

Trends in utilization of selected technologies in grocery stores

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Abstract

Just like all the other trade sectors so is retail business prone to various changes and trends which affect not only merchants themselves, but their customers too. It is specially the retailing industry where huge changes are in progress with respect to the development of information and communication technologies. The basic trends of retail trade can be divided into two groups. First one includes those that are inspired by the past and logically in the other there are trends that are formed based on current technological solutions and future consumer behaviour estimates. In constantly intensifying competitive environment of the current retail business it is necessary both to perceive and be interested in the customer needs and desires on one hand, and on the other to follow modern technological capabilities, as well as any competitor activities. In addition to knowing the needs and desires of your customers is for business success necessary to also focus on how these customers are transforming in relation to the lifestyle changes, which was among other things initiated by smart mobile devices, internet access or access to information and not least the social networking phenomenon. This article is discussing a comprehensive review of trends in utilization of selected technologies and their reception by customers /perception in Slovak grocery stores. Research is integrating questionnaire survey and observation in real conditions in selected retail outlets. Based on the findings paper conclusion includes proposals applicable to the food market especially regarding the use of new technologies to improve customer comfort and thus their satisfaction during shopping process. The paper is the result of the primary and secondary research in the national research project VEGA 1/0874/14 Using Neuromarketing in Visual Merchandising and International Food Educational Project Erasmus+ Strategic partnership Food Quality and Consumer Studies Nr. 2014-1-SK01-KA203-000464.

Key words: retailing, new technologies, trends, customer, retail chains

JEL Classification: M31, M39

1. Introduction

Nowadays, instead of the concept of retail chain is more used the English term "retail" or "retailing", which implies an international dimension of the retail and a complex of retail operations [3]. Retailing in the new millennium stands as an exciting, complex and vital business sector in most developed as well as emerging economics. Key trends and developments such as changing customer needs and increasing interest in the shopping experience as much products, retailer consolidation, emerging multichannel retailing strategies, changing nature of competition within and between retailing formats, globalization and technological breakthrough such as radio frequency identification (RFID) and personal selling assistants (PSAs) are having or will soon have a dramatic impact on the way large retailers do business in this new century [6]. These demands, resp. customer requirements in particular methods of communication and various shopping options are very closely related to the expansion of the Internet and the development of mobile devices such as mobile phones and tablets [1]. Shopping itself is facing a major change, since customers have a choice of where to buy the proper product [9]. To be innovative and not afraid to take risks and come to the market with something new as the first one, can for a company mean a revolutionary event that moves it between the successful companies [5].

In connection with the change in lifestyle, which was initiated by smart mobile devices, Internet access to the information and not at least by the social networking phenomenon, the customer is changing also. It is said often, that the customer is changed in the following dimensions [2, 7]:

- *Knowledgeable customers*

Customers have the same information as the sales staff and they have therefore become redundant and they do not need the sales staff.

- *Demanding customers*

Customers are aware of their value for the retailers and accordingly to that they increase their entitlement to the service, product quality and speed of purchase.

- *Independent customers*

Customers want to have a chance to do their purchase regardless of the sales staff.

- *Inspiring customers and cooperating*

Customers can, with their initiative, influence the type of future retail or they initiate the change themselves.

- *Diverse customers*

With the advent of the Internet and the development of electronic shopping and smart mobile devices, the retail customers are changing also.

- *Interactive customers*

Customers increasingly wish to try the products before the purchase, to enchant the purchase in stores, to involve all the senses in the purchasing decisions.

- *Travelling customers*

Thanks to the expansion of the opportunities for the purchase of goods and services by the mobile phones, the number of customers who use these forms is increasing even if they are thousands of kilometres far away from the nearest shop.

Several dozen trends can be found worldwide, which the retailers indicate as the reasons for their success, as well as the direction which such modern retail will take. From this great amount we can select primarily two key trends [9]:

- *Omnichannel*

This is a new way of strategic management of a retail company that combines store, e-commerce and mobile applications, which ensures 24-hour accessibility for the customers [8].

