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## Article

# Retail transformation under the influence of digitalisation and technology development in the context of globalisation

Journal of Open Innovation: Technology, Market, and Complexity

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*Suggested Citation:* Ramazanov, Ibragim Agaevich; Panasenko, Svetlana Viktorovna; Cheglov, Vyacheslav Petrovich; Krasil'nikova, Elena Anatol'evna; Nikishin, Alexander Fedorovich (2021) : Retail transformation under the influence of digitalisation and technology development in the context of globalisation, Journal of Open Innovation: Technology, Market, and Complexity, ISSN 2199-8531, MDPI, Basel, Vol. 7, Iss. 1, pp. 1-21, https://doi.org/10.3390/joitmc7010049

This Version is available at: https://hdl.handle.net/10419/241634

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## Article Retail Transformation under the Influence of Digitalisation and Technology Development in the Context of Globalisation

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Abstract: The study aims to identify the main factors and determine the most probable directions of the transformation of the circulation sphere of the Russian Federation in the context of globalisation and the development of digital technologies. The methods of factor analysis, comparative analysis, correlation analysis, and dynamic series analysis are used in the study. It has been found that there is a close relationship between the processes of information and sociocultural globalisation. The presence of pronounced close direct or reverse connection between the development indicators of the information and communications environment, on the one hand, and the dynamics of the involvement of the Russian Federation in the process of globalisation, on the other hand, has been established. It has been found that the process of cultural globalisation in the Russian Federation proceeds at a higher rate than in other developing countries and is significantly synchronous with the countries of Europe and North America. A significantly high level of realization of the potential attractiveness of the development of retail chains and the penetration of global multinational companies into the Russian sphere of circulation has been revealed. It has been established that the level of information globalisation closely approaches the average European level and develops more synchronously with Europe and Central Asia and North America. The results of the study allow drawing the following main conclusions. In the Russian Federation, socioeconomic, sociocultural, information and communications, as well as global integration processes are observed, which are accompanied by the formation of a unified consumption and buying behaviour according to the Euro-Atlantic type.

Keywords: distribution; globalisation; consumption behaviour

#### 1. Introduction

The competitiveness of a distribution company depends on its adaptability to the external operating environment, which is characterised by high degrees of participation of individual regions and countries in sociocultural, economic, information, and trade globalisation. These factors exert considerable influences on economic behaviours of businesses, development of the information society and the digital economy, advance of transnational corporations and new formats of retail chains, etc. It all, in turn, transforms the traditional paradigm and national consumption habits and drives convergence in consumer behaviours in the global marketing environment. These settings, combined with digitalisation and the new technological wave, call for a review of previously established perceptions of buying behaviours, approaches to strategy development adopted by distribution companies and directions of their transformation in the context of a global market.



Citation: Ramazanov, I.A.; Panasenko, S.V.; Cheglov, V.P.; Krasil'nikova, E.A.; Nikishin, A.F. Retail Transformation under the Influence of Digitalisation and Technology Development in the Context of Globalisation. *J. Open Innov. Technol. Mark. Complex.* **2021**, *7*, 49. https://doi.org/10.3390/ ioitmc7010049

Received: 30 December 2020 Accepted: 27 January 2021 Published: 30 January 2021

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#### Literature Review

The need to take into account the effects of globalisation is underscored by the scope and pace of its advance, which is widely believed to be irreversible. In particular, globalisation is considered to be an objective logical and unambiguous phenomenon [1] that cannot be restrained [2]. It appears as a supranational trend [3]; it reinforces competition and facilitates cross-country dialogue in addressing social problems [4] and expands in scope with the development of the network society [5].

While making a point of the irreversibility of trade globalisation, some researchers have highlight how developed states have been exploiting the concept of globalisation for their benefit, creating unnecessary obstacles to trade for developing countries and using the concept of globalisation is failing as a disguise for their actions [6].

Many researchers conclude that globalisation leads to the development of global human culture, global consumer culture, global consumer behaviour model, etc. It is shown, in particular, that global culture generates new behavioural norms and standards and develops a new global mentality shaped by the universal convergence of the sociocultural aspects of economic and cultural processes with ethical implications [7]. It creates an impulse for cross-cultural dialogue inspired by the values of post-modernity [8], which inevitably results in the development of a single cultural landscape [9] and a global transnational culture [10]. Globalisation stimulates the convergence of values of previously isolated societies and the development of universal human values associated not only with positive implications but also with planetary social threats [11].

Globalisation and the advancement of the Internet drive the development of a global consumer behaviour model [12] and a permanent shift from the model of conspicuous consumption toward practical consumption [13].

In the context of globalisation, consumerism becomes a type of global culture, convergence is observed in consumption behaviours and motivations, which shapes cross-national consumer strata [14]. For the development of certain product markets, the focus should shift toward individual cultural values away from national and group cultures [15].

Countries' participation in globalisation has created a competitive environment stimulating economic activity and growth and facilitated the development of trade [16] and capital inflows [17], but also exacerbated social inequality, potentially inviting demands for social justice. The relation between globalisation and social justice, therefore, merits attention both in research and politics [18].

According to some researchers, trade globalisation is allowing low-income countries to access markets in high-income countries where local traders receive higher prices, which contributes to social improvement [19] and lower poverty levels [20]. Moreover, international cooperation and trade globalisation are also contributing to the economy through the operation of value chain strategies [21], reducing barriers to entry [22] and steady development of the business environment in many directions [23].

Defining the social attributes of globalisation, researchers point at the primarily social rather than economic nature of key global problems. They also point out that distribution services have a great influence on the living standards of the population: living standards are higher in Russian regions where the share of retail chains is high [24]. However, assessments of whether retailers' corporate social responsibility (CSR) meets consumer expectations show low CSR levels of Russian companies and, on the contrary, stronger CSR and attractiveness for consumers for European transnational retail chains [25], which get into the local market by practising adaptation to socioeconomic patterns of regional markets [26] and better provision of consumers' needs in terms of quality and prices compared to local retailers [27]. Acknowledging the retail network as a variable subsystem of a cultural landscape, they highlight the significant influence of globalisation over the development of national retail chains [27].

Evaluating the issues and challenges of globalisation, researchers find it relevant to practice a multi-echelon multimodal supply chain network design, taking into account

the economic, environmental, and risk factors involved [28] and reflecting the uncertainty inherent in global trade as an open system [29].

Analysts make a case for the transformation of national retailers into transnational formats. Conclusions are particularly drawn that retailers focused only on local markets struggle to maintain it in the long term. Accordingly, to progress in a competitive environment, they need to accept the practice of free trade and globalisation [30]. Besides, it is shown that free trade and globalisation contribute to more consistent levels of price index fluctuations for goods provided by suppliers from different countries of the world and more in line with consumer expectations [31]. However, according to researchers, there are still several tariff and non-tariff barriers introduced by developed economies to be overcome on the way to the transformation of national retail chains into transnational formats [6], as well as cultural and political problems [32], investment risks [33], the prospect of de-globalisation [34], etc.

Pointing out the main factors driving the need for transformation of national distribution, researchers often cite trade and information globalisation. In particular, they indicate that the IT revolution contributes to retail chain development in emerging markets [35], marginalising smaller merchants from major cities [36], and to the acceleration of e-commerce [37].

