

ТЕОРЕТИЧЕСКИЕ И ЭМПИРИЧЕСКИЕ ИССЛЕДОВАНИЯ

E-COMMERCE ADOPTION IN RUSSIA: MARKET- AND STORE-LEVEL PERSPECTIVES

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E-commerce market development depends on a configuration of factors which can both enable its further development and hinder its adoption by consumers. In particular, emerging markets provide a range of opportunities for e-commerce; however, they are also associated with specific barriers, limiting the potential for fully exploiting these opportunities. With an Internet audience of 93 mln people, the Russian emerging market represents the largest online audience in Europe, allowing it to stimulate substantial e-commerce growth over the last decade. The main objective of this paper is to explore consumer perception of e-commerce adoption factors at two levels — macro-level factors associated with the overall environment, institutional factors and trust; and store-level factors associated with real consumer experiences. This multi-level approach reflects the complexity of consumer thinking about the market — both in terms of the evolving environment, which offers consumers opportunities to make decisions and purchases, and real experience, where product factors influence particular consumer decisions and are weighed by consumers as pros and cons. Our study is based on a survey of 3 387 respondents that represented the consumer perspective. The findings reveal the structure of the driving and limiting factors, highlighting the core role of the trustworthiness and transparency of the e-commerce market players, delivery conditions, and store-related risks.

Keywords: e-commerce, adoption, emerging markets, factor analysis.

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INTRODUCTION

Over the past twenty years, active development of electronic markets has attracted the increasing attention of researchers from different subject areas [Hoffman, Novak, Peralta, 1999; Schafer, Konstan, Riedl, 2001; Childers et al., 2002; Pavlou, Dimoka, 2003; Gibbs, Kraemer, 2004; Kim, Urunov, Kim, 2016; Casado-Aranda, Martínez-Fiestas, Sánchez-Fernández, 2018; Sukhodolov, Popkova, Kuzlaeva, 2018]. An innovation for the retail market in the 2000-s, [Kendall et al., 2001; Santarelli, 2004] offering certain advantages over offline formats [Yadav, Varadarajan, 2005], e-commerce is now a vital channel for consumers and businesses alike, and it is growing.

While an increasing number of consumers and firms are getting involved in e-commerce, a significant proportion of retail market participants have not adopted it yet, because they don't know it exists. The context of emerging markets offers more opportunities for e-commerce development due to the inefficiencies of traditional markets [Sheth, 2011] and, thus, higher readiness to find cost- and time-effective solutions. However, due to the diversity of the emerging markets [Burgess, Steenkamp, 2006], adoption of e-commerce might be connected to transforming the values of consumers and firms, diverse behavioural strategies and consequences, in the form of the trust and involvement of consumers. In other words, whereas the overall high pace of technology integration, in commerce, is a global phenomenon, its adoption in a particular market is subject to the specifics of consumer behaviour, underlying the motives and concerns, and existing behavioural patterns. Researchers are calling for more evidence from emerging markets, providing insights and generating new understandings of what is required for successful management and marketing practices [Pham, 2013].

The Russian e-commerce market demonstrated a rapid development, particularly while compensating for the recession in the economy in 2014–2016 and the slow recovery

starting from 2016. Despite the negative trends in all the economic areas, including retail sales and real consumer income dynamics, e-commerce has steadily grown, attracting substantial business interest and providing more choice and options for consumers. With 93 mln people in Russia, over the age of twelve, 76% of the population, who, at least once a month, use the Internet [Internet audience in Russia, 2019], the Russian market has the largest online audience in Europe. Russian consumers are increasingly engaged in using the Internet and shop prolifically online.

The current study aims to explore consumer perception of e-commerce adoption factors from a multi-level perspective: firstly, the public attitude and perception of market-level factors, and, secondly, the level of consumer behavior and perception of particular stores. The multi-level approach allows us to identify both macro- and institutional-level factors, shaping consumer behaviour, as well as firm-level factors, as perceived by consumers — leading to consumption patterns. As in any market, it is a balance between demand and supply that contributes to the market evolution. In the case of the Russian economy, adoption of e-commerce has been embedded in the overall process of transition to the market economy, whereas its current stage of development characterised as an emerging market. Existing studies in Russia have insufficiently studied the role of consumer behaviour and perception as a market force, that both reflects existing market practices and contributes to further market development.

The paper is organised in the following way. The first part examines the existing research on e-commerce adoption factors in developed and developing markets. The second part describes the e-commerce market development in Russia and identifies e-commerce adoption and the development factors in the Russian market. The third section is concerned with the methodology used for this study and the sample description. The fourth section presents the findings of the research,

focusing on the data obtained from the survey, the fifth section presents the discussion of the results and subsequent conclusion.

1. THEORETICAL FRAMEWORK

1.1. E-commerce development in emerging markets

A large and growing body of literature has investigated the development of B2C e-commerce [Wymer, Regan, 2005; Iglesias-Pradas et al., 2013; Lian, Yen, 2014; Chaparro-Peláez, Agudo-Peregrina, Pascual-Miguel, 2016]. Because of the highly fragmented nature of existing research on e-commerce, the definition of e-commerce is blurred: it can be understood as a distribution channel [Rodríguez-Ardura, Meseguer-Artola, 2010], static or interactive websites, capacity of processing electronic transactions, or even as an electronic integration [Abou-Shouk, Megicks, Lim, 2013]. In this research e-commerce is defined as any type of purchasing or selling of goods and services, by large- and small-size firms via the Internet [Solaymani, Sohaili, Yazdinejad, 2012].

As e-commerce implies integration of this retail phenomenon in the market economy, the choice of country where study is conducted plays an important role at the empirical investigation of factors developing e-commerce market. The country and market specifics determine what drives e-commerce adoption, which results in two important remarks. The first one is that the role of some factors, examined in the different studies, are found to be rather ambivalent. For example, the role of trust can have diverse effects, depending on the research context. In the USA context [Pavlou, Dimoka, 2006] trust was considered to be a driving factor of e-commerce adoption, but, in Spain, this factor is marked as a problematic one: in particular Chaparro-Peláez and co-authors have discovered that trust of the Internet channel and to the vendor inhibits the consumers' decision to buy online [Chaparro-

