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INTERNET AS AN INNOVATIVE TOOL FOR THE DEVELOPMENT OF FOOD PRODUCTS

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As a result of the fast innovation activity, the so called "many to many" communication channel has become one of the most important tools for the Hungarian food industry. The number of Internet users in Hungary was 6.5 million in 2011 that represents 65.4 percent of the total population. The Internet based social media provides a strong and active platform between food producers and consumers. The online platform gives up-to-date and precise information about food companies and food products to the consumers. The information flow is two-directional as food companies receive a precise overview on consumers, their habits and latent needs by using innovative market research methods. The aim of this paper is to present an example and to evaluate the customers' socio-demographic profile and their preferences of a dominant food company and its product. We used data mining techniques to get more precise and the latest information about Hungarian food consumers. This survey supports more efficient marketing communication and strategies for the innovation of the food products.

Keywords: internet, food industry, marketing, social media

Beside the ordinary media, like newspapers and the radio, the Internet is considered as a young mass communication channel. Compared to other media, the development of the Internet is much more dynamic. The Internet users of the world population were 16 million (0.4 %) in 1995. Fifteen years later the number of users increased to 1 650 million (15.7%) in 2010. The latest statistics prove that the number of Internet users is 2 749 million, which means 39 percent of the world population. The average increase in the number of Internet users is 5–10 percent yearly (www.internetworldstats.com).

Internet brought radical changes in the mass communication as it became the first communication channel from many to many. The chat is the first synchronous and the webpage is the first asynchronous platform in mass communication (Dewar, 1998). There are several types of Internet communication, such as interpersonal communication like email, or public communication like webpages or online TV programmes (Szűts, 2012).

Parallel to international tendencies, a change in the Hungarian media consumption can also be pointed out. According to the Hungarian market research company, GfK, in 2005 the Internet was used 7.9 hours a month by an average Hungarian adult, and the Hungarian Internet users (33% of the Hungarian population) used the Internet 23.8 hours a month. Five years later on average the Internet was used 22.9 hours a month, and an average internet user (58 percent of the Hungarian population) spent 39.5 hours a month on the Internet (Kántor, 2011). On the basis of the increase of Internet subscriptions half of the Hungarian population

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is available through the Internet. These significant statistics encourage business companies and food producers to make more efficient contact with their clients through the Internet. Internet communication has become a vital source for companies. In the strong competitive environment the up-to-date and precise information means a comparative advantage for businesses. With the use of this information they can make a prompt survey on consumers' needs and their changing attitude, ignoring the time consuming, old, traditional methods.

The most important platforms for communication are social media. Social media is based on Internet 2.0 web application and enables users to create contents and use them (Kaplan & Haenlein, 2010).

Nair (2011) defined social media as the collection of tools the elements of which are content and opinion sharing, the media of contacts and relations between business companies and Internet users. According to another definition, social media is an online information source that is created by users to share information and to call attention to products, brands, services, personalities, and topics (Blackshaw & Nazzaro, 2004). In the traditional media information is mainly produced by companies and is spread in one direction (one to many).

The social media has an increasing impact on the modes and the reasons of Internet applications (Parsons, 2011). The phenomenon is interactive, the users are able to share information among each other, and the Internet exceeds the potentials of marketing communication.

The changes in communication generated further challenges for the companies that use social media. Social media became the new and hybrid element of marketing mix. In the traditional media the elements of marketing mix, like content and frequency, are under control. The company practices is a direct control on the media (Mangold & Faulds, 2009), while in the social media the total control has diminished or been lost by the company. The reasons are the company independent platforms like email, blogs, and forums. These platforms enable the users to communicate directly and speed up their communication.

In the social media information is produced by users and they spread it. This is the many to many form of information flow (Tariq & Wahid, 2011). This type of flow brings the democratization of information and knowledge (Evans, 2008). Contents are transformed to consumers' contents, which has changed the mode of communication between companies and consumers. This process has changed companies' communication, as they have become parts of consumers' communication.