There is an understanding that the development of the IT sector becomes the main factor of information and communications globalisation [38], which, on the one hand, helps to control and prevent global crises [39] and, on the other, accelerates the process of digitalisation and globalisation of the economy itself [40,41]. Researchers of the Russian distribution sector also conclude that irrespective of the low innovation activity of the retail sector, the advance of the digital economy and e-commerce show a positive trend [42]. There is also a shift in consumer attitudes to offline and online sales in favour of online sales, which calls for a transition toward omnichannelity [43].

The literature review allows concluding that analysts are actively exploring the problems associated with the development and impact of globalisation processes on the socioeconomic situation of the population of individual regions and countries, the economic opportunities and competitiveness of business entities, the formation of innovative and information and communications potential in national companies for entering global markets, etc. It also indicates that the development of the modern society, global and national economy and individual industries should be addressed in the context of sociocultural, economic and information globalization, and information and communications processes.

However, the scale and depth of changes in the global environment are constantly expanding and proceeding quickly. This leads to a decrease in the relevance of many study results concerning the development of strategic plans. Understanding the connection and influence of the processes of globalization and the development of digital and ICT on the behaviour of consumers and buyers will help market participants to choose the most appropriate areas of transformation of their activities. However, they are not sufficiently studied.

This background creates the need to identify the future potential of global sociocultural change and convergence of consumption behaviours, as well as the main underlying factors of consumption transformations in Russia; identify the type of convergence of Russian buying and consumption behaviours and potential response of Russian market participants; identify the relation between globalisation and the process of buying and consumption convergence, on the one hand, and the directions of the transformation of distribution in the context of digitalisation, globalisation of markets and development of the global information landscape, on the other.

This article is the first to examine the influence of globalisation processes and the development of the information and communications environment on the unification of the behaviour of Russian consumers and buyers.

The importance of the study results lies in the fact that understanding the type by which the process of unification of the behaviour of Russian consumers and buyers takes place will allow companies in the circulation sphere to more accurately determine the promising areas of transformation of their activities in the globalisation of markets and the formation of a global information and communications environment.

This study consists of five sections, namely the introduction, which includes the literature review, methods, which include index methods (KOF Index of Globalization (KOFGI), Global Retail Development Index (GRDI), Top 50 Global Retailers' Presence Index (ITOP-50)) and correlation analysis, calculations and interpretation of results, discussion, and conclusion.

#### 2. Methods

The choice of research methods was based on the need to solve the main problem, which involves understanding the depth and scale of changes taking place in the global environment of the functioning of companies in the circulation sphere.

Special attention was paid to indicators and methods for obtaining information that reveal the interpenetration and interdependence of individual factors, the development of which was accompanied by profound changes in the behaviour of consumers and buyers. The requirements of this study were met by—index methods: KOF Index of Globalization (KOFGI) and the corresponding subindices, Global Retail Development Index (GRDI) and TOP-50 Global Retail Chains' Presence Index; —rating method: National Retail Federation (NRF); —correlation analysis and comparative analysis.

Individual indicators were selected that reflect the features of the development of the Russian Federation to understand the socioeconomic processes, cultural perspectives of society, information and communications readiness, and innovative potential of the country (Table 1).

| Indicators and Inputs  | KOFGI <sub>RF</sub> | <b>KOFInGI</b> <sub>RF</sub> | KOFGI <sub>World</sub> | <b>KOFInGI</b> <sub>World</sub> |
|--|---------------------|------------------------------|------------------------|---------------------------------|
| 1. Average per capita disposable household resources in the Russian Federation, rubles per month   | 0.920               | 0.988                        | 0.994                  | 0.992                           |
| 2. Share of population with average money income below the threshold set based on the actual money income levels (per capita, median and modal), % | -0.784              | -0.866                       | -0.784                 | -0.965                          |
| 3. Employment in the age bracket between 15 and 72   | 0.830               | 0.961                        | 0.936                  | 0.961                           |
| 4. Unemployment in the age bracket between 15 and 72 (based on sampling surveys of the labour force), thousand people                              | -0.659              | -0.897                       | -0.847                 | -0.880                          |
| 5. Labour productivity indices in the Russian economy  | -0.715              | -0.636                       | -0.713                 | -0.726                          |
| 6. Growth of high productivity jobs in the Russian Federation, %   | -0.631              | -0.399                       | -0.511                 | -0.639                          |
| 7. Share of population using the Internet to order goods and (or) services as a percentage of the total population, %                              | 0.762               | 0.971                        | 0.860                  | 0.880                           |
| 8. Environmental spending in the Russian Federation (in actual prices, million rubles)   | 0.911               | 0.943                        | 0.978                  | 0.946                           |
| 9. Outbound tourism, thousands   | -0.720              | -0.068                       | 0.181                  | -0.321                          |
| 10. Migration activity   | 0.808               | 0.952                        | 0.917                  | 0.961                           |
| 11. Per capita volume of paid cultural services, rubles  | 0.955               | 0.945                        | 0.960                  | 0.935                           |
| 12. Per capita volume of paid healthcare services, million rubles  | 0.835               | 0.998                        | 0.998                  | 0.998                           |
| 13. Volume of tourism services, million rubles   | 0.948               | 0.974                        | 0.974                  | 0.984                           |
| 14. Share of products compliant with quality and safety standards, %   | 0.832               | 0.951                        | 0.853                  | 0.947                           |
| 15. Relative weight of retail chains in the retail turnover of food products, $\%$   | 0.946               | 0.920                        | 0.937                  | 0.903                           |

**Table 1.** Correlation between globalisation processes and indicators of development of information society, socioeconomic, cultural, retail and other processes in the Russian Federation.

#### 2.1. KOF Index of Globalization (KOFGI)

The advantages of using KOFGI in research related to the impact of globalisation on the development of social, cultural, economic, trade, innovation, information and communications, and other processes are due to the depth of coverage of the processes of globalisation by time and territory and the branched structure of the index. The expediency of using KOFGI as a measure of the influence of global processes is proved by many studies. In particular, this is evidenced by the critical analysis of the methodology for constructing the KOF index, conducted by I.A. Ramazanov and O.A. Shalnova [44]. The methodology for constructing the KOF index is periodically improved. Thus, S. Gygli et al. [45] presented its new version in 2019, in which the authors considered many recommendations and comments of researchers from all over the world. N. Potrafke, having analyzed a large number of scientific studies that used the KOF index and corresponding KOF subindexes proved the existence of a correlation and causal relationship between the dynamics of the KOF index of the globalization process and the variables of the global environment [46].