Peláez et al., 2016]. The second point refers to the fact that some factors, for instance, resource constraints (finance, technology and managerial expertise) are common limiting factors for companies operating in the developed and emerging markets [Anckar, Walden, 2001; Hsiao, 2003; MacGregor, Vrazalic, 2005; Abou-Shouk, Megicks, Lim, 2013]. However, studies conducted in the emerging markets identified some additional limiting e-commerce factors such as state regulation [Abou-Shouk, Megicks, Lim, 2013; Abualrob, Kang, 2016], infrastructure [Abou-Shouk, Megicks, Lim, 2013; Abualrob, Kang, 2016], and consumer behaviour [Wresch, Fraser, 2011; Abou-Shouk, Megicks, Lim, 2013]. Thus, it can be proposed that emerging markets create specific conditions for e-commerce adoption and development [Oreku, Mtenzi, Ali, 2013; Molla, Licker, 2005] and, thus, contributing to diversity in potentially relevant research factors [Wymer, Regan, 2005]. By classifying the factors, influencing e-commerce development and adoption, in existing studies, researchers have applied categorisation — e.g., technical and non-technical factors [Oreku, Mtenzi, Ali, 2013] technical, product- and service-related factors [Lin, Fu, 2012], or technical, organisation, individual and environmental factors [Valmohammadi, Dashti, 2016]. In line with existing research and the conceptualisation of consumer's digital competences and skills, some studies pay closer attention to the classification of relevant skills (e.g., computer skills, Internet skills, Internet trust, and online opinions seeker [Valarezo et al., 2018]. On the contrary, some researchers preferred to focus on the psychological side of e-commerce adoption — e.g., different facets of perceived risk — financial, privacy, and performance [Casado-Aranda, Martínez-Fiestas, Sánchez-Fernández, 2018].

Taking the diversity of factors into consideration, the current study aims to provide a systematized approach to the existing research on e-commerce adoption factors based on the type of factors considered (e.g. fostering e-commerce adoption vs. limiting its potential), method applied in the study, research

Key research on

N	Source	Factor classification	Type of factor		
			Driving	Limiting	
1	[Wymer, Regan, 2007]	<ul style="list-style-type: none"> • Environmental • Knowledge-related 	<ul style="list-style-type: none"> • Organizational • Technological 	+	+
2	[Kshetri, 2007]	<ul style="list-style-type: none"> • Economic • Cognitive 	<ul style="list-style-type: none"> • Sociopolitical 	-	+
3	[Ho, Kauffman, Liang, 2007]	<ul style="list-style-type: none"> • Economic • Environmental 	<ul style="list-style-type: none"> • People-related • Technological 	+	-
4	[Rodríguez-Ardura, Meseguer-Artola, 2010]	<ul style="list-style-type: none"> • Technological external and internal context • Nontechnological external context • Nontechnological internal context 		+	-
5	[Wresch, Fraser, 2011]	n/a		-	+
6	[Solaymani, Sohaili, Yazdinejad, 2012]	n/a		-	+
7	[Lin, Fu, 2012]	<ul style="list-style-type: none"> • Technical • Product-related 	<ul style="list-style-type: none"> • Service-related 	+	-
8	[Abou-Shouk, Megicks, Lim, 2013]	<ul style="list-style-type: none"> • Internal 	<ul style="list-style-type: none"> • External 	+	+
9	[Iglesias-Pradas et al., 2013]	n/a		+	+
10	[Oreku, Mtenzi, Ali, 2013]	<ul style="list-style-type: none"> • Technical 	<ul style="list-style-type: none"> • Non-Technical 	-	+
11	[Lian, Yen, 2014]	n/a		+	+
12	[Clemes, Gan, Zhang, 2014]	n/a		+	+
13	[Chaparro-Peláez, Agudo-Peregrina, Pascual-Miguel, 2016]	n/a		+	+
14	[Abualrob, Kang, 2016]	<ul style="list-style-type: none"> • External 	<ul style="list-style-type: none"> • Internal 	-	+
15	[Valmohammadi, Dashti, 2016]	<ul style="list-style-type: none"> • Technical • Organizational 	<ul style="list-style-type: none"> • Individual • Environmental 	-	+
16	[Zaidan, 2017]	n/a		+	+
17	[Rahayu, Day, 2017]	n/a		+	-
18	[Valarezo et al., 2018]	n/a		+	-
19	[Zhang et al., 2019]	<ul style="list-style-type: none"> • Attitude • Perceived convenience • Perceived revenue disadvantages • Subjective norms • Habit 		+	+
20	[Nathan et al., 2019]	n/a		+	+
21	[Huang, Chang, 2019]	<ul style="list-style-type: none"> • Perceived trustworthiness • Perceived value • Cost • Benefits • Attachment styles • Information index • Information signals 		+	+

Note: “+” and “-” indicate the presence and absence of a certain attribute, “n/a” — not applicable.

object (e.g. firm vs. consumers), focus on emerging vs. developed market, and finally, whether users vs. non-users were addressed. We suppose that the combination of these criteria can help systematize existing research

and offer an agenda for the next steps. The search strategy was based on the Scopus database, using the keywords “e-commerce”, “barriers” and “drivers”, with the focus on publications in the English language, published

Table 1

B2C e-commerce market development

Method		Research object		Market		Adoption	
Qualitative	Quantitative	Firm	Consumer	Developed	Emerging	User	Non-user
-	+	+	-	+	-	+	+
+	-	+	+	-	+	+	+
-	+	n/a	n/a	+	-	n/a	n/a
-	+	+	-	+	-	+	+
+	-	+	-	-	+	+	-
-	+	+	-	-	+	n/a	n/a
-	+	-	+	n/a	n/a	+	-
-	+	+	-	-	+	+	+
-	+	-	+	+	-	-	+
+	-	+	+	-	+	n/a	n/a
+	+	-	+	-	+	+	+
-	+	-	+	-	+	+	+
-	+	-	+	+	-	+	+
-	+	+	-	-	+	+	+
+	-	+	-	-	+	-	+
-	+	+	-	-	+	+	+
-	+	+	-	-	+	+	+
-	+	-	+	+	-	+	-
-	+	-	+	-	+	+	+
-	+	+	-	+	+	+	-
-	+	-	+	-	+	+	+
-	+	+	-	-	+	+	+
-	+	-	+	+	-	+	-
-	+	-	+	-	+	+	+
-	+	+	-	+	+	+	-
-	+	-	+	+	+	+	+

in peer-reviewed journals. The search resulted in 290 articles with the focus on e-commerce driving factors, and 225 articles with the focus on e-commerce development barriers. After careful analysis of the selected articles,

we could stress 21 key studies in the field of e-commerce market development (Table 1).

