

Original Research Article

The Modern State of E-Commerce in the B2C Sector: The Case of Russia

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Abstract: The prominent trend in the global e-commerce development hardly leaves aside any country nowadays. Russia is not exclusion here. But, despite the strong existing interest and motivation to develop the B2C e-commerce, still, there are impediments to that. On the one hand, it is well known that e-commerce allows decreasing costs, thus, making both provision and prices of product more comfortable for customers. But on the other hand, such impediments, as inadequate regulation (or the absence of such regulation), the absence of readiness of people to adopt the modern technologies, and some other inhibit the development of e-commerce in Russia. By using the modern quantitative techniques, the current research is aimed at revealing the principal barriers and incentives that exist in this sphere, and at providing policy recommendations. **Contributions/Originality:** To the best of our knowledge, there have been no relevant studies on the Russian B2C e-commerce recently. This introduces a major gap in the applied research on the subject matter since the Russian B2C e-commerce sector itself has been actively developing over the past years. So, our research contributes to obtaining better understanding of the peculiarities and trends in this field.

Keywords: B2C sector, e-commerce, principal components analysis, conjoint analysis.

INTRODUCTION

Nowadays, the sphere of e-commerce in Russia attracts a lot of attention. As of now, the level of development of Russian e-commerce is quite low as compared to some other countries. For example, different studies have shown that the Russian e-commerce market is far behind the US one by approximately 7 years [1]. This concerns the B2C sector – unfortunately, for the B2B sector there isn't even an estimate.

This is why recently the Russian Ministry of Industry and Trade created a draft of “The Strategy of Development of e-Commerce in Russia” [2]. According to this document, by 2025 it is expected that:

- The share of e-commerce in the overall trade volume will be at least 20% (as of 2019, it is only 4%);
- The share of Russian in the global e-commerce is expected to rise up to 10%;
- The fraction of retail shops that use e-commerce should be increased up to 70%.

The development of e-commerce in the modern economic environment is of crucial importance due to its advantages. Indeed, for customers this provides lower prices obtained via lower transaction costs. For companies, besides the opportunity to lower the prices, there is also a simpler way to put the products in the market since the information about new products is much quicker spread through online-shops. For the government, development of e-commerce is one of the drivers of economic development in general.

E-commerce develops rapidly in the world (see Fig-1). The principal peculiarities of the modern electronic trade are:

- Its multichannel nature – the need for companies to develop several electronic channels of trade simultaneously;
- A high level of security of financial transactions – this makes the customers more and more ready to use the electronic means of payment.

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- A strong demand for the comfort of making purchases – the customers have become more and more demanding for the comfort of shopping.

Speaking about the latter, for the entrepreneurs, this means that, for example, nowadays it is not enough to have an online-shop, in a lot of cases it is also necessary to develop a mobile version of the web-site. In 2017, the volume of mobile e-commerce reached \$550 bln. It is expected that by 2021 the global turnover of e-commerce via mobile applications will be \$2.3 trln or 67.2% of the global trade [3].

