

MARKETING INFORMATION SYSTEM USAGE IN TAIWAN AND U.S.: A COMPARISON OF TOP COMPANIES

*Eldon Y. Li, College of Business, California Polytechnic State University
San Luis Obispo, CA 93407, U.S.A., 1-805-756-2964, eli@calpoly.edu*

ABSTRACT

This paper surveys the marketing executives of the top 1000 companies in Taiwan, and reports the status of in their companies. The results are compared with the U.S. status reported in two other studies. One hundred and thirty-one companies participated in this study. The data provide insights into the strengths and weaknesses of the MkISs in Taiwan.

INTRODUCTION

The globalization of marketplace in the recent years has intensified the business competition throughout the world. Today's marketing executives are facing an ever larger and rapidly changing marketing environment [11]. They are receiving more information from both internal and external sources with the help of improved computer technology and databases [4]. There is a need for marketing executives to process more data for decision-making at all levels of management activities. This makes a marketing information system (MkIS) one of the most vital means of effective marketing. The purpose of this study is to compare the results of these two previous studies with the current status of MkIS usage in Taiwan's top 1000 companies. This allows us to identify the strengths and weaknesses of MkIS usage in Taiwan. It also help the top management in Taiwan to reshape the future of MkIS in their companies.

RESEARCH METHOD

Subjects

The subjects of this study are the marketing executives from the top 1000 companies in Taiwan [3]. For comparison purpose, the questionnaire concerning the use of MkIS was adapted from Li [6]. This questionnaire 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-one 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.

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 DISCUSSION

CIS and Marketing Plans

Most of the responding companies (87%) have company-wide computer-based information systems (CBISs); this is slightly higher than the U.S. top companies (80.7%). Many (71.9%) of these companies have formal written CBIS plans. Among the latter companies, 65.9% of them indicates that their CBIS plans are influenced by their marketing strategies. These are somewhat higher than 66.7% and 58.8% respectively as reported by the U.S. 1993 study. Moreover, 74% of the responding companies have formal written marketing plans. This is significantly lower than the 89.4% of the U.S. companies. Among these Taiwan companies, a surprising majority of them (97.9%) do exploit their information resources in their marketing plans. This practice is less seen in the U.S.; only 53.4% of them are doing so. 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 plans.

Hardware Usage

Most (87.8%) of the responding companies in Taiwan use computers to assist their MkISs; somewhat fewer than those in the U.S. (95.1%). Figure 2 indicates that the most popular type of computer hardware used by the MkISs in Taiwan is PC or workstation (52%), followed by minicomputer (19%). In contrast, U.S. companies use mostly mainframe computers (50%), followed by PC or workstations (25%). 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. In addition, the recent advent of client-server computing has rendered the upswing of PC computing.

Software Usage

The types of computer software being used in Taiwan are very different from those being used in the U.S. (see Figure 3). Fourth generation languages or integrated software (1%) and conventional 3rd generation programming languages (9%) are not used as much in Taiwan as in the U.S. (13% and 26%, respectively). Moreover, many Taiwan companies are using other software (50%) such as word processors and presentation software. This is probably due to the popularity affordability of office automation software in Taiwan such as Microsoft Office, Lotus SmartSuite, etc. Not many companies are willing to pay for the high price of 4th generation integrated software running mainly on minicomputers or other larger computers. Nor are they willing to pay for and rely on application systems written in less-flexible 3rd generation languages. As for the other types of software, there are no significant differences. One expected outcome is that the use of artificial intelligence (A.I.) technology such as expert system shells and logic programming languages is very minimal in both countries.

Frequency of Computer Usage

Figure 4 indicates that slightly more marketing executives in Taiwan (82%) are using computers daily than those in the U.S. (73%). This is perhaps due to the newly available access to the World Wide Web on the Internet that has been increasingly popular in Taiwan since 1994. By now, the friendly graphical user interface on the World

Wide Web might have attracted more executives to use more of their computers in both countries.

Purposes of Computer Usage

The top four purposes of using computers in Taiwan are, in sequence: processing data (83%), producing reports (83%), retrieving data (82%), and storing data (80%). These are identical to the top four purposes reported in the 1993 U.S. survey, which in sequence are: retrieving data (88%), producing reports (78%), storing data (66%), and processing data (63%). Further comparing these two recent surveys with the 1985 one (see Figure 5), processing data and storing data appear to become increasingly popular. The great contrast in responding to inquiry between the two countries (U.S. 60% versus Taiwan 41%) is probably due to the fact that printed reports is more popular than on-line screen output among Taiwan's marketing executives. It is expected that in the near future more of these executives will get used to and use more of on-line inquiries.

