. Distribution channel and promotional decisions are not properly supported by the MKIS. It seems that there are too much emphasis on top management's planning activities but too little on lower level management's implementation activities. More MKIS support should be shifted to lower level management since they are the ones who carry out the marketing plans. This will gradually improve the total productivity of a marketing function and in turn exemplify the benefits of having an MKIS in the company.

(References and other tables are available upon request.)

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