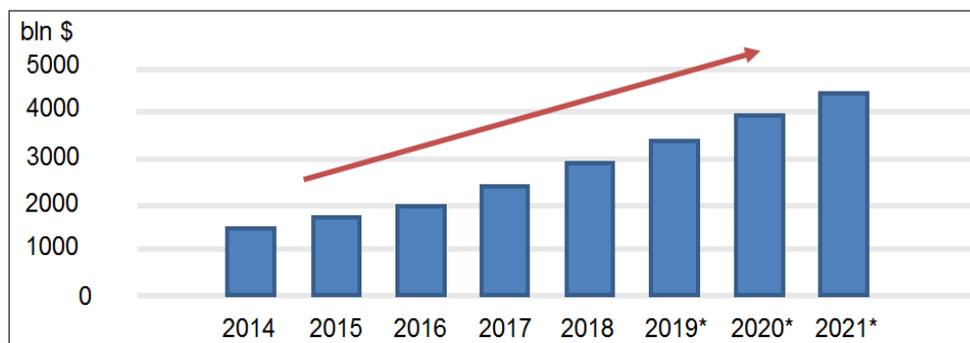


Fig-1: Volumes of global e-commerce

The world e-commerce statistics show that the leaders of the global e-commerce are those countries who earlier appropriately adjusted their economic policy in this sphere. For many years now the global leader here is China whose trade via electronic channels in 2017 reached \$600 bln. After it go the US (\$475 bln), Japan (\$105 bln), the UK (\$103 bln), and Germany (\$57 bln). As of now, Russia has no more than \$28.5 bln in e-commerce [3].

This motivates the aim of the current research: by revealing the factors (both deterrent and motivating) that influence the readiness of customers to make purchases via the Internet, give recommendations to the government on the modern ways to develop e-commerce.

This study aims to fill in the following research gap: to the best of our knowledge, there have been no relevant studies on the Russian B2C e-commerce recently. This introduces a major gap in the applied research on the subject matter since the Russian B2C e-commerce sector itself has been rapidly developing over the past years. So, our research contributes to obtaining better understanding of the peculiarities and trends in this field in Russia.

The rest of the paper is organized as follows. Section 2 gives a brief literature review on the approaches to e-commerce analysis, as well as gives a description of the methods used in this research. Section 3 provides information on the data used and the obtained results. Section 4 contains recommendations for policy-makers. Section 5 concludes.

RESEARCH METHODOLOGY

As it was mentioned above, the sphere of e-commerce has been attracting substantial attention both from the part of academics and practitioners. In this section we provide a brief literature review on both the identified factors of use of e-commerce, and the methods used for its analysis. Also we briefly discuss the methods adopted in this study.

LITERATURE REVIEW

For the purposes of this research, we split the review of the literature on e-commerce into two big parts – one identifies the factors of use of e-commerce by the customers; and the other is focused on the methods used for e-commerce analysis.

Factors of use of e-commerce

As found in the literature, the *deterrent* factors of using electronic means of making purchases for the customers are [4, 5]:

- Lack of customers' trust;
- Technical problems with payment;
- Lack of customers' experience;
- Lack of appropriate information;
- Low level of government support.

Other studies identified quite a bunch of *motivating* factors for e-commerce (see, for example [6, 7]):

- Level of satisfaction;
- Customization options;
- Presence of a loyalty program
- Possibility of online payment;
- Presence of a quality mark;
- Availability of a mobile application.

The greater majority of these factors were taken into account in our research.

Modern methods of studying of e-commerce

Speaking about the empirical methods of revealing the factors influencing consumers' decision to make purchases via electronic means, it should be noted that there is a whole variety of such methods.

To reveal the factors influencing customers' decision to use the electronic format of making purchases [8], used a one-factor regression analysis in combination with correlation analysis. The authors employed socio-demographic factors, the information on the structure of online purchases, as well as their perception to understand how they form people's attitude towards online shopping. Lee *et al.*, [9] used a simultaneous equation modeling to achieve the aim of their research: to reveal whether customization options on a web-site influence consumers' decision to buy online.

The authors of [10] employed an integral model of decision making which incorporated analysis of similarities in preferences, analysis of hierarchies, and analysis of trust in recommendations. They found that personal recommendations have strong positive effect on e-commerce in Taiwan. As a result, they proposed a system of social recommendations which was capable of giving personalized recommendations to buyers taking into account their preference similarities, trust in recommendations, as well as their social connections.

Valmohammadi, Dashti [11] considered the methods of structural modeling and network processing to determine and rank the interactive barriers to implementation of e-commerce. A combination of these two approaches allowed to illustrate the existing interconnection and mutual influence of the impediments to e-commerce development.

Being very popular in the modern research, the partial least squares method was adopted in Chen *et al.*, [12] to construct a model of perceived risk when making purchases online in China. Zhu, Chen [13], continued studying the peculiarities of purchasing behavior of the Chinese customers using a multinomial logistic regression. As a result, they revealed different effects of social influence on making purchases online and the corresponding attitude of Chinese people towards such purchases.

