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Marketing information systems in tourism companies

JANJA ŠTOKElj

Na Brajdi 20, 5270 Ajdovščina, Slovenia

janja.stokelj@gmail.com

ALEKSANDRA BREZOVEC

University of Primorska

Faculty of Tourism Studies Portorož – TURISTICA, Slovenia

aleksandra.brezovec@turistica.si

DORIS GOMEZELJ OMERZEL

University of Primorska

Faculty of Management Koper, Slovenia

Faculty of Tourism Studies Portorož – TURISTICA, Slovenia

doris.gomezelj@fm-kp.si

Abstract

This paper presents a survey of the characteristics of marketing information systems (MkIS) and marketing information usage within Slovenian tourism companies. In order to investigate the overall status of MkIS, a questionnaire based on theoretical background and previous research was created. The study focused on marketing information management investigation – gathering, processing, distribution, usage and storage of information. Furthermore, it examined whether the information systems have been used by marketing departments and if the MkIS has been used for decision making. Finally, the level of satisfaction with MkIS was evaluated. The results of the survey's descriptive analysis were compared to those of preliminary studies on MkISs. In conclusion, the limitations of the study are presented and directions for future research are proposed.

Key words: marketing, marketing information, information systems, tourism, Slovenia

1 Introduction

Due to new business opportunities brought on by globalization, competition increases and grows stronger every day. Therefore it is necessary for companies to manage information within information process which guide managers on how to adopt the best business solutions. With the expansion of modern information and communication technologies, they have the possibility to obtain huge amounts of information. In fact, nowadays information users face an overflow of information (Kotler, Bowen & Makens, 1998), hence it is essential for the companies to design a MkIS.

In the service industry, including tourism (which is the biggest provider of jobs in the world today) (Buhalis & Law, 2008), companies must quickly and effectively react to almost daily changes. As a result of global mergers, a need for substantively more widespread information has appeared. Moreover, development of communication networks has enabled consumers to access a wide range of information and even to buy tourism products directly online. Thus tourism companies must be aware of their demands and must respond to consumers' wishes in time.

The establishment and the organization of MkIS in companies have been researched considerably. The first definition was made by Cox and Good (1967), followed by Meyer-Hausen (1973), Meffert (1975), Boone and Kurtz (1980), Marušić (1982), Kotler (1997) (Iršič & Radonjić, 2006) etc. A substantial contribution was made during the 1990's (Higgins, McIntyre & Raine, 1991; Sääksjärvi & Talvinen, 1993; Amaravadi, Samaddar & Dutta, 1995 etc.) and 2000's (Kotler, 2004; Holloway, 2004; Panigyrakis & Chatzipanagiotou, 2006; Li & Li, 2010 etc.), but only in the last decade scientists have started to emphasize the importance of computerized MkISs (Li, Chen & Roan, 2001; Wood, 2001; Gounaris, Panigyrakis & Chatzipanagiotou, 2007; Alford & Clarke, 2009).

In Slovenia, the literature dealing with marketing research and information systems is mostly generalized to all economic sectors (Sriča, Treven & Pavlić, 1995; Talib, 1999; Iršič & Radonjić, 2006; Bunc, 2007 etc.). Still, scientific papers can be found dealing with

information systems within small and medium-sized enterprises (SMEs) (Srabič, 2002), MkIS in inter-organizational marketing (Goršek, 2002; Planinc, 2005), the banking industry (Koren, 1999; Žabkar-Goja, 2005), franchising (Juvan, 2003) and relationship marketing (Gajšt, 2002).

There is a considerable amount of foreign literature on MkISs in tourism (Kotler, Bowen & Makens, 1998; Wöber, 2002; Holloway, 2004; Bowie & Buttle, 2004; Kotler, 2004; Huh, Kim & Law, 2009 etc.), while Slovenian literature and studies are scarce (Bunc, 1986, Peterka, 1996; Rajkovič in Florjančič et al., 1997; Brezovec, 2000; Macedoni, 2006; Brezovec & Nemeč Rudež, 2009). Hence, the aim of the empirical study was to explore the MkISs within Slovenian tourism companies and to design a model of MkIS suitable for tourism companies.