KOFGI is a composite index that measures globalisation along the economic, social, and political dimensions. The index has been calculated by the Swiss Economic Institute since 1970 to measure globalisation in individual countries and regions of the world. KOFGI is calculated using 42 variables aggregated with statistically derived weights on a scale from 1 to 100. KOFGI comprises KOF Overall Globalization Index (KOF-OGI) aggregating individual groups of KOF indices, specifically: KOF Index of Economic Globalization (KOFEcGI), KOF Index of Social Globalization (KOFSoGI), KOF Index of Political Globalization (KOFPoGI). Each of the KOF index groups is based on KOF subindices, including KOF Index of Information Globalization (KOF-InGI). Find more on KOFGI at the website of the KOF Swiss Economic Institute: https://ethz.ch/content/dam/ethz/specialinterest/dual/kof-dam/documents/Globalization/2019/KOFGI\_2019\_method.pdf and in The KOF Globalisation Index—Revisited [45]. The measurements of KOFGI in 2019 for 195 countries sum up the results of 2017 and are available in a public database at the Swiss Economic Institute: https://kof.ethz.ch/en/forecasts-and-indicators/indicators/ kof-globalisation-index.html/. This study refers to the data for the period between 1990 and 2017 to draw comparisons as to the degree of participation of the Russian Federation in the globalisation process and predict the potential of transformation in the retail sector in the context of broader economic, cultural, trade, and information globalisation.

#### 2.2. Global Retail Development Index (GRDI)

The use of GRDI is due to the fact that, in the context of globalisation, global retail chains act as the main carriers of a new culture of consumption and innovative service technologies, involving the country of penetration into the global trading space. The penetration of these networks has had a significant impact on the Russian sphere of circulation, the behavior of consumers and buyers, and technical equipment. The results of measuring the quantitative and qualitative characteristics of the global retail chains present in the circulation sphere of the Russian Federation can provide information for a more objective assessment of the changes taking place in the studied area. GRDI is based on interviews with experts in leading economic sectors and A.T. Kearney's experience with retail chains in different countries. GRDI analyses 25 variables in four fixed categories, specifically: economic and political risks, country attractiveness, market saturation, and time factor (the relation of GDP growth rates and modern retail space). According to the methodology of the A.T. Kearney Global Retail Development Index, each retailer is assigned points based on international revenues, participation in franchises and alliances abroad and the level of foreign direct investment in retail operations in other countries. This study uses annual reports on the A.T. Kearney Global Retail Development Index for the period between 2010 and 2019 available at https://www.kearney.com/documents/20152/5005160/2019+Global+Retail+Growth+ %E2%80%93+A+Mix+of+New+Consumers+and+Old+Traditions.pdf/79ba4703-03d2-413 2-6432-ebfc493c75e3?t=1578678903535. The input informed a comparative analysis for the Russian Federation in terms of retail chain development and potential, influence on

sociocultural shifts in buying and consumption behaviours, and the direction of transformations in the retail sector in the context of global retail chain development. There are no analytical reviews that indicate significant disadvantages of the GRDI application. A.T. Kearney GRDI is preferred by most researchers developing problems of retail chains. Some authors [47] point to its originality.

#### 2.3. Top 50 Global Retailers' Presence Index (ITOP-50)

 $I_{TOP-50}$  is developed by us. The indicator is calculated as the share of global retail chains from the TOP-50 present in the country in the analysed period (1):

$$I_{i(TOP-50)} = \frac{K_{i(TOP-50)}}{100};$$
(1)

where:  $I_{i(TOP-50)}$  is the *TOP-50* Global Retail Chains' Presence Index in the country in the analysed period; *i* is the analysed period; *K<sub>i</sub>* is the number of global retail chains present in the country in the *i*-th period.

The analysis of Internet search queries concerning the presence of TOP-50 global retail chains helped to determine the number of global retail chains present in the Russian retail services market. In this study, we used annual reports by the National Retail Federation (NRF) on the global retailers ranking available at https://nrf.com/resources/top-retailers/ top-50-global-retailers/top-50-global-retailers-2020. NRF's methodology uses a system in which points are given to retailers based on the number of countries of presence; availability of a global license to franchise the name; availability of a global license to franchise the store name in the majority of countries where the franchise operates; ability to sell via online marketplaces and so on. The results are measured on a 100-point ranking scale. The use of the  $I_{TOP-50}$  reflects the fact that retail chains are the main drivers behind the global culture of retail services and customer services and factors of direct influence on consumption (buying) behaviours, accompanied by the development of a global sociocultural environment, and convergence of consumers' and buyers' behaviours. The input informed a comparative analysis of global retail chains' penetration in the distribution sector in the Russian Federation, influence on sociocultural perspectives of Russian consumers, buyers and society as a whole; it was also used for projecting the main directions of transformations in the retail sector in the context of globalisation.

#### 2.4. Correlation Analysis

The method of correlation analysis was used to establish the relation between quantitative and qualitative variables of the globalisation process and changes in the indicators of sociocultural perspective, socioeconomic processes, economic digitalisation, retail sector transformation, etc.

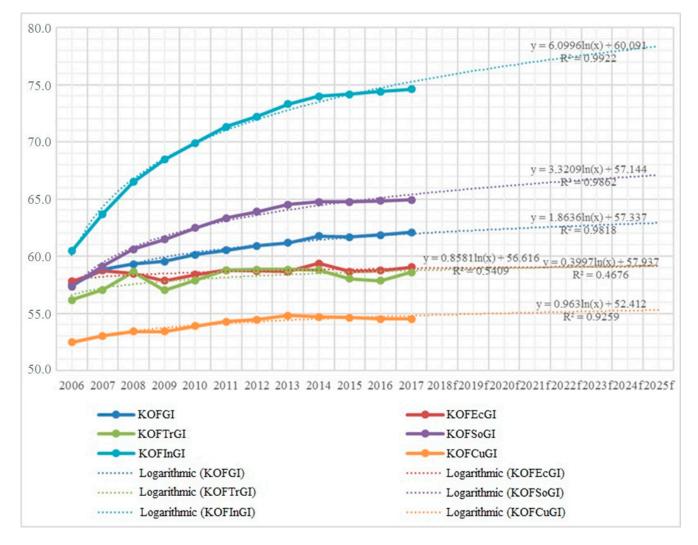
This study draws on evidence measuring the development of the information society and the course of socioeconomic, cultural, and other processes for the period from 2000 to 2019 available from public databases of the Russian Federal State Statistics Service (Rosstat) and the Russian Federal Service for Surveillance on Consumer Rights Protection and Human Wellbeing (Rospotrebnadzor) (Appendix A).

The choice of specific indicators that directly or indirectly reflect the quantitative and qualitative characteristics of social, cultural, economic, technological, innovative, information and communications, and other changes taking place in the Russian Federation is due to the fact that the dynamics of these processes are significantly influenced by global factors. The correlation analysis of the relationship between the dynamics of these indicators and global processes allows for forming a more objective idea of the dynamics, directions, and synchronicity of changes occurring in the Russian Federation under the influence of global factors. The expediency of using indicators is evidenced by the presence of a close direct or reverse correlation between the indicators of global processes, in particular, the dynamics of KOFGI and individual KOF subindexes. Table 1 lays out the analysis of the correlation between changes in the world's broader and information globalisation processes (KOFGI<sub>World</sub>, KOFInGI<sub>World</sub>) and the level of participation of the Russian Federation in the broader and information globalisation processes (KOFGI<sub>RF</sub>, KOFInGI<sub>RF</sub>), on the one hand, and changes in key indicators of the development of information society, socioeconomic, cultural, retail and other processes, on the other.