In Yang *et al.*, [14] the authors came up with a decision making model which they used to analyze the operating environment of online purchases. The study was aimed at finding the efficiency criteria for e-commerce models used in different companies.

Guzzo *et al.*, [15] used the classical regression analysis to reveal the factors that influence online purchasing decisions of customers, which they did via an extended survey with special attention being paid to the influence of social environment on these decisions. A multivariate linear regression approach was also used by the researchers in Alhijawi, Douglass [16], where the research discovered the factors influencing consumers' satisfaction and their loyalty to e-commerce.

RESEARCH RESULTS

In the current research we also conducted a survey of Russian customers who potentially were willing or already adopted electronic means of purchase making. The survey was conducted online in spring 2019 and covered 350 respondents. Valid responses were obtained from 339 respondents, so the response rate was 96.85%.

The basis of the questionnaire constituted the questions related to the factors of e-commerce adoption revealed via the literature review. The questionnaire consisted of three principal blocks (the questionnaire is available upon request):

1. The first block contained questions on socio-demographic characteristics and online shopping activity of the respondents.
2. The second part was related to the factors *detering* the adoption of e-commerce by the customers. These factors were measured with a 5-grade Likert scale and included information on respondent's: IT skills; frequency of online purchases; readiness to buy online; knowledge about the quality mark of the web-site;

readiness to provide personal data to the web-site; transparency and legality of the buying process on the web-site; technical problems with access to the Internet; availability of a mobile version of the web-site (for smartphones). We used information of this part to run a *principal component analysis*.

3. The third part comprised questions related to the *motivating* factors for making purchases online. These factors included the following criteria: availability of discounts for online payments on the web-site; the presence of a mobile application; availability of a bonus program for loyal customers; provision of a quality mark by the web-site. The respondents were asked to rank these attributes. We further used the information of this part to run a *conjoint analysis*.

For running calculations we used the freely available statistical package R, version 3.6.1.

Sample Description

As it was mentioned above, in the first block of the questionnaire the respondents gave answers on their profile. Of the whole sample, women constituted 70%. The distribution of answers across the age groups was as follows:

- Under 18: 7% of answers;
- From 18 to 24: 54% of answers;
- From 25 to 34: 19% of answers;
- From 35 to 44: 12% of answers;
- From 45 to 54: 7% of answers;
- 55 and older: 3% of answers.

The education level of the respondents was quite high: 55% with college education and 25% with higher education. The majority of the respondents (56%) identified their level of IT skills as intermediate (capable of using MS Office), followed by the beginner’s level – 30% of the respondents. Again, the majority of the respondents (42%) specified that they majorly go online via a smartphone or a tablet PC. Almost all the respondents (96%) expressed their readiness to buy products online, with 75% of the respondents saying that they actually make purchases online at least once a month.

PCA results: factors, deterring the e-commerce development

As specified above, the second part of the questionnaire was related to the *eight* factors deterring online shopping. We asked respondents questions about technical problems with access to the Internet; whether the web-sites of companies are optimized to work via a smartphone; about their online experience in general; about their fears of making online purchases as related to inability of a company to deliver the product on time; and some other. Due to the lack of space, here we do not give a full description of the block questions – they are available upon request.

The answers were employed in a principal components analysis (PCA). The PCA technique is aimed, in particular, at finding uncorrelated latent factors (principal components, PCs) based on the original information. In our case, we had 8 original factors, so, as a result of PCA, we obtained 8 principal components (see Table-1).

Table-1: Results of principal components analysis

Indicator	PC1	PC2	PC3	PC4	PC5	PC6	PC7	PC8
Standard deviation	1.37	1.22	1.01	0.98	0.92	0.84	0.78	0.70
Proportion of Variance	0.24	0.18	0.13	0.12	0.11	0.09	0.08	0.06
Cumulative Proportion	0.24	0.42	0.55	0.67	0.78	0.86	0.94	1.00

Yet another result of a PCA, which is of applied importance, is a graph called *biplot* that gives a projection of the original features on the Cartesian plane of the first two principal components. This is useful because by the disposition of these projections we can identify correlated features and give reasonable interpretations (see Fig-2).