2 Literature review

2.1 Marketing information system

MkIS is a system used for storing, analysing and collating information in order to support marketing decision-making (Wood, 2001, 284). Numerous definitions of MkIS which have been suggested over the years (e.g. Brezovec, 2000; Kotler, 2004; Harmon, 2004; Bunc, 2007; Chatzipanagiotou, Vassiliopoulou in Siomkos, 2008) confirm its importance not only within marketing department but for the entire organization and its business environment. Likewise all information systems, MkISs consist of input, data processing, output (Talib, 1999; Gradišar and Resinović, 2000; Li, Chen & Roan, 2001), feedback and control of system performance (O'Brien, 2005).

Talvinen (1995, 10) classified marketing related information systems into two groups according to the organizational position of the users and type of use: management and operational MkISs. The former are used by senior executives and marketing managers to obtain the information for decision-making, while the latter serve to help sales and marketing personnel in

marketing operational activities. The previous studies on MkISs revealed the existence of such systems although they differ in structure according to users' needs (Wood, 2001).

Changes in the market has forced organizations to adopt modern technologies and today it is clear that without computerized information system support they cannot be competitive (Trigo et al., 2007). In recent years, business intelligence has been developed as an upgrade of information systems. However, a survey of 131 companies in Taiwan by Li, Chen and Roan (2001) revealed that the most popular hardware to assist the MkISs are personal computers. This is due to the fact that their prices have dropped significantly in recent years making them affordable for a wide range of consumers. Unlike in U.S. companies which according to the 1995 survey (Li, 1995) used expensive programming languages, a great proportion of Taiwanese companies used word processors and presentation software because it is much more affordable.

As regards information systems and MkISs in tourism, the most commonly used are customer relationship management systems (CRM). Recently, these have become supported by geographic information systems (GIS), which have enabled exploration of tourists' behaviour and their movement within a destination (Lau & McKercher, 2006; Coombes, Jones & Sutherland, 2009). The first information systems in tourism industry were computer reservation systems (CRS) and global distribution systems (GDS), adopted in 1970s and 1980s respectively (Buhalis & Law, 2008; Middleton et al., 2009). They were used for information gathering and transactions monitoring the travel and airline industry. Similar to these are hotel reservation systems (HIS) which are only used in the accommodation industry (Rajković, Florjančić et al., 1997). In the last decade, much attention has been paid to destination marketing information systems (DMIS) (Paulo, 2000; Ritchie & Ritchie, 2002; Wöber, 2002; Gretzel & Fesenmaier, 2004). In Slovenia, the national tourism organization developed an Integral Tourist Information System which integrates information and services from various sources and thus provides domestic and foreign business partners with the necessary information.

A great number of researchers focused on the performance of MkISs (DeLone & McLean, 2003; Iivari, 2005; Kuzic & Giannatos, 2006; Chatzipanagiotou, Vassiliopoulou & Siomkos, 2008; Yen, Li & Niehoff, 2008). One of the most frequently used models for evaluating information systems success is the DeLone-McLean model (DeLone & McLean, 2003) which consists of six interrelated dimensions: system quality, information quality, service quality, intention to use/use, user satisfaction and net benefits. Subsequently, Panigyrakis and Chatzipanagiotou (2006) measured MkIS effectiveness in five star Greek hotels using five dimensions: system quality, information quality, support quality, compatibility and flexibility of MkIS. However, according to scientists it is of utmost importance that organizations monitor MkIS efficiency and effectiveness.

2.2 Marketing information management

Many scientists claimed that information quality - availability, accuracy, timeliness, completeness, conciseness, relevance, intelligibility and objectivity (Gradišar & Resinović, 2000), is a key to successful MkIS (Panigyrakis & Chatzipanagiotou, 2006). In other words, marketing information represents a vital component of each MkIS, hence it is crucial for companies to manage marketing information.

