

# Information and communication technologies as a means of increasing effectiveness of marketing and logistics of cluster

## Tecnologías de la información y la comunicación como un medio para aumentar efectividad del marketing y la logística del clúster

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#### ABSTRACT:

The purpose of the work is to substantiate the perspectives of using the ICT as a means of increasing the effectiveness of marketing and logistics of cluster by the example of modern Russia. The work uses the method of statistical analysis. The information and analytical basis includes the materials of the Ministry of Communications and Mass Media of the RF, the Federal State Statistics Service, and National Research University "Higher School of Economics", and the Russian Cluster Observatory. As a result, it is concluded that Russian entrepreneurial structures and clusters use the information and communication technologies insufficiently, and apply them in marketing and logistics only in very rare cases. However, this direction of usage of new ICT by a modern cluster is one of the most perspective ones, as it allows achieving such advantages in marketing and logistics of cluster as access to possibilities and mass promotion of participants' products and cluster's brand with minimum fixed expenditures (with the help of Internet marketing in social networks, search engines, etc.), optimization of logistics, which allows accelerating supplies and sales within the cluster and outside it with reduction of their cost (with the latest software means in the sphere of logistics), and establishment of closer relations with intermediaries for concluding agreements on supplies and sales on more profitable terms (with the help of Internet marketing of interrelations). The achieved increase of effectiveness of marketing and logistics of cluster due to usage of the ICT will ensure intensification of clusters' development in modern Russia, which will pass from the initial stage to the stage of medium and high development and will lead to restoration of interest to clustering and growth of the number of implemented cluster initiatives in entrepreneurship. That is, successful practical implementation of cluster direction of the Concept of long-term socio-economic development of the Russian Federation until 2020 will be provided.

**Keywords:** information and communication technologies, effectiveness, marketing, logistics, cluster, modern Russia.

#### RESUMEN:

El propósito del trabajo es justificar las perspectivas del uso de las TIC como un medio para aumentar la efectividad del marketing y la logística del clúster con el ejemplo de la Rusia moderna. El trabajo utiliza el método de análisis estadístico. La información y la base analítica incluyen los materiales del Ministerio de Comunicaciones y Medios de Comunicación de la RF, el Servicio de Estadísticas del Estado Federal, la "Escuela Superior de Economía" de la Universidad Nacional de Investigación y el Observatorio del Clúster de Rusia. Como resultado, se concluye que las estructuras empresariales y los clusters rusos utilizan las tecnologías de la información y la comunicación de manera insuficiente, y las aplican en marketing y logística solo en casos muy raros. Sin embargo, esta dirección de uso de las nuevas TIC por parte de un clúster moderno es una de las más prospectivas, ya que permite lograr tales ventajas en el marketing y la logística del clúster, como el acceso a las posibilidades y la promoción masiva de los productos de los participantes y la marca del clúster con un mínimo fijo. gastos (con la ayuda del marketing en Internet en redes sociales, motores de búsqueda, etc.), optimización de la logística, que permite acelerar los suministros y las ventas dentro del clúster y fuera de él con la reducción de su costo (con los últimos medios de software en el ámbito de logística), y el establecimiento de relaciones más estrechas con intermediarios para concluir acuerdos sobre suministros y ventas en términos más rentables (con la ayuda de la comercialización en Internet de interrelaciones). El aumento logrado de la efectividad del mercadeo y la logística del cluster debido al uso de las TIC asegurará la intensificación del desarrollo de clusters en la Rusia moderna, que pasará de la etapa inicial a la etapa de desarrollo medio y alto y llevará a la restauración del interés a la agrupación y al crecimiento del número de iniciativas de clusters implementadas en el espíritu empresarial. Es decir, se proporcionará una implementación práctica exitosa de la dirección de grupo del Concepto de desarrollo socioeconómico a largo plazo de la Federación de Rusia hasta 2020.

**Palabras clave:** tecnologías de la información y la comunicación, efectividad, marketing, logística, clúster, Rusia moderna.

# 1. Introduction

Modern economic systems are peculiar for the tendency of clustering, which is supported at the state level, as it has an important national economic value. In the conditions of instability of the global economic system, in which the decades of sustainable development on the basis of globalization in early 21st century were followed by the global crisis and disintegration of economies, preservation of positions of domestic entrepreneurship is threatened. This problem could be solved only with the help of clustering.