- *Shopping experience*

This expression is closely related to omnichannel and presents a number of situations and ways to use the modern technology.

Retail technology means a sum of interactive business operations in the business operating units among suppliers, employees, consumers, customers and products through technical terms. The development of the technology did not cause a boom in the use of these technologies only on the side of retailers, but also of customers [4]. The customers are those, who are familiar with the advantages of each technology, and therefore they are those, who are actively seeking for them in the shops. Customers wish to be online; they want to have fun while shopping. In this regard, it becomes necessary to offer the Wi-Fi connection, which is also good for traders in relation to social networks at tagging of location. Along Wi-Fi, they try to use also other forms of smart phones such as QR codes, payments via mobile phones, so called self-scanning – hand-scanning of each item with a mobile phone [10]. In addition to mobile phones, the new trends are represented also by self-service cash registers, digital displays and a variety of other technologies, whose role is to make more pleasant and simplified customer's purchase.

2. Data and Methods

In order to obtain the information on the perception of new trends in grocery stores operating in Slovakia, we conducted a questionnaire survey with random buyers. The sample consisted of 50 respondents, while 9 questionnaires had to be excluded on grounds of incorrect entries, which means that the sample was reduced to 41 respondents. The research was conducted in stores mostly in the Western Slovakia in different sales formats (small grocery store, supermarket, hypermarket and discount store). As it can be seen from the Table 1, the highest participation had the respondents in the age group from 18 to 24 years.

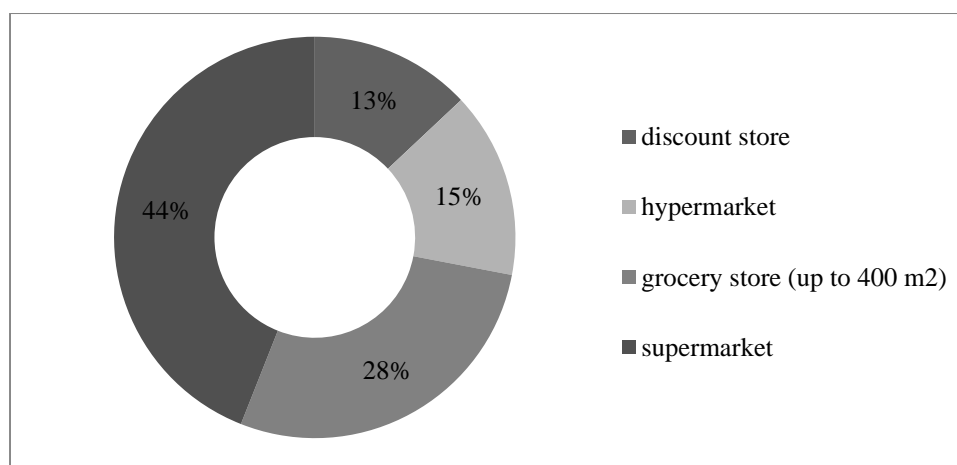
Table 1: Description of the questionnaire survey sample

Gender/Age:	18-24	25-49	50-64	65 and more
Male	10	4	2	1
Female	19	2	2	1
Together	29	6	4	2

Source: Own processing of

Subsequently, the observation, in order to determine the status of new technologies by individual sales departments, was made in 60 stores of different formats. As it can be seen from the Figure 1, the largest representation had the supermarkets, exactly 44 %. On the contrary, the smallest representation had the discount stores, only 13 %. The largest representation had the Slovak chains (*COOP Jednota, FRESH, Nitrazdroj and other retailers*), greatly were represented also the foreign chains (*Billa, Hypernova, Kaufland, Lidl, Metro, Tesco*).

Figure 1: Representation of the sales formats in the conducted observation



Source: Own processing of based on a questionnaire survey 2015

The processing of the obtained primary data was performed with the use of descriptive (frequency, quantile, average) and inductive (Chi-square test) statistics. This test verifies even if the differences of actual and expected frequencies may be only random (variables are independent) or they are too large to be only random (there is no relationship between the variables) [10].