Marketing information management is composed of gathering, processing, distribution, usage and storage of information (Juvan, 2003). The information needed by marketing departments can be collected from internal records, marketing intelligence and marketing research (Sfiligoj, 1999; Kotler, 2004; Devetak, 2007; Vuković & Završnik, 2008). The review of the study done by Wood (2001) demonstrated that SMEs tourism companies of the Yorkshire in Humber region (United Kingdom) mostly gather internal information. However, the research showed that larger and more dynamic organizations gather more external information. According to Wood (2001), managers need external information for the long-term planning. She stressed that the Internet is a very important source of market intelligence, that is the information about

the companies' business environment and the market (Kotler, 2004, Le Bon & Merunka, 2006).

Some authors dealt with the question of information formality (Ashill & Wright, 1998; Wood, 2001; Iršič & Radonjić, 2006). As stated by Ashill and Wright (1998) formal reports and market research information are often not concise enough to satisfy all the information needs of managers. Moreover, the study of SMEs tourism companies in the U.K. demonstrated (Wood, 2001, 294) that information users rely more on personal contacts, individual experience and knowledge "rather than hard facts and quantitative data". Therefore, informal information sources appear to be as important as formal information sources.

Bowie in Buttle (2004) note that tourism companies carry out marketing research to obtain the information about customers, competitors and the micro and macro environment. Dwyer et al. (2009) classify the macro environment according to STEEP classification into political, economic, social, technical and environmental factors. Previous studies showed that MkISs users utilize information about existing and potential customers, local, national and international competitors, local, national and international economy (Wood, 2001) and governments (Li, Chen & Roan, 2001).

2.3 Support for marketing management

With development of information technologies computerized decision models have emerged (Li, 1995; Koren, 1999; Bunc, 2007) which aid managers in making the most appropriate business and marketing decisions. The models are based on mathematical models which, according to the user's needs, simulate the desired scenario and propose the optimal solution (Grošelj, 1999).

Apart from computer-assisted decisions models, marketing managers use MkIS for making decisions on marketing management activities and marketing-mix ingredients (Li, Chen & Roan, 2001). The study demonstrated that managers in Taiwanese companies use MkIS mostly for planning activities followed by controlling, directing, organizing and staffing (Li, Chen & Roan, 2001).

The majority of Taiwanese managers used MkIS for pricing decisions followed by product decisions, promotion decisions and place/distribution decisions. With regards to marketing-mix decisions, the survey included only four elements of marketing-mix, since the largest proportion of subjects in the population belonged to the manufacturing sector. In the service industry on the other hand, three additional ingredients were developed: people, processes and physical evidence (Brezovec, 2000; Kotler, 2004; Macedoni, 2006; Konečnik, 2007).

3 Research methodology

3.1 The survey population

The subjects of this survey were marketing and top managers of tourism companies in Slovenia. Due to the previous studies (Gounaris, Panigyrakis & Chatzipanagiotou, 2007; Chatzipanagiotou, Vassiliopoulou & Siomkos, 2008) smaller organizations rarely used MkIS and mainly at the operational level, therefore the survey included larger companies only.

The survey sample covered tourism companies registered according to the Standard Classification of Activities (SKD). In the next step, four main subgroups of tourism industry were formed, namely transport companies, hospitality and catering companies, tour operators and travel agencies and casinos and other entertainment companies. Due to a poor response rate of the last two subgroups, the comparison between individual subgroups was not possible. The companies were selected from the Database Business Register of the Chamber of Commerce and Industry of Slovenia and from B-2-B Database of the Kompass System.

3.2 The survey instrument

The methodology involved a questionnaire divided into two general and two specific sections of questions. The general section measured the demographic characteristics of companies and respondents while the specific section contained five-point Likert scale questions to measure Mkis and marketing information

characteristics and MkIS performance. The questionnaire was designed on the basis of previous surveys on MkISs (Li, Chen & Roan, 2001; Wood, 2001; Panigyrakis & Chatzipanagiotou, 2006).