The effects of social media can be considered as strategic advantages for companies. The focus of the social media is on dialogue; it supports faster communication to the users and provides free marketing data for the companies (Schultz et al., 2011).

By using social media, a business company is able to develop its inside practices, the mode of cooperation with its consumers, business partners, and suppliers, to produce more values and strengthen the loyalty to the company (Culman et al., 2010). Companies get prompt feedback from their customers, which they use for the improvement of promotion campaigns or in marketing researches (McAfee et al., 2011).

1. Materials and methods

The most popular social media websites are Facebook, IWIW, and MyVip in Hungary. Taking the registered and active users Facebook and IWIW have dominance on the Hungarian social media market. Facebook, that is the focus of our research, is the largest and the most popular

social website in the world. Recently, with more than one billion users, Facebook has become a kind of multimedia centre (Wikipedia, 2013). According to the statistics of April 2013, the number of Facebook users is three million. They represent approximately 30 percent of the Hungarian population. The proportion of male users is 48 percent and of female users is 52 percent. The Facebook liking activities by users support us to get to know details about consumers' expectations and attitudes.

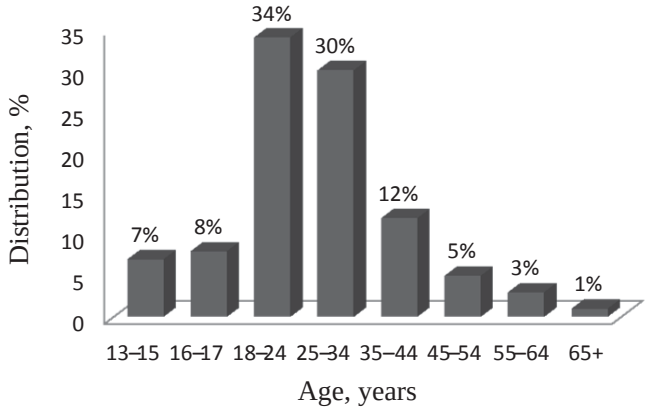

Fig. 1. Ages of Facebook users in Hungary (Bereczki, 2011)

Considering the generation proportion of Facebook users, the vast majority of users is between the age of 18–34, who represent two million users from the above mentioned three million (Fig. 1). The older generations use the Internet in an insignificant number. The proportion of the 55-year-olds or more is only 4 percent (Bereczki, 2011).

The website users can express their opinion about a website, a company, or a product with the possibility of using *"Like"* panel on websites. Users can like more than one webpage at the same time, creating a unique preference matrix for all independent users. The Wisdom software supports revealing the similarities among Internet users. Using the *Like* panel, the consumer expresses a certain type of connection to the product and the knowledge about it. Through the analysis of their liking activities on the Facebook, this paper presents the research on the food consumers' preferences and needs. The research topic and the huge number of Facebook users enable a wide range of comparative analysis on the decision making and support discovering the differences between consumers' groups. The knowledge about consumers' attitudes and needs of different consumers' groups contribute to a more efficient way to position and plan product developments. In contrast with the traditional surveys like questionnaires, the Internet surveys provide prompt and real information about the target group.

Wisdom software version Professional developed by MicroStrategy was used for the analysis. The Wisdom Professional is based on a Wisdom Network community that has 22.9 million users. The enrolment to this community is voluntary. For little advantages, the members share their datasheets with their personal data like age, home address, educational level, website preferences. These data are collected in a database. The Wisdom software is a unique and efficient consumers' research method that can be applied to discover information

about consumers using their Facebook database. The software offers a wide range of demographical data, interest fields, activities, and motivations about website users. It is efficient in segmentation of consumers' groups that can support more efficient marketing and product development activities.

2. Results and discussion

This paper presents the result of our research on Coca Cola sparkling soft drink, one of the worldwide known brands. The third most popular product of the Coca Cola Company is the Coca Cola Light, that was introduced to Hungary in 1992. This product is advertised on the website of the company as a sugar free sparkling soft drink without any additional sugar content. It means that consumers, who have preference to the reduced carbohydrate products, like this item.