The assumptions in this test are set out as follows:

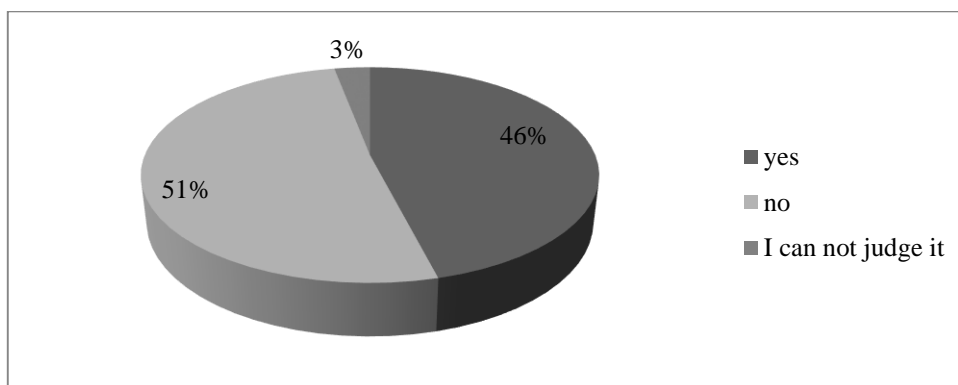
H0: Quantities are independent.

H1: Quantities are dependent.

3. Results and Discussion

The entire domestic as well as the multinational groceries are equipped with modern technologies, which amount and degree of innovation is in most cases dependent on their size. In order to map the status of technologies in chains operating in Slovakia, we conducted a questionnaire survey with the customers of individual stores. As it is shown on the Figure 2, even 51% of respondents prefer the stores that are equipped with modern technologies. Almost the same amount of respondents, even 46% of them, said that they did not favour such groceries.

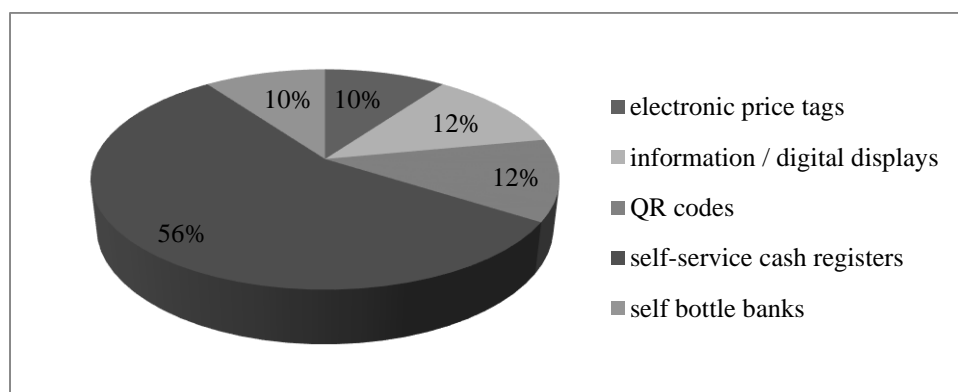
Figure 2: Favouring of stores in terms of equipment with modern technologies



Source: Own processing of based on a questionnaire survey 2015

In terms of the perception of individual modern technologies, most of customers register the self-service cash registers, even 56%. To a much smaller extent, these customers notice other technologies, such as electronic price labels (10%), QR codes (12%), information / digital displays (12%) and self bottle banks (10%) (Figure 3). In this case it should be noted that the electronic tags were for the first time in Slovakia introduced by COOP Jednota through COOP Jednota Nové Zámky and Námestovo, in two stores with the type of Tempo supermarket. Electronic tags are highly effective in comparison with the conventional paper price tags. They allow showing any information about the price of a product, and they can be changed at any time from a central computer. The prices of more than 12000 items of goods can be shown at any time and they can be changed at the same time without cabling. The aim of introducing the electronic labels was to reduce the number of mistakes in the evaluation of products, improved readability for customers and reduction of the labour intensity of staff. Another advantage is the high contrast and resolution with wide-angle elevation and good readability.

