

Saint Petersburg State University

Department of World Economy

Russian export potential of knowledge intensive services

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I hereby certify
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Introduction

For more than 20 years, economists have been agreed that Russia should not be a petro-dependent country, a high export quota for oil makes the country vulnerable and dependent on the opinion of more economic stable and influential countries. The increasing economic focus on knowledge has spurred the growth and development of knowledge intensive business services (KIBS) to such an extent that they have become one of the fastest growing sectors in advanced and developing economies [Miles, Boden, 2000]. Within the service sector, KIBS particularly illustrates high growth rates, including the developing countries. Its relevance is due to its great influence on absolutely all institutions, regardless of whether the problem is being investigated at the global, state, regional or individual enterprise level.

Current state of knowledge in research area

There is an extensive body of literature with respect to knowledge intensive services, in which authors provide the general overview of its development and analysis of impact of service trade. There are many papers of both domestic and foreign researchers devoted to these questions: F. Machlup, H. Greenfield, I. Miles, P. Windrum, M. Tomlinson, A. Koch, T. Stahlecker, S. Zenker, N. Kastrinos, K. Flanagan, R. Bilderbeek, P. Den Hertog, W. Huntik, P. Martynovich, E. Muller, D. Doloreux, R. Huggins, T. Brenner, M. Capasso, M. Duschl, K. Frenken, T. Treibich, N. Amara, D. Engel, F. Steil, R. Landry, etc. Studies that specifically focus on the development of conditions for innovation in KIBS in Russia are largely localized and published by the domestic researches such as O. Kotomina, V. Belousova, N. Chichkanov, M. Doroshenko, M. Levina

Research goal: to estimate potential of Russian knowledge intensive business services export on the world market.

Research objectives:

- to study approaches to define the knowledge intensive services
- to identify the problem of classification in international organizations

- to reveal the features of the world market of KIBS
- to analyze the place of Russian export of KIBS
- to disclose Russian capabilities of KIBS
- to conduct forecast of Russian KIBS export based on ARIMA model
- to provide recommendations for expanding the market in the far and near abroad

Object of study: features of the formation and functioning of the global knowledge intensive services market and the specifics of the Russian Federation's positioning in this industry

Subject of study: potential of Russian export of knowledge intensive business services

Methodology

Within the framework of this study, the analysis of international practice of KIBS support is the basis for developing common EAEU service market and finding suitable tools that should be used by the government in tax policy. Also, there are case-studies on the dispute connected with GATS, GATT and TRIPS identification one of the KIBS (computer services) in the WTO. A retrospective analysis of the development of identification and role of the KIBS in the world allows to identify the future potential of the importance to economics. In the process of synthesis, the following things are studied: state developing programs related to the regulation of the service industry in the Russian Federation and in Eurasian Economic Union, international agreements and requirements of international organizations regarding the allowed mechanisms for supporting the industry, which should be taken into account. Also, this study used the Box-Jenkins approach (autoregressive integrated moving average model) to forecast Russian future export of KIBS. Also, it was used methods of index statistical analysis of international trade for the analysis of quantitative and quantitative changes in the structure of international trade.

According to induction method, the relationship between the specific features of the mechanism of government support, the potential of the industry and the existing economic model, a set of problems connected with the developing strong

market position is described and the necessary transformations in government, regional and international programs that would create conditions for the development of this export in Russia are proposed.

Scientific novelty of the research

As a result of this study, a detailed analysis of Russian knowledge intensive business services and measures to support the development of trade in services applied by the government of the Russian Federation and the EAEU, taking into account all recent changes, was obtained.

The most common classification of knowledge intensive services was clarified and analyzed in the context of international classifications.

For the first time received, during a forecast analysis of Russian KIBS export, the study is accompanied by ARIMA model prediction.

Finally, current research provides recommendations how to solve exiting problems on the government and international levels, and what actions the national government needs to take in order to ensure the development and increase of competitiveness of KIBS and expand its export potential.

Research structure

This paper is organized into three chapters. Following the Introduction, Chapter 1 presents the theoretical frameworks, Chapter 2 provides an overview of Russian position in the world export of KIBS, as well as a descriptive analysis of the capabilities of Russian knowledge intensive services, and finally to forecast the future export, Chapter 3 is devoted to KIBS trade in and within other countries: the key problems of the industry are identified, a retrospective analysis of the developing common services market in EAEU and identification of key export directions for expanding sales markets abroad, and recommendations for the industry's development. Finally, conclusion contains brief conclusions on the chapter and summarizes the proposed recommendations for Russian KIBS export.

1 Types and forms of knowledge intensive services and their development

1.1 Approaches to knowledge intensive services

The development of a global post-industrial society in modern conditions is accompanied by a qualitative and quantitative growth in the services sector. Since the 80s of the last century, high-tech and knowledge intensive industries, involving investment in human capital and, accordingly, accelerated development and use of intangible assets and the intangible environment of business entities of various markets, have become the leading mechanisms of this process. This, in turn, led to the emergence of a new type of economy focused on the production of knowledge - the "knowledge economy", one of the segments of which was the emergence and development of the knowledge intensive services sector or intellectual services sector. As usual, there is a using the definition "knowledge intensive services" (KIS) in foreign sources and intellectual services (IS) in Russian sources. The sector of KIS is one of the keys to the "new economy". It contributes to the creation, generation and dissemination of experience and knowledge [Muller, Doloreux, 2007]. Despite the growing interest in this field among scientists around the world, the interpretation of the definition of intelligent business services remains controversial.

First of all, it is important to understand that the very concept of "intelligence" and "knowledge intensive" are very debatable, especially in the interdisciplinary aspect of the study. According to Cambridge Dictionary "knowledge intensive" means needing a lot of experience, understanding, information, and skills in order to be successful. And the word "intellect" comes from the Latin "intellectus" - understanding, cognition, and in its most general form means "mind, reason, intelligence; mental ability of a person" or "system of an individual's cognitive

abilities" [Gritsanov, 2001] - that is, sensations, perception, memory, representation, thinking and imagination.

At the same time, specialists in computer science propose the following definition: "Intellect is a property of the system, expressed in the ability to generate knowledge from information" [Popov, 2004].

Analysis of the literature suggests that the adjective "intellectual" in modern scientific use is used in various phrases and widely enough: from the humanitarian to the technical branches of knowledge. Thus, in the most general way:

- intelligence is an inherent property of a person, which is most clearly manifested in the ability of an individual to acquire new knowledge;
- intellectual is a property of both human and inanimate objects, which manifests itself in the ability to create new knowledge.

As for intellectual services, based on the definitions of "services" and "intellectual", the intellectual services (IS) are a type of an economic activity associated with thinking and understanding things, especially complicated ideas.

Moreover, researchers have proposed five main features that make it possible to classify services as intellectual or knowledge intensive [Berezkin, 2007]:

- 1) a high proportion of labor costs and staff training in total production costs;
- 2) long-term adaptation of young professionals in a new job and the need for additional training in the workplace;
- 3) the impossibility of accurately calculating the time required for the performance of work (consulting project) and the inclusion in contracts with customers of a significant "time reserve" in this regard;
- 4) the need for close cooperation between the customer and the contractor in the field of intellectual services throughout the duration of the work;
- 5) predominantly individual character of services, low share of standard, "boxed" products in the total volume of orders being fulfilled.

To identify the opinions of scientists and specialists in relation to the category of IS, Department of Management and Marketing, Institute of Economics and Management of the Russian State Vocational Pedagogical University conducted an

expert survey. The survey was attended by 30 experts who were offered several typical definitions of IS, found in modern publications. To determine the consistency of expert opinions, the coefficient of concordance was calculated, which amounted to 0.71 [Aleksandrovich, 2010].

As a result, it was found that, despite the possibility of choosing different answers to the question about the essence of IS, most experts agreed with the definition that sounds like "intellectual services are a type of economic activity associated with the process of producing and acquiring new knowledge, based on scientific research and associated with consulting as an activity to provide the customer with relevant information and experimental developments as work aimed at production and/or improvement new products or services, the introduction of new processes and technologies".

Returning to the study of the essence of IS, it is advisable to consider the issues of approaches. Nowadays, there are a large number of different approaches to the definition of a set of services, characterized by the term "knowledge intensive". The service industries have become the core of economy, in particular KIBS [Tseng, Pai, Hung, 2011]. However, the prior KIBS research has no clear measurement about the knowledge intensity of KIBS [Muller, Doloreux, 2007].

One of the first try to isolate them in the 1960s, pioneering authors like Fritz Machlup (1962) and Harry Greenfield (1966) pointed out the knowledge production and diffusion activity carried out by some business services. In describing knowledge diffusion, Machlup noted, "the activity of telling anybody anything, by word of mouth or in writing, is knowledge production in this sense. A person exclusively engaged in this activity belongs to a knowledge-producing occupation. A number of firms exclusively engaged in selling information or advice belong to a knowledge-producing industry". Thus, he characterized business service firms as "firms which sell knowledge" citing as examples the cases of legal services, engineering services, consulting and accounting services and some medical services.

Besides, M. Levina (2011) understands knowledge intensive services as a service sector, the potential of creating value added which is based on the use of

intellectual and creative work associated with the consumption of new knowledge and skills and the introduction of new processes and technologies. Concerning the nature of this economic category, it is important to understand that in the production of services of various types, labor of various qualification levels is also used. In this regard, researchers of the tertiary sector are conventionally divided into two, highlighting the sector of knowledge intensive services, referred to as the quaternary sector. The key distinctive feature of the KIS sector is the use of a complex of knowledge in their creation, knowledge intensity character is inherent in such services. Knowledge intensity is the main feature that distinguishes intellectual services. The nature of this property is not clearly defined, not observable and non-operational, and only indirect signs indicate its presence and scale. Such features are the peculiarities of production, qualification of performers, economic functions. By their nature, the creation of knowledge intensive services is due to the human capacity for intellectual work, thinking and creative work. Knowledge intensive services are characterized by a high degree of heterogeneity, since each person is unique, the work of the brain of each individual is unique. The process of perception of such services is also unique; it requires certain capabilities and abilities from the consumer. There is a number of signs identifying knowledge intensive services:

- knowledge of the capacious nature of the production process of these services;
- derivative nature of services;
- high degree of individualization;
- significant share of value added;
- adaptive capacity is a limiting factor.

