*Eurasian Journal of Business and Management, 7(3), 2019, 34-43*
DOI: 10.15604/ejbm.2019.07.03.004

**EURASIAN JOURNAL OF BUSINESS AND MANAGEMENT**

**www.eurasianpublications.com**

# CONSUMERS ATTITUDES TO INNOVATIONS IN RETAIL: A CASE OF INTRODUCING THE SELF SCANNING TECHNOLOGY IN RUSSIA

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**Abstract**

Currently, retail is one of the most innovative economic sectors. High competition forces retailers to look for new ways and methods of working with consumers. The introduction of innovative technologies allows retailers to improve the quality of service, become more attractive for their consumers and form consumer loyalty to their brands. At the same time, not all innovations meet the expectations of retailers. Consumers are not always ready to use innovative products and technologies, preferring traditional shopping formats. This problem is particularly relevant for emerging markets. The goal of our research is to analyze the experience of retail innovations using in the Russian market. The object of our research was the self scanning technology, which has just appeared on the Russian market. This technology allows a consumer to make purchases independently without the assistance of the seller. At the entrance to the store the consumer can take a special device. Next, the consumer selects the desired product and scans its bar code with a personal scanner. During the scan, the screen displays the price of the product, the size of the discount and the total amount of the purchase. This avoids the problems associated with incorrect price tags and product discounts. The consumer can pay for the purchase at the self-checkout. In spite of a number of obvious advantages for the buyer, the self scanning technology expansion is very slow in the Russian market. Our research is focused on studying the experience of using the self scanning technology, as well as the buyer's difficulties and problems with it. Observation and formalized survey were chosen as research methods. The results of the study allowed us to develop the recommendations for retailers to encourage their customers to use the self scanning technology.

**Keywords:** Russian Retail, Customer Behavior, Perception of Innovation, Problems of Innovations Spreading

## 1. Introduction

The level of competition in Russian food retail is currently extremely high. Reducing the Russian population purchasing power leads to a decrease in such important retail indicators as traffic, average bill, turnover, and sales volume even in the largest Russian retailers (ISSEK, 2019). In addition, over the past few years, there has been a steady trend of customers moving from large-format hypermarket stores to supermarkets or convenience stores. In the present context

the largest Russian retailers use various tools for increasing their competitiveness. Among the most popular of them are staff development (Krasyuk *et al.* 2017), the increase in the efficiency of the management system (Krymov *et al.* 2017), the strengthening of organizational culture (Desfonteines *et al.* 2018), etc. Also, many retailers consider the implementation of innovations as an important tool for increasing the efficiency of their work. These innovations are designed to meet the needs of modern consumers and to comply with the dynamics of changes of consumers' behavior.

An important trend in the modern economy is the change of consumers' behavior. Modern consumers, on the one hand, want to spend less time shopping in the store, and on the other hand, they want to have more detailed information about the goods they purchase. Modern consumer self-service technologies such as self scanning and self checkout can satisfy these consumer needs. The issues of introducing innovations in retail are of interest to many researchers. There are lot of previous research that focused on theories of innovations adoption (Verhoef *et al.* 2009; Wang *et al.* 2013) and consumer attitudes towards innovation (Dabholkar, 1996, Bitner *et al.* 2001). A large number of studies are devoted to the advantages of introducing innovations both for the retailer and for customers (Knez, 2007; Inman and Nikolova, 2017), as well as the factors determining the use of innovative technologies by customers and satisfaction with the use of innovative technologies in retail (Marzocchi and Zammit, 2006; Demirci Orel and Kara, 2014; Djelassi *et al.* 2018).

However, one of the key problems of introducing innovations in retail is the mixed reaction of consumers. A number of studies note the fact that not all consumers prefer to use new technologies, and that not all consumers see the positive aspects of technological innovation compared to traditional forms of shopping (Meuter *et al*. 2003; Dabholkar *et al.* 2003). A number of constraints to the use of self-service technologies in trade were also highlighted in the study (Weijters *et al.* 2007).

