The Future of Information Technology in the Russian Trade

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Abstract. The development of innovative technologies in Russian retail is connected with the change of consumers’ relations models. They acquire a new format, accents and technologies of trade presentation change. Nowadays the omni-channel concept replaces the traditional selling concept. The key goal of the paper is to determine the main directions of digitalization in retail. The sub goals are to study the customers’ preferences in the use of digital sales channels and to identify the prospects of creating an information customer base that available for all sales channels. The study was conducted on the basis of statistical analysis methodology. The study results have showed that the omni-channel concept represents an integrated and systematic approach to sales. The modern customers’ tastes and needs are changing very fast and the priority purchase channels are also changing along with them. The desire of a particular person to make a purchase arises as a result of the impact of diverse and multidirectional information. The purchase decision requires access to a sales channel. It can be offline store, online store, mobile devices, social networks, phone call, etc. A seller that uses all possible sales channels gains a significant competitive advantage. The buyer will be guided by the principles of speed, convenience and minimum costs.

1. Introduction

Competition in the retail trade of Russia has intensified in the last decade and is reaching its maximum. The retail market is saturated. The use of innovative technologies is not unique; the range of products of different retail chains is the same. Cost reduction due to pricing policy does not bring the expected results. The desire to take a stable position in the market requires retail improvement and reformation of almost all business processes.

The rapid development of information technology, the emergence of new means of communication, new communication channels has led to the formation of new requirements on the part of consumers to the process of shopping in the field of trade, services and tourism [1]. Modern buyers reduce the time for the purchase process, appreciate the comfort and convenience, and prefer an individual approach with a positive completion of communication [2, 3]. Increased requirements to the process of buying goods from consumers, combined with the acceleration in the improvement of information technology and the expansion of the range of channels for obtaining information has led to the need for changes in the retail trade. Retail chains reacted quickly to the change in consumer behavior by introducing information systems to analyze the preferences of buyers and their purchases. With the help of digital technologies it is possible not only to increase the efficiency of operating activities, but also to increase customer loyalty and attract a diverse audience, expanding the variations of the used sales channels and solving different social and ecological problems [4, 5].

There are areas of digital systems use in modern retail trade:

— information systems (front-end systems), providing system management of a commercial enterprise. These systems were introduced in the first place and greatly facilitated the processes of
accounting for the movement of goods, money, price management, inventory, orders, personnel, advertising of goods, interaction with the consumer. The most complex and expensive option of such systems is the generalized digitalization of goods accounting and customer service;

— information systems (front-office systems) aimed at customer service, increasing their loyalty and development of interaction. Such systems are connected with equipping workplaces with special digital equipment;

— information systems (back-office systems), ensuring the successful solution of issues of accounting and management of the trade enterprise, which most often include work with suppliers and changes in the range.

The successful operation of a retail network requires the integration of several key parameters:

— accurate analysis and forecast of profitability for commodity groups, timely correction of commodity items. This information should be timely and accessible to management and staff; cohesive and efficient team aimed at achieving a common goal, owning information technology and a variety of sales channels;

— attention to the needs of the buyer using a variety of information sources for assessing consumer preferences and change of behavior.

In large retail chains and small commercial enterprises, the use of information systems largely helps to solve the problems of accounting for the movement of goods, money, price management, inventory, assortment formation. If a small store does not use original strategies in the struggle for customers, it is doomed to close. A change in strategy and a new look at trading helps small stores stay in the market and even compete with chain stores.

Each trading segment has its own requirements for information systems. And the market of information technologies fully satisfies them. Software products for the construction of information management systems of commercial enterprises take into account the best practices of domestic and international business [6, 7].

The goal of the study was to determine the prospects for the use of digital technologies in retail. The sub-goals of the study are:

— determination the preferences of customers in the use of information sales channels;

— exploration of the possibilities of integrating all sales channels and information flows;

— analysis of online purchases made by different groups of customers;

— identification of the opportunities to synchronize interaction with customers regardless of the channel they choose;

— exploration of the use of customer experience in the sales system;

— identification of the prospects of creating a common information base of buyers, taking into account individual preferences, available for all information channels.

The modern trade enterprise has an advantage over others due to use of a variety and synchronization of all possible ways of sales, the account of preferences of different groups of the population. What innovations will happen next depends on retailers.