Then, P. Windrum and M. Tomlinson (1999) knowledge intensive services include a broader scope of services covering the following segments of economic and social activities: architecture geodesy, construction; software: banking and financial activities, design, environmental protection; asset management insurance; staff recruitment; marketing; mass media; R&D: telecommunications; engineering; technical education.

What is more, a group of Russian researchers headed by Y. Kuzminov (2003), classified by the criterion of production specifics, so the knowledge intensive services included the activities: consulting (including IT consulting), audit, legal services, marketing services, valuation activity, asset management, technological and financial audit, recruiting, advertising and PR, analytical service.

Some scientists separate knowledge intensive business services (KIBS) from knowledge intensive services. The terminology of KIBS was then little more than one decade old. This way KIBS, emerged as a "group apart" from the whole service industries, a group where knowledge intensity and customer interaction were essential features. It is also important to underline that Miles et al. firstly define KIBS as "services that involved economic activities which are intended to result in the creation, accumulation or dissemination of knowledge". The difference between them is that knowledge intensive business services (KIBS) are the sub-group of KIS. In the literature, KIBS are defined as firms that provide knowledge intensive goods and services for other business firms [Schricke, Zenker, Stahlecker 2012]. Thus, KIBS include all KIS, except for education, health and social work, recreational, cultural, and sporting activities, which are services destined for consumers [Wyszkowska-Kuna, 2016].

Furthermore, it is possible to give an example of the approach from the point of view of the labor contribution to the added value. On this basis, E. Muller and A. Zenker (1998) have introduced the following areas of activity to KIBS: audit, management consulting, marketing, certification advertising and realtor activity.

The systematical table shows all approaches to knowledge intensive services. It gives full understanding of basis of knowledge intensive services' kinds [Annex 1].

The term "business services" means those professional types of services that are provided to firms and public organizations and are not produced for personal consumption [Muller, Doloreux, 2007]. The service sector is actively developing, so the boundaries of the sector are changing rapidly and often the existing classifications do not have time to adapt to this. As a result, researchers do not

always agree on the types of services that relate to the knowledge intensive business services. This may be due to the lack of a criterion for measuring the degree of their intelligence, that is, knowledge. KIBS are the most studied services, there is a main focus on this kind of services in this research.

1.2 Classifications of knowledge intensive business services

There is no unequivocal idea of either the boundaries of the KIBS sector or what services belong to it. There is only some unspoken agreement on the existence of a new quaternary sector, but with rather vague definitions.

One of the most common is the classification of knowledgeable business services by I. Miles. He identified 3 categories of services of this type. The first includes traditional professional services (P-KIBS) based on social and institutional knowledge, such as management consultancy, market research, advertising, accounting, etc. The second category includes services mainly related to information and communication technologies (T-KIBS), including consulting in the field of research and development, design, architectural and engineering services, etc. [table 1]. More recently C-KIBS have also been distinguished (creative KIBS, dealing with cultural and similar knowledge, such as advertising, graphic and some other sorts of design, and business-focused media services) [Miles, 2011]. This reflects recognition of the fact that many firms in the so-called creative industries are not primarily in the business of delivering experiences to customers, as entertainment and related firms. Many are providing solutions to business problems of their clients - which may or may not require effecting experiences for end-users of these clients' products. Some C-KIBS have typically been assimilated into T- or P-KIBS, namely market research, architecture and the like.

T-KIBS tend to have high shares of science and engineering (S&E) graduates on their payrolls, reflecting the high level of involvement with external technologies and/or those more "intangible" technologies they develop themselves (computer

software being the prime example). P-KIBS are deploying knowledge of regulations, administrative procedures and social affairs, while C-KIBS deploy knowledge of social affairs, cultural trends and aesthetics. Both have large shares of staff who are graduates in humanities and social sciences. In terms of innovation, it is argued that the level of interaction with customers and suppliers is critically important to innovative P-KIBS companies [Freel, 2006]. T-KIBS, on the other hand, depend more on their own internal innovation resources. They engage in unusually high levels of R&D for service firms, but Pinto et al. [Pinto et al., 2015] argue that it is the qualifications of their staff that forms the most important contribution. The process of new companies' (start-ups) emergence is also quite segment-specific, with new T-KIBS firms appearing to be much more dependent upon the existing structure of regional economies [Wyrwich, 2013].

Table 1

Types of knowledge intensive business services

P-KIBS	T-KIBS	C-KIBS
Marketing	Software development	Advertising
Design	Technical Services	Design
Advertising	Telematics	Architecture
Financial services	New Technologies	Communication consulting
Accounting	Computer Network	Web services
Architecture	Research & Development	Digital services
Medical services	Consulting in information Technology	Photographic Activities
Engineering	Consulting in Research & Development	-
Training	-	-
Consulting	-	-

Source: compiled by the author

A common problem for all areas of the research of KIBS is the definition of the boundaries of the sector. It arises, as already indicated, due to the theoretical uncertainty of the commonly used term "knowledge intensive business services" and the criterion that distinguishes between knowledge intensive and traditional services. Faced with such difficulties, each researcher himself defines the concept of knowledge intensive business services and the composition of the studied sector. So, several German scientists offered their clear boundaries of knowledge intensive business services. In total there were 7 officially unapproved classifications. The table 2 presents a comparative analysis of the composition of the KIBS sector, made on the basis of seven key works on this topic.

Table 2

KIBS according to different authors

NACE	Name of the sector	Almus M., et al.2001	BayStWV T, 2000	Bilderbeek R., et al., 1998	Engel D., et al. 1999	Nählinder J., et al. 2002	Strambach, S. 1999	ZEW,2003
1	2	3	4	5	6	7	8	9
22.1	Publishing		+					
64.2	Telecommunications							+
72.1	Hardware consultancy	+	+	+	+	+	+	+
72.2	Software consultancy and supply	+	+	+	+	+	+	+
72.3	Data processing	+	+	+	+	+	+	+
72.4	Data base activities	+	+	+	+	+	+	+
72.5	Mainten. and repair of office, accounting and comput. machin.	+	+	+	+		+	+
72.6	Other computer related activities	+	+	+	+	+	+	+
73	Research and development	+	+	+	+	+	+	+

Continuation of table 2

1	2	3	4	5	6	7	8	9
74.1	Legal, accounting, book-keeping and auditing activities etc.	+	+		+	+	+	+
74.2	Architect. and engine. activities and related techn. consultancy	+	+	+	+	+	+	+
74.3	Technical testing and analysis	+	+		+	+	+	+
74.4	Advertising	+			+	+	+	+
74.5	Labor recruitment and provision of personnel						+	
74.8	Miscellaneous business activities		+		+	+	+	
92.2	Radio and television activities		+					
92.4	News agency activities		+					

Source: A. Koch & T. Stahlecker Regional innovation systems and the foundation of knowledge intensive business services. A comparative study in Bremen, Munich, and Stuttgart, Germany. European Planning Studies. 2006, vol.14, №2, p.131.

On the international level, business services had been subsumed, in the International Standard Industrial Classifications (ISIC), in a group together with renting of equipment and real estate services. The very earliest discussions of KIBS were hampered by the fact that many statistical publications collapsed these into one group (and often combined them with financial services, too). The service industries in general had been poorly represented in the ISIC, but the growth of employment and output in these industries made this increasingly untenable by the 1990s. [Miles, 2018]. Thus, during that decade, 1990s ISIC revision resulted in much more detail on services activities appearing in the industrial classification systems NACE

(Nomenclature Statistique des Activit es  conomiques dans la Communaut e  uropeenne) and NAICS (North American Industry Classification System).

NACE identifies KIBS, as a sector that comprises activities of information technology, research and development, among other businesses. Initially NACE followed ISIC's treatment of business services, classifying many diverse activities together in its Section K (real estate, renting and business activities), which comprised Divisions 70 (real estate), 71 (rental of machinery and equipment), together with 72 (computer and related activities), 73 (R&D) and 74 (PS together with some T-KIBS like architecture and engineering, and some more routine business services). But in the twenty-first century, the EU's NACE revision 2 (Eurostat, 2008 – henceforth, NACE2, contrasted with NACE1) classifies many business services (service industries whose main customers are other organizations, rather than private consumers) into two distinct "sections" (M– professional, scientific and technical activities; and N – administrative and support service activities).

The present NACE Rev.2, which is the new revised version of the NACE Rev.1 and of its minor update NACE Rev.1.1, is the outcome of a major revision work of the international integrated system of economic classifications which took place between 2000 and 2007. NACE Rev.2 reflects the technological developments and structural changes of the economy, enabling the modernization of the. Beside the classification, this publication contains also the introductory guidelines containing the main concepts, an historical background and the methodological guidelines for understanding and applying NACE Rev.2, as well as, a detailed description of the different items of the classification.

More detailed, computer services are covered by NACE 72.1-6: hardware consultancy; software consultancy; data processing; database activities. NACE 73.1, 73.2 cover research and development services, on natural sciences and engineering, and on social sciences and humanities. Other more technology-related activities are captured in NACE 74.2, 74.3 technical services: architectural; and technical testing and analysis. Less technology-oriented services are classified in NACE 74.11-.12,

74.14 professional services: legal activities; accounting & tax consultancy; management consulting; and in NACE 74.13, 74.4 marketing services: market research; advertising [Rubalcaba, 2007]. Statistics produced on the basis of NACE are comparable at European and, in general, at world level. The use of NACE is mandatory within the European Statistical System. Even if there could be defined sectors precisely, it is likely that within sectors there are also firms that are more or less knowledge-intensive. Appendix 2 represents the effort to specify how KIBS sectors may best be defined in terms of official statistics.

The situation is different for North American statistics, as organized through NAICS. Here, the two-digit code 54 includes business-oriented computer services: 541511 (custom computer programming services), 541512 (computer systems design services), 541513 (computer facilities management services) and 541519 (other computer-related services). Software publishing (511210) is in a two-digit "information" Group 51 this includes publishing of applications software (some is bound to be business applications) but excludes custom software.