The perception of these technologies is not always positive even in a more innovations friendly young audience. For example, a study conducted on the Croatian market showed that self-service technologies are not fully accepted by Croatian young consumers and are more likely an auxiliary option for them (Matic *et al.* 2019). The key reason for this attitude that researchers called consumer distrust, caused by frequent technical failures. However, this study revealed experience and attitude towards innovative technologies in retail using a focus-group technique which relates to qualitative methods. To verify and clarify the results obtained, it is necessary to conduct a quantitative study. Our study is dedicated to solving this problem and offers a quantitative study of the experience of consumers using innovative technologies in retail using the example of self scanning technologies in the Russian market.

The use of innovative technologies is especially important in the hypermarkets as the large-format stores. Many of the largest Russian retailers with hypermarkets chains are turning to the introduction of innovative technologies that can automate business processes, improve customer service and their loyalty, and optimize costs and risks. However, retailers may face a situation where the implemented technologies are not as effective as expected and do not solve their tasks. This may be due to incorrect selection or use of technology for a particular problem or the consumer rejection of innovative technologies. A research of the customers' experience of innovative technologies using will allow retailers to understand their weak points and improve the process of customer service.

This study is dedicated to the self scanning technology using by Russian customers. This technology has appeared on the Russian market in 2018 and now is actively using by the largest Russian retailers (X5 Retail Group, Lenta, O'key and others) (X5 Retail Group, 2019). The self scanning technology allows customers to make purchases without the assistance of the seller. A feature of the technology is the trust of the retailer to customers. Therefore this technology can be used only by owners of retailer frequent buyer cards, which they receive after filling out a personal data questionnaire.

The process of buying with the self scanning technology is following. At the entrance of a store retailer's cardholders can voluntarily take a special scanner device. Next, the customer selects the desired product and scans its bar code with the personal scanner device just in the retail floor. During the scanning the customer can see a price of a product, a discount and a

total purchase amount. This avoids the problems associated with incorrect price tags or product discounts. The purchase can be paid at a self-checkout.

The self scanning technology allows retailers to reduce the labor costs of their retail floor employees or to use staff in other store areas. The main retailer's advantages of the self scanning technology are:

- A significant reduction in spending customers time in queues, and increase level of customers satisfaction and loyalty, since this type of innovation is also called "queue-busting";
- Optimization of a customer flow, the ability to serve a greater number of customers;
- Increase of customer traffic;
- Revenue increase;
- Increase of in-shopping space due to the replacement of supermarket checkout with self-service zones that occupy smaller areas;
- Customers' orientation on the store brand goods purchase since this category goods are often better from quality-price ratio (Datakrat, 2019).

However, the self scanning technology also has several disadvantages:

- Increased losses due to shoplifting and label re-gluing;
- The inability to fully automate the sale due to the presence of reinforced goods;
- The scan device use is possible only for customers registered in the retailer's database;
- This innovation is aimed only at a certain age category (Retail - Loyalty, 2013).

Weighing the pros and cons of the self scanning technology, the largest Russian retailers come to the conclusion that it is an ambitious project for the Russian market. However, the results of its implementation are not as effective as expected. This is primarily due to the customers' attitude to this innovation. The self scanning technology speeds up the in-store buying process, but at the same time significantly complicates it. Not all buyers were ready to constantly use the self scanning in the shopping process.

This paper presents a study of the attitude of Russian customers to self-scanning and innovative technologies in general. During the study, groups of respondents using and not using self-scanning technologies were studied separately with the specially developed questionnaires. The results of the study allowed us to identify the advantages of innovative technologies in retail as well as their limitations and disadvantages from the buyers' point of view. On the basis of the research results, a set of recommendations was developed to stimulate the use of self-scanning technology among Russian buyers.

## 2. Methodology

In order to determine the advantages and disadvantages of the self scanning technology from the customer's point of view, we conducted an original study. It included two methods: observation and formalized survey. The observation was aimed at studying the demand for the self scanning technology among hypermarket customers. The formalized survey was aimed at the analysis of consumer experience of the self scanning technology use and its advantages and disadvantages identification.

