

CHARACTERIZATION OF THE INTERNET IN MARKETING STUDY AND BUSINESS INTELLIGENCE MAKING

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ABSTRACT:

Business intelligence systems combine operational data with analytical tools to present complex and competitive information to planners and decision makers. The objective is to improve the timeliness and quality of inputs to the decision process. Business Intelligence is used to understand the capabilities available in the firm; the state of the art, trends, and future directions in the markets, the technologies, and the regulatory environment in which the firm competes; and the actions of competitors and the implications of these actions. The purpose of this paper is to point out the determinants of the business intelligence discipline, as applied in marketing practice. Due to the existence of different perceptions concerning the role of the Internet, this paper tries to emphasize its effort of an interactive channel that serves the function of not only an informational nature, but as a powerful research tool as well. Several data collection and analysis techniques are discussed that would help companies to take advantage of a Web as a significant corporate resource.

KEY WORDS: Business intelligence, Internet

INTRODUCTION:

For the past few decades, businesses are witnessing the intensity of rapid changes in usage of information technologies (IT), for the business decisionmaking purposes. Previous studies showed that, in the 1990s, businesses used to perceive the Internet mostly as a communication tool - referring to the e-mail and multimedia capabilities, sending or downloading documents, etc. (Poon, Swatman, 1997), or to fulfill some primary commercial functions, such as gathering information by exploring other Web sites; providing customer support and conducting on line transactions (Soh et al., 1997). Therefore, the major perception referred to services that are not provided in some other ways, such as by telephone or fax, which can create certain myopia, leaving the Internet potential uncovered. When analyzing the newer data regarding the usage of the market information, it seems that the Internet has still not been fully recognized as a vital source of marketing intelligence. Results of the research applied on the banking systems showed that there is an opportunity for exploiting the Internet as a marketing study tool, although unused due to inclination toward the on line transactions (Lymperopoulos, Chaniotakis, 2005).

On the other hand, some authors suggest that the usage and the perception of the Internet has changed in the past years offering the space for a more detailed analysis of the Web possibilities from the research aspect. The Internet is no longer the subject of research, but rather a relevant research tool. It has become the way of improving the overall surveys and social science instead of relying on the Web for mere communication needs (Michigan State University, 2009). Besides the role of research and communication, the Web plays a role of selling and advertising channel enhancing the overall interactivity of the businesses today. In order to cease that potential, it also is crucial for business to know the Web traffic, i.e. to know the customers

(Murray, 2008). This paper reviews the importance of the Web as an research and Business Intelligence tool. It discusses the Web-based segmentation as a path toward developing the business strategy that enables the understanding of the Web users' behavior, i.e. target groups, and thus managing the relationships with customers in the best possible manner. A variety of methods and techniques based on the Web and customer relationship management play a vital role in marketing study.

MARKETING STUDY AND DECISION MAKING:

Marketing study plays two key roles in the marketing system. First, as part of the marketing intelligence feedback process, marketing study provides decision makers with data on the effectiveness of the current marketing mix and offers insights into necessary changes. Second, marketing study is the primary tool for exploring new opportunities in the marketplace. Segmentation research and new product research help identify the most lucrative opportunities for a firm.

MARKETING STUDY DEFINED:

Now that you have an understanding of how marketing study fits into the overall marketing system, we can proceed with a formal definition of the term, as stated by the American Marketing Association: Marketing study is the function that links the consumer, customer, and public to the marketer through information—information used to identify and define marketing opportunities and problems; generate, refine, and evaluate marketing actions; monitor marketing performance; and improve understanding of marketing as a process. Marketing study specifies the information required to address these issues, designs the method for collecting information, manages and implements the data collection process, analyzes the results, and communicates the findings and their implications.

We prefer another definition: Marketing study is the planning, collection, and analysis of data relevant to marketing decision making and the communication of the results of this analysis to management.