Two main conclusions can be inferred from Table 1. First, while most studies mix the focus on the driving factors and barriers of

e-commerce adoption, only few studies (e.g., [Abou-Shouk, Megicks, Lim, 2013; Abualrob, Kang, 2016]) identify internal and external factors of adoption. At the macro-level, existing studies do classify the major factors, which we labeled as environmental, economic and sociopolitical ones. Internal factors are mostly associated with cognitive, knowledge-related, people-related, product-related/service-related groups of factors. Additionally, several groups of factors, in particular technological and technical, are dualistic as they can be both internal and external ones according to different research. Division of all the groups of factors into two general categories raises two important questions: (1) what categories are studied in more detail, especially in the case of specific markets; and (2) what is the balance between internal and external factors in a certain market? Second, researchers examine various factors in their studies, that, in turn, leads to classification variety. To structure all groups of factors, we can combine them into three enlarged and more frequently used groups of factors — environmental, organizational/store-related and product-related/service-related ones.

We found out that the environmental factors have a very large variation and include governmental policy and standards (such an institutional factors) — as lack of trust in the suppliers of technology, rather than the market-factor of a lack of available specialists. As a result, this category looks very heterogeneous and broad and requires further clarification. We propose that the environmental category should reflect the business environment. This understanding of the environmental category corresponds with [Abou-Shouk, Megicks, Lim, 2013] points of view. Organizational or store-related category reflects the side of the firm and the consumer simultaneously. If we consider factors from the firm perspective, this category will include factors related to the organization and its processes or resources (e.g., financial resources or infrastructure readiness); on the other hand, the consumer perspective will fill this category with a different meaning, for example, some technical

peculiarities concerning consumer-e-shop interactions, like product search, order tracking, or identity verification. Product-related and service-related groups of factors incorporate such factors as policies, pricing, product variety and so on. So, although the product-related and service-related groups of factors reflect only the consumer perspective and are stressed in one research, that category seems to have more potential and can be investigated from the firm's perspective too.

As stated above, the focus on emerging markets offers space for the verification of what factors maintain their importance first, and what factors should be additionally taken into consideration, second. An additional constraint is related to identifying the role of each factor, as existing classifications are not aligned, and depend on the selected approach, which can vary from a very generalistic to a very specific approach. For instance, trust is established as one of the central factors in e-commerce adoption and consumer behavior in the e-commerce market [McKnight, Choudhury, Kacmar, 2002; Gefen, Karahanna, Straub, 2003]. But as distinct factors it's highlighted in [Chaparro-Peláez, Agudo-Peregrina, Pascual-Miguel, 2016; Iglesias-Pradas et al., 2013] and as part of technical and environmental group of factors, it is found only in [Valmohammadi, Dashti, 2016] study.

Thus, the overview of the factors, derived from the theoretical sources and studies in other markets, reveals a classification of drivers and barriers, influencing the development of e-commerce: economic, sociopolitical, and cognitive factors. The context of the study, as an example of an emerging market, generates an expectation of a particular role of the factors, highlighted in the previous studies. The changing nature of the Russian market and interactions between market actors, representing both the supply and demand sides, is calling for a more active investigation of how these developments are shaping the structure of the driving and limiting forces of the e-commerce growth in the country.

The current study is positioned as a study focusing on the internal factors of consum-

Table 2

Comparison of e-commerce perspectives

E-commerce actors	E-commerce consumers
The factors driving the development of e-commerce in Russia	
<ul style="list-style-type: none"> • Low cost of market entry • Bankruptcy of competitors, increasing the market share of existing players • Using multi-channel and omni-channel approach • Improvement and changes in a firm's business processes • Russians becoming increasingly keen on the Internet • Standardization of the internal processes of e-stores • Implementation of more advanced technologies into the internal processes of e-stores • E-stores develop their own logistics 	<ul style="list-style-type: none"> • Availability due to territorial expansion of online stores • Availability of new products and services • Convenience • Reviews • Time-saving factors • Superior service • Detailed information about the product
Barriers of e-commerce adoption and market development in Russia	
<ul style="list-style-type: none"> • Weak involvement of the regions in e-commerce • Weak saturation of the market for internet services in Russian regions • The underdevelopment of the Russian logistics system • Low margin business on the internet and the prevalence of price competition • Pressure of cross-border players on Russian Internet companies • Lack of optimal and coherent legislative framework to regulate the industry • Bureaucracy • Heavy taxation and tax saving schemes, grey imports and parallel importation of goods, the complexity of export, fraud • Shortage of staff and lack of qualified management 	<ul style="list-style-type: none"> • Involuntary prepaid payment • Popularity of payment by card or by cash when the order is delivered • The complexity of product return and exchange policy • Fear of sharing confidential information • Low perceived quality of products and shops • Low level of confidence in online shops • Low public confidence in the internet as a sales channel • Online shopping is difficult and unusual • The products cannot be touched or tried o • Extended delivery times • Fear that the order can be lost during delivery

Based on: [Virin, 2014; Lukina, 2014; Kulikov, 2014; The Russian E-commerce Report, 2019; GfK Rus..., 2019; Euromonitor, 2019; Data Insight, 2019; Alekseev, 2019].

ers perception of various factors, which can be grouped by the levels of perception of the market in general, under the influence of spreading e-commerce practices, and particular store perception — whereas the focus is shifted from institutional and macro-level aspects, to transactional and relational interactions with a particular store. By following this approach, we also aim to answer the research question of how does the existing structuring of the revealed e-commerce adoption factors fit the perception of consumers in the emerging market within Russia?

1.2. Factors affecting e-commerce adoption in Russia

Rapid development of the e-commerce market and its growing importance for the Russian economy has attracted the attention of both researchers [Kim, Urunov, Kim, 2016; Sukhodolov, Popkova, Kuzlaeva, 2018] and consulting companies (e.g., GfK Rus; Data-Insight). Current studies on e-commerce market development, described various factors which drive e-commerce adoption in Russia (Table 2), from the perspectives of e-commerce actors and e-commerce consumers. From the

Table 3

**Russian e-commerce market, year-on-year growth (%),
(retail value RSP excluding sales tax)**

Industry	2010–2011	2011–2012	2012–2013	2013–2014	2014–2015	2015–2016	2016–2017	2017–2018
E-commerce	33.0	35.9	30.0	31.0	7.0	21.1	15.7	19.1
Store-based Retailing	14.0	12.4	9.1	11.3	4.4	3.0	5.3	5.1

Source: [Euromonitor, 2019].

perspective of e-commerce actors, existing research highlights the cost advantages, opportunities to build multiple- and omni-channel strategies, opportunities of operational improvements, thus having operational advantages when running an online business. From the consumer perspective, e-commerce offers increased availability — both geographical by and with regard to a wider selection of products and service. Additionally, consumers highlight convenience, time-saving factors and superior service compared to offline stores.