During the observation of the demand for the self scanning technology among customers in the O'key hypermarket (St. Petersburg), the following data was obtained in December, 2018. 576 people visited the supermarket during the hour of observation. Only 10 customers used the self scanning technology. Three customers made an attempt to get a personal scanner, but did not understand the technology. These statistics demonstrate that less than 2% of St. Petersburg customers are familiar and actively use the self scanning technology.

The second part of the research was the formalized survey. We developed a special questionnaire about the respondents' attitude towards innovations in retail, the experience of using the self scanning technology, as well as its advantages and disadvantages for customers. The survey was conducted in January, 2019. The sample of respondents included 210 people from different age groups. Personal and online surveys were used. The respondents who used the self scanning technology and did not have such experience were asked by different groups of questions. The respondents who used the self scanning technology were asked about

customer experience, and the technology strengths and weaknesses. The respondents who did not use the technology were asked about the reasons for not using it.

## 3. Results and Findings

The study results show the differences in the frequency of shopping respondents (Figure 1). The picture shows that 22% of respondents visit stores daily; 54% - 2-3 times a week; 17% - 2-4 times a week; 6% - once a month; 1% do not visit offline stores at all.

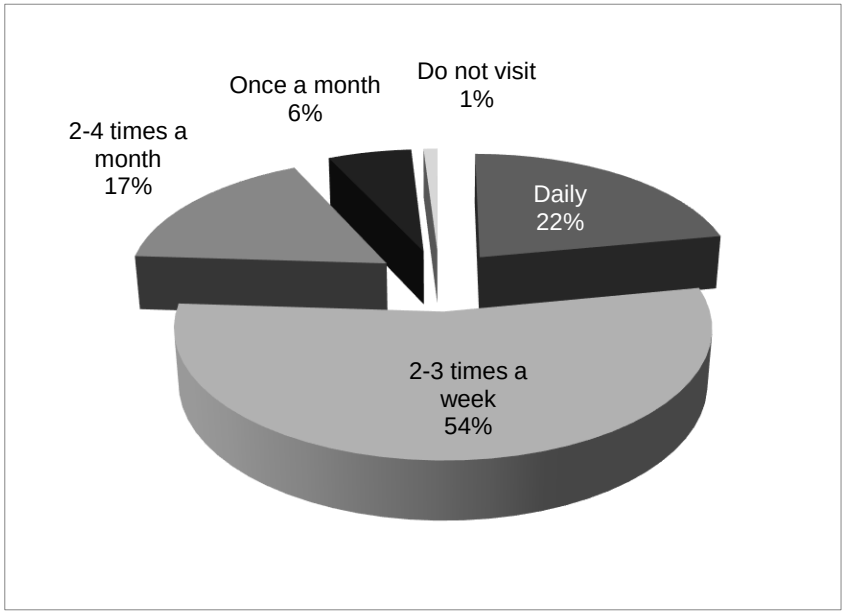


**Figure 1. The frequency of visits to stores by respondents**

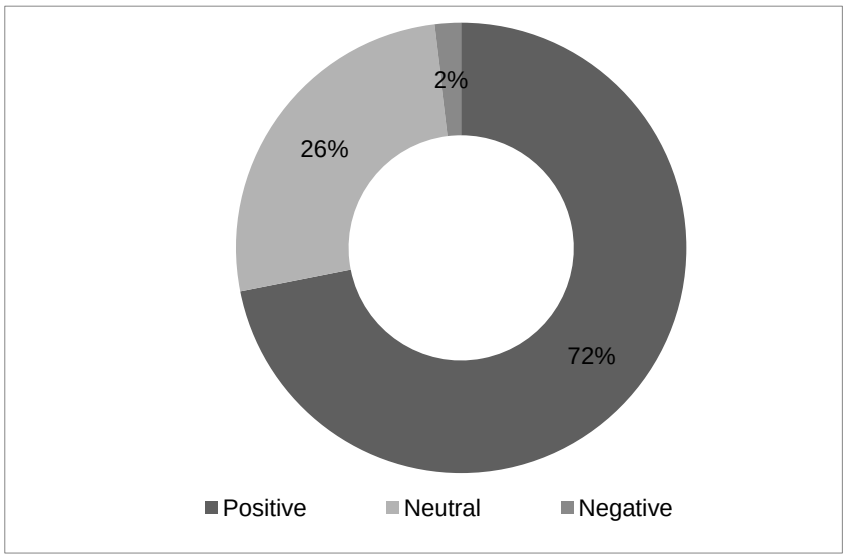


**Figure 2. The respondents' attitude to innovations**

The respondents' attitude to the innovations in retail is presented in Figure 2.72% of respondents assess innovations positively, 2% have negative attitude and 26% are neutral. The distribution of respondents who used and did not use the technology by age and gender groups

is shown in Figures 3 and 4, respectively. 36% of respondents had the experience of using the self scanning technology, and 64% did not. The differences between respondents of different ages and gender groups in terms of using the self scanning technology were not statistically significant.

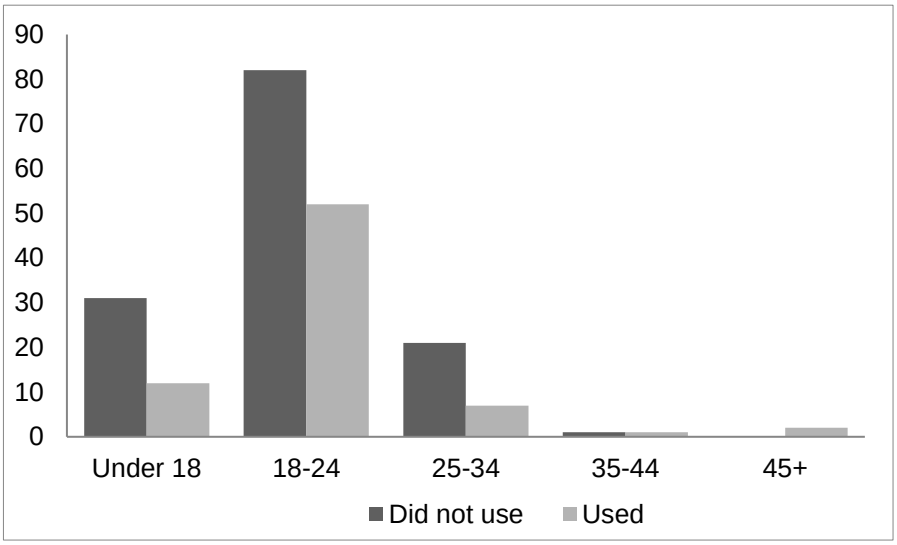


**Figure 3. The distribution of respondents who used and did not use the self scanning technology by age**

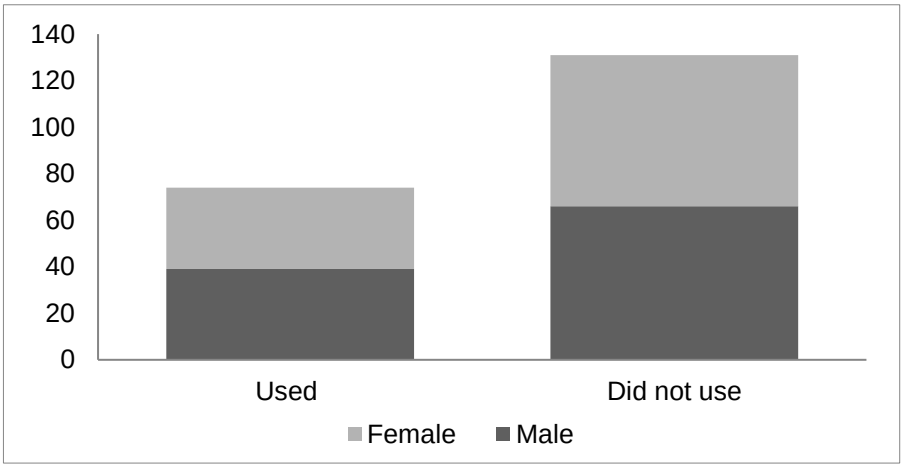


**Figure 4. The distribution of respondents who used and did not use the self scanning technology by gender**

The distribution of respondents answers on the question whether it was convenient to use the self scanning technology presented in Figure 5.85% of respondents consider the technology convenient, 3% said that it is not convenient and 12% found it difficult to answer.