IMPORTANCE OF MARKETING STUDY TO MANAGEMENT:

Marketing study can be viewed as playing three functional roles: descriptive, diagnostic, and predictive. Its descriptive function includes gathering and presenting statements of fact. What is the historic sales trend in the industry? What are consumers' attitudes and beliefs toward a product? Opening a pack of bacon is a messy job. Bacon lovers have to reach into the package, and if they only pull out a few slices, there's no easy way to store the remainder. Oscar Mayer Marketing studyers hear plenty from consumers about what they disliked about its former bacon packaging. So marketers figured the best solution would be a packaging innovation that eliminated the chore of placing the opened pack in a resealable plastic bag or wrapping it in plastic or foil. This unwanted task was done so that the last piece of bacon would be as fresh as the first. Recently, Oscar Mayer Center Cut Bacon was introduced in a new "Stay-Fresh Reclosable Tray." The flip top lid allows easy access to the bacon inside. The top snaps closed, making it readily resealable. The flat tray makes for simplified storage in the refrigerator.

The second role of research is the diagnostic function, wherein data and/or actions are explained. For example, what was the impact on sales when the Oscar Mayer package design was changed? How can product/service offerings be altered to better serve customers and potential customers? Since kids eat over 5 billion ounces of ketchup each year, Heinz decided that the heavy users (kids) should have a lot to say (via Marketing study) about how to make ketchup fun. Heinz listened and watched children using ketchup, which resulted in a new bottle design, name selection, and color. The true ketchup connoisseurs helped create Heinz EZ Squirt green ketchup! More than 10 million bottle were sold in the first seven months! This was followed up a year later with "Funky purple" ketchup. The final role of research is the predictive function. How can the firm best take advantage of opportunities as they arise in the ever-changing marketplace? Kraft Foods noticed that consumers were flocking to "low-carb" diets. The company used Marketing study to determine if this was a fad or long-term trend. Determining that "low carb" was more than a fad, it entered into an

alliance with Arthur Agatston, the creator of The South Beach Diet. The result was certain Kraft products being labeled “South Beach Diet Recommended.” Further Marketing study led to a broad line of products entitled “The South Beach Diet” brand. Products include cereal, meal replacement and cereal bars, refrigerated sandwich wraps, frozen entrees, and frozen pizza

IMPACT OF THE INTERNET ON MARKETING STUDY:

The Internet has turned the world of marketing study upside down. Current methods of conducting some types of research soon may seem as quaint as a steam-engine train. New techniques and strategies for conducting traditional Marketing study are appearing online in increasing numbers every day. Today, Internet Marketing study accounts for about 50 percent of all Marketing study revenue in the United States. Following are some growth drivers of such research:

1. The Internet provides more rapid access to business intelligence and thus allows for better and faster decision making.
2. The Internet improves a firm’s ability to respond quickly to customer needs and market shifts.
3. The Internet facilitates conducting follow-up studies and longitudinal research.
4. The Internet slashes labor- and time-intensive research activities (and associated costs), including mailing, telephone solicitation, data entry, data tabulation, and reporting.

BUSINESS INTELLIGENCE:

Business Intelligence (BI) refers to various software solutions, including technologies and methodologies needed to acquire the right information necessary for the business decision-making with the major purpose of enhancing the overall business performance on a marketplace (Wang, Wang, 2008). Since businesses are faced vast quantities of information, the major operational problem is to focus on the right information. BI helps to identify the causes and reasons of certain occurrences helping the business to make predictions, calculations and analyses; so that the needed knowledge is successfully extracted from the sometimes hidden data and that the proper decisions can be made.

According to Ranjan (2008), “BI is the conscious, methodical transformation of data from any and all data sources into new forms to provide information that is business-driven and results-oriented. It will often encompass a mixture of tools, databases, and vendors in order to deliver an infrastructure that not only will deliver the initial solution, but also will incorporate the ability to change with the business and current marketplace.”