Figure 3: The perception of modern technologies in grocery stores

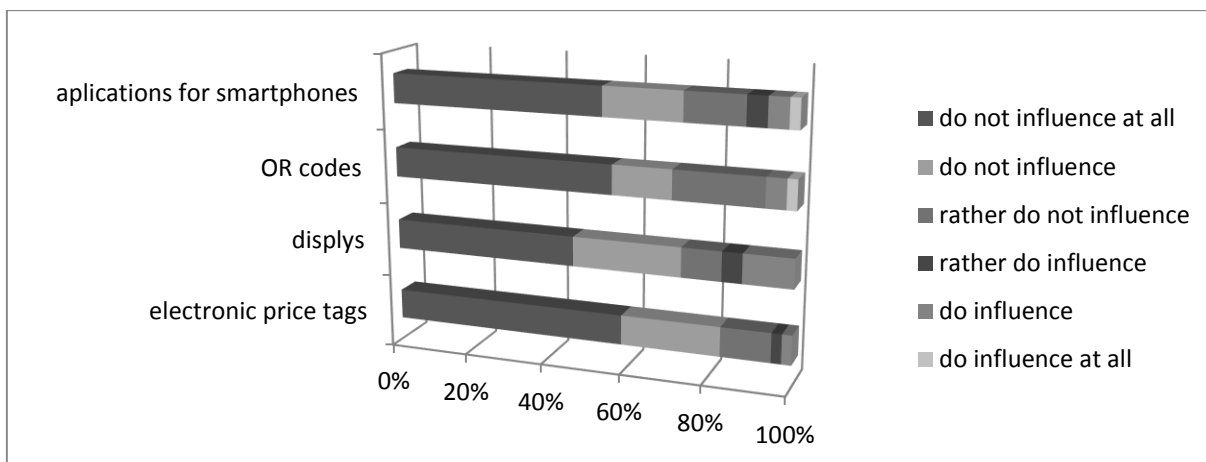


Source: Own processing of based on a questionnaire survey 2015

In terms of the impact of each technology on the actual shopping process, it can be based on the Figure 4 stated, that the least impact on the customers have the electronic price tags (almost

95% of respondents said that they do not affect them) and applications for smart phones (almost 90% of respondents said that they do not affect them).

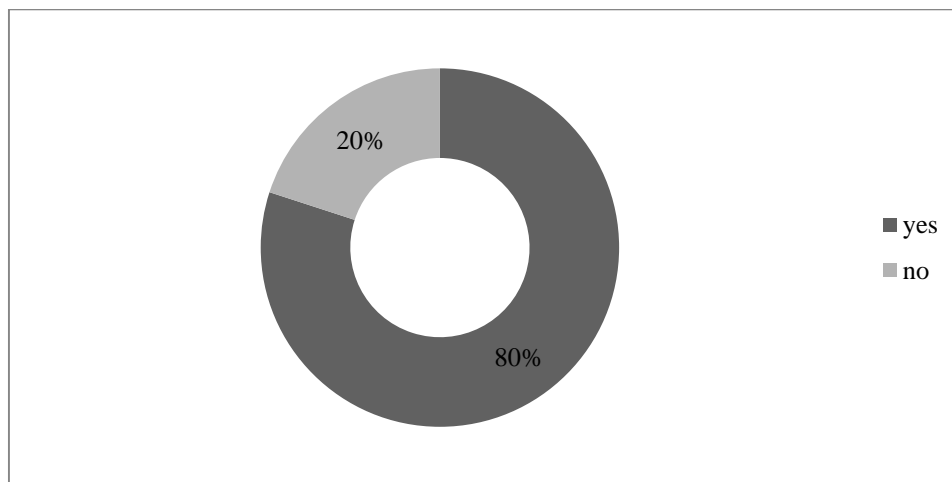
Figure 4: The impact of selected technologies on consumer decisions



Source: Own processing of based on a questionnaire survey 2015

The survey shows, that Slovak consumers, who have participated in the questionnaire survey are opened to the new modern technologies. Even 80% of them would like more new technologies in grocery stores, in order to improve the services, to make the buying process more pleasant and faster. Within the modern trends, the consumers mostly in grocery stores operating on the Slovak market lacked a free Wi-Fi connection, from which are derived numerous technological innovations.