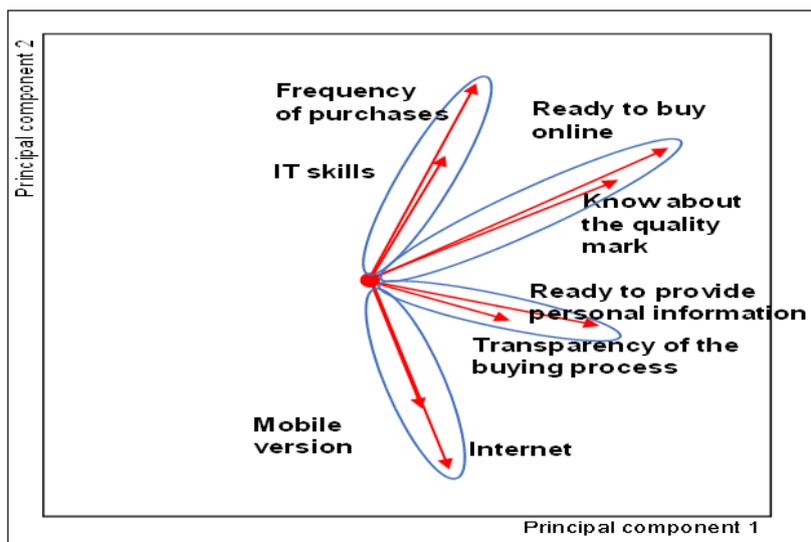


Fig-2: Results of principal component analysis (biplot)

These results demonstrated by the PCA are discussed in Section 4.1.

Conjoint analysis results: factors, motivating e-commerce development

The final (third) block of questions gave information to be used in a *conjoint analysis*. As a marketing technique, conjoint analysis (CA) is aimed at revealing characteristics of products (in our case, web-sites of companies) which are most appealing to the customers – which of the characteristics have the highest utilities (part worths) to the customers. CA is a very popular quantitative technique being used for studying a wide range of marketing questions.

The traditional conjoint analysis is based on estimation of a linear regression function of the following kind:

$$Y = w_0 + pw_1X_1 + pw_2X_2 + pw_3X_3 + \dots + pw_nX_n \dots\dots\dots (1)$$

Where Y is the dependent variable showing the overall rating/ranking of the various combinations of attribute levels as generated by the conjoint, and pwi are the part-worths of each attribute Xi. As a result of estimation of Eq. (1), we get estimates of part-worths. The largest positive part-worth on each attribute is the most preferred level on that attribute for the respondent. In our case, the part-worths are represented in Table-2, which was generated by the analysis.

Table-2: Results of the conjoint analysis

Coefficients	Estimate	Std. Error	t-value	Pr(> t)
(Intercept)	3.20363	0.01875	170.883	< 2e-16 ***
online_payment_discount	0.14845	0.01849	8.030	1.39e-15 ***
mobile_application	0.35448	0.01875	18.908	< 2e-16 ***
bonus_program	0.01671	0.01875	0.891	0.373
quality_mark	0.71850	0.01849	38.869	< 2e-16 ***

The results of estimation are discussed below in Section 4.2.

DISCUSSION

In this section we discuss the obtained results, as well as give some policy recommendations.