BI comprises of a variety of analytical software that provides the information needed by businesses. The emphasis is on the real-time information which supports reporting on every organizational level. The term is much broader in the sense of encompassing multiple tools and methodologies, which enable their users to connect all business processes. Efficient Business Intelligence connects business and IT (information technology) so that the available resources can be allocated with respect to their own capabilities, as well as provides intelligent problem solutions (Ranjan, 2008). As depicted by Figure 1, Business Intelligence integrates many of the business processes (enterprise resource planning, supply chain management, customer relationship management...) into a variety of applications that serve the primary source of data, which can be extracted and with the help of BI tools, such as reporting, OLAP, data mining, etc., turned into valuable information (analytics) that the companies base their decisions upon.

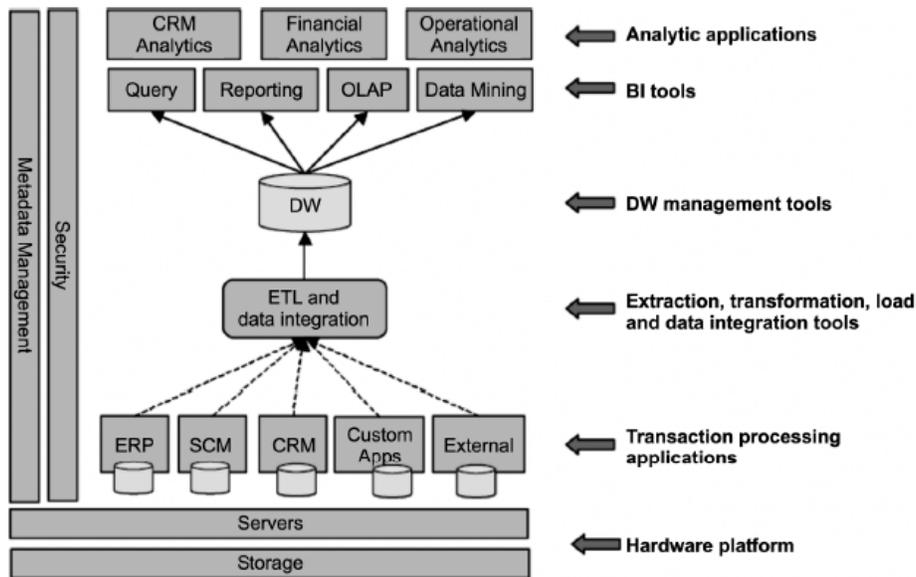


Fig-1 : Business intelligence environment

INTERNET AS A RESEARCH TOOL:

From the perspective of developing an efficient marketing strategy, the Internet provides better insights into sometimes hidden and unavailable data regarding customers, their impacts on business, consumer behavior and buying decisions. It also offers an opportunity for businesses to create an image, offer information about products and services, develop relationships with profitable customers, better understand the consumer buying practices, ensure continuous product improvements with respect to customers' needs, etc. However, some studies showed few different perceptions. For example, Karayanni (2006) conducted a study, in order to determine the purpose of the business usage of the Internet and found that the important usage motivation is to distinguish oneself from the competition, which includes both Marketing study and market expansion opportunities.

However, one should compare the Internet, as a research tool, to the more traditional means of conducting market research. This has been done by Furrer and Sudharshan, (2001) and Wilson and Laskey (2003), who have analyzed whether the Internet poses a serious threat to the traditional ways of conducting research. Their studies showed that, although there were numerous valuable insights which could be obtained via Web-based analyses, the Internet-based research is often used as a special type of study applied exclusively for the Web evaluation.

The Internet is a far cheaper and easier medium for conducting research and has a number of other benefits. They include an opportunity to survey a high number of respondents at once, ease of conducting a survey in a couple of clicks, inexpensive respondent reach (larger sample), pre-screened panels (prompt responses to online questionnaires), or rapid turnaround (research and results in a short period of time). Other studies note that the major advantages of the Web-based research as the possibilities for targeting a larger population, flexibility and control over formats, simple data entry, high participation, usage of a variety of media, simplicity of administration, etc. When analyzing data collection techniques, it is important to note that there is a growing trend of administering the Web-based data collection methodologies that have numerous advantages over other data collection approaches (Albrecht, Jones, 2009).