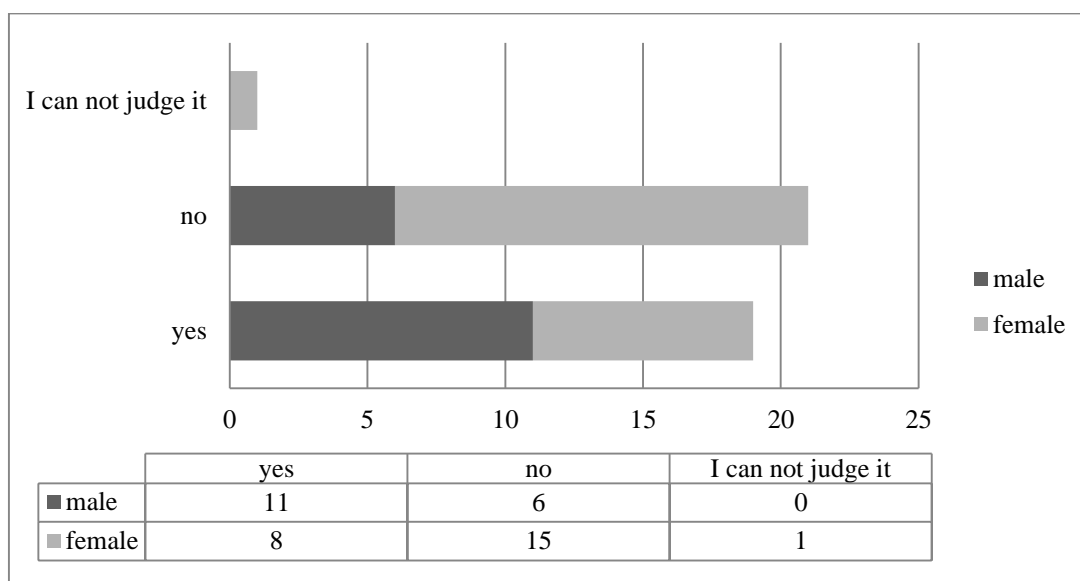
Figure 5: Consumer relationship to new technologies



Source: Own processing of based on a questionnaire survey 2015

In addition to assessing the respondent’s opinion, we have also focused on the analysis of the assumption, where we have assumed that there is a relationship between the gender and the preference of retail, which offers new technologies. The difference in preference of retail up to the gender is shown graphically on the Figure 6. This dependence was verified with the use of Chi-square test of independence on the level of significance 0,05; while the hypothesis about the dependence of mentioned variables was confirmed.