In Russia, clustering is viewed only as a means of provision of well-balanced development of the national economic system, with the help of which disproportions are levels in the level and rate of socio-economic development of regions in the country. The Concept of long-term socio-economic development the Russian Federation until 2020, creation of a network of territorial and production clusters is proclaimed as one of six directions of transition to innovational and socially oriented type of economic development (Government of the RF, 2018). This emphasizes priority of clustering for the Russian economic system.

Due to this, actuality of studying economic clusters and processes of clustering of modern economic systems and the search for means of development and optimization of these processes grows. The article offers a hypothesis that marketing and logistics play an important role in development of clusters in modern Russia, and growth of activity and expansion of spheres of application of information and communication technologies (ICT) will allow increasing the effectiveness of marketing and logistics of Russian clusters, this ensuring their more successful functioning and more intensive development.

The purpose of the work is to substantiate the perspectives of using the ICT as a means of increasing the effectiveness of marketing and logistics of cluster by the example of modern Russia.

## 2. Materials and method

As a result of the overview of the R&D literature on the selected topic, it was determined that the role of marketing and logistics in functioning and development of a modern cluster is studied in the works (Albekov et al., 2017), (Ostrovskaya et al., 2017), (Ostrovskiy et al., 2017), (Popkova et al., 2017), (Pozdnyakova et al., 2017), and (Shi, 2015).

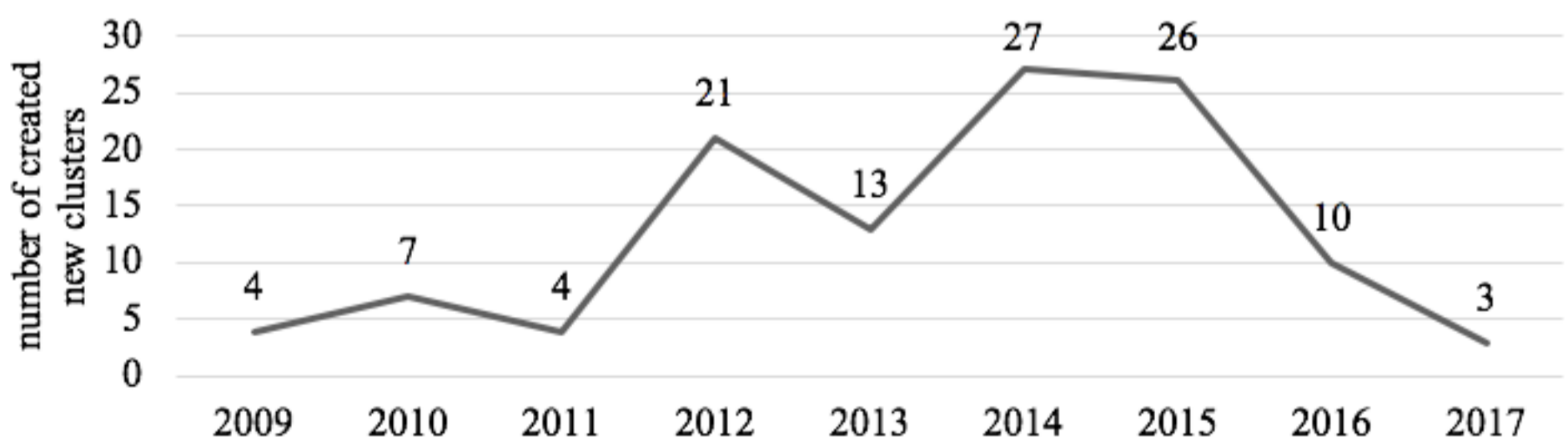
The necessity for application of the ICT by modern entrepreneurial structures is emphasized in multiple works of various authors, who offer perspective directions of using them for increase of effectiveness of business processes. They include the works of such researchers as (Bogoviz et al., 2017), (Ozcan, 2018), and (Saleem et al., 2017).

At the same time, the issues of application of the ICT for increasing the effectiveness of marketing and logistics in the aspect of economic cluster are not sufficiently studied in the existing publications. The methods of statistical analysis are used for this purpose in this article. The information and analytical basis includes the materials of the Ministry of Communications and Mass Media of the RF, the Federal State Statistics Service, and National Research University "Higher School of Economics", and the Russian Cluster Observatory.