In order to get better results, the instrument was pilot tested. For this purpose, two marketing managers of large tourism companies were interviewed. The questionnaire was primarily sent by electronic mail. Since only three of them were returned completed, they were used as a second pilot study. In addition to that, a new questionnaire was designed and sent to 48 companies via traditional mail. The study was held in November and December 2009. At last, 33 questionnaires were administrated and the data collection process was concluded. Of these, one questionnaire was invalid, giving the final response rate of 66.7%. The collated data was analysed using Microsoft Excel and SPSS 18.0 software.

4 Analysis and survey findings

4.1 MkIS characteristics

Most of the companies (87.5%) have a written marketing plan and a computer-assisted business (84.4%). Moreover, 87.5% of the companies exploit their information resources in the marketing planning. This is comparable to the Taiwanese companies (72.3%) (Li, Chen & Roan, 2001), which means that companies from both countries recognise the importance of the information resources. With regards to MkIS usage, 68.8% companies claim that they effectively use MkIS, while in 65.6% of them MkISs are computer-assisted. In contrast, in Taiwan 87.8% of the companies used the computer-assisted MkISs. The frequency of MkIS use revealed, that 35% of Slovenian tourism companies use them once or even several times a day, 31% use them several times a week, the same proportion of companies use them several times a month and finally, only 3% of companies use them once a month.

The majority of tourism companies use personal computers (93.8%) and general end-user software (84.4%) to assist their MkISs, while less than half of respondents

confirmed that they also used other hardware (43.8%) and software (46.9%). In Taiwan, on the other hand, 52% of companies used personal computers, but it is important to stress that since 2001, when the survey was taken, dramatic changes in information technologies usage in companies have occurred.

4.2 Marketing information characteristics

The results of survey analysis demonstrated that companies often but not regularly collect (87.6%), process (68.8%) and disseminate (46.9%) information. This is somewhat concerning, since nowadays rapid and constant flow of updated information is needed by managers. In Slovenian tourism companies, information is usually collected by marketing managers (81.3%), followed by other employees and top management with 46.9% and 25% respectively. A slight difference can be noticed in the usage of marketing information between the two countries. In Slovenian companies the information is utilized mostly by marketing managers (84.4%), followed by top managers (75.0%) and other employees (34.4%). In Taiwanese companies, however, the most frequent users of information were top managers (62%), while middle managers (25%) and low level managers (13%) rarely use it.

Today, more and more information is stored in computer databases and data warehouses. As a result to that, database management systems were developed. In Slovenia 78.2% of the companies use computer databases to store the information, whereas in 62.5% of companies the information is saved in hard copy. This is similar to the study of Li, Chen and Roan (2001), where 80% of Taiwanese companies stored the information in computer databases.

As for types of information, a high proportion of Slovenian companies (90.7%) gathers quantitative information (e.g. balance sheets, financial reports, etc.), whereas 65.7% of companies gathers qualitative information (e.g. qualitative reports, business press, etc.). The results of the survey show that the companies collect information mainly from internal resources (81.2%) and much less from the external ones (53.1%). This was contrary to our expectation, since larger

tourism enterprises are seldom limited to a local business environment. One of the possible reasons could be the fact that respondents regarded external resources as international information resources. Nevertheless, the results of this study were consistent with the perception of managers in the Yorkshire and Humber region (Wood, 2001).

In terms of information formality, there was a significant difference between British and Slovenian companies. As previously reported, tourism companies in the Yorkshire and Humber region (Wood, 2001) used more informal than formal sources for information gathering. In contrast to that, in Slovenia tourism companies often collect the information from formal resources (71.9%), while only 25% of the companies collect them from semi-formal and 12.5% from informal resources.

Tourism companies in Slovenia collect information mostly about local competitors (78.1%), potential (78.1%) and existing customers (75.0%), whereas the information about national economy (65.7%) and competitors (62.5%), local economy (56.3%), international competitors (56.2%), governments (53.1%) and international economy (40.6%) collect less regularly. This is partly consistent with the previous studies. To be precise, Taiwanese companies mainly reported gathering information about customers (88.5%) and competitors (81.7%). Furthermore, tourism companies in Yorkshire and Humber (Wood, 2001) often gather information about existing customers and local competitors, but rarely or never collect information on international competitors and economy.