Results of the PCA

As presented in Fig-2, the biplot of our PCA allows to identify the *barriers* for a wider adoption of e-commerce tools by customers:

- the higher are the IT skills of a customer, the more frequently they are ready to buy online – thus, the absence of an adequate level of IT skills will prevent people from making online purchases;
- the readiness of customers to buy online is positively correlated with their knowledge about quality marks and standards of e-commerce – thus, the absence of some sort of assurance when making online purchases may discourage people from online shopping;

- readiness to provide personal information on the web is tightly correlated with whether the process of purchase is transparent and clear to customers – thus, if people do not clearly understand the purchasing process, they will be reluctant to provide their personal information which will potentially decrease the effectiveness and efficiency of e-commerce;
- shopping activity via the Internet (purchases via company’s web-site) is higher if the web-site has a developed mobile version optimized for working via smartphones (as of now, there is a trend among customers to use mobile applications to make purchases, which means that the absence of such applications may create a certain impediment for the development of e-commerce).

These results demonstrate that, on the one hand, there is a whole bunch of existing potential barriers to further development of e-commerce in Russia. But these, simultaneously, are also the ways for improving the situation with e-commerce in Russia. By taking account of these results, the companies and the government may substantially spur up the development of this, now comparatively small sector which, as a result, will substantially support the whole economy [17].

Results of the conjoint analysis

Based on the given results of the conjoint analysis (see Table-2), we have put together the following graph for better visual representation (see Fig-3).

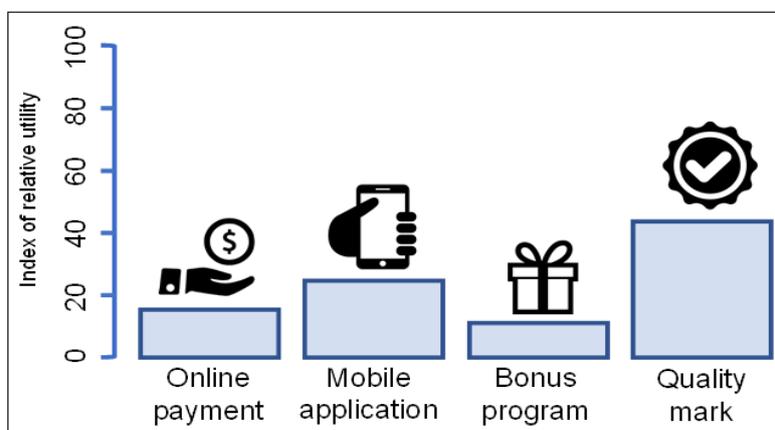


Fig-3: Results of conjoint analysis

Here, the most valued for customers of the B2C sector is that the web-site of a company has a quality mark on its web-site. Second most important characteristic is that a web-site has a developed mobile version or even a separate mobile application. This definitely supports the observed trend (both in Europe and in Russia) among customers to prefer making purchases via a mobile app.

Surprisingly enough, but the availability of a bonus (loyalty) program is of least importance to the customers.

Policy Recommendations

By summarizing the findings presented in this study, we can give certain policy recommendations for faster development of e-commerce in Russia.

1. To address the existing lack of IT literacy in the sphere of e-commerce among the Russian citizens, we advise to create an Internet-community to provide access to relevant study materials, best practices and discussion forums. A similar thing was earlier realized in the UK and gave certain positive results.
2. In order to overcome the problem of low level of customers’ trust in e-commerce (as often related to the lack of information about the products sold), we recommend the government to force online shops to publish information on whether the products were appropriately certified (has quality marks) or not.
3. To increase the level of customers’ trust in e-commerce (as related to protection of personal information), it is necessary to inform the citizens about the modern data encryption methods and implement multilevel security systems on companies’ web-sites. This is also true in relation to the fear of customers to use online payment systems. In such cases it is important to propagate the information about the principles of functioning and encryption of such payment systems.
4. In order to overcome the problem of fear of citizens about mis- or late deliveries of the products, it is important to explain to customers their legal rights in such cases, and, for the companies, on their web-sites to actively incorporate the systems for tracking of product delivery to make this process as transparent for people as possible.

CONCLUSION

In this paper we conducted a research on the modern barriers and motivating factors for e-commerce development in the Russian B2C sector. Using modern quantitative approaches and the results of own survey, we were able to identify the principle groups of factors that deter and motivate development of e-commerce in Russia. The necessary recommendations were provided.

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