A clear close direct or inverse correlation between the indicators of globalisation under the KOF methodology and the main indicators of development of the information society, socioeconomic, cultural, trade, and other processes underscores the relevance of KOF indicators for analyses of development potential in specific areas of operation in the Russian Federation and particularly the directions of transformation in distribution.

#### 3. Calculations and Interpretation of Results

An analysis of the processes of economic, trade, social, cultural, and information globalisation exerting direct or indirect influence on buying and consumption behaviours indicates significant divergence from globalisation in general (Figure 1).



**Figure 1.** Social, cultural, and information globalisation as compared to overall globalisation (Sources: Developed by the authors based on data from ETH: http://globalization.kof.ethz.ch/query).

Figure 1 shows a slowdown in broader globalisation though the positive trend is maintained. The following main reasons for the slowdown of the process can be indicated:

- 1. The values of some KOF subindices of globalisation used in calculations of KOFGI are gradually approaching their limits and, accordingly, their globalisation potential and effect on the overall globalisation process is diminishing. Specifically, information globalisation has run a very fast course over the past decade and the KOFInGI subindex reached 74.6. Information globalisation affected other constituents of overall globalisation. This is underscored by the clear direct correlation between the KOFInGI subindex, on the one hand, and the KOFEcGI, KOFTrGI, KOFSoGI, and KOFCuGI subindices, on the other: R<sup>2</sup><sub>KOFGI/KOFInGI</sub> = 0.986; R<sup>2</sup> <sub>KOFEcGI/KOFInGI</sub> = 0.937; R<sup>2</sup> <sub>KOFTrGI/KOFInGI</sub> = 0.959; R<sup>2</sup> <sub>KOFSoGI/KOFInGI</sub> = 0.999; R<sup>2</sup> <sub>KOFCuGI/KOFInGI</sub> = 0.987. With that, the strongest correlation is observed between information globalisation and the processes of social and cultural globalisation. Accordingly, one can assume that information globalisation appeared as a major contributing driver in the development of the modern sociocultural environment and buying and consumption behaviours and can serve as a guide for the direction of transformation in the distribution sector.
- 2. Apart from objective factors, the slowdown in globalisation in the past years reflected the intent of some developed countries, specifically, the USA, to deter economic growth in developing countries by limiting their advance in the global economic space. This slowdown in globalisation and sometimes de-globalisation trends are obvious in the dynamics of the KOFEcGI and KOFTrGI subindices. The crisis of 2008 led to a weakening of economic and trade ties between countries. It caused not only a slowdown of overall globalisation but also some de-globalisation in certain areas. e.g., the KOFEcGI and KOFTrGI subindices showed a decline as of 2009: after one year of crisis, KOFEcGI fell to 57.9 in 2009 from 58.5 in 2008 and KOFTrGI declined to 57.0 from 58.6. We believe the slowdown in globalisation between 2015 and the present time results from the policy of developed countries to deter economic growth in developing countries.
- Cultural globalisation has not only slowed down compared to other constituents of overall globalisation but also demonstrated a decline over recent years: KOFCuGI declined to 54.5 in 2016 from 54.8 in 2013.

Overall globalisation will gradually become slower as it approaches its potential. The shift will be accompanied by changes in the structure of factors determining the pace of globalisation processes. Accordingly, the process of convergence of buying and consumption behaviours will continue. However, this convergence of buying and consumption behaviours will be probably uneven in intensity, given the checkered globalisation profile between regions and continents. This is why comparative analyses of globalisation are better conducted for continents and regions separately. Changes were determined for the KOFGI index, as well as KOFEcGI, KOFTrGI, KOFSoGI, KOFInGI, and KOFCuGI subindices for the period from 1990 to 2017 (Table 2).

| Table 2. Comparative ana | lysis of globa | alisation process | intensity by   | v continents and   | regions   |
|--------------------------|----------------|-------------------|----------------|--------------------|-----------|
| iubic 2. Comparative ana | 19515 01 81000 | insution process  | incentionly by | , continientes una | 10610110. |

|                              | KOFGI | KOFEcGI | KOFTrGI | KOFSoGI | KOFInGI | KOFCuGI |
|------------------------------|-------|---------|---------|---------|---------|---------|
| East Asia and Pacific        | 1.46  | 1.32    | 1.31    | 1.50    | 1.97    | 1.20    |
| Europe and Central Asia      | 1.27  | 1.30    | 1.36    | 1.19    | 1.33    | 1.07    |
| Latin America and Caribbean  | 1.39  | 1.34    | 1.43    | 1.42    | 1.76    | 1.17    |
| Middle East and North Africa | 1.41  | 1.22    | 1.25    | 1.54    | 1.87    | 1.47    |
| North America                | 1.16  | 1.21    | 1.13    | 1.13    | 1.21    | 1.02    |
| South Asia                   | 1.65  | 1.31    | 1.37    | 2.45    | 3.31    | 1.82    |
| Sub-Saharan Africa           | 1.50  | 1.20    | 1.20    | 1.84    | 2.59    | 1.39    |

The calculations (Table 2) show that globalisation processes are uneven: the regions with developed economies and advanced technology environment have seen a slowing down globalisation trend compared to regions with developing or underdeveloped economies and technology environment. In particular, greater changes of the KOFGI index and KOFEcGI, KOFTrGI, KOFSoGI, KOFInGI, and KOFCuGI subindices are observed in South Asia compared to Europe and Central Asia or North America. The most likely reason is the unrealised potential of globalisation in developing and underdeveloped regions and, on the contrary, nearly reached the potential of globalisation in developed regions. These specifics should be taken into account in analyses of the marketing environment and potential directions of the transformation of the distribution sector.

Globalisation is checkered not only in the regional but also in the temporal aspect (Table 3).

|  | KOFGI | KOFEcGI | KOFTrGI | KOFSoGI | KOFInGI | KOFCuGI |
|--|-------|---------|---------|---------|---------|---------|
| World-2008/1997                        | 1.20  | 1.16    | 1.19    | 1.26    | 1.40    | 1.14    |
| World-2017/2008                        | 1.05  | 1.01    | 1.00    | 1.07    | 1.12    | 1.02    |
| East Asia and Pacific-2008/1997        | 1.18  | 1.14    | 1.15    | 1.22    | 1.39    | 1.10    |
| East Asia and Pacific-2017/2008        | 1.08  | 1.04    | 1.02    | 1.08    | 1.11    | 1.03    |
| Europe and Central Asia-2008/1997      | 1.18  | 1.16    | 1.14    | 1.19    | 1.27    | 1.12    |
| Europe and Central Asia-2017/2008      | 1.03  | 1.03    | 1.06    | 1.04    | 1.06    | 1.02    |
| Latin America and Caribbean-2008/1997  | 1.18  | 1.21    | 1.34    | 1.22    | 1.35    | 1.07    |
| Latin America and Caribbean-2017/2008  | 1.03  | 0.99    | 0.97    | 1.04    | 1.08    | 0.99    |
| Middle East and North Africa-2008/1997 | 1.24  | 1.20    | 1.27    | 1.30    | 1.48    | 1.21    |
| Middle East and North Africa-2017/2008 | 1.02  | 0.95    | 0.93    | 1.08    | 1.14    | 1.06    |
| North America-2008/1997                | 1.05  | 1.03    | 0.99    | 1.09    | 1.13    | 1.05    |
| North America-2017/2008                | 1.01  | 1.04    | 1.04    | 1.00    | 1.01    | 0.96    |
| South Asia-2008/1997                   | 1.33  | 1.21    | 1.26    | 1.81    | 2.02    | 1.68    |
| South Asia-2017/2008                   | 1.07  | 0.95    | 0.95    | 1.17    | 1.23    | 1.06    |
| Sub-Saharan Africa-2008/1997           | 1.25  | 1.09    | 1.16    | 1.48    | 1.77    | 1.23    |
| Sub-Saharan Africa-2017/2008           | 1.07  | 1.02    | 0.96    | 1.15    | 1.28    | 1.02    |

Table 3. Changes in globalisation processes from 1997 to 2017.