## 3. Results

As a result of complex study of statistics of development of cluster processes in modern Russia, we determined that cluster activity is peculiar for instable dynamics (Figure 1), and clustering of the Russian economy is conducted very slowly, being at the initial stage of formation (Figure 2).

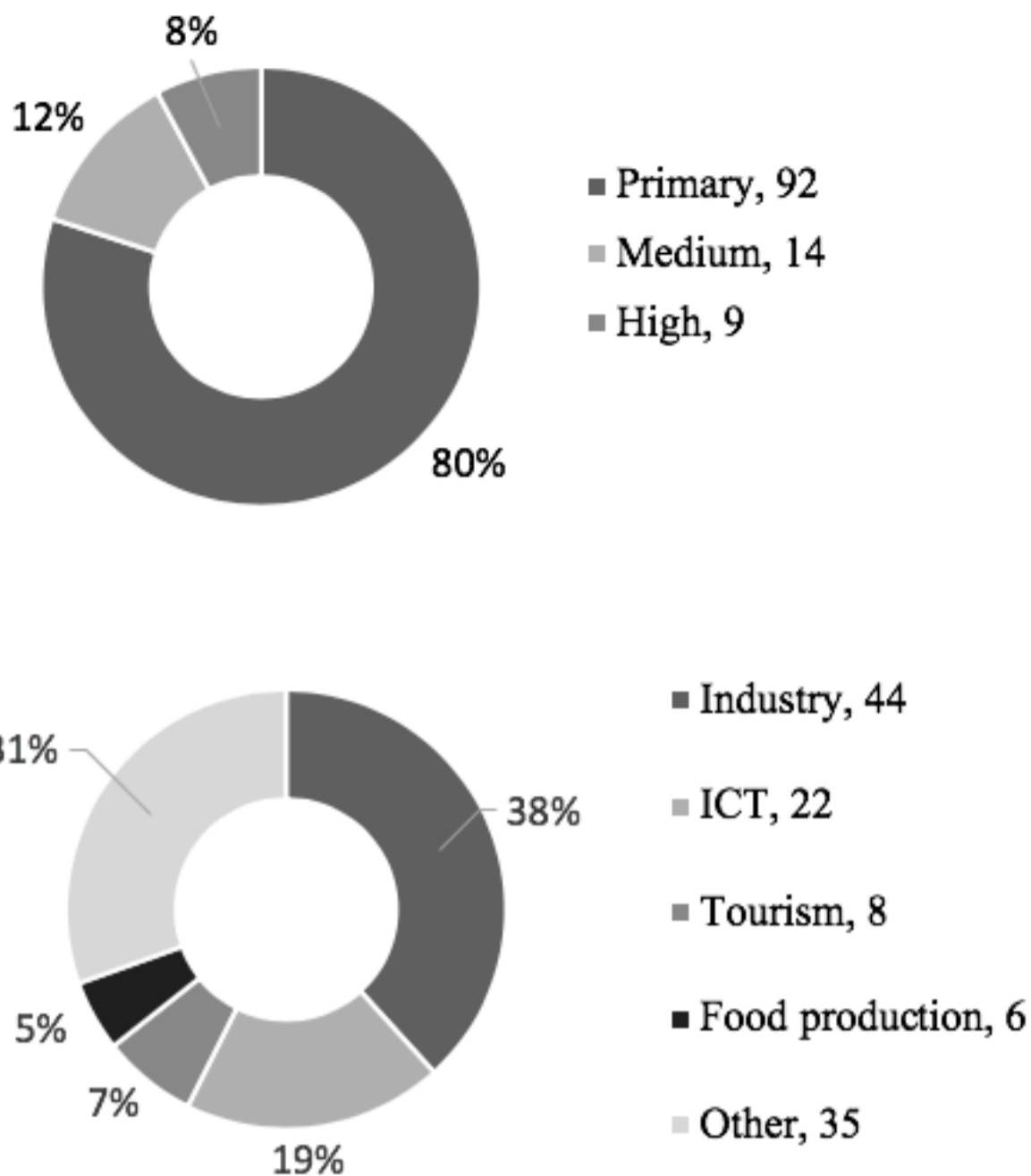
**Figure 1**  
Dynamics of the number of created new clusters in Russia in 2009-2017



Source: compiled by the authors based on:  
(Russian Cluster Observatory, 2018).