Also, on the national level efforts of the Russian Centre of Economic Classifications experts resulted in creation of several classifications essential for Russian statistics, such as, Russian Classification of Economic Activities (OKVED). Section J includes activities in the field of information and communication (publishing activities, production of films, videos and television programs, publishing of sound recordings and notes, activities in the field of television and radio broadcasting, activities in the field of telecommunications, development of computer software, consulting services in this field and other related services, activities in the field of information technology); Section M, S also partially covers the services in knowledge intensive business field (activities in the field of law and accounting, activities of head offices, management consulting, activities in the field of architecture and engineering design; technical testing, research and analysis, research and development, advertising and market research, activities professional scientific and technical other; repair of computers, personal items and household supplies). In addition, some Russian information sources use classification of

Central Product Classification (CPC) which is promulgated by the United Nations Statistical Commission.

Furthermore, there is the classification provides a breakdown of the Balance of Payments Trade in Services item on the world level - EBOPS 2010. Services components include: manufacturing services on physical inputs owned by others, maintenance and repair services, transport, travel, construction, insurance and pension services, financial services, charges for the use of intellectual property, telecommunications, computer and information services, other business services, personal, cultural and recreational services, government goods and services. The Extended Balance of Payments Services Classification (EBOPS) is an extension of the main services components of the Balance of Payments classification. It was significantly changed through the introduction of manufacturing services on physical inputs owned by others and maintenance and repair services, as two new components and the removal of merchanting from other business services. For the correspondence between the updated EBOPS 2010 and the revised Central Product Classification (CPC, version 2). There is an Appendix 3, where EBOPS and CPC classifications are more detailed.

However, in this research according to the Approach 4 [Engel, Steil, 1999] in term KIBS will be included: hardware consultancy, software consultancy and supply, data processing, data base activities, maintenance and repair of office, accounting and computer machinery, other computer related activities, research and development, legal, accounting, book-keeping and auditing activities etc., architect. and engine. activities and related technical consultancy, technical testing and analysis, advertising, labor recruitment and provision of personnel, miscellaneous business activities, - and EBOPS 2010, as the most common classification among international organizations, such as World Trade Organization (WTO), International Trade Centre (ITC), United Nations Conference on Trade and Development (UNCTAD), which covers these kinds of services: computer, information, R&D, .

From the brief overview there is an obvious conclusion: today there is no unambiguous notion about the boundaries of the knowledge intensive services

sector, nor about what services belong to it. There is only some tacit agreement on the existence of a new, quaternary sector, but with rather blurred boundaries. However, scientific analysis should not be based on conventionalists, but on a reasonable classification criterion, for which it is necessary to clearly define the specifics of KIBS, allowing it them in a separate sector of economic activity. Likewise, it will be no surprise if future studies continue to problematize the definition of KIBS.

Therefore, this study of the knowledge intensive business services sector also had to start with a kind of conventional list, which was made up of those types of services that are most often found in the literature, have the significant effect to the economy and covers in in the almost all international organization statistics reviews. The following list was obtained: computer; information; architectural, engineering, scientific; professional and management consulting; R&D services.

1.3 Features of the WTO identification of knowledge intensive business services, as an object of international trade, software dispute

World Trade Organization (WTO) does not recognize the definition "intellectual services" or "knowledge intensive services" and it does not have any kind of KIBS classification. It happened because WTO still does not clarify does software, software implementation, consultancy services related to the installation of computer hardware, database, R&D on natural sciences, R&D on social sciences and humanities trading is a good or a service.

However, the GATS (General Agreement on Trade in Services) defines trade in services in terms of modes of supply:

- Mode 1 covers services supplied from one country to another (for example, call center services).
- Mode 2 covers consumers or firms making use of a service in another country (for example, through international tourism).

- Mode 3 covers a foreign company setting up subsidiaries or branches to provide services in another country (such as a bank setting up a branch overseas).

- Mode 4 covers individuals travelling from their own country to supply services in another (for example, a consultant travelling abroad to provide an IT service).

Mode 2 is by far the most liberalized mode in terms of commitments by WTO members. This is mostly due to governments being less likely to restrict the movements of citizens outside domestic borders (e.g. tourists). Mode 1 is not often committed, mostly because it is impossible for many services to be supplied remotely (e.g. construction services), while mode 3 is more open, reflecting its crucial role in driving the international supply of services, transferring know-how and improving the capacity of economies to participate in global value chains. Mode 4 has the lowest depth of commitments, probably due to a number of sensitivities involved with the movement of foreign workers. In 2014, trade in services totaled USD 4800 billion, representing 21 % of world trade in goods and services. However, this total does not cover services delivered via foreign affiliates (essentially mode 3). The total trade in services is therefore estimated to be much larger, even twice as large, as mode 3 represents 55% of total services trade[fig.1].

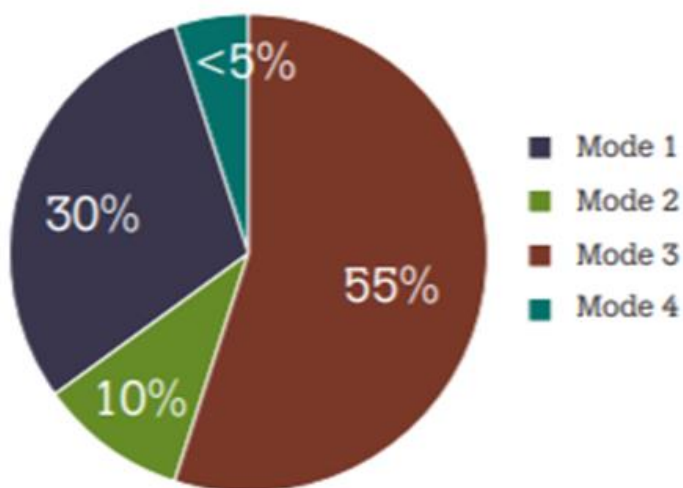


Figure 1. Share of services trade by mode of supply, %
Source: WTO Secretariat

The WTO agreements cover goods, services and intellectual property. They spell out the principles of liberalization, and the permitted exceptions. They include

individual countries' commitments to lower customs tariffs and other trade barriers, and to open and keep open services markets. They set procedures for settling disputes. They prescribe special treatment for developing countries. They require governments to make their trade policies transparent by notifying the WTO about laws in force and measures adopted, and through regular reports by the secretariat on countries' trade policies.

This big issue requests detail example because in each situation knowledge intensive business services can be different decently on specific cases, arguments and agreements. For instance, software. There are three agreements, which can regulate software: GATT, GATS and TRIPS.

Traditionally, goods traded worldwide had to cross physical national frontiers. However, with the advancement of technology, most goods have transformed into electronic goods or as some call it "digitized goods". It is electronic commerce (e-commerce) that has spearheaded electronic trade, and in the context of software, though previously only delivery on carrier-media (such as diskettes and CDs) was possible, technology has obliterated the need for carrier media by enabling electronic delivery. While software has been widely utilized for the production of goods (e.g. computer controlled factories) and the provision of services (e.g. accounting services), it perhaps was never envisaged by the founders of the General Agreement on Tariffs and Trade 1947 and its successor, the World Trade Organization (WTO), that software itself would become a tradable commodity. At the time GATT 1947 was negotiated, the term "software engineering" had not even been invented. The current GATT 1994 regime is no different to its predecessor evidencing its incapacity to deal with new technologies such as software. Therefore, GATT as it stands today is more suited to regulate trade in goods, and not tradable intangibles such as software. Although there is judicial consensus in domestic legal systems that software affixed on carrier-media are goods, the classification of electronically delivered software is controversial, casting doubt on its amenability to GATT. Given that GATT regulates trade in "goods", unless such software is captured by the General Agreement on Trade in Services

(GATS) as a "service", trade in electronically delivered software would be driven outside the purview of the WTO. This would result in WTO rules being applied to software delivered on carrier-media while leaving its electronically delivered counter-part unaffected by WTO rules. This gives rise to differential treatment of the identical or like software predicated solely on the mode of delivery.

Software can also be termed a service. The distinction lies in the "process" of software development and not really in the "end result". This perhaps is more relevant in deciding whether software development is a supply of services vis-à-vis sale of goods, a crucial test to be employed in determining the applicable regime: GATT or GATS. Software, that is developed for mass marketing without tailoring it for an individual customer is one kind. These are called off-the-shelf software. In discussing the implications of the Indian Supreme Court decision in *Tata Consultancy Services' State of Andhra Pradesh*, the taxability of tailor-made software as goods has been doubted. The goods–services distinction in software products is not as clear-cut in some traditional transactions such as purchasing a television from a retailer or being groomed by a hairdresser. Although off-the-shelf and tailor-made software are developed in different ways, the difference is a result of the end-user the software is catered for. In reality, both types of software are developed in similar technological settings whereby the end-user acquires a “license” to use the resulting IP in software. Software services, such as consultancy and maintenance, would form part of the sale of software, "unless" the contracts for services and sale are separable. Where software is transmitted as part of a larger service agreement, the contracts for services and the transfer of IP rights may be severed. Thus, the customer can sever contracts for support services, programming services, data processing services from the contract permitting the use of the software. While software services are distinct, the goods–services dichotomy imposed on off-the-shelf/tailor-made software as such is obliterated if viewed from an IP perspective. In the same time, according to WTO software implementation is a type of computer and related services. Principles of trade in computer and related services are contained, like for all services, in the GATS.