The analysis of information sources showed that all responding companies have their own database. To know their customers, the companies are using databases (100%), market research (81.3%), business partners (75.0%), conferences and meetings (68.8%) to obtain information. The information on competitors, economy and governments are mainly obtained from books, magazines and newspapers, as well as from radio and television. Besides that, frequently used information sources about competitors is from market research, while information on the economy and governments is collected from public institutions

and databases. While tourism companies in Yorkshire and Humber (Wood, 2001) used the Internet mostly as a promotional and distribution tool, it is an important information source in Slovenian companies. A high percentage of them use the Internet for collecting information about competitors and the economy (90.6%), whereas for collecting information about governments and customers, the Internet was used by 59.4% and 56.3% of companies respectively.

4.3 MkIS for management support and performance

In Slovenia managers used MkIS to make decisions concerning various marketing management activities (68.7%) and marketing-mix ingredients (68.7%). Although Li, Chen and Roan (2001) studied different types of decision models used by Taiwanese managers, in this survey, the respondents were called to answer only one question, which related to the usage of any computer-based decision models. The analysis results revealed that managers of 31.2% of tourism companies did not use computer-based decision models, while 34.4% of respondents confirmed it. Also, the equal percentage of respondents claimed to be undecided (34.4%), which is probably due to the lack of knowledge in this area. On the other hand, during the study, these companies could have been in the phase of introducing computerized decision models in their MkIS. However, further future research regarding this concept are required.

In the survey questionnaire respondents were also asked to evaluate their MkIS performance. The systems were most successful in improved decision making (93.8%), customer knowledge (87.5%) and marketing planning and reporting (84.4%). Furthermore, in the majority of tourism companies the respondents agreed that their MkIS enabled quick development of new services and improvement of existing services (78.1%), as well as improved sales promotion activities (78.1%) and more effective market research (75.0%).

The evaluation of marketing information quality showed less positive results. In 68.8% of companies, the MkISs users received accurate and timely information, whereas in 56.2% of companies, they received

relevant and reliable information as well as concise information. This is because the response time of MkISs to users' information needs was not always fast (62.5% in case of all information needs and only 50.0% in case of the need for new information). Besides, the information users were sometimes confronted with information inaccessibility (40.6%) and high access costs (34.4%). As a result, MkISs did not always improve work productivity or allow for faster and improved knowledge sharing among employees (68.8% respondents confirmed). What is more, only 53.1% of respondents agreed that MkISs improved internal communication and enabled faster accomplishment of tasks. Besides, one-fifth (21.9%) of respondents admitted that use of the MkIS in their companies was difficult.

The last weakness of MkISs in tourism companies is their compatibility with other information systems within the company. In other words, only in 55.0% of the companies which own information systems in other departments (62.4%), MkISs were connected and successfully cooperated with other information systems. This is crucial because the information from other departments is for marketing managers or information users equally important as marketing information.

5 Discussion

A descriptive analysis of the survey demonstrated how larger tourism companies in Slovenia manage marketing information and how effectively managers and other information users utilize the MkIS. The findings revealed that in some companies there is a need for modernization and improvement of MkIS. They should particularly focus on the redesign of marketing information management. Besides that, in some companies the information users should get better technical support.

Based on the research findings, a MkIS model suitable for tourism companies has been developed (Figure 1). Like other MkIS models it consists of input, output, information process, as well as feedback, which enables to control MkIS performance and marketing information quality. Information process includes the following phases: gathering, processing, distribution, usage and storing of information.