As is seen from Figure 1, the peak of cluster activity in economy of modern Russia was in 2014-2015. 46% (53) new clusters of the total number for 2009-2017 were created. In 2017, the number of created new clusters in Russia dropped to 3, which is lower than the 2009 level.

**Figure 2**  
Structure of existing clusters in Russia as to the level of



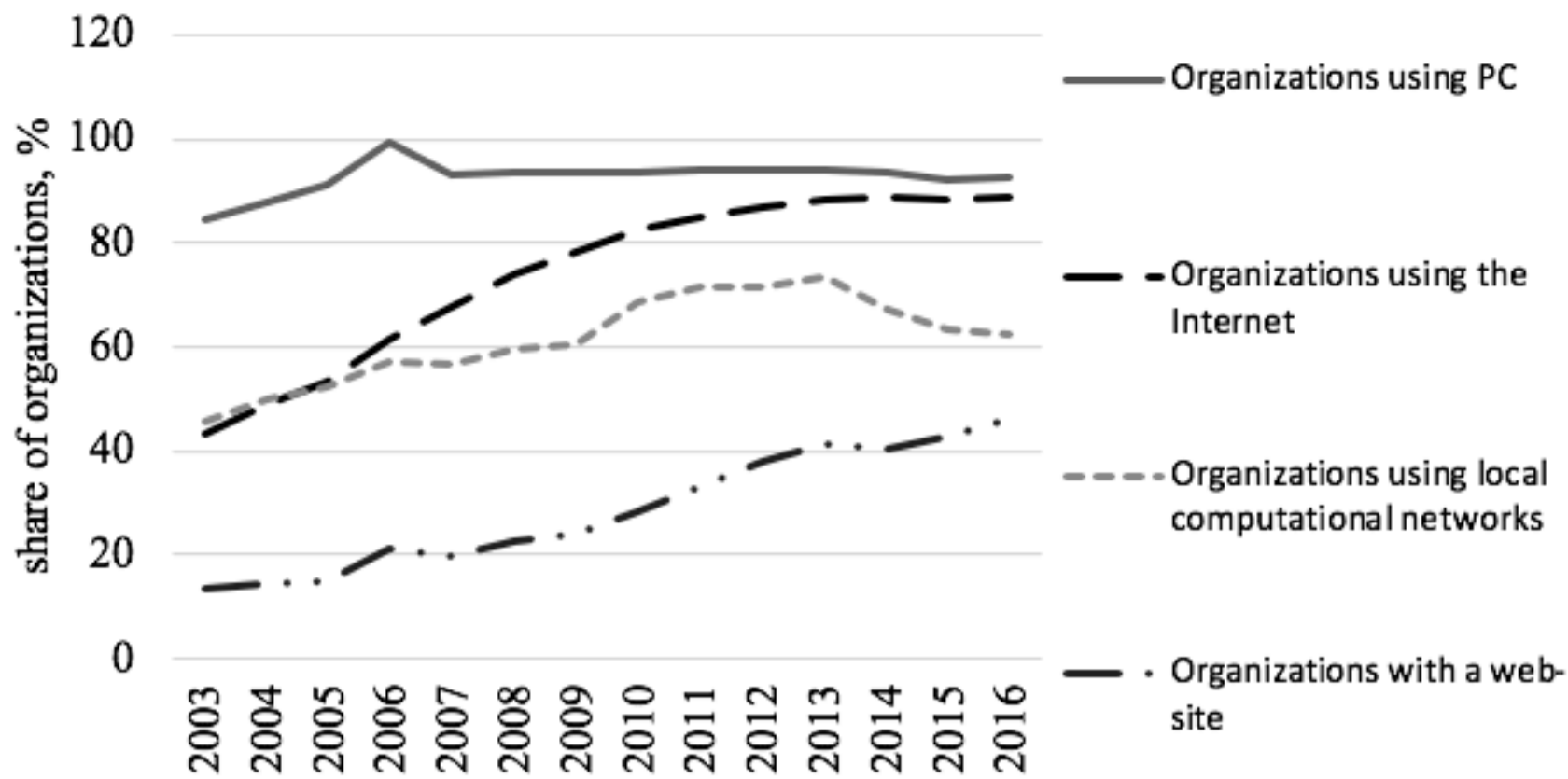
Source: compiled by the authors based on: (Russian Cluster Observatory, 2018).