The changes in the market dynamics and the market development, offer a call for businesses to re-evaluate their strategies and approaches. The call for a strategic approach should be primarily aimed at overcoming the major barriers to further development and the penetration of e-commerce in the Russian market, suggested by previous studies (Table 2). The barriers from the side of the e-commerce actor perspective, comprise general market factors, whereas e-commerce specific factors are related to the logistics as one of the most crucial factors for customer service in e-commerce. From the consumer perspective, the issue of payment is reflected by the preference to pay by cash or card on delivery, thus hedging the risks of late or non-delivery, and minimizing potential risks for the consumer. The role of trust-related factors is evident as various aspects of both institutional, market-, store- and product-related trust are revealed in previous studies.

Comparison between the results of theoretical analysis and the analysis of secondary

data concerning the Russian market, enable us to reveal some meaningful distinctions. Firstly, it's notable that environmental factors play an important role from the perspective of both e-commerce actors and consumers, while previous studies described this factor only from the firm's perspective. Secondly, existing research highlighted the structure of factors and their meta-groups, as environmental, market and cognitive factors; however, a deeper analysis of existing sources on Russian market specifics offer additional market-specific factors, which have to be integrated when studying Russian e-commerce practices. The changing nature of the Russian market and interaction between market actors, representing supply and demand sides, is calling for a more active investigation of how these developments are shaping the structure of forces driving, or hindering e-commerce adoption and development.

2. THE RUSSIAN E-COMMERCE MARKET OVERVIEW

The changing nature of the Russian e-commerce market requires an in-depth market overview in order to describe the context of the study and includes an analysis of the driving and limiting forces of e-commerce growth in the country. According to the Federal Service for State Statistics, the e-commerce market accounted for only 1.7% of the total retail market in Russia at the end of 2018 [Federal Statistics, 2019]; however, the increasing importance of e-commerce for the

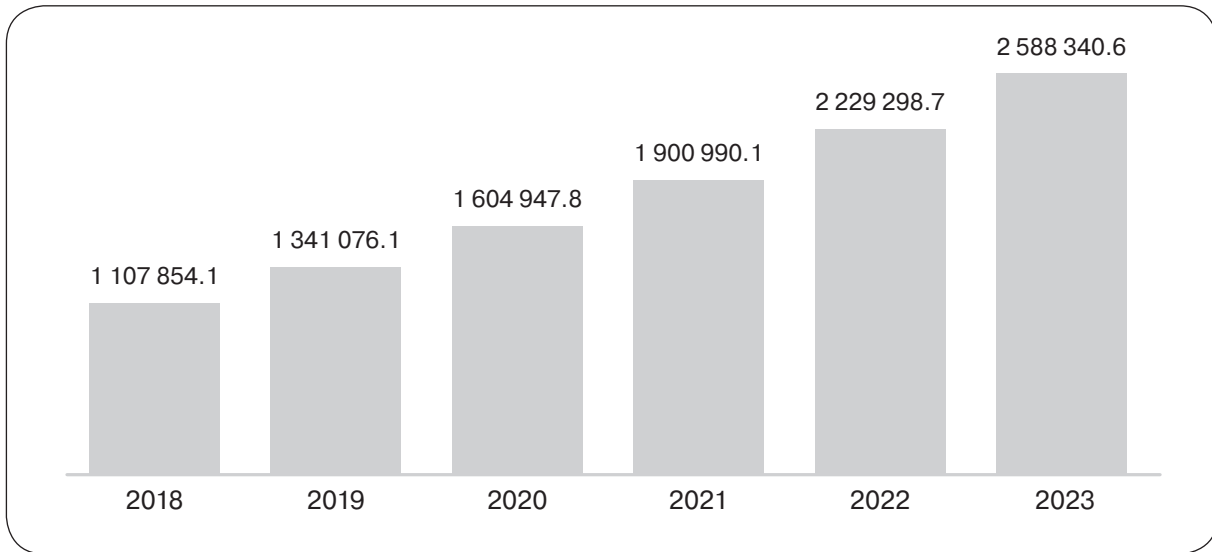


Fig. 1. The growth rate of the Russian e-commerce market (retail value RSP excluding sales tax, mln rub), 2018–2023
Source: [Euromonitor, 2019].

Russian economy as a whole is evident. According to [Euromonitor, 2019], online trading accounts for approximately 77% of Russia's non-store retail. In 2010, the volume of the Russian e-commerce market ranged from 190 to 250 bln rub, and at the end of 2016, the overall size of the market accounted for 1.6 trn rub [AKIT, 2019].

From 2010 to 2012, the e-commerce market increased constantly in absolute numbers. Economic instability, along with the financial crisis, which started in 2014 but affected the Russian economy till the end of 2016 [World Bank, 2015], slowed down the growth of the retail market (Table 3). The tendency towards growth continued only after 2016, although at a slightly slower pace than in the previous years. Nevertheless, comparing store-based retailing with e-commerce, the growth of e-commerce in 2018 was significant, while store-based retailing witnessed modest growth.

In the middle of 2019, Russia ranked eighth worldwide in terms of its growth of Internet users, ahead of such countries as China, India, the USA, Brazil, Indonesia, Nigeria, and Japan [Data Insight, 2019]. The average an-

nual growth of internet users has exceeded 10% over the last few years. In September 2011, Russia overtook Germany as the market with the largest number of Internet users in Europe [Wauters, 2012]. Looking at the whole of Europe combined, 16% of all Internet users, are from Russia [Internet World Stats, 2019]. However, Russia still lags behind most other European countries in terms of penetration, with more than 80% of the adult population connected to the Internet [Levada-Center, 2019]. Thus, e-commerce as a market, still has significant potential for growth over the coming years (Figure 1).

Experts predict a promising future for the e-commerce market [Data Insight, 2019] and suggest that growth will be provided by certain factors, among which are the customer's habit to buy online, improvement of the customer experience and the standardization of the routine processes of the e-stores. Additional incentives that contribute to the markets development are the improvement of the online platforms which provide a mixed range of products and services, and the progress towards omni-channel strategy which retailers made during the last years.

On the other hand, despite the significant potential for a future growth, there are some limiting factors which impact the positive dynamics of the e-commerce market. The major disadvantage is that the Russian e-commerce market still feels the effect of the crisis, which is manifested in the low domestic demand and discouraged household consumption. Moreover, the e-commerce market growth is ensured by the increase in the number of orders; however, the average transaction value has fallen for the third year in a row. In addition, while the number of online buyers is rising, the new customers do not provide sustainable growth to the market as they do not purchase frequently.