Thirdly, contrary to the general norm of regarding software transactions as sale of goods, it was decided by a Scottish court in *Beta Computers (Europe) Ltd., Adobe Systems (Europe) Ltd.* that a contract involving transfer of software was *sui generis*. It was observed that overemphasizing the role of carrier-media and thereby relating the transaction to a sale of goods has "...the somewhat odd result that the dominant characteristic of the complex product, in terms of value or of the significant interests of parties, would be subordinated to the medium by which it was transmitted to the user in analyzing the true nature and effect of the contract". In fact, the carrier-medium test is wholly unrealistic for the purposes of software. Placing overemphasis on the carrier-medium in deciding whether a transaction pertaining to software is a sale of goods is problematic in technological terms. This is also true owing to the nature of software. Software is an "executable" that is read by the computer. Such machine code takes the form of binary electric signals/pulses (1s and 0s) and are read by the computer's processor and accordingly interpreted to perform a task. The question – "what is sold? ". Is it the carrier-media, or software? If the answer is, "software" it is illogical to apply the "fitness for purpose" test to the carrier-medium and subject the contract to the implied terms of the Sale of Goods Act. The reason why courts tend to characterize a software transaction by its carrier-media is to bring the transaction under the regime of the Sale of Goods Act and the Unfair Contract Terms Act for the benefit of the consumer. The intention of the parties is to transfer "a right to use" the software and the CD is 'mere' carrier-media, just as the purchase of a car being transported by container. Since software from its inception is intangible machine code, it is fallacious to attribute features of goods for merely being transported in a carrier-medium. In fact, the latest trends in information technology (IT), such as cloud computing, enable software developers to have the software installed directly onto the licensee's cloud computer eliminating the use of physical carrier-media. Therefore, why not treat software as IP? That is to discern the IP aspect of software. Purchasing software in this sense is different to the purchase of physical products. Whatever the type of software, the consumer in reality is granted a "license" to use the software. Even in cases where software is

tailor-made, the end effect is that the outcome, namely, the software product remains the property of the software developer. Off-the-shelf software transactions involve an explicit license agreement that is entered into as a precondition to usage. This approach would be captured by the Agreement on Trade Related Aspects of Intellectual Property Rights (TRIPS). Thus, what in reality will be regulated is trade in software IP rights. However, TRIPS was not seen as a forum for trade liberalization, as in GATT and GATS. It only provides for the protection of IP rights by promoting minimum standards in subject matter and enforcement. While recognizing that IP products do not fall within GATT or GATS, on a futuristic note, it has been suggested that "...incorporating market access disciplines on intangible assets could be an interesting venue for the future. In any case, the multilateral trade framework cannot ignore ambiguities of its rules with respect to intangible assets". This proposition is indeed for the future. Given the history of TRIPS and the general opposition of developing countries to incorporating IP into the world trade arena, it may be psychologically challenging to negotiate on the tradability of IP rights under TRIPS. However, this does not rule out the possibility of framing a specialized regime for software that could address the current disparate treatment that ensue due to the mode of de-livery of off-the-shelf software and the inability to easily distinguish between tailor-made and off-the-shelf software [Marsoof, 2012].

In general, it means that everyone should prove does software or any other knowledge intensive service or product is "good" or "service" to be protected by one of the agreements. It becomes clear that categorizing software as "goods" or "services" is a challenging issue that requires an analysis on the merits of each case. Synchronizing the activities of all international organizations including the WTO will simplify the definition of knowledge intensive services and help the world market develop more harmoniously.

2 Russian place on world market of knowledge intensive services

2.1 World export of knowledge intensive services

Economy of knowledge have been changing the world economic structure. At the beginning of the XXI century, the "knowledge intensive" economy began to acquire real features in the most economically developed countries of the world. By the middle of the century, it seems that only such economies will be considered "developed" and "modern" [Tyukavkin, 2014]. The "primary" sector refers to agriculture and mining. The "secondary" sector includes manufacturing. The "tertiary" sector in the previously accepted classification combined all services from transport and communications to education and public administration. The knowledge intensive services sector is often referred to as the "quaternary" sector of the economy. Countries have to study in details the prospects for the development of certain types of knowledge intensive services for the stable development of the economy and strengthening its position in the world market.

Nowadays, still in most modern developed economies, the service industry ("tertiary" sector) is key. According to World Bank estimates, its contribution to GDP and employment in a number of developed countries - Canada, the USA, Japan and Australia - in 2017–2018 exceeded 70%. A similar situation was observed in Russia, which is experiencing echoes of catching up development: the contribution of the service sector to the country's GDP was 59.78% (as of 2018), and 62.3% to employment (as of 2015).

International trade in services is growing at a faster rate than commodity, and this leads to a gradual increase in the share of services in total world exports, despite the general slowdown in the growth of world production and trade over the past 4-5 years. Export of services takes big place in the world and each year the value

increases and in 2018 is USD 5.8 trillion [fig.2]. After a strong increase of 7.9% in 2017 and 7.7% in 2018, slower growth of 2.7% is nowcast for global services trade in 2019. In 2018, global services trade was valued at USD 5.8 trillion, one quarter of the value of total exports and 7% of world GDP. In 2019, it is nowcast to reach USD 6 trillion. Some smaller European economies, such as Luxembourg, Malta or Ireland, and several island economies, such as Aruba, Antigua and Barbuda or the Seychelles, relied to a particularly great extent on services exports. By contrast, in large parts of South America, Western and Central Africa, as well as, Western and Eastern Asia, services exports amounted to less than 3 % of GDP.

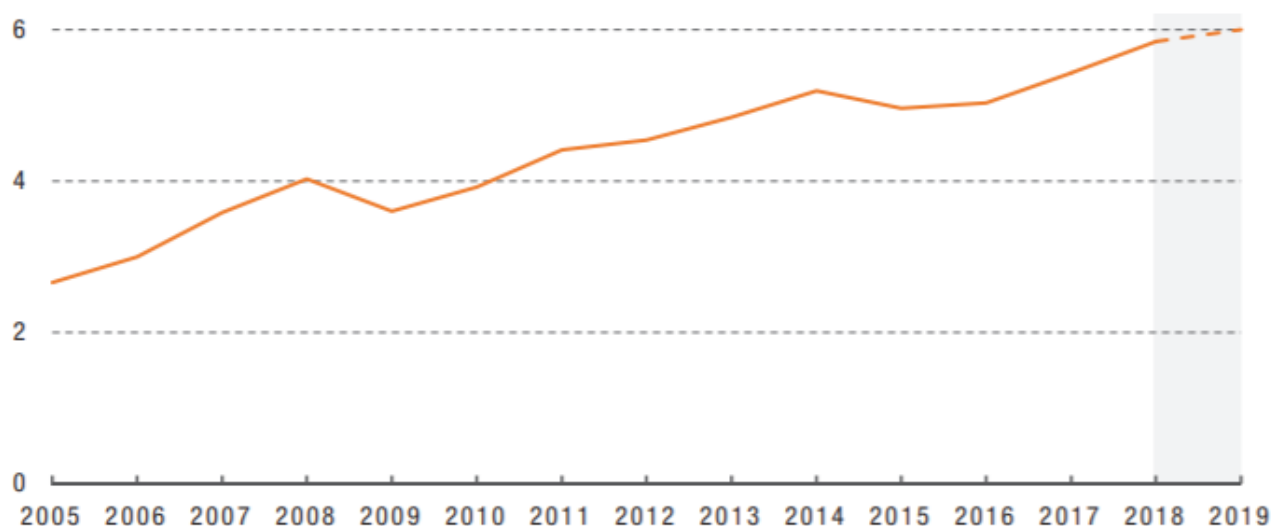


Figure 2. World services exports, USD trillion
Source: UNCTAD Handbook of Statistics 2019

United States of America is the world’s premier producer and exporter of services. As the largest component of the U.S. economy, the service sector includes all private-sector economic activity other than agriculture, mining, construction, and manufacturing. The service sector accounts for 90 million jobs, which is nearly 80 percent of the private-sector GDP.

The dominant role that services play throughout the U.S. economy translates into leadership in technology advancement, as well as, growth in skilled jobs and global competitiveness. The world’s top services exporter in 2018 was the United States of America, with USD 828 billion worth of services sold internationally,

representing 14% of global services exports. They were followed, at some distance, by three European countries that jointly captured 17% of the world market.

For developing countries, the development of the services sector in China has been constrained by the country's focus on manufactured exports and the substantial barriers to trade and investment in the services sector. The services sector still accounts for a smaller percentage of GDP than the global average for developing countries. China is committing to a more proactive opening-up strategy in key services sub-sectors such as finance, logistics, education, healthcare and it is aiming to rank among the top exporters for transport, tourism and construction, sub-sectors in which has revealed a comparative advantage.

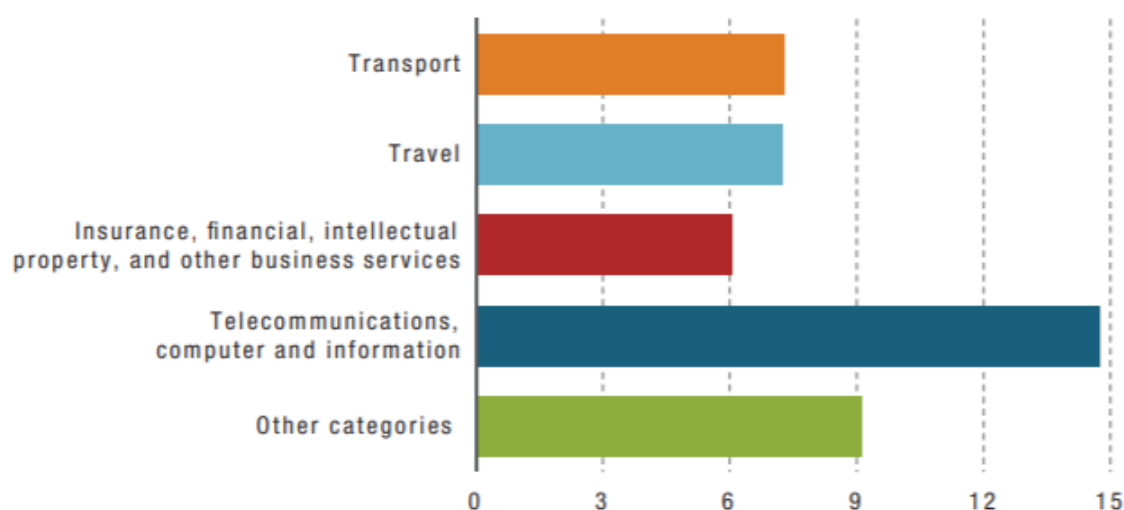


Figure 3. Annual growth rate of services exports, 2018, %

Source: UNCTAD Handbook of Statistics 2019

The surge of world service exports in 2018 was driven by all main service categories, though to different degrees. Transport showed the strongest increase: almost 9% globally. This affirms the sector's revival, related directly, as usual, to notable pick-up in international merchandise trade. Strong growth was recorded also for travel, intellectual property and other business services, as well as, telecommunications, computer and information services. Exports in these service categories increased at rates of around 7 and 8%. Insurance, pension and financial services as well as personal, cultural and recreational services recorded smaller, yet sizeable growth, with rates near 4% [fig.3]. So, the biggest growth is in knowledge intensive services ("quaternary" sector).