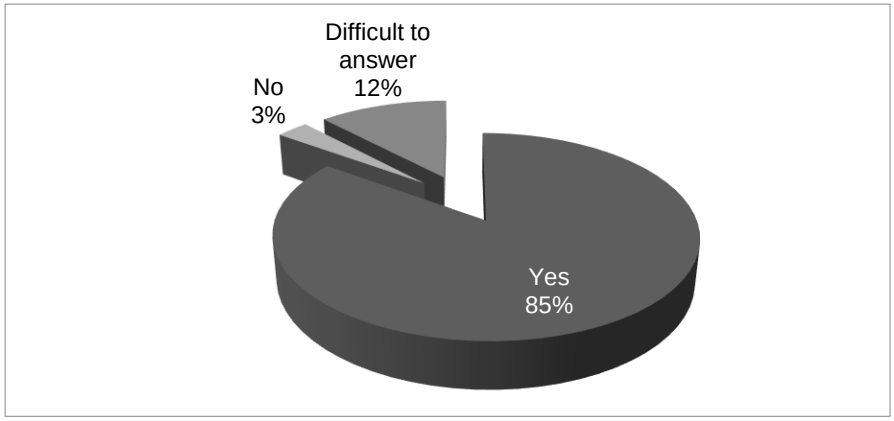


**Figure 5. The distribution of respondents' answers on the question "Was the self scanning technology convenient?"**

The distribution of respondents' answers on the question "Does this trade innovation help in shopping?" is presented in the figure 6.88% of respondents believe that the self scanning technology helps to make purchases, 8% that not, and 4% found it difficult to answer.

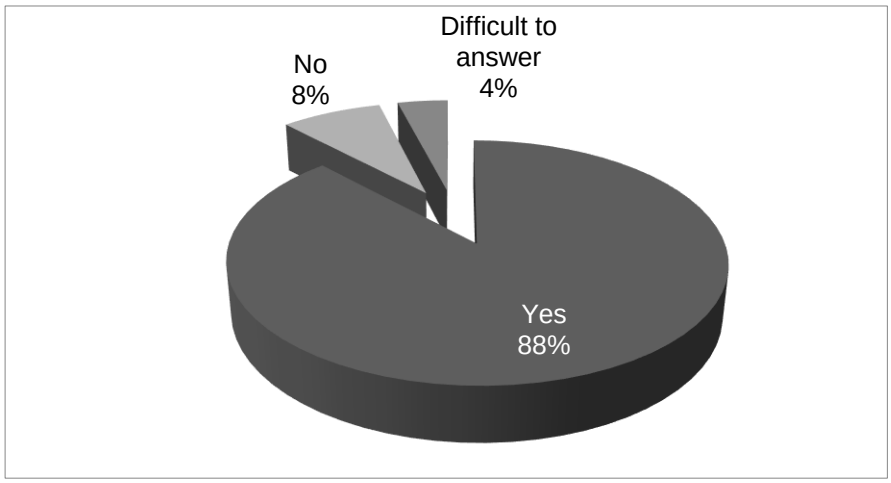


**Figure 6. The distribution of respondents' answers on the question "Does this trade innovation help in shopping?"**

The distribution of respondents' answers on a question about the problems of using the self scanning technology is presented in the figure 7.48% of respondents noted a lack of equipment; 36% mentioned system errors at the time of purchase; 13% noted the complexity of use and 3% sometimes could not find the equipment.