2. Methods

The study of the digital technologies use in retail was based on the method of data analysis of the official state statistical services of the Russian Federation (Federal state statistics service of the Russian Federation). To analyze the preferences of consumers of different age groups, the results of studies of the values of people of different ages were used [8, 9]. As the information resource the data of the Federal state statistics service of the Russian Federation were used. To achieve the goals and objectives we have used methods of desk research and the study of information sources. Methods of statistical analysis of data of official state statistical services of the Russian Federation (Federal state statistics service of the Russian Federation) were used to assess the differentiation of information technologies used in trade and the degree of involvement of the population in the digitization of sales.

3. Results and Discussion
The use of information technology by commercial enterprises in modern Russia shows steady growth [10, 11]. The analysis of statistical data of enterprises that use the internet to interact with suppliers and buyers shows the growth of both enterprises that use the internet to place orders for goods, works or services, and enterprises that received orders through the internet. Every year the percentage of such enterprises increases. This fact speaks about the convenience and speed of placing orders for businesses. Despite the fact that in 2014-2015 there was a decrease in applications placed by enterprises from 43.4% to 41.3%, in subsequent years the number of applications grew and reached 42.2% in 2018 [12].

The percentage of organizations that received an order through the internet is less than the number of orders placed. But the rate of growth of this indicator after the fall in 2014 is higher. So in 2014, this figure fell to 17.6%, but by 2018 it rose to 22.5% [12]. The growth of enterprises that have received orders for their goods, works or services is growing, which indicates the active use of the internet by commercial enterprises to conclude contracts for the supply of goods. The growth of enterprises that have received orders via the internet supports their interest in placing orders on the internet and contributes to the expansion of information technologies in the field of retail purchases and movement of goods. Figures 1 and 2 show the results of monitoring digital applications by enterprises on the internet (Federal state statistics service of the Russian Federation).

[Figure 1: Percentage of organizations that placed orders for goods (services) on the internet in the total number of surveyed organizations (Source: Rosstat, http://www.gks.ru)]

Figure 1 shows the decline in the number of applications posted online between 2014 and 2015, followed by an increase in applications. It is possible that applications are placed only by those enterprises that have had a positive result of using this technology. The use of digital technologies in creating a history of interaction with suppliers of trade enterprises can greatly expand and optimize mutual cooperation. Figure 2 shows the growth of enterprises that received orders, after a decrease in this indicator in 2014-2015.
Figure 2. Percentage of organizations that received orders for manufactured goods (works, services) on the internet in the total number of surveyed organizations (Source: Rosstat http://www.gks.ru)

Trade enterprises can expand the possibilities of concluding contracts for the supply of goods using innovative technologies, linking the producer and the consumer of products that cannot find common ground. Each trading segment has its own requirements for information systems [13, 14]. And the market of information technologies fully satisfies them. In modern retail, there are various solutions to the problems of interaction with suppliers, including the calculation and maintenance of the optimal level of inventory, supply management, intra-warehouse and transport logistics. The most commonly used are:

— commodity accounting modules of ERP-systems;
— warehouse management system (WMS)
— system of organization of cargo transportation Transport Management System (TMS);
— system electronic data interchange Electronic data interchange (EDI).

In addition, retail increases the use of local information networks (intranet). Figure 3 presents statistical data on the use of local networks by enterprises to optimize the management of internal information processes.

Figure 3. Percentage of organizations using intranet in total number of surveyed organizations (Source: Rosstat, http://www.gks.ru)
As shown in figure 3, since 2016 there has been a steady growth of enterprises using local information networks. This proves the active use of digital technologies in the management of business processes and confirms their positive effect. It can be concluded that the sustainable development of a commercial enterprise in the market is determined by the speed of introduction of information technologies in accordance with the tasks and objectives. However, some trade enterprises did not receive the expected positive result from the introduction of information systems. Moreover, the study of preferences of residents of Moscow and the Moscow region in 2016, conducted by RBC showed a decrease in the number of customers in stores of large retail chains. According to the survey, 8% of respondents are less likely to buy products in hypermarkets. The main outflow of customers occurred in "shops at home" — 40%, supermarkets-19% and online platforms — 12% [15].