An analysis of changes in the KOFGI index and KOF subindices (Table 3) indicates that the rates of globalisation have been different in specific regions in different periods. In particular, the decade from 1997 to 2008 was marked by stronger changes in the KOFGI index and the KOFEcGI, KOFTrGI, KOFSoGI, KOFInGI, and KOFCuGI subindices in the world and individual regions compared to the next decade (from 2008 to 2017). This lends evidence that globalisation is slowing down as it approaches its potential. Accordingly, the expectation is for a decline in the rate of change with an accompanying convergence in buying and consumption behaviours.

A feature of the modern world is the development of ICT that has emerged as not only a driver of information globalisation but also a major factor of globalisation in general. A comparison is drawn for information globalisation in the world, Europe, and Russia (Figure 2).

The findings show that the process of information globalisation will continue on the global scale, in Russia, and somewhere on the regional scale (Figure 2). Meanwhile, information globalisation in Russia is more in sync with North America (R = 0.99) and Europe and Central Asia ( $R^2 = 0.98$ ), rather than World ( $R^2 = 0.96$ ), the Middle East and North Africa ( $R^2 = 0.96$ ) or South Asia ( $R^2 = 0.96$ ).

Similar to information globalisation, the process of social globalisation in Russia also shows a positive trend and is in sync with World ( $R^2 = 0.99$ ), Europe and Central Asia ( $R^2 = 0.99$ ) and the Middle East and North Africa ( $R^2 = 0.99$ ).

A special focus in studies of buying and consumption behaviours is the process of cultural globalisation, making a more solid platform of their convergence. Many countries in Europe and North America being the cultural beacon of cultural globalisation command high values in KOFCuGI (Figure 3).

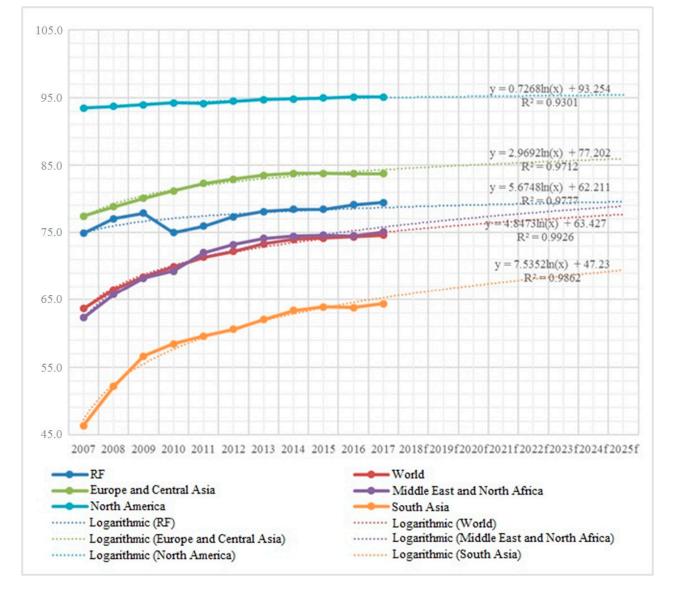


Figure 2. Information globalisation in Russia, on the global scale, by regions and sociocultural communities globally.

Moreover, the process of cultural globalisation in these countries has reached such an advanced level that the conclusion can be made concerning the convergence of buying and consumption behaviours in a considerable portion of the world with the highest economic potential. Accordingly, there is no expectation of a significant shift of buying and consumption behaviours in these countries under the influence of further globalisation in other countries.

In other cultures, the level of cultural globalisation is not only much lower but is also advancing at a low rate. In particular, amid rather fast information globalisation, cultural globalisation is much slower in such countries (Table 4).

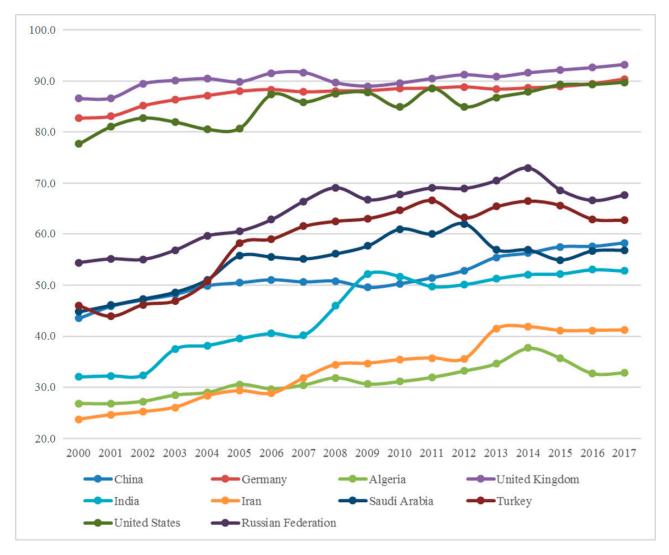


Figure 3. Cultural globalisation processes.

| Country        | KOFGI | KOFInGI | KOFCuGI |
|----------------|-------|---------|---------|
| Brazil         | 1.2   | 1.5     | 1.3     |
| China          | 1.2   | 1.8     | 1.3     |
| Germany        | 1.0   | 1.1     | 1.1     |
| Algeria        | 1.2   | 2.3     | 1.2     |
| France         | 1.0   | 1.2     | 1.1     |
| United Kingdom | 1.0   | 1.1     | 1.1     |
| India          | 1.3   | 2.0     | 1.6     |
| Iran           | 1.4   | 2.4     | 1.7     |
| Japan          | 1.2   | 1.2     | 1.2     |
| Saudi Arabia   | 1.2   | 1.7     | 1.3     |
| Turkey         | 1.1   | 1.3     | 1.4     |
| United States  | 1.1   | 1.2     | 1.2     |
| World          | 1.2   | 1.4     | 1.1     |

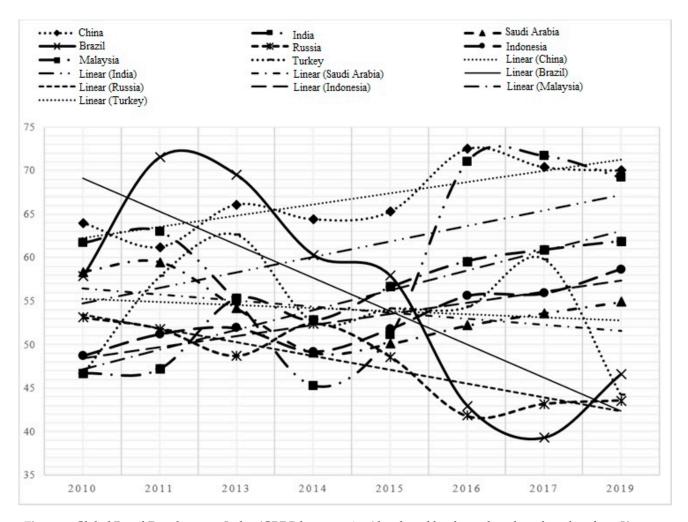
**Table 4.** Change of the KOFGI index and KOFInGI and KOFCuGI subindices in specific countries with different cultural traditions between 2000 to 2017.