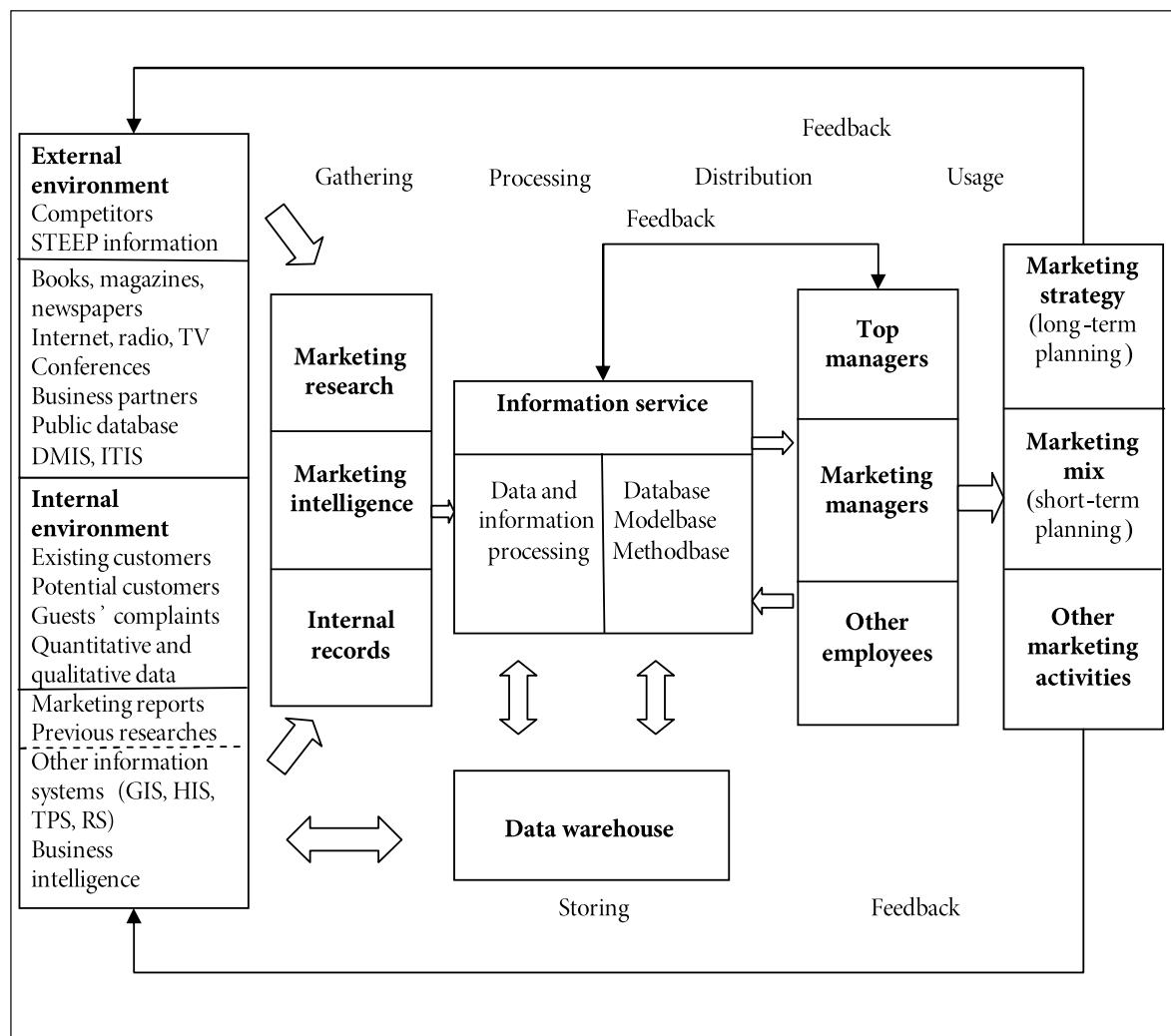
The information is collected from internal and external environment through internal records, marketing intelligence and market research. Although the survey findings revealed that only half (53.1%) of the companies regularly gathered information from external sources, it is most important to include this information in the information process. According to the results, the MkIS model is designed to obtain information from books, magazines, newspapers, the Internet, radio, television, conferences and meetings, business partners, public database, DMISs and ITIS of Slovenian Tourist Board. As may be seen in Figure 1, one of the major weaknesses of tourism companies' MkISs has been considered. To be precise, information from the internal environment can be obtained from information systems of other departments (GIS, HIS, Transaction Processing System [TPS] and RS), as well as business intelligence, reports and previous research.