This fact is explained by the fact that buyers of different age groups prefer different ways of shopping. The older generation prefers to shop in traditional stores; young people use the possibilities of information technology. Demographic changes in the population structure of Russia have led to an increase in the number of elderly people. Older shoppers value convenience and personalized service more. Older women prefer:

- direct perception of purchased goods;
- ability to resolve issues with the seller [16];
- ability to discuss purchases in social networks;
- use of mixed channels for shopping: social media recommendations are checked directly in traditional stores, and then a purchase is made using the mobile internet [17].

Statistics of purchases in online stores shows that the older generation (both women and men) do not avoid purchases via the internet and mobile applications. Analysis of statistical data shows the growth of users of online stores in Russia. Figures 4 and 5 show the growth of internet purchases and active internet users.

Figure 4. Percentage of the population that used the internet to order goods and (or) services in the total population

![Figure 4](http://www.gks.ru)

Figure 4 shows the growth of purchases and orders via the internet made by Russian buyers. The number of purchases is growing from 23.1% in 2016 to 34.7% in 2018. The number of purchases increased by 11.6%.
Figure 5 shows the growth of the active internet users in Russia. This figure increased from 71.5% in 2016 to 79.3% in 2018. Growth amounted to 7.8%. Comparing the growth of purchases made via the internet with the growth of the number of active internet users shows that the growth rate of online shopping buyers over the past 3 years is higher than the growth rate of active internet users. It can be assumed that online purchases are made not only by active users, but also by those who do not use the internet so often, or those who want to expand information channels according to their own needs [18].

Table 1 presents statistical data of online store buyers by age groups.

| Age     | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 |
|---------|------|------|------|------|------|------|
| 50-54   | 6.4  | 6.7  | 6.7  | 7.1  | 7.0  | 7.0  |
| 55-59   | 4.1  | 4.0  | 4.5  | 4.6  | 5.3  | 5.6  |
| 60-72   | 2.7  | 2.9  | 3.2  | 3.3  | 3.7  | 4.3  |
| 72 and older | 0.5 | 0.6  |      |      |      |      |

The older age group has been growing among the users of online stores for the last 3 years. Customers over the age of 60 began to actively use the internet to make orders and purchases. Figure 4 shows the age structure of buyers of online stores. On the one hand, the aging of the population, on the other hand, the spread of information technology, has led to an increase in the segment of buyers of online stores over 60 years. The successful work with this audience requires the development of special professional skills and knowledge [19, 20].
Figure 6. Distribution of the population that used the internet to order goods and (or) services by year and age groups in % (Source: Rosstat, http://www.gks.ru)

The number of customers in online stores aged 50 to 54 years has not changed in the last 3 years. At the same time, the number of purchases made on the internet by customers older than 55 years is increasing. This is confirmed by the increase in the active older population. It can be assumed that this segment of consumers will use a variety of sales channels.

For the older active generation, the inability to try a product before buying is a serious obstacle to shopping online. In addition, entering shipping and payment details can also become one of the annoying aspects of online shopping. Product waiting times and shipping costs can be a major barrier to online shopping for both young people and older generations. The modern buyer does not purchase goods exclusively through one channel. Representatives of all generations buy online, in-store and in markets, from old retailers and independent brands. The best way for retail to increase sales in modern conditions is omni-channel.

4. Conclusions

The analysis of statistical materials on the use of information technologies by retail in modern Russia allows defining perspective directions of development of digitalization of retail trade:

1. implementation of the concept of omni-channel as unifying and all sales integrating channel for a wide coverage of consumer preferences;
2. integration of all sales channels and information flows in order to synchronize interaction with customers regardless of the channel they choose;
3. use of common assortment and uniform prices on all sales channels;
4. apply all payment methods for purchases in each sales channel;
5. synchronous operation of delivery services;
6. use of customer experience in social networks for the formation of inventories;
7. creation of the general information base of buyers taking into account individual preferences, available for all information channels.
5. Acknowledgement
This paper was financially supported by the Ministry of Education and Science of the Russian Federation on the program to improve the competitiveness of Peter the Great St.Petersburg Polytechnic University (SPbPU) among the world's leading research and education centers in the 2016-2020.

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