New market realities create boundaries to the extensive growth of the e-commerce market, which was typical for the early 2010s. The current economic situation requires companies to develop a more reflective approach to the attraction and retention of clients, and build with them long-term relationships. On the one hand, companies should be focused on removing the barriers consumers face when making purchases via the Internet, and help them to overcome these barriers; on the other hand, companies should benefit from the drivers that stimulate Internet users to shop online. Such systematic activity can have a positive impact not only on online stores' performance, but on the whole market in general. Thus, the Russian e-commerce market requires further explorative empirical investigation to reveal its specific e-commerce adoption factors.

3. RESEARCH DESIGN AND SAMPLE DESCRIPTION

The empirical stage of the study has an explorative nature, as its main research objective is to identify, systemize and rank the factors, affecting adoption and development of the e-commerce market in Russia from the perspective of e-commerce consumers.

Research design. To achieve the set objectives two-stage quantitative study was con-

ducted: 3400 Russian consumers took part in the first survey, investigating the e-commerce adoption factors, and 1093 respondents in the second survey with the focus on the factors, influencing the choice of the particular online-shop. Thus, the empirical study methodology comprises three steps: Step one: consumer perception of macro-level factors of e-commerce market development was investigated. This step is in line with the studies, identified at the theoretical phase of research (Table 1).

Step two: consumer perception of the firm- or online-shop level factors was at the focus, reflecting the results of the Russian e-commerce market analysis. The difference between the levels of analysis represents perception of the market evolution and e-commerce as a part of this evolutionary process and — at the step three — perception of the specific purchase experience where the consumer does not think about the market in general, but applies their own experience and service encounters.

How authors [Hitt et al., 2007, p. 1385] define, “most management problems involve multilevel phenomena, yet most management research uses a single level of analysis”. Due to specialization, increased requirements of the methods of analysis and research designs, the scope of research in each of the management domains has reduced. As a result, the boundaries between these specialized fields were established, and the fields and levels of analysis became increasingly isolated. We can differentiate between the environmental, network, organization, subunits, groups and individual levels of analysis in management, whereas knowledge, skills and abilities are being transferred between the levels. In any managerial phenomenon, including e-commerce, transformation and adoption also happens at various levels, resulting in macro-level evolution, that affects the environment as a whole, changes at the level of particular organizations, or e-commerce actors, and finally individuals. In this study we measure the perceptions of individual e-commerce consumers, whereas the objects of consumer perception represent two other levels: the

macro-level of e-commerce and market environment and the organization-level, whereas consumers experience encounters with a particular e-commerce actor, or store.

Data collection process. The quantitative data reflecting consumer perspective for both of the surveys was collected from a survey of Internet users that participated in the online course “Marketing” held on The Russian National Educational Platform “Open Education” [The Russian National Platform...]. The study involves respondents from this business course, which is a common practice in consumer research (for example, it is common for the papers published in the *Journal of Consumer Research*, one of the best marketing journals in the world). The online version of the questionnaire was developed on a platform “Survey monkey”, a survey development cloud-based software [SurveyMonkey]. About 20 000 Internet users took part in the course, and the survey link was sent to all participants of the course. The survey link was sent in April, 2019 and the course participants were given two months to complete the questionnaire. Completing the questionnaire was voluntary and free of charge. A total of 3387 respondents from 63 regions of the Russian Federation participated in the survey, with 17 incomplete responses, so the response rate was about 17%, and almost a third of the whole respondents (1093) agreed to participate in the second stage of the study.

Operationalization. As was mentioned, quantitative research consists of two studies: the study of e-commerce adoption factors, and the second study with the focus on the factors, influencing the choice of the particular online-shop. To conduct the quantitative online survey, two questionnaires were developed and operationalized. The questionnaires for both the studies were based on the existing research and scales, operationalizing factors, affecting the adoption and development of e-commerce through the lens of consumer perception.

The first questionnaire (study 1) includes 37 questions on e-commerce adoption factors grouped in the following five main blocks:

- 1) benefits of purchasing online [Chaparro-Peláez, Agudo-Peregrina, Pascual-Miguel, 2016; Tsai, Huang, Jaw, Chen, 2006];
- 2) personal information sharing risks [Korgaonkar, Wolin, 1999];
- 3) trust in e-commerce / online stores [Kim, Ferrin, Rao, 2019; Tsai et al., 2006];
- 4) influence of the social norms and reference groups [Ajzen, 1991];
- 5) easiness of purchasing in the online store [Korgaonkar, Wolin, 1999].

The second questionnaire (study 2) includes five blocks of questions to determine how consumer choose online store:

- 1) quality of the online store delivery [Tsai et al., 2006; Corbitt, Thanasankit, Yi, 2003; Wresch, Fraser, 2011];
- 2) range of assortment provided by the online store [Chaparro-Peláez, Agudo-Peregrina, Pascual-Miguel, 2016; Cledes, Gan, Zhang, 2014; Lin, Fu, 2012];
- 3) online store payment options [Cledes, Gan, Zhang, 2014; Chaparro-Peláez, Agudo-Peregrina, Pascual-Miguel, 2016];
- 4) quality of online store services [Lin, Fu, 2012; Chaparro-Peláez, Agudo-Peregrina, Pascual-Miguel, 2016; Cledes, Gan, Zhang, 2014; Corbitt, Thanasankit, Yi, 2003; Kim, Ferrin, Rao, 2009; Kshetri, 2007; Wymer, Regan, 2007];
- 5) reasons for mistrust in online shopping [Kshetri, 2007; Chaparro-Peláez, Agudo-Peregrina, Pascual-Miguel, 2016; Corbitt, Thanasankit, Yi, 2003].

In order to avoid leading questions and prompting respondents to a definite answer, all formulations were tested for neutrality. Additional socio-demographic questions were added to the last blocks of both surveys to classify the respondents. The present study measures all items on a seven-point Likert scale ranging from 1 “completely disagree” to 7 “completely agree”.