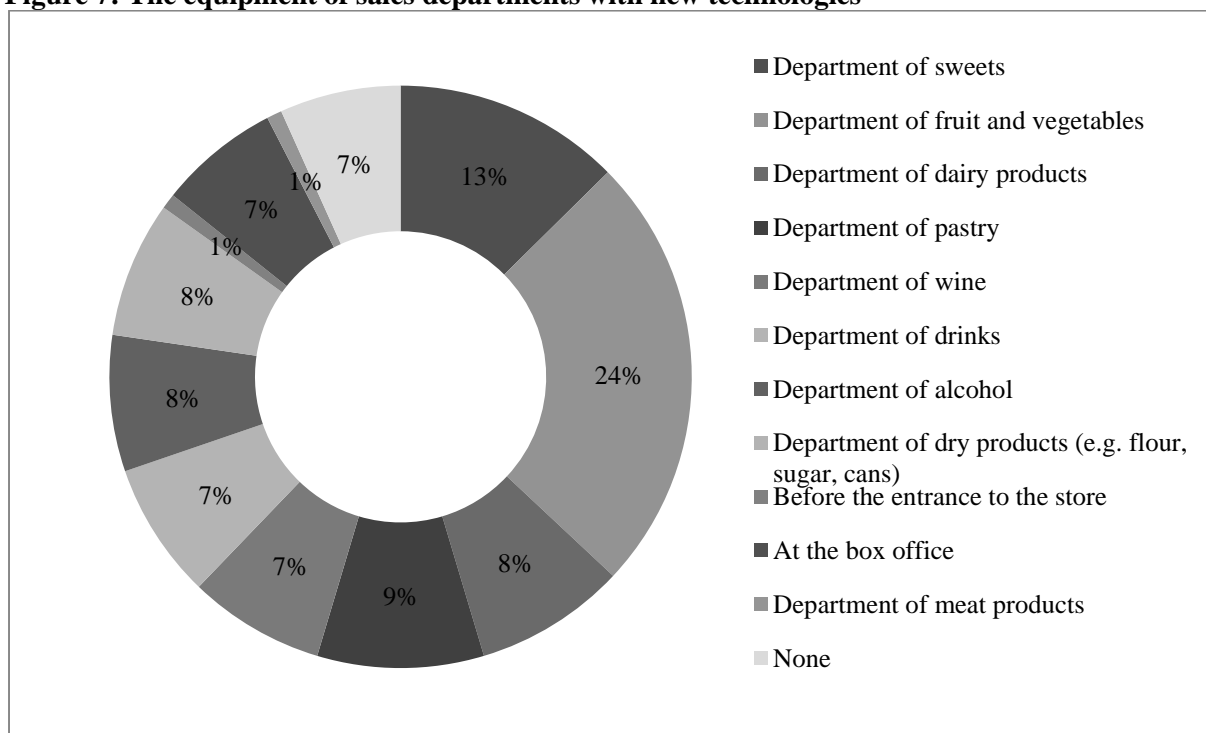
Figure 6: The relationship between the gender and the preference of retail, which offers new technologies



Source: Own processing of based on a questionnaire survey 2015

Up to the results of monitoring the representation of modern technologies in various sales departments (Figure 7) it can be stated, that the most technologies are situated in the department of fresh fruit and vegetables, up to 24%. The digital displays placed in those departments mainly in supermarkets COOP Jednota are contributing to the higher values. To the departments, in which were recorded a higher numbers of modern technologies could be included also the departments of sweets 13% and at the box office 9%. On the other hand, the least technologies are situated before the entrance of the shop 1% and in the department of alcohol 1%.

Figure 7: The equipment of sales departments with new technologies



Source: Own processing of based on a questionnaire survey 2015

4. Conclusion

Innovations, news and new trends are the engine of the human population, which thanks to them expands its options. The emerging trends are those that indicate the direction of the contemporary world, which leads to the facilitation and improvement of daily life. Products of new technologies related to the informatisation of society and their impact on the development in retailing, are nowadays often discussed motives. The scope and complexity of this very dynamic issue creates a place for many discussions and researches of most diverse aspects that so far due to the rapid development in this area and lack of time for the analyze of fall-outs, make up an unexplored area. Based on our survey, it was found out that most of those surveyed have recently noted the self-service registers (56% of respondents), QR codes (12% of respondents) and self bottle banks (12% of respondents). We also found out that from the selected technologies, the consumer is in his purchase at least affected by the electronic tags (95% of respondents are not affected by electronic tags in their purchases). The questionnaire survey showed that 80% of surveyed had no negative experience with technologies in retail. Most modern technologies are situated in the departments of fresh fruit and vegetables and also in the department of sweets. We found out that technologies in retail are very important, since they provide the consumers with more convenient shopping. Especially important is the unity of all these channels not only visual, but exactly the unity of this interaction and customer delight.

Acknowledgements

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