However, usage of the Internet opens issues related to sampling difficulties (for example, sample frames become obsolete since the users change their email providers), as well as response rates and quality (the users are not often able or not willing to cooperate, i.e. fill the questionnaires, which makes it difficult to construct representative samples). Some other limitations that should be considered when dealing with online research are related to the potential for compromised objectivity (when there is no researcher as an

intermediary) or partial interpretations. Therefore, the Internet research should be used along with other traditional methods in order to cover all customer segments. Namely, some target groups are easily targeted by the Internet (e.g. younger people), while others are not reachable in this way (Wilson, Laskey, 2003). This draws to the conclusion that the Internet, as a research tool, reaches its full potential in combination with traditional offline research methods (MRS, 2007).

Analyzing the role of the Web from the aspect of the research object, Furrer, Sudharshan (2001) showed that all Web sites, Web pages and Web users should be taken into account as three separate units of analysis appropriate for research. This means that a Web page can be analyzed with regards to how it communicates its content, the overall appearance and advertising space. This can be visible through the number of visits to the page and based on the amount of time spent on a particular page. A Web site can be analyzed to determine how the overall structure of the site influences the corporate communication and marketing strategy. The Web users can be analyzed, as well, so that the reasons of their particular behavior and usage of certain products/services can be discovered.

An emphasis is put on the usage of the Internet as a form of an advanced research tool for the better segmentation of the potential customers, but it may be even more important to provide real-time data, which can be achieved by several technologies. They include, for instance, Web services, being usually defined as a means of tracking and monitoring the business activities in real time, using the events that occur as a result of those activities as entry values that activate the business rules for delivery of the filtered information toward other processes and target groups of customers, which represent the core business intelligence of the company (Panian, Klepac, 2003, p. 227). The role of the Web and the real time information is emphasized in many situations, especially in the field of Web analytics, where companies strive to find who their customers/visitors are, where they are coming from and which online events brought them to the site, as the easy and useful e-commerce represents a valuable experience both for the customers, as well as for the companies doing business and research online (Murray, 2008).

WEB SEGMENTATION:

These authors conducted a research in the field of Web segmentation as to perform the personality classification. The major premise was to test the click stream mechanism across three types of personalities based on the users' Web visits. The structured click stream analysis confirmed the possibility of conducting the Web segmentation and classified the Web users as compliant, aggressive and detached. In this way, the efficiency of online segmentation and the usefulness of the click stream analysis has been also pointed out (Wen, Peng, 2002). Additional empirical research (Gurau, 2005) on the pharmaceutical market (online pharmacies) has analyzed the usefulness of the marketing techniques and customer profiling (customer data collection) on the Internet, by testing the customer transactional model as a reference point of the Web possibilities for the market segmentation. The results revealed four main consumer categories analyzing the 'online' consumer decision-making process and the overall shopping behavior for each segment. The research also pointed out the Web segmentation as a successful way of understanding the customers' needs when doing business online.

It is impossible to develop and market products that always comply with mass consumer needs. As it is well known, products and services differ from company to company and usually require customization. The importance of segmentation lies in the ability of recognizing the specific homogenous segments that represent the target groups so that the company can develop and serve each segment appropriately, i.e. depending on the needs of those customers that represent each segment. The situation seems similar in both the offline and online environment. However, Louvieris and Driver (2001) pointed out the difference in Web segmentation criteria that distinguish the Web segmentation from the traditional one. While the traditional approach requires the segment to be measurable, available, attractive, big, different and stable enough, the Web segmentation lies on the principles of interdependence of criteria that also indicate scalability and adaptability. So, the authors imply the possibility of increasing and decreasing the population. This approach

points out measurability, availability, scalability and adaptability as the major Web segmentation parameters vital for the identification and tracking of the complex dynamic Web behavior of users.