As is seen from Figure 2, most clusters in Russia (as of 2018) – 80% are peculiar for the initial level of development, despite the large period of their existence. Combined with reduction of the number of created new clusters, this shows that the initial interest of Russian entrepreneurial structures to clustering has depleted due to accumulated experience of ineffective clustering and the impossibility to obtain the proclaimed and expected advantages.

Figure 2 also shows that sectorial specialization of most modern Russian clusters envisages high complexity of their marketing and logistics. Thus, 38% (44) of Russian clusters specialize in industry, 19% (22) are concentrated in the ICT spheres, 7% (8) – in tourism, and 5% (6) – in the spheres of food industry. They are oriented at cooperation with suppliers and selling their products outside the cluster’s region, and a lot of them are oriented at foreign economic activities – which determines the important role of marketing and logistics in functioning and development of cluster.

As a result of studying the modern Russian practice of usage of the ICT by entrepreneurial structures, the vividly expressed positive trend of increase of usage of the ICT by entrepreneurial structures in modern Russia is present (Figure 3).

**Figure 3**  
Dynamics and directions of usage of the ICT by companies in Russia in 2003-2016

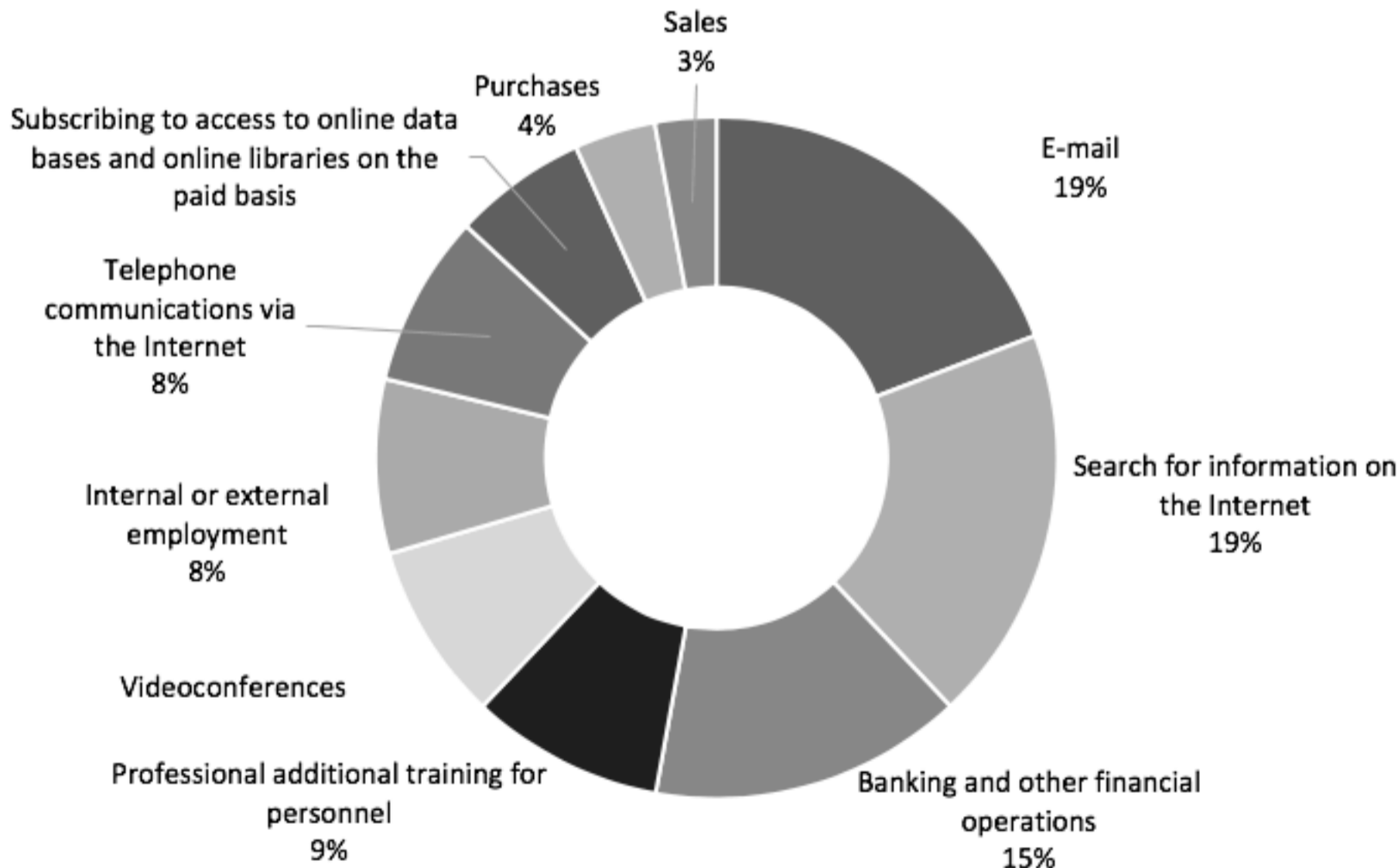


Source: compiled by the authors based on: (Federal State Statistics Service, 2018).