In the second phase of information process, employees of information service analyze and process information to make it relevant for the users. Afterwards, the information is distributed according to assessed information needs to top managers, marketing managers or other employees. Then, information users utilize the information long-term planning (marketing strategy), short-term planning (marketing mix elements) and other marketing activities.

The MkISs in Slovenian tourism companies were not used only by management staff but by other employees as well, which proves that marketing information and MkIS utilization depends on various factors in organizations and their business environment (Wood, 2001). Consequently, the model was adjusted to different user groups to:

1. help sales and marketing employees to accomplish their tasks faster and easier, which would lead to improved productivity of work,
2. enable faster and improved knowledge sharing among the information users,
3. improve internal communication,
4. help marketing managers and directors to make the best marketing and business decisions.

Fig. 1: Recommended model for MkIS within tourism companies



Note: STEEP information=Social, technical, economic, environmental and political information; DMIS=Destination marketing information system; ITIS=Integral Tourist Information System of Slovenian Tourist Board; GIS=Geographic information system; HIS=Hotel information system; TPS=Transaction processing system, and RS=Reservation system.

In one-fifth of Slovenian tourism companies information users find their MkIS difficult to use. To overcome this problem it is suggested that companies should organize an information service department in order to give employees better technical support. However, it is also necessary to establish communication and feedback between both these groups.

In the final phase of information process, the information is stored in a database or data warehouse where managers and other users can find the information needed for ad hoc decision making. Therefore, information must be carefully classified according to information users' needs in electronic database and hardcopy database.

5 Conclusions

The survey revealed the current status of MkISs and marketing information characteristics in Slovenian tourism companies. It seems that tourism companies are aware of different information sources which are used in marketing planning. On the other hand, a surprisingly low percentage of the companies regularly use external information sources. Information users in certain tourism companies sometimes receive inaccurate, out-of-date, irrelevant, unreliable or excessive information. This suggests that some of the tourism companies in Slovenia should make a detailed analysis of marketing information management and redevelop their MkIS. Managing the information is crucial because out-of-date information leads managers to make poor decisions which then causes considerable damage to their business.

With regards to information technology utilization, the study demonstrated that Slovenian tourism companies are well equipped with computer hardware and software and that a significant part of their business

is computerized. This is somewhat consistent with the survey results of Taiwanese companies (Li, Chen & Roan, 2001), whereas in British tourism companies (Wood, 2001) the situation was slightly different. One of the reasons is the difference in time of the study period. During this time dramatic changes in the computer technology field have occurred. In addition to that, the study done by Wood included SMEs tourism companies, while this survey included larger tourism companies only.

Since the survey only focused on the very specific population, that is larger tourism companies in Slovenia, it would be convenient to carry out similar research on small tourism companies. Moreover, according to results of this study, the usage of computer-based decision models as well as the possession of other information systems in Slovenian tourism companies should be further examined in the future. Finally, due to the small survey sample it would be advisable to repeat the study to gain more completed questionnaires from different subgroups of tourism industry and make a comparison between them.

Marketinški informacijski sistemi v turističnih podjetjih

Povzetek

Prispevek predstavlja izsledke raziskave o značilnostih marketinških informacijskih sistemov (MkIS) in uporabi tržnih informacij v slovenskih turističnih podjetjih. Za potrebe preučevanja MkIS-a je bil na podlagi teoretičnih vsebin in predhodnih raziskav oblikovan anketni vprašalnik. V raziskavi je bil poudarek na preučevanju upravljanja tržnih informacij – zbiranja, obdelave, posredovanja, uporabe in hranjenja informacij. Poleg tega je bila raziskana uporaba informacijskih sistemov v marketinških oddelkih ter to, ali so ti uporabljeni kot podpora pri odločanju. Rezultati deskriptivne analize so bili primerjani z ugotovitvami preteklih prispevkov, ki so obravnavali MkIS-e. V zaključku so predstavljene omejitve študije in predlagane smernice za prihodnje raziskave.

Ključne besede: marketing, tržne informacije, informacijski sistemi, turizem, Slovenija

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