Sample descriptions. To filter the respondents on their online shopping experience and assess the respondents’ frequency of online purchases the following screening question was developed: “How many times have you made purchases from online shops

Table 4

Online surveys sample descriptions

Selection criterion	Characteristic	Study 1 “E-commerce adoption factors”		Study 2 “Factors influencing online-shop choice”	
		Number of respondents	Share, %	Number of respondents	Share, %
Sex	Male	882	26.0	361	33.6
	Female	2 498	73.8	707	65.9
Age	Under 18	22	0.6	5	0.5
	18–25	1911	56.4	346	32.2
	26–30	587	17.3	318	29.6
	31–35	381	11.2	154	14.4
	36–40	231	6.8	118	11.0
	41–50	206	6.1	104	9.7
	51–60	36	1.1	26	2.4
	Older 60	9	0.3	0	0
Education	Incomplete secondary education	15	0.4	6	0.6
	Secondary education	183	5.4	27	2.5
	Vocational secondary education	72	2.1	30	2.8
	Associate degree	1 206	35.6	165	15.4
	Higher education	1 559	46.0	650	60.6
	Two and more degrees (bachelor)	271	8.0	142	13.2
	PhD / MBA	78	2.3	50	4.7
Income level	Not enough money to purchase food	21	0.6	7	0.7
	Enough money only to purchase food	72	2.1	36	3.4
	Enough money to purchase necessary food and clothing, but postponing buying larger purchases	1 460	43.1	474	44.2
	Enough money to purchase most of the durable goods (e.g., refrigerator and TV), however can’t buy a car	1 089	32.2	340	31.7
	Enough money to purchase a car, but can’t buy an apartment	544	16.1	175	16.3
	Enough money to purchase all goods	182	5.4	32	3.0
Marital status	Married	2 352	69.5	497	46.3
	Divorced	1 001	26.7	71	6.6
	Single	105	3.1	501	46.7

Table 4 (end)

Selection criterion	Characteristic	Study 1 “E-commerce adoption factors”		Study 2 “Factors influencing online-shop choice”	
		Number of respondents	Share, %	Number of respondents	Share, %
Children	Have a child/children	722	21.3	378	35.2
	Have no children	2 646	78.1	687	64.0
Region	Moscow	1 332	41.6	391	37.9
	St. Petersburg	480	15.0	185	17.9
	Other regions	1 391	43.4	454	44.2

during the last year?” Analysis of the obtained results revealed that 20 respondents from the sample had never bought anything from online shops, thus the total sample was 1 093 respondents. Table 4 presents the demographic information of respondents.

While both the samples were determined to the online users, the main respondents’ characteristics are consistent with the Russian online consumers’ profile: according to the report “How Do Russians Shop Online” [Antonov, 2019], a third of all the orders are made by residents of Moscow and St. Petersburg, women buy more on the Internet than men (55% versus 45%), and more than half of all purchases are made by Russians aged 25 to 44 years [Antonov, 2019].

Most of the respondents in the samples are those aged between 18–35 years old, this is 84.9% and 76.2% in the first and the second surveys, respectively. This distribution is also quite adequate to the total population of e-commerce users, since according to the 2019 Internet trade survey in Russia, the majority of e-commerce users are consumers aged 20–40.

Respondents with a higher education (including those online consumers who have an associate degree) constitute the majority of online consumers in the sample. The sample of the current study was represented by students of the online course, and it had a certain influence on the sampling bias in favor of consumers with higher education. However,

in general, it is consistent with the market data that the share of online consumers with a higher education prevails over the online consumers with other types of education.

Analyzing the number of online consumers in Russia’s regions it was noted that in 2019, about a half of Moscow and St. Petersburg residents using the Internet made an online purchase [Internet audience in Russia, 2019]. According to another report, Moscow and St. Petersburg generated a third of total sales proceeds [Antonov, 2019]. Respondents taking part in the survey represent the main cities of the e-commerce market in Russia: Moscow (41.6% and 37.9%, respectively), St. Petersburg (15.0% and 17.9%, respectively), and 64 other regions of Russia that are represented in the sample (43.4% and 44.2%, respectively).

4. RESEARCH RESULTS AND THE KEY FINDINGS

In order to reveal the e-commerce adoption factors from the consumer perspective, the exploratory factor analysis (EFA) with the IBM SPSS Statistics has been applied to explore the factor structure behind the scale items, representing potential e-commerce adoption factors. EFA has been applied without an initial assumption about the number of factors in order to avoid the bias. Principal

Table 5

E-commerce adoption factor analysis results (study 1, N = 3387)

Item in English	Component							
	1	2	3	4	5	6	7	8
F1: Trust in e-commerce/online stores [Kim, Ferrin, Rao, 2019; Tsai et al., 2006]								
Online stores do not inflate prices during the purchase	0.798							
Online stores behave truthfully towards consumers	0.772							
Online stores behave honestly to consumers	0.735							
Online stores meet commitments to consumers	0.656							
In general, prices in online stores are not overpriced	0.625							
Overall, online shopping can be trusted	0.587							
F2: Personal information sharing risks [Korgaonkar, Wolin, 1999]								
I am concerned that my personal financial information may be shared with businesses without my consent		0.898						
I am concerned over the security of personal information on the web		0.87						
I am uncomfortable giving my credit card number on the web		0.856						
I am worried about the security of financial transactions on the web		0.845						
When I send a message over the web, I feel concerned that it may be read by some other person or company without my knowledge		0.711						
F3: Benefits of purchasing online [Chaparro-Peláez, Agudo-Peregrina, Pascual-Miguel, 2016; Tsai, Huang, Jaw, Chen, 2006]								
Quick online search of the needed product			0.774					
Ease of product options comparison before the purchase			0.756					
Time saving			0.726					
Increase of the overall shopping performance			0.685					
Money saving			0.652					
F4: Comfort of purchasing online [Korgaonkar, Wolin, 1999; Tsai, Huang, Jaw, Chen, 2006]								
It is easy for me to purchase online				0.801				

Component Analysis and Varimax rotation with Kaiser normalization have been used, resulting in identifying eight e-commerce

adoption factors. EFA was applied to the initial pool of 44 items, that were then reduced to 31 in the final version of the factor

Table 5 (end)

Item in English	Component							
	1	2	3	4	5	6	7	8
It is easy for me to interact with most of online stores during purchasing				0.801				
It is easy for me to fulfill any operations during purchasing online				0.779				
Overall, online purchasing is easy				0.761				
F5: High customer focus of online stores [Tsai, Huang, Jaw, Chen, 2006]								
Most online stores are responsible for their customers					0.806			
Most online stores understand and respect their customers' needs					0.779			
Most online stores prove the statement that a customer is always right					0.778			
F6: High technical competences of online stores [Corbitt, Thanasankit, Yi, 2003]								
Most online stores have necessary technology knowledge to carry out the online transaction						0.769		
Most online stores have the necessary skills and ability to carry out the online transaction						0.736		
Technology obstacles should not be a major concern when conducting online transactions						0.645		
The chance of having a technical failure in an online transaction is quite small						0.521		
F7: Positive influence of the social norms [Ajzen, 1991]								
Most of the people who are important to me would support me if I bought online							0.876	
Most of the people who are important to me would support my decision to buy online							0.876	
F8: Easiness of online purchasing [Korgaonkar, Wolin, 1999]								
It is easier for me to make the decision to buy online than offline								0.848
Online purchasing is the most effective method of shopping								0.767
Cronbach's Alpha	0.879	0.896	0.845	0.921	0.876	0.747	0.906	0.78
Average variance, %	32.42	11.72	8.69	4.18	4.09	3.64	3.49	3.32
Mean	4.772	4.807	5.703	5.547	4.583	4.728	4.674	4.338
Standard deviation	0.171	0.112	0.201	0.115	0.211	0.365	0.148	0.067

model after deleting the items with the cross-loadings and the items with low factor loadings according to the EFA procedure (Table 5).