Communications of Information

Traditionally, office communications in both countries were through the phone (or voice mail). It appears that most Taiwan companies (96.9%) are transmitting data between the organizational units. Surprisingly, most of them use facsimiles (84.7%) to communicate. Only 41.2% are using electronic mail systems in Taiwan; comparing to 68% in the U.S. three years earlier. The use of computer conferences (9.2%) and video conferences (6.1%) are limited in Taiwan, similar to that in the U.S. (9% and 10% respectively). As for the more advanced information technologies such as hypertext, hypermedia conferences, they are not much used by the top companies in both countries (less than 4% in Taiwan and none in the U.S.) Moreover, many companies in Taiwan (84.1%), as opposed to 78% in the U.S., routinely route marketing intelligence information to those managers with a need to know.

Information Content

Based on the number of top-ranking responses, the marketing executives in both countries, regarded internal accounting/data processing as the most important source of information for MkIS, followed by marketing intelligence, and marketing research (see Figure 6). Taiwan companies are not utilizing the environmental data as much as the U.S. companies (see Figure 7). Neither do they computerize such data as much as the U.S. companies. Similar pattern occurs in using the sources of competitor information (see Figure 8). Taiwan

companies are not utilizing as much as the U.S. companies the possible sources of such information. To know their competitors, the companies in both countries most often use corporate annual reports. While sales call reports are most frequently used or computerized in the U.S., they are least frequently used or computerized in Taiwan. As for preprocessed information, such as sales forecasts, distribution trends, market share, inventory statistics, etc., 51.9% of the Taiwan responding companies are making them available for real-time access. This is somewhat lower than the U.S. companies (70%). However, more companies in Taiwan (77.1%) than in the U.S. (49%) are having economic-trend estimates included in their marketing forecasts.

Support for Marketing Management

The U.S. companies provide balanced support to different levels of managers (see Figure 9). Ironically, the MkIS support in Taiwan goes mainly to top-level managers (62%); middle-level (25%) and low-level (13%) receive much less support. In terms of supporting management functions, most support in both countries goes to planning activities, followed in sequence by controlling, directing, organizing, and finally, staffing (see Figure 10).

Support for Marketing-Mix Decisions

The marketing-mix decisions are related to product, price, distribution, and promotion. Most MkIS support in Taiwan goes to pricing decisions (41%) and product decisions (38%). Promotion decisions (11%) and distribution decisions (10%) receive much less support from the MkIS (see Figure 11). In contrast, the U.S. companies focused mainly on product decisions (51%) in the early years. As of 1993, they have provided more balanced support to the other three types of decisions.

Use of Decision Models

There are many types of decisions made by marketing managers. The four most frequent decision models used by Taiwan executives are: computing operating budgets (65%), new product evaluation (63%), pricing strategy (62%), and product deletion (53%). This is consistent with the executives in the U.S. (see Figure 12).

While these decision models are the top four most likely models to be assisted by computers in the U.S., product deletion and new production evaluation are less likely to be computer assisted in Taiwan (see Figure 13). Approving credit, computing economic order quantity and reorder point are more likely to be computer assisted in Taiwan while identifying facility location, selecting

advertising media, and assigning salesperson to territories are more likely in the U.S.

CONCLUSIONS

Comparing to the U.S. status in 1993, the 1996 status of MkIS in Taiwan is quite applaudable. There are some significant strengths and weaknesses of Taiwan MkISs.

Strengths:

1. More companies in Taiwan have incorporated their information resources into their formal marketing plans.
2. Taiwan's MkISs use PC's more frequently than mainframe computers.
3. Many more Taiwan companies have dedicated offices to maintain data about customers, competitors, and government.
4. Many more companies in Taiwan (77.1%) than in the U.S. (49%) are having economic-trend estimates included in their marketing forecasts
5. Some structured decisions in marketing such as approving credit, computing economic order quantity, computing reorder point are more likely to be computerized in Taiwan than in the U.S
6. More MkISs in Taiwan are satisfying managers and creating competitive edge for their companies.

Weaknesses:

1. Taiwan companies use and computerize environmental data much less than the U.S. companies.
2. The companies use less of external clipping and reporting services for competitor information than those in the U.S.
3. The MkIS support for management and marketing mix decisions in these companies is less balanced than those in the U.S.
4. Not many managers in Taiwan (13%) think of "different information needs" as their first impression about MkIS support; much fewer than the U.S. managers (23%).
5. Significantly more companies in Taiwan than in the U.S. are lack of formal written marketing plans.
6. The companies use much less 4th GL/integrated and 3rd GL software than those in the U.S.
7. The marketing information (especially about competitors) in Taiwan is not entered into a computerized database as much as in the U.S.

*** *References, Table, and Figures are available upon request.*