E.g., in Algeria, KOFInGI increased 2.3 times over the period from 2000 to 2017 and KOFCuGI 1.2 times over the same period. Similar trends are observed in Iran, China, and other countries.

retail organisations. Comparative correlation analysis of cultural globalisation in the context of global and regional trends underscores a more synchronised course of cultural globalisation in the Russian Federation with Europe and Central Asia ( $R^2 = 0.91$ ) rather than with World ( $R^2 = 0.89$ ), the Middle East and North Africa ( $R^2 = 0.78$ ) or South Asia ( $R^2 = 87$ ).

Given that retail operations exert significant influence on economic, social, and trade globalisation and (specifically) shifts in buying and consumption behaviours, a comparative analysis was conducted for processes of global retailers' penetration in various national markets, including the Russian Federation.

The analysis shows (Figure 4) that diverging trends are observed in developing countries in terms of attractiveness for retail chain development. E.g., changes in GRDI follow positive trends in China, India, Malaysia, and Indonesia. The potential of global retailers' market penetration in these countries could facilitate faster trade globalisation not only in these countries but across the globe. For now, major shifts are observed in these countries in terms of buying and consumption behaviours, leading to their further intensified convergence.

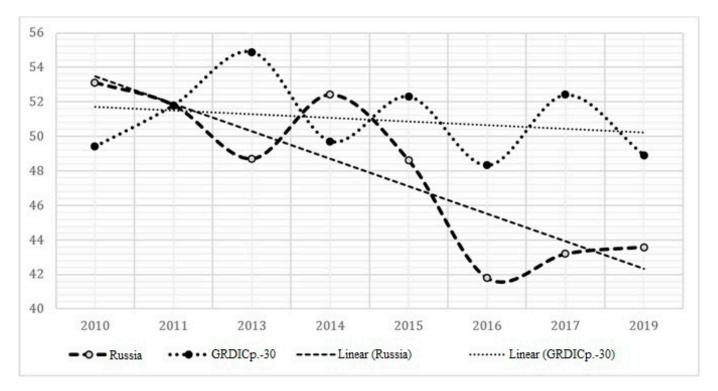


**Figure 4.** Global Retail Development Index (GRDI) by countries (developed by the authors based on data from Kearney Global Retail Development Index: https://www.kearney.com/global-retail-development-index).

In Russia and Brazil, on the contrary, the country attractiveness profiles for further advance of global retail chains have been declining. This adds to evidence that global retailers are gradually exhausting their potential as a factor of convergence of buying and consumption behaviours. These countries have nearly reached developed countries by the level of penetration of global retail chains and, accordingly, in terms of convergence of buying and consumption behaviours.

However, in contrast to developed countries, these countries see intensifying rivalry not only among national retail chains competing with each other but also among global chains competing with each other and national chains.

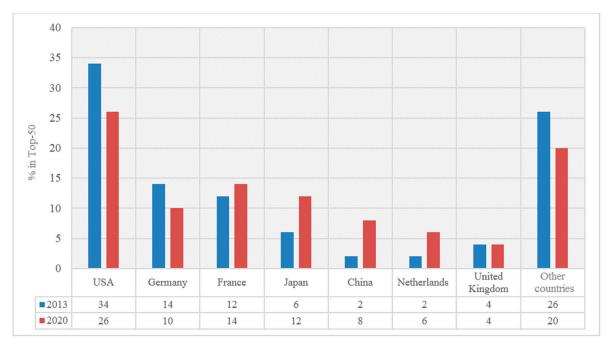
A comparative analysis of Russia's attractiveness profile vs. average values of GRDI for 30 countries included in the assessment of attractiveness for retail chain development indicates higher rates of deterioration in the Russian Federation in terms of attractiveness for further advance of global retail chains (Figure 5).

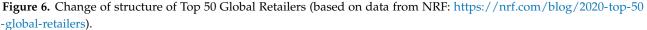


**Figure 5.** GRDI for Russia vs. average GRDI for 30 countries included in the assessment of attractiveness for retail chain development (developed by the authors based on data from A. T. Kearney Global Retail Development Index: https://www.kearney.com/global-retail-development-index).

An analysis of the presence of Top 50 Global Retailers indicated that more than 50% of them had operations in Russia as of 2020. Moreover, considerable changes are observed in the structure of global retail chains by the country of origin (Figure 6).

The findings (Figure 6) underscore considerable changes in the structure of Top 50 Global Retailers. Specifically, a certain transition occurs toward a greater presence of global chains from the Asian region.





#### 4. Discussion

#### 4.1. Retail Transformation, Digitalisation, Technology Development, and Globalisation

The cumulative takeaway from several works [7–11] invites a conclusion that globalisation facilitates convergence between societies and development of human values, it transforms social structures and causes behavioural shifts. In this study, correlation analysis is used (Table 1) to show a clear dependence of social, cultural, economic, trade, information, and other processes in the Russian Federation on globalisation on the global scale. The findings highlight the potential to use certain globalisation-related phenomena as indicators of change not only in human behaviour but also in the convergence of Russian buying and consumption behaviours, which will predetermine the main directions of transformation in the distribution sphere.

The analysis of specific indicators of globalisation development (Figure 1) allows a conclusion that information globalisation has become, and is expected to remain, one of the main drivers in the development of the modern sociocultural environment and buying and consumption behaviours, as well as guidance in determining the directions of the transformation of the global economy in general and the distribution sphere in particular. It is shown that overall globalisation will gradually become slower as it approaches its potential. However, the structure of factors affecting the rate of globalisation is subject to change, accompanied by intensified convergence of buying and consumption behaviours.

The uneven profile of globalisation by continents, regions, and countries (Table 2) in various periods (Table 3) causes the different intensity of the convergence of buying and consumption behaviours in them. Accordingly, these aspects should be taken into account in the development of transformation strategies, specifically in the distribution sphere. That said, regions with developed economies and technology environment have seen a slowing down globalisation trend, while changes in buying and consumption behaviours have been less uncertain, more aligned and predictable there, and, accordingly, the directions of economic transformation results in weaker strategic efficiency of companies which traditionally relied on the ability to predict the main directions of changes in the global marketing environment accompanied by more or less adequate changes in buying and

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consumption behaviours. Accordingly, transformations in the distribution industry in the context of such convergence of behaviours would require more intense marketing efforts.