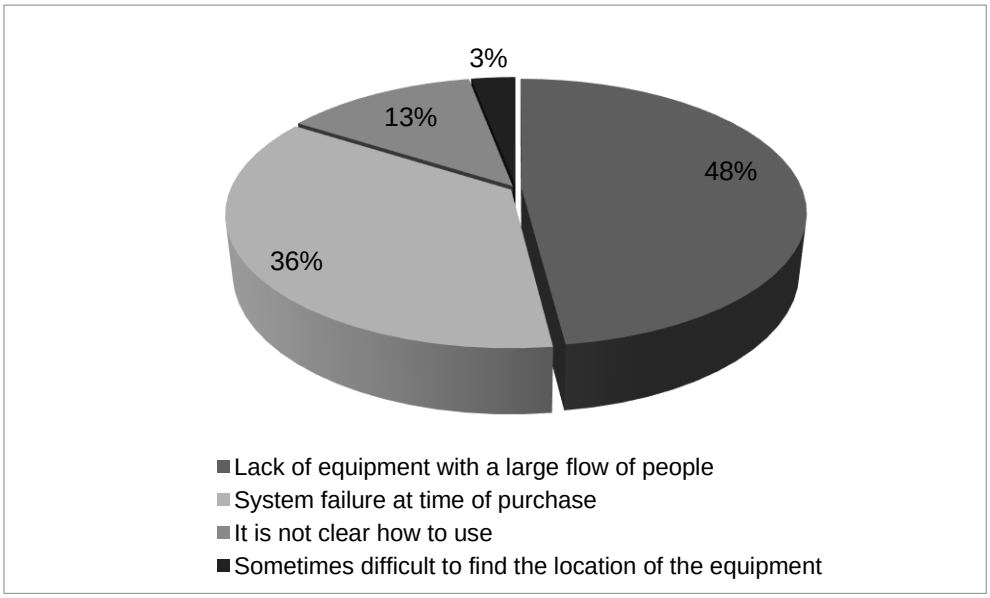


**Figure 7. The distribution of respondents' answers on the question about the problems of using the self scanning technology**

The distribution of respondents' answers on a question about the reasons for not using the self scanning technology is presented in the figure 8.80% respondents did not meet it in stores; 10% preferred the standard shopping process and did not like innovation, and 10% did not see any point in this innovation.

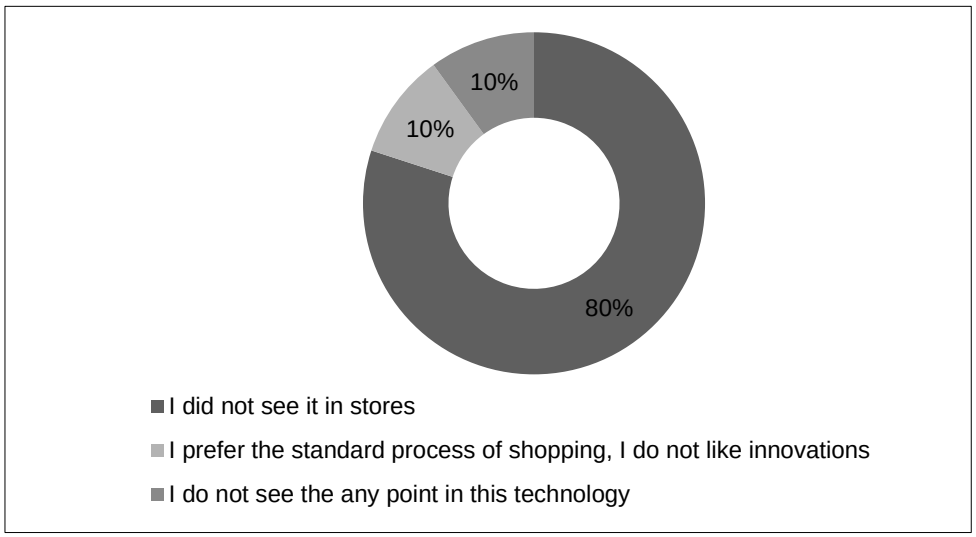


**Figure 8. The distribution of respondents' answers on the question about the reasons for not using self scanning technology**

The distribution of respondents' answers on a question about ways to motivate customers to use the self scanning technology is presented in the figure 9.48% of respondents advised to use the special banners, 45% suggested to hold an information day, 1% advised to use an in-store assistant, and 6% suggested SMS information.