On the basis of the survey on Coca Cola website, it had a number of 67.1 million *Like* in June 2013. This figure shows the number of users' satisfactions with the Coca Cola product. To tighten the sample of our selected product, we analysed the data of Coca Cola Light at international as well as domestic levels.

In line with the international results, the domestic analysis highlighted that consumers who like the product with reduced sugar content belong to the younger generations. Most of them live in towns and have higher educational level. The proportion of male consumers is 32 percent, while females have a larger proportion with 68 percent. Table 1 summarises the results of the analysis. According to marital status, singles have the largest share in the sample (45%). The engaged users are in the second place (33%) and married users represent only 18 percent from the total sample.

Table 1. Share of Coca-Cola Light likers in Hungary by marital status

Relationship Status	Single	45%
	In a relationship	33%
	Married	18%
	Engaged	4%

The analysis of preferences and educational levels domestically, in line with the international results, shows that the users with college degrees like the Coca Cola Light product the best. They are followed by the high school students' number of liking. Users with university degrees have an ignorable share in the sample (Table 2).

Table 2. Share of Coca-Cola Light likers in Hungary by educational level

Education Level	High school	40%
	College	45%
	Graduate school	15%

We analysed the users by their average salary, as well. Less salary means the more liking of Coca Cola consumption. This result in Hungary is in accordance with the international results.

Beside the socio-demographic analysis, the website provides a possibility to examine the users' interest in other products: liking of other food companies or food products and their consistency with healthy food choice (i.e. sugar free products). Surprisingly the results did not justify the consumers' consistency. The majority of users who like Coca Cola Light products expressed their preferences to other food products with a high rate of sugar content like Túró Rudi (Sweet cottage cheese), Nutella, Monster as well. Table 3 shows that half of the users who like Coca Cola Light expressed their liking on websites with a converse content to health products. This result differs from the international tendency. While the international results present a one-third share, the 48.9 percent of the Hungarian consumers are antinomic in liking activities. Affinity index shows the changes in the last years.

Table 3. The interests of Coca- Cola Light likers in Hungary

Page	Affinity	% of segment
Túró Rudi (Sweet cottage cheese)	1518.4x	76.1
Coca Cola	13.8x	59.8
Nutella	34.2x	50.0
Cool to have McDonald's product!	2627.6x	48.9
McDonald's	21.6x	47.8
Monster Energy	29.2x	46.7
Milka	2702.5x	43.5
McDonald's Hungary	8709.8x	43.5
Milka	381.0x	42.4
Red Bull	15.7x	41.7
Starbucks	6.8x	35.9
Sprite	43.4x	33.7
Ferrero Rocher	22.9x	31.5
Norbi Update	1749.4x	30.4

3. Conclusions

The spread of the Internet mass communication tools enable us to make direct survey on food consumers who visit websites and express their liking on certain products, services, or companies. When consumers visit a website, the product makes an impact on them. The analysis of liking users provides a very precise overview on consumers' behaviour, socio-demographic characteristics, membership of a certain type of group, and their food consumption habits. The results of the analysis support discovering the latent consumer needs, which helps a more efficient development and marketing of food products. The revealed preferences show some contradictions in users' attitudes. The younger generation has a large proportion in consumption of reduced carbohydrate products and healthy consumption is equally important for every generation. The presence of the sexes is not equal

in Hungary, while this share is almost the same in the world. Hungarian women represent a higher proportion on websites than men. The marital status index shows the dominance of singles. In terms of the educational level, the consumers with higher degree are the most health conscious consumers.

The application of the analytical software introduced in the paper started only a few months ago in Hungary. The outcomes of the application have greatly contributed to company management and the target oriented product development. There are a few shortcomings of the applied method as well. Although the software is able to separate the different consumer groups, the presentation of statistical data without further analysis is not possible. Not all users are on the different websites, the Internet application intensity habits are different among users.

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