Regions with developing or underdeveloped economies and weaker technology environment have seen accelerating globalisation trends, while changes in buying and consumption behaviours have been more dynamic, less aligned, and hardly predictable; therefore, the directions of economic transformation in the distribution sphere are not obvious. Accordingly, companies can rely on their ability to predict changes in buying and consumption trends to improve competitiveness. Given the similarity of factors driving globalisation in all regions across the globe, the convergence of consumption behaviours will correspond to the type of the first group of regions where the Euro-Atlantic behavioural pattern is prevalent.

A comparative analysis of the participation of the Russian Federation in globalisation (Figures 2 and 3, Table 4) indicated a high degree of synchronisation of information, social and cultural globalisation in Russia and Europe and Central Asia. This underscores that the convergence of buying and consumption behaviours in the Russian Federation corresponds to the Euro-Atlantic type.

The expected potential of the convergence of buying and consumption behaviours will significantly influence operations in the distribution sphere, which will particularly result in the adequate alignment of product range structure and intensified competition between retailers. Intensified competition is caused by the fact that retailers that used to gain advantages via product range attractiveness are now pressured in the context of a single marketing environment to adapt their range to the requirements of the converging buying and consumption behaviours. This would result in retailers building product ranges that would be perceived by consumers as completely similar to those of their competitors. Accordingly, retailers would have to pursue competitive advantages by exerting extra effort into using other competitive tools, such as price, service quality, point of sale, market share expansion, international market access, introduction of new formats, etc. Besides, the intensified competition will accelerate the pace of mergers and acquisitions and consolidation in the retail services market.

The number of global retail chains in the Russian Federation has reached a level where the market starts to lose its attractiveness (Figures 4 and 5). These chains were not only driving the convergence of buying and consumption behaviours in Russia but also engaged national retail chains in the process, where the latter would actively adapt their approaches to setting up retail operations in the current market context. Moreover, the high share of the presence of the biggest transnational retailers from the USA and Europe (Figure 6) is a clear sign that the convergence of buying and consumption behaviours in the Russian Federation corresponds to the Euro-Atlantic type. The transition of Top 50 Global Retailers (Figure 6) toward a greater presence of global chains from the Asian region will not significantly affect the overall trend toward the convergence of buying and consumption behaviours in Russia in line with the Euro-Atlantic type. Arguably, it reflects the tendency of many Asian companies to shape their product ranges and sales services in accordance with the Euro-Atlantic standards. Therefore, the convergence of buying and consumption behaviours in line with the Euro-Atlantic type remains a key direction in retail and behaviours in Russia.

#### 4.2. Open Innovation with Retail Transformation by Digitalisation

The digitalisation of national retail chains in the Russian Federation is taking place against the background of a decline in innovation activity and a reduction in spending on innovation activities. According to Rosstat, the coefficient of innovation activity of organizations in the circulation sphere of goods fell from 3.5 in 2014 to 2.6 by the beginning of 2021. The Global Innovation Index (GII) (developed jointly by the Cornell University, the Business School for the World INSEAD, and the World Intellectual Property Organization (WIPO)), the share of organizations engaged in innovative activities also has a negative trend and is significantly lower compared with advanced economies and China. In 2019,

the GII in the Russian Federation was about 38%, the USA—62%, Germany—60%, and China—55% with the highest growth rates in the world) (https://www.wipo.int/edocs/pubdocs/en/wipo\_pub\_gii\_2019.pdf). However, the digitalisation of retail chains has a positive trend. This situation is due to the high rate of involvement of the Russian Federation in the process of general, economic, information, and trade globalisation, which provides retail chains with penetration into the field of open innovations. As a result of this, national retail chains not only gain access to innovative technologies but can also increase the effectiveness of their investment and innovative digitalisation programs using open innovation models.

Globalisation, first of all, trade and information, is accelerated by the interpenetration of retail chains. As a result of the formation of global information and communications networks, favourable conditions are created for cooperation between various participants and, as a consequence, the formation of an open innovation environment. According to J. Guinet and D. Meissner [48], in modern conditions, classical approaches to joint research and development are moving into innovative processes that become more distributed, continuous, multidisciplinary, cross-border, and interinstitutional, creating conditions for the development of open innovation.

Based on this, the involvement of the Russian Federation in information and trade globalisation creates a favorable environment for open innovation for the transformation of Russian retail chains into new formats based on the digitalisation of activities. The greatest benefit from the cooperation of efforts with transnational retail chains to transform into an open innovation space on common digital platforms and digitalisation of activities are received by the national retail chains of countries with developing economies, to which the Russian economy belongs.

However, the open innovation process needs to synchronize the innovation strategies of national retail chains and their external partners. According to M. Caetano and D.C. Amaral [49], the paradigm of open innovation includes a model that is implemented in three stages: defining markets, choosing partners, and implementing an innovation plan. However, in the context of the digitalisation of the economy and activities of retail companies, it becomes necessary to define digital platforms through which access to online market segments will be realized. Russian retail chains, when deciding to implement the paradigm of open innovation, should not abandon the use of closed innovation. Many leaders in the circulation sphere, as a rule, use a hybrid approach to innovation. Concerning certain types of activities, markets, partners, etc. they use a closed innovation model while concerning others, they use an open innovation model. When choosing a model of innovation, retail companies should proceed from the fact that the model of open innovation will be most effective in relation to those products, markets, technologies, etc., innovative business models will be used:

- an innovation process directed from the outside into the company;
- an innovative process aimed at the external environment;
- combined innovation process; knowledge and innovation move in both directions.

Most national retail chains are aware of the feasibility of focusing on Schumpeter's new combined business model, but their limited experience and weak innovation creation competencies do not allow them to create a complete open innovation funnel and go beyond the closed innovation model. Russian national chains can cooperate with more experienced multinational retail companies with the necessary knowledge (competencies) and innovative potential to overcome this situation.

The rapid pace of change in the global business environment necessitates conformity between open innovation companies and business models, which should ensure the development of new products with a given value and the required speed. In particular, N.N. Bek and L.R. Gadzhaeva [50] argue that in the context of digitalisation, it is important to understand the impact of digital technologies on open innovative business models and their openness. They identify the following parameters of innovative business models based on the principles of big data: volume, speed, and diversity. Consequently, the creation of open innovative business models by Russian national retail chains can compensate for the lack of experience and knowledge necessary for the digitalisation of the economy.

When creating a business model, companies should be aware of the fact that as the company develops on the principles underlying it, considering the factors at the time of its development, etc., they will change. When developing a business model for entrepreneurial activity, it is advisable to rely on the model of the innovation cycle, which is based on the "big cycles of the market situation" by N.D. Kondratyev and the "cyclical innovation model" by J. Schumpeter. The researchers prove that having undergone several changes, the model of the innovation cycle remains relevant in the conditions of digitalisation and globalisation of the world economy. Nevertheless, the innovation cycle model is considered a basic model of the dynamics and organization of innovation activity and a set of stages of a company's life cycle, its projects, developments, and products [51].