Telecommunications, computer and information services (also referred to as information and communication technology – ICT) resumed its position as the most dynamic services sector in 2018 (+15%). Growth in ICT and in insurance and pension services exports was recorded every year from 2008 to 2018 except in 2009 and 2010 respectively. The information services market consists of the sales of information services by entities (organizations, sole traders or partnerships) that provide news reports, articles, pictures, public historical documents, photographs, maps, audio material, audiovisual material, and other archival material of historical interest. These entities include news syndicates, libraries and archives. Asia Pacific was the largest region in the global information services market, accounting for 40% of the market in 2018. Western Europe was the second largest region accounting for 24% of the global information services market. Africa was the smallest region in the global information services market. However, it takes the smallest part in ICT world export.

ICT services have always been dominated by computer services; whose share has increased over the past ten years as the share of telecommunications exports has declined. Part of this decline is due to the diminishing cost of telecommunications transmission, which has fallen by 40% since 2008. This has contributed to the declining share of global telecommunications receipts in ICT services exports. Telecom receipts include payments for mobile telecommunications and internet provision, which did not grow significantly in value from 2008 to 2018.

While the share of telecommunications services has declined, computer services receipts have more than doubled in value, increasing their share of ICT trade from 65% in 2008 to 78% in 2018. Computer services, including database development, data processing and software design, has benefitted from technological changes such as an increase in businesses moving their IT operations to cloud computing. Computer services trade has also seen increasing provision of software in a downloadable format, with regular updates, as opposed to trade in software on physical media, such as DVDs. For example, Ireland – the largest global exporter of computer services – saw an increase in software exports as a service

while physical exports declined from 2012 to 2016. Israel, on the other hand, saw both services and physical exports grow from 2010 to 2017. Its services grew more than 11 times faster than physical software exports.

Computer services have become steadily globalized, particularly as software production is rarely confined to nationally- based locations but outsourced to teams located in a variety of countries [Walsham 2002]. India is a main player on the world market and is the leading outsourcing destination in the world with a share of 55 % of global sourcing business. The major markets for the software exports from India is USA and Canada. 61 % of foreign affiliated exports of India in computer software and ITeS (Information Technology Enabled Services) is from USA. Besides, the US has long enjoyed paramount importance in this industry, as indicated by the size and role of Microsoft, the colossus of computer software, and giants such as IBM, Electronic Data Systems, and Computer Science Corporation, as well as, Silicon Valley, the largest complex of software firms on the planet. In part, this advantage reflects the enormous size of American military expenditures which, historically, were instrumental in the birth of the industry and continue to form a sizable market. Despite rapid growth in employment, the US computer services labor market has been exceptionally tight with high wages and persistent shortages of skilled personnel that are partly alleviated by imports of foreign (often Indian) software engineers. Increasingly, as the industry has globalized, American hegemony in this sector has been challenged. Custom programs remain the core of American computer services exports, but many lesser skilled functions, such as standardized 'shrink-wrapped' software and the debugging of computer programs, have increasingly migrated to countries such as India, Ireland and Israel, all important producers in their own right.

Research and Development (R&D) in a corporate context centers on basic and applied research concerning new product design and development, as well as, improvements of production processes. This sector has grown rapidly in size, importance and sophistication as global capitalism shifted into increasingly more knowledge intensive forms of production in the late twentieth century. Like almost

all other sectors, research and development has become highly globalized, a phenomenon that lies at the core of international patterns of innovation and technology transfer [Howells 1990]. Countries that supply this form of KIBS require significant quantities of highly skilled, generally well paid scientific, engineering, and technical personnel, as well as, extensive and expensive corporate laboratories, necessitating high start-up costs and barriers to entry. The creation and testing of new products tend to be highly labor intensive and have long lag times, and require continuous information exchange between research and production facilities as well as with partners and universities. Most such research facilities are housed within transnational corporations, which use them to enhance exports of their own products or offer their services as stand-alone offshore functions. There are, therefore, close links between R&D and foreign direct investment. Obviously, issues such as patents and associated intellectual property agreements are critical to the success of this sector, as well as various national health, safety, and environmental regulations. The organizational structure of R&D firms varies from highly centralized, hierarchical structures centered on the home country, in which case economies of scale are critical, to more dispersed, decentralized networks that may include partnerships with foreign collaborators. Typically, clients for this industry include agribusiness, electronics, chemicals, health services, biotechnology, and pharmaceuticals firms. Although the US retains a significant competitive advantage in R&D, other countries have followed suit, many of which (particularly Japanese firms) have penetrated the American market, particularly in electronics and automobiles and most commonly in large metropolitan areas. Also, Germany and France strong present on the world market of R&D services.

The global professional services market reached a value of nearly USD 5,700.2 billion in 2018, having grown at a compound annual growth rate (CAGR) of 7.4% since 2014. The global professional services market is expected to grow at a CAGR of 9.1% to nearly USD 8,082.4 billion by 2022. Growth in the historic period resulted from globalization, technological developments, companies outsourcing back end operations to low cost economies and increased mergers and acquisitions

(M&A). Factors that negatively affected growth in the historic period were regulatory challenges, government regulations, skilled workforce shortages and scandals in the accounting industry. Business models such as network-based consulting and crowdsourcing are now evolving in management consulting, and are being adopted by emerging players. North America and Europe are highly mature markets and contribute to about three-fourths of the entire consulting revenue. In addition to this, the supplier capabilities to serve complex client requirements in these regions are also high. North America dominated the market generating revenues of USD 107.76 billion in 2017, followed by Europe with USD 93.23 billion. The APAC market, on the other hand, has a relatively lesser market share. The demand for consulting services is being driven by factors such as a need for operational efficiency, compliance with regulations, and technological advancements.

The nature of engineering services is almost always highly idiosyncratic: as Rimmer (1988) notes, exports of engineering consultative services are personally provided and personally underwritten (that is, they are information based and reliant upon an advisory relationship being established between consultant and client). The 'production process' and delivery of problem-solving services by engineering consultants use tangible inputs (for example, transport, computer time, furniture, etc.) but they do not export a tangible commodity. Rather than the physical movement of a commodity, the key attributes are data exchange, documentation, and personal mobility. By convention, payment for a consultancy contract (or agreement) is generally time related and, unlike employment within a firm, is conditional upon the completion of a particular assignment. As with other KIBS, engineering firms have increasingly sought clients on a global basis. International transactions of engineering services reflect, among other things, rates of GNP growth, corporate budgets, private and public levels of construction and investment, and, because engineering services are usually 'bundled' with (i.e., inextricably tied to) commodities such as automobiles, they also reflect global trade in many types of manufactured goods. Government restrictions on imported services often in the form

of regulations designed to inhibit project proposals from foreign firms – also play a significant role in shaping the temporal and spatial pattern of trade; such restrictions, which often require joint ventures with local suppliers, frequently amount to thinly disguised protectionism via non-tariff barriers. The US prominence in engineering in no small part may be attributed mainly to the large, export oriented industries that employ considerable quantities of engineering labor (e.g. in automobiles, electronics, and construction), large federal aid institutions overseas (e.g. the Agency for International Development) that often stipulate that projects subcontract with US-based consultants, and the significant US military presence around the world, with a network of 750 bases generating numerous contracts with US, rather than local, firms [Rimmer 1988]. US engineering firms dominate the global market in engineering solutions to environmental problems, largely because of the relatively more stringent restrictions on industrial emissions found in the US compared to many other nations. The export leader in this kind of services is United Kingdom. Various types of infrastructure construction activity, such as electricity and telecommunications infrastructure construction, gained momentum and enhanced demand over the past five years. Government capital spending also increased mildly, and contributed positively. However, growth in industrial production activity remained weak, limiting the industry's expansion.

In general, USA takes almost all leadership positions in KIBS trade but some developing countries are increasing their capacity in this market [Appendix 3]. The internationalization of KIBS industries is also a significant trend in the general process of globalization [Miles et al., 2015]. Emerging economies may have great opportunities as suppliers of those elements of KIBS that can be offshored, with other emerging economies themselves providing market opportunities. Their circumstances (not least relatively high-skill but low-wage workforces) mean that they could continue to enjoy significant competitive advantage [Javalgi et al., 2011]. As well as export opportunities, KIBS may well contribute to national economic development in these economies.

In recent decades, the structure of many economies has significantly transformed. Manufacturing has been replaced by service industries as the largest economic sector, both in terms of value added and employment, in developed and in many developing countries [De Fuentes et al., 2015]. While some services are fairly traditional low-skilled industries, others are characterized by a highly qualified workforce, performing complex intellectual operations. This applies to public services such as education and health; and to knowledge intensive business services. The latter have become one of the most important sectors within Western economies [Miles et al., 2018]. What is more, the expected economic performance of knowledge intensive business services is higher levels of productivity and profitability/margin than traditional manufacturing industries [Visnjic, Weingarten, Neely, 2016]. So far, Russia occupies a relatively modest position in the global export of services. Russia may shift its exports from raw materials to knowledge intensive services, because of an impending trend of "quaternary" sector. The weak competitive position in this area is evidenced by its constant deficit in this segment of international trade. However, Russia has been expanding its capabilities at KIBS over the past 10 years.

2.2 Target markets of Russian knowledge intensive services

Another collapse in oil prices has once again demonstrated the need to diversify Russian exports. One of the ways to improve its structure could be to expand the export of services. In addition to increasing the volume of non-resource exports, the export of services can significantly diversify the directions and forms of our country's participation in the international division of labor, increase the efficiency of integrating the national economic complex into the world economy, and ensure greater stability of foreign exchange earnings. In Russia, the knowledge intensive services sector is in its infancy, but it needs to be studied now, since it is

the knowledge intensive sectors that are considered the main sources of economic growth in the near future. The growth rate of this sector in developed economies is significantly faster than the growth rate of the primary and secondary sectors.

Having a surplus in commodity trade for more than two decades, Russia traditionally balances the balance in trade in services with a negative value. The largest contribution to this balance is made by international tourism, which has turned from inbound in Soviet times into outbound, as well as the import of a number of financial and high-tech services. Our country is not yet able to overcome the backward structure of export of services, the volume of which is 6.6 times less than the volume of export of goods. Thus, according to the Bank of Russia, in 2019, services were exported in the amount of USD 62,805 million, and goods - in the amount of USD 418,687 million. In 2019, services worth USD 99,000 million were imported, which is 5% less than in 2018. Import of services of the Russian Federation exceeds their exports by 1.56 times, and Russia has a stable negative balance in trade in services.