Eight factors explain 71.6% of total variance. Factors obtained as a result of factor analysis in study 1 show a very high level of

scale reliability as Cronbach's Alpha for each of the factors exceeds 0.7. The first factor combines the items from various blocks of the questionnaire, resulting in an overall assessment of the perceived and trustworthiness of the e-commerce and the online store activities.

A factor analysis of selection criteria by consumers of an online store (study 2) was carried out using the same methods as in study 1: 40 indicators were initially selected for the analysis. After conducting the factor analysis, the total number of revealed factors is seven, while the number of items is 31. The reliability coefficient of Cronbach's Alpha is 0.876, which indicates the high reliability of the scale valid-

ity used in the survey. The results of the factor analysis of indicators characterizing the consumer's online store choice can be found in Table 6.

Seven factors explain 58.9% of variance in total. As is seen from the table, Cronbach's Alpha is meeting the required level of the minimum 0.7. The resulting structure of factors of e-commerce adoption and development is presented in Table 7.

The structure of market-level factors, identified as core building stones of consumer perception, is centered around the leading factor of trust. Indeed, trust is the main institutional factor that drives development of any business phenomenon in emerging markets.

Table 6

Factor analysis results of online store choice (study 2, N = 1 093)

Item in English	Component						
	1	2	3	4	5	6	7
F1: Benefits of shopping in the particular online store, including online store payment options [Clemes, Gan, Zhang, 2014; Chaparro-Peláez, Agudo-Peregrina, Pascual-Miguel, 2016]							
Product quality	0.811						
No online store fraud	0.776						
Compliance of the delivered goods with their description on the site	0.765						
The price of the product	0.74						
Relevance of information on the site	0.661						
The presence of a convenient method of payment for goods	0.656						
No hidden fees when paying for goods	0.652						
Accuracy of order execution	0.632						
Shipping cost	0.571						
Return and exchange availability	0.504						
F2: Mistrust in the online store [Kshetri, 2007; Chaparro-Peláez, Agudo-Peregrina, Pascual-Miguel, 2016; Corbitt, Thanasankit, Yi, 2003]							
I do not trust non-cash methods of payment for goods/services in an online store		0.854					
I do not trust this online store		0.805					
I do not trust payment systems in the online store		0.787					
I am not ready to pay for a product / service until it is received		0.729					

Table 6 (end)

Item in English	Component						
	1	2	3	4	5	6	7
F3: Online store reputation [Virin, 2014]							
Online Store Rating			0.806				
Reputation / fame of the online store			0.76				
Online customer reviews			0.733				
Shopping experience at this online store			0.549				
Online store advertising			0.463				
F4: Quality of the online store delivery [Tsai, Huang, Jaw, Chen, 2006; Corbitt, Thanasankit, Yi, 2003; Wresch, Fraser, 2011; Tsai, Huang, 2007]							
Delivery to the specified address				0.707			
Delivery time				0.69			
Availability of express delivery				0.665			
Delivery of goods on time				0.659			
F5: Range of assortment provided by the online store [Chaparro-Peláez, Agudo-Peregrina, Pascual-Miguel, 2016; Cledes, Gan, Zhang, 2014; Lin, Fu, 2012]							
Unique/Exclusive Product Availability					0.833		
The availability of new products that have just entered the market					0.751		
Wide range of products					0.638		
F6: Quality of online store services [Lin, Fu, 2012; Chaparro-Peláez, Agudo-Peregrina, Pascual-Miguel, 2016; Cledes, Gan, Zhang, 2014; Corbitt, Thanasankit, Yi, 2003; Kim, Ferrin, Rao, 2009; Kshetri, 2007; Wymer, Regan, 2007]							
Customer orientation and individual approach						0.768	
Quality of service in the online store						0.761	
Confidentiality and guarantee of personal data protection						0.581	
F7: Cross-border financial advantages [Virin, 2014]							
Existence of taxes when ordering goods in a foreign online store							0.864
Exchange rate when ordering goods in a foreign online store							0.843
Cronbach's Alpha	0.886	0.839	0.758	0.708	0.707	0.738	0.775
Average variance, %	24.60	11.18	7.01	5.43	4.40	3.76	3.65
Mean	6.652	3.34	5.389	5.538	5.089	6.019	5.835
Standard deviation	0.15	0.827	0.755	0.924	0.663	0.4	0.201

Table 7

**Structure of e-commerce adoption
and development factors**

E-commerce adoption factors	
Market-level e-commerce adoption factors	Store-level e-commerce adoption factors
Trust / Mistrust in the online purchasing	
Benefits of online purchasing	
Quality of online store service	
Personal information sharing risks	Online store reputation
Positive influence of the social norms	Quality of the online store delivery
Easiness of online purchasing	Range of assortment provided by the online store
Technical competences of the online store	Cross-border financial advantages

In the case of our study, trust is associated with a fair price attitude, truthful and honest behavior, and commitment — thus representing the institutional norms applied to the e-commerce market. This perspective can also be associated with customer focus and care as an institutional norm — which is identified as a separated factor, as social norms are now supporting the adoption of e-commerce. The next three factors can mirror the factors as identified by [Rogers, 2010]: (1) benefits or superior performance — benefits of e-commerce as a mode of business; (2) comfort that can be associated with the perceived ease of using e-commerce; as well as (3) ease of decision-making — in other words, considering e-commerce as a facilitator for consumer decision making. These three factors reflect the perspective of adopting e-commerce as a new technology. Consumer risks are represented by factors related to the risks of sharing personal information and the risk of technical failure of e-commerce as a service. The latter one is associated with the widely studied technical side of e-commerce as equipment, competencies and knowledge of e-commerce actors. Thus, reflecting on identified macro-factors results in three institutional factors: trust,

customer care, and social norms; three factors of adoption according to the innovation diffusion theory — benefits, comfort and ease of making decisions; as well as one factor relating to consumer risks.