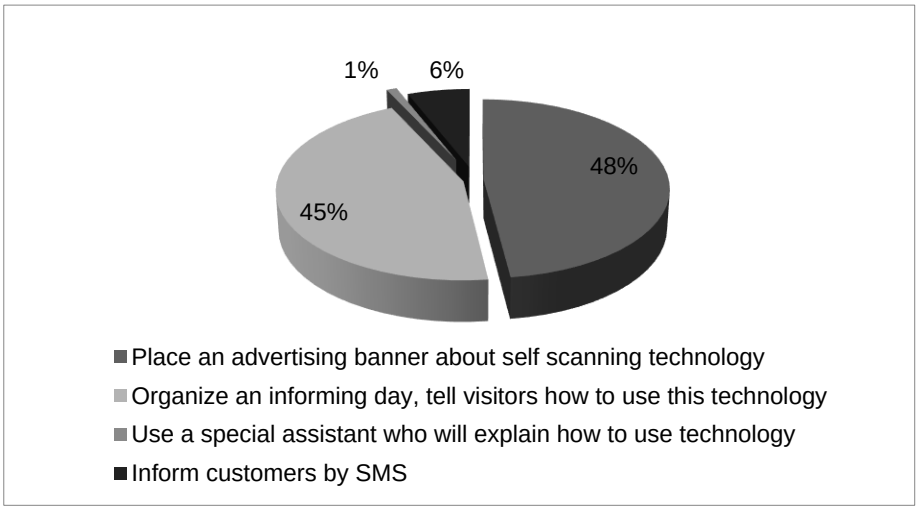


**Figure 9. The distribution of respondents' answers on the question about ways to motivate customers to use the self scanning technology**

The results of the study showed that, despite the prevailing positive attitude of respondents to innovations in retail, most of them have not yet used self-scanning technology. At the same time, among those who used this technology, the great majority found it convenient and useful. However, many respondents also noted a number of problems associated with the use of self-scanning. The two most serious problems were lack of equipment and technical problems at the time of purchase. These results are quite close to the results of the study (Matic *et al.* 2019), in which respondents identified technical errors as the main problem with using self-service checkouts. This similarity is all the more understandable because the audience of our study was mainly represented by young people (84% of respondents were under 25), as well as the audience of the study (Matic *et al.* 2019), which also focused on studying young consumers attitudes towards innovation in retail.

In our study, we also sought to find out the reasons for refusing to use self-scanning technology by consumers. There were not so many fundamental refusals to use this technology due to its perceived uselessness or inclination of the traditional shopping process. These factors amounted to a total of 20%. Thus, 80% of our respondents who did not use self-scanning did not meet or did not notice it in stores. The scientific contribution and value of this study lies not only in identifying the attitude of Russian consumers to self-scanning technology and their experience in its use, but also in developing solutions to stimulate the use of innovations by consumers. The responses of our respondents about the motivation to use self-scanning can be used by retailers to develop the most effective forms and methods of promoting this innovation.

## 4. Conclusion

The self scanning technology is a strong research and marketing tool that allows retailer to study consumer behavior, encourage visitors to make purchases, improve the convenience of shopping process, attract new customers, and reduce the costs. Despite the advantages of this technology for the retailer and consumers, it is not frequently used by the Russian customers (only 2% of them used a personal scanner). This contradiction is due to the fact that Russian retailers do not inform buyers about the benefits of innovations, and also do not take measures to adapt consumers to innovations. To solve the problem of rejection of innovative technologies by consumers, the following recommendations may be used:

- In order to inform consumers about new technologies and explain how to use them, retailers can use special advertising banners and informing days.
- The problem of buyers' fear of innovations or lack of information about the new technology can be solved by the help of the in-store consultant who will be located near

the scan terminals and instruct customers. Individual consulting will be a more effective method of information support than printed instructions.

- In order to attract young target audience retailers can use bloggers in internet advertising campaign. The bloggers are opinion leaders with millions of followers, so they can increase the loyalty to innovations of a large number of consumers.

Customers tend to use the innovative technologies if they know the principle of their work. Therefore, the key task of the modern retailer is not only introducing the innovative technologies, but also informing and even educating customers about how to use it.

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