To ensure the competitiveness of the national economy and expand global economic relations, it is necessary to form and develop the country's export potential in developing sectors of the world economy, such as the KIBS. Export potential, in a broad sense, is the ability of the national economy, industries, and enterprises to produce competitive goods and services and export them to world markets. In this regard, it is necessary to consider trade in this type of services, the growth of exports by type of services, comparative advantages, human capacity and investment in the development of this service industry.

The volume of exports this kind of services in the Russian Federation from 2005 to 2018 increased 2.03 times and reached USD 13,951 thousand, imports – 6.1 times and amounted to USD 15,826 thousand. The share of exports in the total volume of export of services increased from 11% in 2005 to 22% in 2018, of imports increased from 6% to 17%. On the one hand, trade deficit has negative impact to the development in any sector of economy. On the other hand, it can be covered by stable rapidly increasing growth [fig.4].



Figure 4. Russian export and import dynamics of KIBS, 2005-2018

Source: compiled by the author

It is important to underline that there are two concepts that are used to define the service statistics. The first refers to cross-border trade and is normally considered as trade in services. This corresponds to the conventional concept of the nature of the subject that performs the operation. It defines the purchase of a resident of one country in another country as exports of the latter, and its sale as imports. Vice versa, the purchases or sales of one country resident abroad are denominated as imports or exports, respectively. This type of statistics is collected for the countries' BOP (Balance of payment). A second concept is related to the sales and purchases of foreign affiliates of one country in another country or the sales and purchases of domestic affiliates of the first country abroad in the second country. This is reflected in the Foreign Affiliates Trade in Services (FATS) statistics which are normally not included in the BOP as exports or imports of services. It is a type of service statistics from a broader perspective, which has been reflected in recent international agreements, most prominently in the General Agreement on Trade in Services (GATS) from 1995.

The study of potential spread and past years analysis of Russian KIBS is based on a database of ITC and WTO from 2005 to 2018, which is collected by the first concept.

Sometimes Russian growth of KIBS export exceeds the world growth. By this Russia can bring under bigger share of the export. However, Russian market is more sensitive to economic instabilities.

Consider the dynamics of the export of KIBS by their types: computer; information; architectural, engineering, scientific, and other technical; R&D, professional and management consulting services. Leading positions - in the first direction: growth by 10.85 times, in second place - information services (2.7 times), in third place professional and management consulting services (2.53 times) [fig.5].

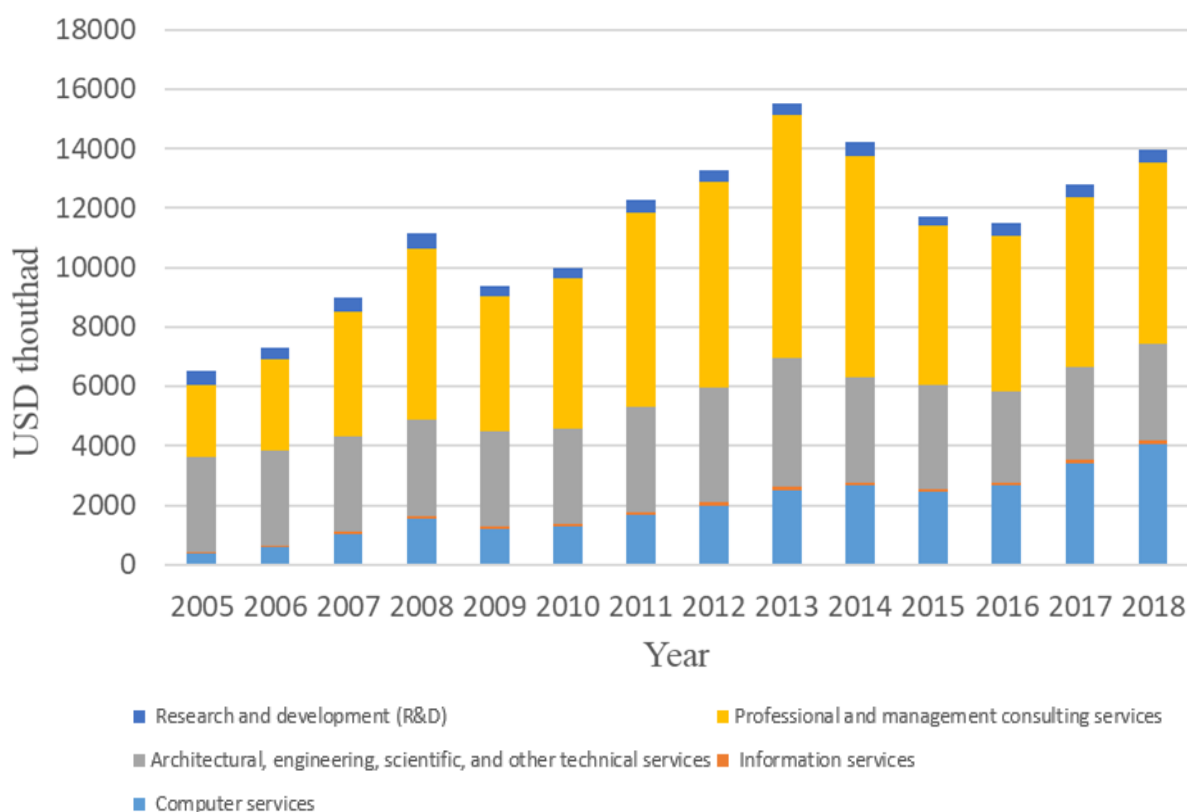


Figure 5. Russian dynamic of KIBS export by type, USD thousand

Source: compiled by the author

Information services is defined as the system of keeping records, forms, statistics and data at a business. It takes small part in knowledge intensive services export; however, it shows the big growth in value from USD 47 thousand to USD 127 thousand dynamic. In accordance with the report of the International

Telecommunication Union “Measuring the Information Society - 2017”, Russia took 45th place in the global ranking of the development of information and communication technologies (ICT), which are strongly connected with KIBS, remaining in a similar position compared to the previous period. This report is published annually and includes a rating on the ICT development index, which allows assessing its dynamics in 175 countries. The index is compiled according to 11 indicators, including access to information and communication technologies (number of wired and mobile communication subscribers, width of an external Internet gateway), their degree of use (number of active mobile and Internet users), ICT skills among the population, etc. in 2019 Iceland rose to first place in the ranking (8.98 points), Korea (8.85) took second place, followed by Switzerland (8.74) and Denmark (8.71). Russia, gaining 7.07 points, is in 45th place (for comparison: Brazil took 66th place, China - 80th, South Africa - 92nd, India - 134th).

Research and development services include basic, applied research and experimental development in various fields of science: natural, technical, social and humanitarian. In addition, this type of service includes the sale of research and development results, including those issued by patents, copyright certificates, sale of information on industrial processes, as well as annual and other regular and one-time contributions to scientific organizations, associations, associations (excluding international and charitable organizations, associations, foundations, associations). Their contribution to the export of knowledge intensive business services is USD 419 thousand (3%). The main importers of Russian R&D services are EU, USA and Netherlands. In 2018, it was approved a national research strategy that stretches to 2024. It calls for more money, extra support for early-career scientists, and some 900 new laboratories, including at least 15 world-class research centers with a focus on mathematics, genomics, materials research and robotics. Last year, the government completed a sweeping evaluation of scientific performance at its universities and institutes; it has vowed to modernize equipment in the 300 institutes that made the top quartile. And it says it wants to strengthen previously neglected areas, including climate and environmental research. One of the goals is that Russian

scientists will become participants in 40% of advanced global research related to the new technological revolution.

Services in the field of architecture, engineering and technical fields, exported in 2018 in the amount of USD 3,228 thousand. Architectural, engineering, scientific, and other technical services for the all period have not significant changed in their value. These are consulting, design and engineering work; integrated engineering services; consulting services in scientific and technical fields; services in geodesy and cartography, as well as in the field of standardization and metrology; technical testing, research and product certification. These services are exported mainly by enterprises of the military-industrial complex (MIC), the state corporation Rosatom (State Atomic Energy Corporation) and non-nuclear power engineering. The main importers of Russian architectural, engineering, scientific, and other technical services are France, USA, Germany. Furthermore, Russia has being in reconstructed process of building nuclear power plants in India, Turkey, Iran, Belarus and Bangladesh, that's why there are in 20 tops of the export. The increase in the supply of non-nuclear engineering services will be supported by the expansion of the need for power generation in the markets of many rapidly growing developing countries as they industrialize and urbanize; moreover, in some cases, for example, in Latin America, local customers are ready to provide tenderness contracting to Russian companies. The largest export growth is expected in the EAEU, Latin America, South Asia, Southeast Asia, the Middle East and North Africa. The growth potential of export of services through the defense industry channels is associated with a general increase in the innovativeness of military-technical cooperation, the complexity of its forms, the creation of licensed production, accompanied by the transfer of technology and know-how, as well as a significant increase in the maintenance and repair of already delivered military equipment (over the past 10 years, Russia provided about 20% of total global arms exports). Potentially the most significant sales markets are the Middle East and North Africa, South Asia, as well as Southeast Asia, Latin America, and Tropical Africa.

Professional and management consulting services are included by advertising, market research, and public opinion polling services; legal services; accounting, auditing, bookkeeping, and tax consulting services; business and management consulting and public relations services. But there are not a lot of articles about it. The management consulting industry has received little academic attention due to a variety of reasons. First, it is highly fragmented with a variety of consulting firms, ranging from the "big three" global strategy-consulting firms to a large number of individual/independent consultants. Second, the industry has not been regulated, unlike other professional service firms such as accounting and law, and little attention has been paid to even the establishment of professional bodies such as consultants' associations. Third, apart from the differences in size and scale, there exists a wide variety in the positioning and differentiation of the various consulting firms. There are firms that focus on a variety of issues in the same market such as the strategy-consulting firms, as there are firms that focus on a specific domain, such as information technology (IT). Finally, the lack of extensive studies on the consulting industry can be attributed to the nature of services they offer - services that are hard to study, measure, and quantify. Russia takes 15th place in the world export of this kind of services.