At the level of consumer perceptions of store-level factors the structure of factors reveals the following overarching angles: the most general and the strongest in terms of variance explained factor that mirrors the customers journey logic and combines the elements of service encountered in e-commerce. It combines the focus on quality, information required, price and payment options, commissions and delivery. Besides this general factor, the factors of delivery and assortment were highlighted as separate drivers of e-commerce adoption. The latter is also distinguished as assortment in general, and the benefits of buying from abroad, whereas consumers face availability of a wider choice and different models. The factor of trust repeats the same institutional macro-level trust, applied to a specific consumer experience. Again, the main risks are perceived as relating to payment options and the usage of credit cards vs. cash, typical for emerging markets practices. Finally, two factors stand out reflecting marketing practices and norms of managing customer relationships — the role of reputation and customer focus. The reputation factor includes both paid, owned and earned channels. However, customer focus represents entirely the company-level capability, as perceived by customers.

5. DISCUSSION AND CONCLUSION

The main objective of this paper is to explore consumer perception of e-commerce adoption factors on two levels — the first are the macro-level factors, associated with the overall environment, institutional factors and trust; the second one is store-level factors, or factors associated with real consumer experiences. Combining these two levels of analysis, especially when the source of data refers to the same individual level of e-commerce con-

sumers, provides a contribution to existing research where researchers are mostly focusing on one level only. As the result of the existing research on e-commerce adoption factors analysis, the following conclusions can be done:

- 1) previously, studies described environmental factors only from the firm perspective, whereas current studies are more focused on both e-commerce actors and consumers;
- 2) there are some factors, which are common for different countries (such as environmental, market and cognitive factors) whereas different countries also have factors, specific to them. This assumption could be used when studying marketing practices in different countries;
- 3) there is more research that needs to be done to determine the consumers behaviour in emerging markets, including the Russian e-commerce market.

Before conducting the empirical research, the secondary data describing the Russian e-commerce market were analysed, revealing several interesting findings. Firstly, environmental/market factors are the largest group of limiting factors from the actor perspective. At the same time, organizational/store-related and product/service-related factors are the main driving factors from the same perspective. Secondly, while the general theoretical structure can capture most of the identified factors, some groups of factors don't fit in the current theoretical classification. We have discovered such additional groups of factors such as individual and market related. In general, we can state that the extent to which the topic is studied depends on the selected perspective of factors' examination. Thus, theoretical background of the study on e-commerce adoption factors together with the secondary data analysis on the Russian e-commerce market has resulted in the main research question for the empirical study: How does the existing structuring of the revealed e-commerce adoption factors fit the perception of consumers in the Russian emerging market?

As the study is based on existing literature in terms of conceptualizing and operationalizing potential factors, the next empirical step aimed to reveal the e-commerce adoption factors was rather exploratory in nature. Empirical study is based on a survey, using a sample of 3 387 respondents representing the consumer perspective. The findings reveal the structure of the driving and limiting factors, highlighting the core role of the trustworthiness and transparency of the e-commerce market players, delivery conditions and store-related risks.

Generally, understanding barriers and drivers of the e-commerce market is important both from a managerial and academic point of view. The findings of this study make several contributions to existing literature. Consumer perception of e-commerce on market- and store- levels helped us add to the existing research both on a global scale and specifically within Russia in order to close the gap in the consumer perception of the e-commerce adoption factors. Additionally, we contributed to applying multi-level methodology to e-commerce research following the call for a more systematic and wider investigation of managerial phenomena [Hitt et al., 2007]. The gap in empirical research describing the barriers and drivers of the e-commerce market in Russia was filled. This research extends our knowledge of e-commerce adoption factors and might serve as a base for future studies in this field.

From a managerial perspective, these findings help to answer the following question: what e-commerce adoption factors should be taken into account when a company is planning further action in the field of online retailing? The changes in the market dynamics and development, offer a call for businesses to re-evaluate their strategies and approaches. This call for a strategic approach should be primarily aimed at overcoming the major barriers to further development. The empirical data allows companies operating in the e-commerce market to formulate the main direction of their future actions more specifically. Also, it gives guidelines for compa-

nies who are at the beginning of entering into the e-commerce market, or want to adopt new e-commerce practices. Moreover, at the present time there are debates concerning the development of Runet [The Formation of a Long-term Program..., 2015], and the experts and active members of this process can take into account the obtained results and utilise them in the discussion about issues related to current and long-term e-commerce projects.

Russian companies need to develop a more effective approach and focus on removing the barriers consumers face when making purchases via the Internet, and help them to overcome these barriers. At the same time, companies need to know how to use e-commerce adoption driving factors to stimulate Internet users to shop online to increase benefits. While companies operating in the e-commerce market are often small businesses, to be competitive in this dynamic industry they are constantly innovating their existing business models and bringing about changes which help companies to improve the seller and customer experience. As the results that the quantitative study demonstrate, all e-commerce businesses have the opportunity to learn, grow and develop their business, in terms of the improvements of service quality, providing innovative service offerings like one-day delivery, 30-day replacement warranty, cash on

delivery, the introduction of products and services that can be not only new for the company, but also for the market.

Future research should concentrate on the specific questions such as the customers' role in e-commerce development. From the business perspective, customers are one of the major drivers of the e-commerce market and their preferences and behavior can affect the way this market evolves. Another possible area for future research would be to assess the influence of existing e-commerce adoption factors to identify best practices of companies that help them to overcome difficulties and develop dynamically.

The present study is based on data collected in the Russian market only. As noted in [Sheth, 2011], marketing concepts developed in established markets may change when brought to emerging markets, a notion well aligned with our findings. However, to explore the differences between the e-commerce limiting and driving factors in developed and emerging markets further, comparative research should be conducted. The Russian data may not be representative of emerging markets in general, as the findings of the present study may be specific to the Russian market environment only. This calls for future studies in the field to combine data from different markets.

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Факторы внедрения электронной коммерции в России: анализ на уровне рынка и на уровне интернет-магазина

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Развитие рынка электронной коммерции зависит от конфигурации факторов, которые либо способствуют, либо препятствуют его дальнейшему функционированию. Российский рынок электронной коммерции представляет самую большую онлайн-аудиторию в Европе (93 млн человек), что стимулирует значительный рост электронной коммерции. Цель статьи состоит в изучении восприятия российскими потребителями факторов внедрения электронной коммерции на макроуровне (развитие рынка электронной коммерции в целом) и на микроуровне (функционирование конкретного интернет-магазина, принимая во внимание опыт потребителей в момент покупки). Предложенный двухуровневый подход отражает сложность восприятия потребителями рынка электронной коммерции с учетом как меняющейся бизнес-среды, так и реального индивидуального опыта совершения покупок в Интернете. Исследование основано на количественном опросе 3 387 респондентов. Полученные результаты способствуют раскрытию движущих и сдерживающих факторов развития рынка электронной коммерции в России.

Ключевые слова: электронная коммерция, факторы внедрения электронной коммерции, развивающиеся рынки, факторный анализ.

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