The customers' behavior can also be visible from the most visited products or brands on site, time spent, downloaded/sent/accessed files e-mailing, selection of the pages, book marking, etc. Moreover, behavioral variables can be seen from the users' status (usage frequency). All previous transactions and purchases of a customer can also be detected, while the consumers' preferences can be analyzed based on the search criteria within the page/site (Sen et al., 1998). Therefore, the frequency of visits to a particular Web site can suggest to the company to put some special offers on certain pages, to ease the navigation toward the searched products, etc. When dealing with methods and techniques of data collection, the focus is on the major three methods: the observation, questionnaire and experiment (Furrer and Sudharshan, 2001). Direct observation of a Web site can be conducted with the help of a researcher or the user sample. This method is used for the collection of the quantitative data, such as the number of ads on one page or the number of links within a particular page. The same method can be also used for the qualitative data collection that, for example, reflects the degree of users' satisfaction with the existing service, or their reactions to the overall Web page experience (e.g. the look, content). In this context, Cox and Dale (2002) confirmed the vital factors that ensure the Web quality and positive Web site experience as the Web design, the Web resources (products and services offered via Web site), relationship aspect (how the Web communicates with customers and influences their stay on a Web), as well as the trustworthiness that the Web is offering to the customers.

Questionnaires can be divided into Web site questionnaires, e-mail questionnaires, textual questionnaires that are sent as an attachment or text form that can be downloaded from a particular Web site. Experiment, as a Web research method, refers to the creation of an experimental Web site and observation of the users' behavior against the manipulated changes on that site. Here, the researcher has the ability to change the content, visual identity or the navigation structure of the site. When creating such an experimental Web page, the researcher can invite a group of Internet users to participate in the experiment, i.e. to go to that site and evaluate the mentioned variables (Furrer and Sudharshan, 2001). Among many researchers, the usefulness of the experiment can be seen by Hay's et al. (2003), who analyzed the behavior of visitors using the sequence alignment method, which included a number of variables, such as content of the Web, products, promotions and Web page components. The experiment enabled the identification of segments/clusters, i.e. the segmentation of those Web visitors based on the Web behavior patterns. The following figure demonstrates the connections among the mentioned components of the Internet-based research.

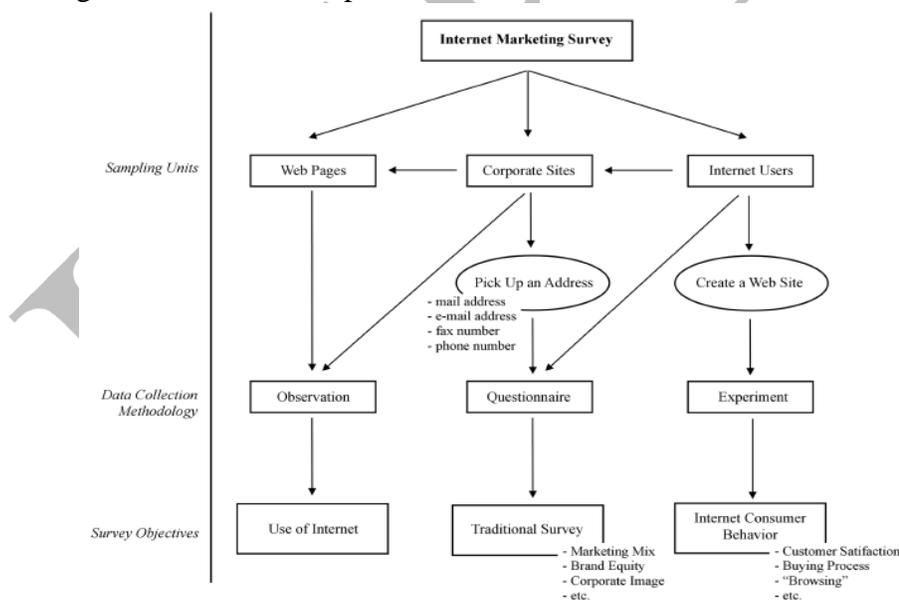


Fig-2 : Typology of Internet Marketing study

ADVANCED DATA COLLECTION METHODS AND TECHNIQUES:

Data collection methods and techniques that can help businesses to assess the Internet potential from the aspect of their marketing strategy encompass numerous approaches. This section shortly reviews some advanced methods and techniques, such as Web analytics, collaborative filtering and data profiling, detailed segmentation analysis and OLAP.

WEB ANALYTICS:

Web analytics represents the advanced method of estimating and analyzing the marketing strategy through the Web users' behavior. By assessing the Internet traffic, one can find out a lot about consumer activities and preferences, which can help to understand a variety of aspects necessary for a company to increase its sales and to best serve the customer's needs (Woodcock et al., 2003). According to Clifton (2008, p. 4), "Web analytics provides the tools for gathering this information about what happens on your Website, and enables you to benchmark the effects."

The need for advanced Web reporting and Web analytics occurs due to the lack of accurate interpretation through the basic statistical insights that can generate the false assumptions (Phippen et al., 2004). The simple analytics do not seem to be enough for the proper business decision-making, since the Internet is no longer only the means of communication and advertising, but rather the interactive business channel that draws attention to the strategic performance of attracting and retaining the customers. The line between attracting and retaining the customer is not so obvious. In the physical world, the word of mouth is strong, since the unsatisfied customer can share the experience with several other people. However, on the Web, an unsatisfied customer can in one click share his or her negative reactions with thousands of other potential users. In that sense, the Web analytics have a primary focus on the customer, while the basic Web measurements deal with the organizational goals.

Web analytics offer the possibility for understanding the relation of customer/user and the Web site, as well as the opportunity to monitor and report the wanted relations and complex interactions of Web users' activities and Web offers. Analytics are being applied on large data sets to determine the value of information that is not possible through classic Web insights (Phippen et al. 2004). A major point with Web analytics is not in data collection, but in matching one set of data with another (for example, matching demographics and subscription data) to gain a better understanding of consumer behavior. A major goal is to extract the knowledge needed for the everyday business activities and decision-making. Therefore, the advanced analytics are more oriented on methodology than on mere measurement. They operate on the principles of derived formulas. For example, the customer life cycle (the connection between the customer and Web) can be analyzed in this way. Each cycle phase and all accompanying data are being tracked, such as the number of users in every phase and the cost per customer while moving through every phase. The formulas can automatically calculate the cost per visitor, taking into consideration the variables, such as money spent on the advertising campaign, the number of advertisements, rate of clicks or number of visits. The analysis of a Web user's life cycle predicts the potential churn of users, i.e. it determines the point when the users give up a particular Web activity. Web behavior analysis is a crucial subject of research, so that the churn of users can be minimized, and thus the customer retention increased. Factors that influence the users' retention can be recognized as the overall content appropriateness (attention), overall look of the site and the organizational site structure (Phippen et al., 2004).

COLLABORATIVE FILTERING AND DATA PROFILING:

Web identification technologies enable the content personalization in real time. One of such approaches is the collaborative filtering, which represents the important data collection technique that advances the overall Web experience and the preferences of the existing and/or potential users. Based on the Web navigation, this technique predicts the needs of users/clients, as well as the searching decisions and the product or service selection. Information that is used is actually the real time data regarding the users' Web activities and

consumer profiles. According to Iyer et al. (2002), data are merged and compared to other relevant information in the main customer data base, which is done by certain scoring algorithms, similar calculations, correlation coefficients and other statistical methods.