But still in parallel with the world and Russian expansion of the type of service professional and management consulting services there are several trends that guide this type of service. Value-oriented revenue model – companies in the design, research, promotional and consulting services market are shifting from the traditional per-hour and per-month revenue model to a value-oriented revenue model. In line with increasing wages and pressure from clients to decrease pricing, many companies are shifting towards value-oriented billing. Value-oriented billing is easy to apply in markets such as management consulting and market research since the value (such as tax savings, damage awards, ad placements or the size of an acquisition or merger) is often explicit. It is expected that more design, research, promotional and consulting service providers will shift to value-based pricing as they try to become "advisors" rather than just service providers.

Increased adoption of digital advertisements – general professional service agencies are rapidly shifting towards IT transformation and digitalization of services. With the emergence of advanced data analytics, big data is turning out to be a critical tool for market research companies while executing research projects on a large volume of data to offer analytics solutions to give more robust insights to their clients. Advertising and PR firms are offering digital campaigns taking advantage of increasing digitalization and advances in social media, search engine marketing, content marketing and e-commerce technology. As a result of increasing internet penetration and smartphone users, online content marketing campaigns are expected to be 3 times more effective than traditional ones and comparatively cost 62% less. In addition, advertising, market research, and public opinion polling services take the biggest share in professional and management consulting services export [fig.6].

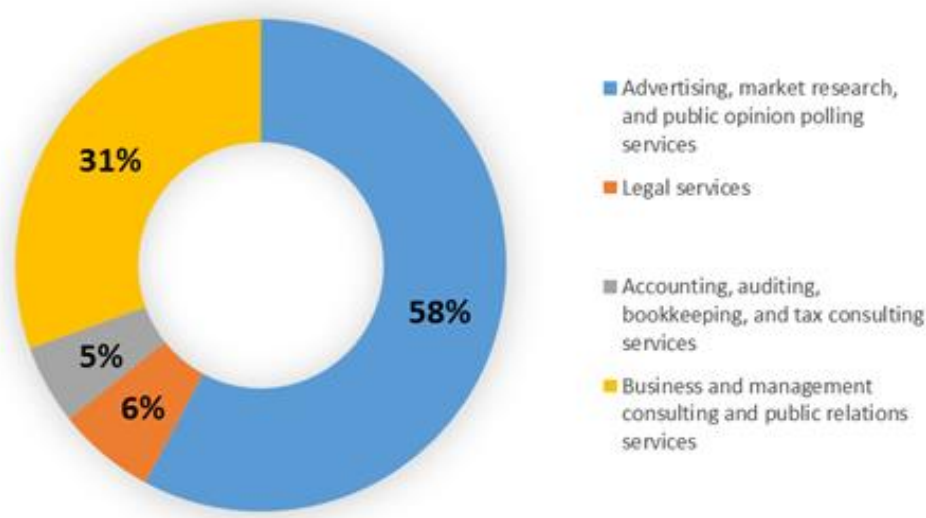


Figure 6. Russian professional and management consulting services by type, %
Source: compiled by the author

Besides, the most dynamic part in KIBS export is played by the export of computer services, the volume of which in 2018 amounted to USD 4 million and grew by 10.8 times compared with 2005 (USD 374 thousand). The export volume of domestic IT companies has doubled over five years, and, according to experts of RUSSOFT experts, the growth will continue in the future by 15-20% annually. In

particular, the almost completely undeveloped software market of developing countries has enormous potential.

The statistics, which was discuss above, led to a change in the structure of the exported volume of KIBS - an increase in the share of computer services and professional and management consulting services from 6% to 29% and 37% to 44% and a decrease in the share of R&D and architectural, engineering, scientific, and other technical services from 7% and 3% to 49% and 23%, respectively [fig.7]. The Russian diversification copies the world trends.

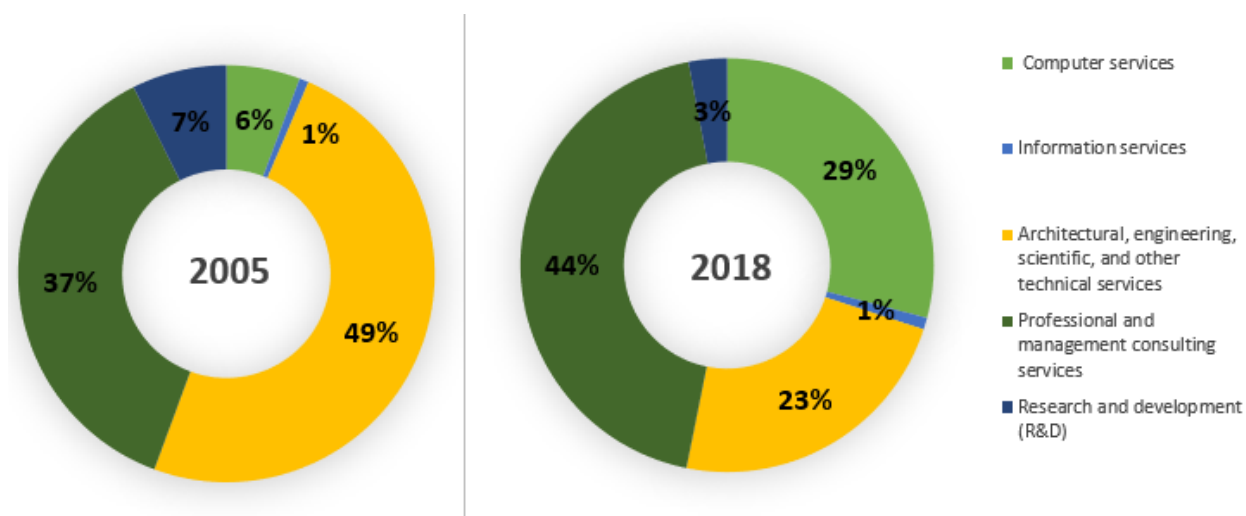


Figure 7. Russian exported volume of knowledge intensive business services by type, %
Source: compiled by the author

Computer services increased their share of KIBS more than 4 times in 14 years. Today in Russia there are more than 3200 software companies, and more than 2000 of them have export revenues. The total number of software developers working in the IT industry in Russia is about 460 thousand people. The total turnover of Russian software companies in 2015 amounted to 630 billion rubles. Of these, the volume of foreign sales is 405 billion rubles, export supplies account for more than half of the total turnover of domestic software companies. The share of export of software and services for its development in the total volume of Russian exports is steadily increasing.

Moreover, according to OECD statistics, IT and information services have long value-added chain. For example, there are 46 export-mediator countries when Russia exports to the United States this type of service. These countries include

United Kingdom (Virgin Islands), Netherland, Ireland, - offshore countries. Probably, USA uses Double Irish arrangement to export some Russian services. The Double Irish is a base erosion and profit shifting ("BEPS") corporate tax tool, used mostly by US multinationals since the late 1980s, to avoid corporate taxation on most non-U.S. profits. Three companies are being created for the scheme. The company using the scheme exports the knowledge intensive services of an affiliated company (№1) registered in Ireland, but which is a tax resident of an offshore zone. The second company is created in the Netherlands and sublicenses the rights to this export from the first company. Then a third company, which is a tax resident of Ireland, sublicenses the rights from the Dutch firm. Due to the peculiarities of Dutch tax legislation and international agreements, such sublicensing and payments under it are not taxable. Company №3 is often a 100 % subsidiary of the company №1. This same company also conducts real activities in various countries, sending almost all profits through the Dutch company (№2) in the form of royalties. These intermediate costs and broad participation show that Russia acts as the first element of the export chain and has a large export potential for cooperation

In general, analysts of Russia's largest coalition of globally oriented software developing companies (RUSSOFT) positively assess the medium-term prospects of the software development industry in Russia. Firstly, due to the strong depreciation of the ruble, the competitiveness of Russian software companies has increased, which generally outweighs the negatives due to political risks. Reducing the cost of labor attracts additional customers, keeps software development centers of foreign companies in the Russian Federation and increases the efficiency of creating new such centers. Secondly, in the first half of 2015, the process of transferring development centers of Russian companies from Ukraine to other countries was completed. Thirdly, despite the cooling of political relations with the Russian Federation, in southern Europe, Austria, Switzerland, and some other European countries, activity has been noted to attract investment by Russian companies, and other signs have appeared of a course towards restoring mutually beneficial cooperation.

The long-term competitiveness of the national software industry will be determined by the expansion and improvement of the quality of training programmers and in general personnel for work in the ICT field, the creation of the most favorable conditions for starting a business (startups) in the field of information technology (in Russia, most of the startups traditionally gravitate to this area , a special program is being implemented in the country to teach students the skills to start independent entrepreneurship), stimulating the prospect active foreign students and novice specialists in the field of information technology to continue their studies and work in Russia (for this, you can and should use the tools and mechanisms of the Russian national program for promoting international development, which emphasizes the Commonwealth of Independent States (CIS) and Eurasian Economic Union (EAEU) countries, which is very important, having significant Russian-speaking population).

There are some factors which effect KIBS development. Weighted average estimates for certain types of services and for the sector from the study Doroshenko (2008) indicate that the strongest positive impulse comes from factors such as (in decreasing importance): economic growth in the country; population income growth; trust of potential customers to service providers; consumer awareness of service providers; development of market infrastructure; solvency level of Russian enterprises; the efforts of the leading market participants themselves to increase the transparency, understandability, measurability (effectiveness) of their markets. The negative impact on the dynamics of the markets of KIBS, as the respondents expect, will have (in decreasing importance): lack of need for services; corruption; administrative difficulties created by government organizations; the inability of potential customers to use the results of the services provided. Note that a strong negative role in the development of the knowledge intensive services market is played by the lack of need for services. The negative impact of other factors (separately) is not so obvious. An insignificant role is played by: the state of the regulatory framework; state regulation; development of own services in enterprises. In general, it is also noteworthy that respondents belonging

to different market segments are unanimous in assessing the direction of influence of each factor. Moreover, the KIBS export is sensitive to economic crises, so there is no sustainable growth in period 2006-2018. In particular, 2009,2010,2014,2015,2016 can be characterized as negative development in export increasing. Compare export growth in value with cumulative amount of export growth in value, the cumulative amount is slighter, however, it does not show a rapidly increase [fig.8].