Digital transformation contributes to the development of a converged infrastructure that increases the efficiency of IT management in retail chains by centralizing the management of various functions and devices, transferring and dynamically distributing different types of traffic in one stream, flexible response to changes in the market and business priorities, effective scaling of storage networks, etc. Experts at Enterprise Strategy Group highlight the following advantages for deploying converged solutions: simplifying company management, accelerating infrastructure deployment, reducing capital costs, reducing operating costs, simplifying vendor relationship management, solving interoperability issues, etc. However, at this stage, Russian retail chains are not able to independently deploy a full-fledged converged infrastructure. Therefore, to solve this problem, they must more actively transform into an open innovation space.

#### 4.3. Cooperative Value Creation, Sharing Economy

One effective way to take advantage of open innovation business models is value co-creation, which involves the creation of products, services, or systems by the collaborative efforts of developers and stakeholders. To link the industry structure to open innovation, participants interested in creating shared value often form a consortia. Most often, this method of using the potential of business models with open innovations is used in the implementation of technologically complex projects. The experience of creating pharmaceutical consortia is positive. In particular, the Russian Federation has created the Medical Technology Consortium which unites three industry structures "Association of Developers, Manufacturers, and Users of Medical Equipment", "Association of Manufacturers and Suppliers of Medicines, Medical Devices, and Equipment", and "Association of Organizations of the Military-Industrial Complex of Manufacturers of Medical Devices and Equipment". The consortium aims to create conditions for the scientific and technological development of the medical industry, the introduction of new technologies for the development, production, and use of high-tech and innovative medical devices, training specialized medical personnel with narrow-profile competencies, etc. The creation of a consortium of large retail companies together with IT companies, educational institutions, transport companies, and other market participants ensures cross-industry interaction in the context of the development of e-commerce.

Another mechanism that can provide Russian national retail companies with the transformation into a space of open innovation in the context of globalisation, the formation of information and communications networks, and the development of digital technologies can be the distributed economy, which is considered synonymous with sharing economy. Yu.L. Saginov et al. [52] define the distributed economy as economic relations between individuals and (or) organizations regarding the provision of access and sharing of assets and resources, as a rule, provided with ICT and allowing for rational use and allocation of investments, resources, human capital, and other assets to support harmonious and sustainable development. The development of the distributed economy is influenced by global technological transformations that have contributed to the emergence of sharing

services and the development of new business models with open innovations. An example of the successful use of intersectoral interaction in the Russian Federation is car sharing, the development of which became possible due to the development of information and communications networks and digital platforms.

The C2C segment of the consumer market is formed based on the principles of the sharing economy. The C2C segment is becoming one of the main directions of the transformation of small, micro, and family enterprises and the self-employed population from the offline space to the online space of common digital platforms. This provides them with flexibility and access to global markets and increases their competitiveness.

#### 5. Conclusions

The obtained results allow concluding that significant changes are taking place in the Russian Federation under the influence of globalisation, factors of the information and communications environment, and the development of digital technologies.

Changes in the global environment lead to changes in the sociocultural environment, which are expressed in the unification of the behaviour of Russian consumers and buyers according to the Euro-Atlantic type. It is becoming a shaping factor in determining the directions of development and transformation of the activities of companies in the circulation sphere.

A certain information and communication environment is being formed in the Russian Federation and digital technologies are developing too, which contributes to the transformation of the circulation sphere into a global market space. However, the shaping factor in the transformation of the economy as a whole and the circulation sphere, in particular, is the involvement of the Russian Federation in the process of general, economic, trade, sociocultural, and information globalisation. However, the processes of information and trade globalisation are of particular importance. The development of a global information and communications environment helps companies in the circulation sector to successfully compensate for weak innovation activity within the country and develop business models with open innovation. To a large extent, the process of trade globalization occurs through the penetration of multinational trading companies from Europe and North America into the Russian market of trade services. This has had a positive impact on the formation of a modern innovation environment in the country and is a shaping factor in the unification of consumer and buyer behaviour according to the Euro-Atlantic type.

However, no single study could address all factors driving Russian buying and consumption behaviours in the context of globalisation, advance of the Internet and the digital economy, emergence of neuromorphic technologies and other rapid changes. Besides, the vast territorial expanse and geographic position between East and West, ethnic and cultural diversity, uneven regional socioeconomic profile and other distinctive patterns warrant more profound research into the shifts occurring in buying and consumption behaviours as a fundamental factor determining the directions of transformation and sustainable development of the distribution sphere.

The results can be used by theorists in the development of methodological approaches to the study of the circulation sphere in countries with developing economies, as well as researchers of consumer and buyer behaviour in the context of the globalisation of the world economy. They can be used by practitioners in determining the directions of the transformation of companies in the circulation sphere, considering the changes taking place under the influence of global processes and the development of the innovation environment based on the development of digital technologies. They can also be useful for market participants in the circulation sphere when developing business models based on open innovations.

**Author Contributions:** All authors contributed equally. All authors have read and agreed to the published version of the manuscript.

**Funding:** The paper was prepared in accordance with public assignment FSSW-2020-0009 of the Ministry of Science and Higher Education of the Russian Federation "Development of a Methodology for Managing Competitiveness in Distribution in the Context of Digital Economy".

Data Availability Statement: The data are available on request from the corresponding author.

**Conflicts of Interest:** The authors declare no conflict of interest.

#### Appendix A

**Table A1.** Indicators and primary data sources on the formation of the information society and the development of socioeconomic and cultural processes and the circulation sphere in the Russian Federation.

| Indicators  | Sources   |
|---|---|
| 1. Average per capita disposable household resources in the Russian Federation  | https://rosstat.gov.ru/folder/13397   |
| 2. Share of population with average money income below the threshold set based on the actual money income levels (per capita, median and modal) | https://rosstat.gov.ru/free_doc/new_site/<br>population/bednost/tabl/tab-bed2-7.htm         |
| 3. Employment in the Russian Federation in the age<br>bracket between 15 and 72   | https://rosstat.gov.ru/labour_force   |
| 4. Unemployment in the age bracket between 15 and 72  | https://rosstat.gov.ru/labour_force   |
| 5. Labour productivity indices in the Russian economy   | https://rosstat.gov.ru/folder/11186;  |
| 6. Increase in high productivity jobs in the Russian Federation   | https://rosstat.gov.ru/folder/11186;  |
| 7. Share of population using the Internet to order goods and (or) services as a percentage of the total population, %                           | https://rosstat.gov.ru/folder/14478   |
| 8. Environmental spending in the Russian Federation   | https://rosstat.gov.ru/folder/11194   |
| 9. Outbound tourism, thousands  | https://rosstat.gov.ru/folder/23457   |
| 10. Migration activity  | https://rosstat.gov.ru/folder/12781   |
| 11. Per capita volume of paid cultural services   | https://rosstat.gov.ru/bgd/regl/b19_78/main.htm   |
| 12. Per capita volume of paid healthcare services   | https://rosstat.gov.ru/bgd/regl/b19_78/main.htm   |
| 13. Volume of tourism services, million rubles  | https://rosstat.gov.ru/folder/23457;  |
| 14. Share of products compliant with quality and safety standards   | https://rosstat.gov.ru/folder/23457; http:<br>//zpp.rospotrebnadzor.ru/badproducts/results; |
| 15. Relative weight of retail chains in the retail turnover of food products  | https:<br>//rosstat.gov.ru/folder/210/document/13233.                                       |

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