Any segmentation criterion is available according to data that refer to Web tracking of the customer Web path. For example, the user searching for a particular book can get data regarding the purchases of the same book by some other customers. The user can see other people's commentaries on the book, the prices, recommendations or reviews. Based on these premises, collaborative filtering tries to determine the connection between the given data and impact on future purchases. Although the collaborative filtering technique is not perfect from the aspect of recognizing the consumer psychology, it is very helpful for the mentioned purpose while not demanding for implementation and maintenance.

CONCLUSIONS:

The Internet represents an efficient medium for communication with users. It serves the important role of attracting and retaining the users/customers and, in that way, managing the long-term customer relationships. It is a new marketing tool offering companies access to technological advancements and direct communication with users, as well as enabling marketing managers to quickly and continuously update the database of their customers. The paper discussed the role of the Web in Marketing study and everyday business decision-making. It stressed the existence of various data types, different data sources as well as a number of methods and techniques of data collection that can be useful when conducting the Web research. Special emphasis is put on the importance of Web segmentation that enables the identification of homogeneous segments and delivery of needed information to certain target groups.

REFERENCES:

1. Clifton, B. (2008): *Advanced Web metrics with Google Analytics*, Wiley Publishing, Inc., Indiana
2. Iyer, G. R., Miyazaki, A. D., Grewal, D., Giordano M. (2002): Linking Web-based segmentation to pricing tactics, *Journal of Product & Brand Management*, Vol.11, No. 5, pp. 288-302.
3. Albrecht, A. C., Jones, D. G. (2009): *Web based research and techniques*, In G. R. Walz, J. C. Bleuer, Yep, R. K. (Eds): *Compelling counseling interventions: VISTAS 2009*, Alexandria, VA: American Counseling Association, pp. 337-347.
4. Chou, D. C., Tan, X., Yen, D. C. (2014): *Web technology and supply chain management*, *Information Management & Computer Security*, Vol. 12 No. 4, pp. 338-349.
5. Furrer, O., Sudharshan, D. (2001): *Internet Marketing study: opportunities and problems*, *Qualitative Market Research: An International Journal*, Vol. 4, No. 3, pp. 123-129.
6. Gurau, C. (2005): *Pharmaceutical marketing on the Internet: marketing techniques and customer profile*, *Journal of Consumer Marketing*, Vol. 22, No. 7, pp. 421-428.
7. Hay, B., Wets, G., Vanhoof, K. (2003): *Segmentation of visiting patterns on Web sites using a sequence alignment method*, *Journal of Retailing and Consumer Services*, Vol. 10, pp. 145-153.
8. Poon, S., Swatman, P. M. C., (1997): *Small business use of the Internet. Findings from Australian case studies*, *International Marketing Review*, Vol. 14, No. 5, pp. 385-402.
9. Ranjan, J. (2008): *Business justification with business intelligence*, *The Journal of Information and Knowledge Management Systems*, Vol. 38, No. 4, pp. 461-475.
10. Sen, S., Padmanabhan, B., Tuzhili, A., White, N. H., Stein, R. (1998): *The identification and satisfaction of consumer analysis-driven information needs of marketers on the WWW*, *European Journal of Marketing*, Vol. 32, No. 7/8, pp. 688-702.
11. Soh, C., Mah, Q. Y., Gan, F. J., Chew, D., Reid, E. (1997): *The use of the Internet for business: the experience of early adopters in Singapore*, *Internet Research: Electronic Networking Applications and Policy*, Vol. 7, No. 3, pp. 217-228.
12. Wang, H., Wang, S. (2008): *A knowledge management approach to data mining process for business intelligence*, *Industrial Management & Data Systems*, Vol.108, No. 5, pp. 622-634.
13. Wen, K., Peng, K. (2002): *Market segmentation via structured click stream analysis*, *Industrial Management & Data Systems*, Vol. 102, No. 9, pp. 493- 502.
14. Wilson, A., Laskey, N. (2003): *Internet based Marketing study: a serious alternative to traditional research methods?*, *Marketing Intelligence & Planning*, Vol. 21, No. 2, pp. 79-84.