As is seen from Figure 3, in 2016 the share of organizations that use PC constituted 92.4% (growth of 9.22% as compared to 2003), the share of organizations that use the Internet – 88.7% (growth of 104.38%, as compared to 2003), the share of organizations that use local computational networks – 62.3% (growth of 36.03%, as compared to 2003), and the share of organizations with a web-site on the Internet – 45.9% (growth of 240%, as compared to 2003).

The most popular directions of usage of the above ICT by modern Russian organizations are usage of e-mail (83.1% of Russia’s companies), search for information on the Internet (81.5%), and conduct of banking and other financial operations (64.5%) (Figure 4).

**Figure 4**  
Directions of usage of the ICT by Russian companies in 2017, % of the total number of companies



Source: compiled by the authors based on: (Ministry of Communications and Mass Media of the RF, Federal State Statistics Service, National Research University “Higher School of Economics”, 2018).

The data from Figure 4 show that the ICT are used by modern Russian companies in various directions and the least popular among them are marketing and logistics. Thus, only 12.6% of modern Russian companies use the ICT for selling their products and 16.7% – for purchases.

Thus, the performed statistical analysis showed that the ICT are not used sufficiently by modern Russian

companies and clusters – and are applied in marketing and logistics very rarely. However, we think that this direction of usage of new ICT by a modern cluster is one of the most perspective directions. Implementation of the ICT may help to achieve the following advantages in marketing and logistics of cluster:

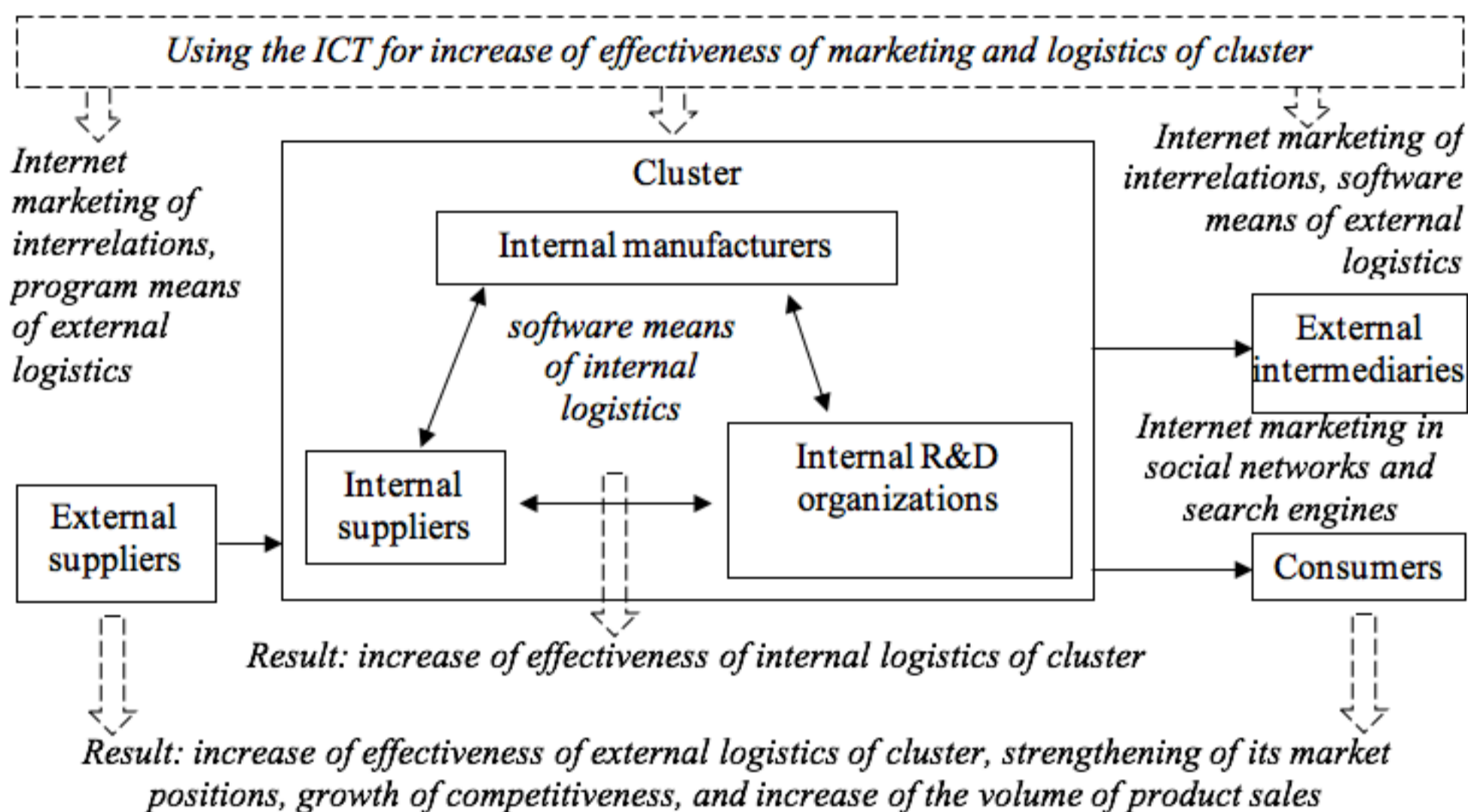
- access to possibilities of mass promotion of products of participants and brand of cluster with minimum fixed expenditures (with the help of Internet marketing in social networks, search engines, etc.);
- optimization of logistics, which allows accelerating supplies and sales within cluster (between its participants) and outside it (external exchange) with reduction of their cost (with the help of new software means in the sphere of logistics);
- setting closer relation with intermediaries that allows concluding agreements on supply and sales on better conditions (with the help of Internet marketing interrelations), etc.

These advantages stimulate reduction of expenditures for marketing and logistics with increase of their efficiency, which will lead to increase of effectiveness of marketing and logistics of cluster. The process of increase of effectiveness of marketing and logistics of cluster is shown in Figure 5.

In order to obtain these advantages and to activate the usage of the ICT as a means of increasing the effectiveness of marketing and logistics of cluster in modern Russia, the following concept is offered (Figure 1).

**Figure 5**

ICT as a means of increase of effectiveness of marketing and logistics of cluster.



Source: compiled by the authors

In Figure 5, solid lines show the subjects of marketing and logistics of cluster, as well as their interactions within these processes, and dotted lines show directions and results of usage of the ICT for increasing the effectiveness of these processes. Increase of effectiveness of internal logistics of cluster, which is achieved due to the ICT, allows developing close and mutually profitable relations between cluster participants, optimizing operations for creation of added value within the cluster. Increase of effectiveness of cluster's external logistics and its marketing activities, which is achieved due to the ICT, stimulates strengthening of its market positions, growth of competitiveness, and increase of the volume of products sales.

## 4. Conclusions

Thus, the offered hypothesis is confirmed, and it is substantiated that insufficient usage of the ICT in marketing and logistics of clusters in modern Russia hinders their development. Application of the ICT will allow increasing effectiveness of marketing and logistics of Russian clusters, thus ensuring their more successful functioning and more intensive development. The results that are related to advantages from optimization of internal and external logistics and maximization of market success, are the main motives of cluster formation.

That's why increase of effectiveness of marketing and logistics of cluster due to usage of the ICT ensures intensification of development of clusters in modern Russia, which at the initial stage will pass into the stage of medium and high development. Also, it is possible to expect restoration of interest to clustering and growth of the number of implemented cluster initiatives in entrepreneurship. That is, successful practical implementation of the cluster direction of the Concept of long-term socio-economic development of the RF until 2020 will be ensured.

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