Figure 8. Russian growth and cumulative amount of growth of KIBS export in value, %
Source: compiled by the author

What is more, the value of the net exports is almost negative trend and shows that import of goods prevails over export. It seems strange as Russia has its own capabilities to cover domestic demand by itself. These capabilities present by employment in the share of employees in the field of KIBS in Russia grew from almost zero in the late 1980s up to 3.3% of all employed in the country's economy in 2016 (it is several times lower than the average for the EU - about 12%. However, the European landscape is heterogeneous. In Western European countries, the share of KIBS is higher in comparison with Central and Eastern Europe, whose indicators are often comparable to Russian) and positive trend in export of KIBS. There is a positive trend of the value of per capita exports. The ratio of exports to inhabitants

indicates the level of outward looking of a country and the extent to which a country's population produces for the world market [fig. 9].

On July 12, 2017, the decree of the Government of the Russian Federation on the "List of products whose export support is provided by Federal Executive authorities in priority order" came into force. According to the Order, state authorities and Russian Export Center (REC) will have to provide priority support for the export of products provided for in the list. The list of knowledge intensive services includes education, engineering, information and computer services. Proposals on possible types of support should be submitted by Federal Executive authorities and REC. The terms for submitting offers are not set in the above-mentioned Order. It is difficult to say how much these measures can improve the situation in the export sector, since the Order does not contain any measures. The strategy help develop negative indicators, such as, trade balance and net export, cumulative amount of export growth in value and export growth.

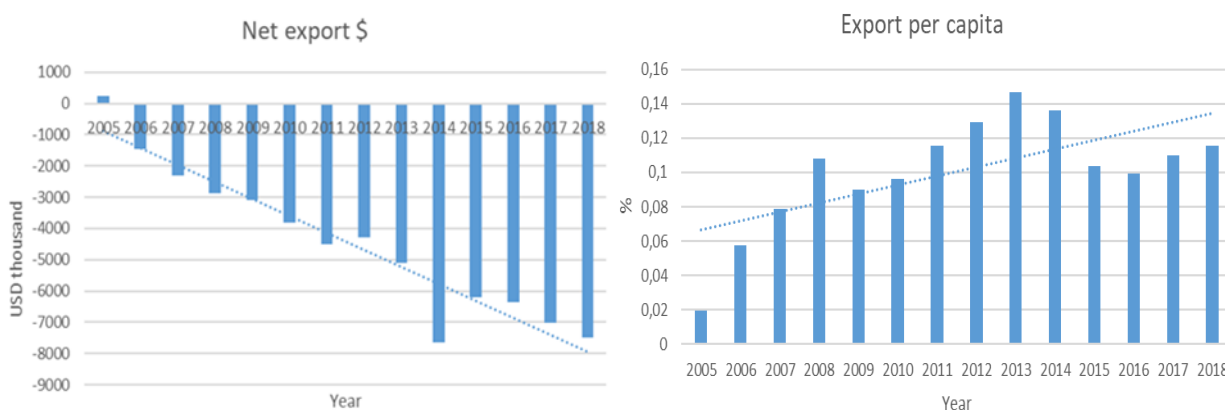


Figure 9. Russian KIBS net export (USD thousand) and KIBS export per capita (%)

Source: compiled by the author

Furthermore, the promotion of engineering and design, along with other emerging technologies and economic activities, has now become a notable international trend. The growth of engineering and design industries at the macro level favors sustainable socio-economic development of the country, increasing the added value of knowledge intensive services and increasing employment [Sladovich, 1991]. This is also due to the fact that organizations operating in these sectors occupy an important place in the value chain, playing the role of "agents of

modernization" and eliminating infrastructure "failures" in the innovation cycle [Gokhberg, Kuznetsova, 2009]. The spread of industrial design services in the public sector is directly related to social innovation. At the same time, there is a growing understanding at the enterprise level that investments in engineering and industrial design contribute to improving operational processes and business efficiency, including in terms of return on assets, sales growth and net profit. Moreover, the direct relationship between the costs of engineering and industrial design and the growth of economic indicators is a consequence of the integration of these activities into the innovation processes of companies [Marsili, Salter, 2006]. For example, a number of studies show that design has a faster effect on innovation performance than R&D [Hobday et al., 2012].

At the same time, there is an obvious underestimation of the contribution of these industries to innovation due to their unclear differentiation from the R&D [Tether, 2009], which reduces the state's ability to support these sectors. Despite the fact that design promotion programs have been initiated in many developed countries, targeted support for engineering is still extremely rare. Only a few countries use separate regulatory measures, such as those aimed at promoting engineering education and increasing the number of engineers (Great Britain), establishing the specifics of public procurement of engineering services (USA), or exempting engineering exports from taxes (Chile) [Kumar et al., 2015]. In this regard, Russia is a clear leader, since in recent years the country has formed a comprehensive system of state support for these sectors. By order of the Government of the Russian Federation No. 1300-R of July 23, 2013, an action Plan ("road map") was approved to promote the growth of engineering in Russia, the formation of the industrial design industry, the diversification of engineering services, the emergence of "national leaders" and the development of specialized organizations of small and medium-sized businesses.

In 2014, the Ministry of industry and trade of Russia developed the sub-program "Development of engineering activities and industrial design", which was included in the state program of the Russian Federation «development of industry

and increasing its competitiveness». the sub-program is designed to provide a financial basis for the implementation of the activities planned in the road map. State support measures also cover a number of subsidies from the Federal budget allocated for the following purposes:

- creation and development of regional engineering centers for small and medium-sized businesses (Ministry of Economic Development of the Russian Federation);

- creation and development of engineering centers on the basis of educational institutions of higher education (Ministry of Education and Science and the Ministry of Industry and Trade of the Russian Federation);

- implementation of activities under development programs of pilot innovative territorial clusters (the Ministry of Economic Development of the Russian Federation);

- compensation of part of expenses on implementation of pilot projects in the field of engineering and industrial design in the framework of the subprogram "Provision of realization of the state program" state program of the Russian Federation "Development of industry and increasing its competitiveness" (Ministry of Industry and Trade).

These activities are also supported by development institutions such as Vnesheconombank (the Bank for Development and Foreign Economic Affairs), RUSNANO (group is a Russian innovation development institution created in the frame of Presidential Initiative termed "Strategy for Development of Nanotechnology Industry"), and RVC (Russian Venture Company). With the assistance of the Fund for Infrastructure and Educational Programs, technological engineering companies were created that specialize in developing original technologies, equipment and products using the existing technological base on the order of third-party organizations. Despite the state support tools initiated in recent years, these areas still have a low level of availability of medium-and long-term loans, a shortage of competent personnel, the use of outdated technologies, gaps in legislation, administrative barriers, etc. [Osmakov, 2014].

In addition, openness of the economy has a negative trend in trade, which can be the barrier to export KIBS from Russia [fig.10]. Since Russia has almost no grounds to expect a fairly rapid restoration of good-neighborly relations with Western countries, and investment activity in the country is growing very slowly, it is necessary to look for new drivers for the growth of domestic exports of services and the openness of the economy. It seems that such a factor may be the diversification of its geographical structure and the deepening of ties with developing countries.

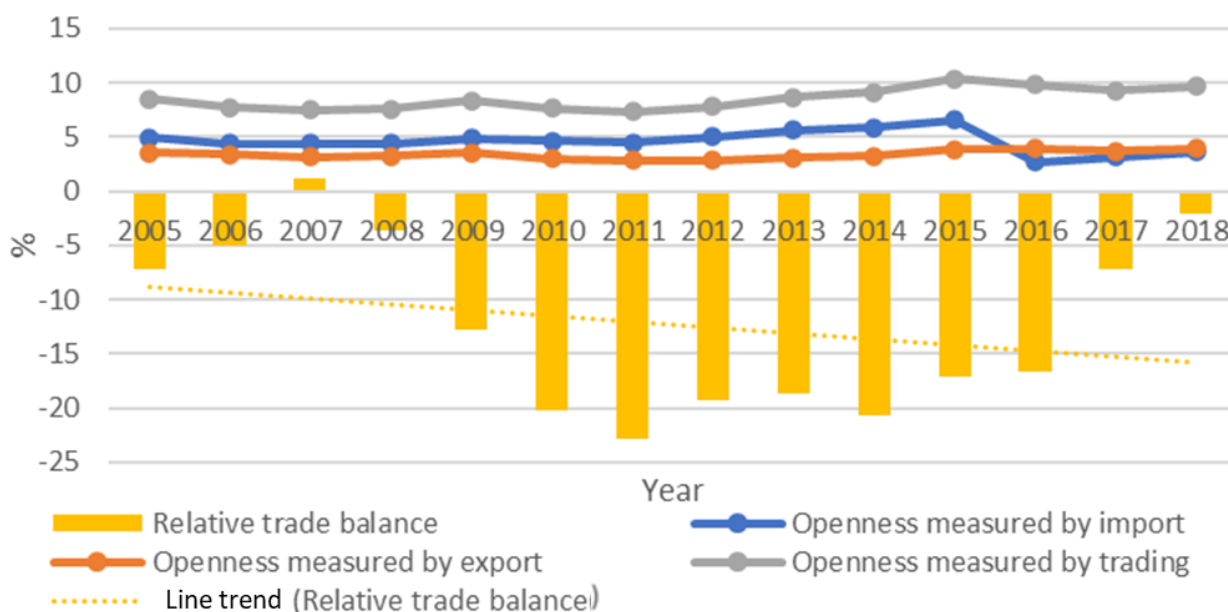


Figure 10. Russian relative indicators of foreign trade, %

Source: compiled by the author

Opportunities for developing the service sector largely depend on attracting foreign capital, primarily in the form of direct investment, since it is with them that technology and experience in effective management methods come. Perhaps this measure in the current situation of worsening trade and economic conditions in relation to Russia looks ambiguous. However, the experience of developing domestic informational and communication technologies (ICT) services has proved that attracting foreign investment can contribute to the development of a competitive national industry [Kuznetsov, 2011].

Currently, the service sector is among the leaders in accumulated foreign investment in the economy. However, foreign capital is directed to fast-paying and

low-tech industries, such as trade. The domestic service sector needs to implement a sound investment promotion policy in order to increase competition in the domestic market, attract financial resources and technology, and improve the quality of services provided. At the same time, it is important to develop programs to encourage capital raising in more complex knowledge-intensive sectors of the service sector. This could be information and communication, research and development. The development of these types of services has a positive impact on the welfare of consumers, increases the efficiency of industrial production and ultimately improves the performance of the real economy. In recent years, Russia has increased its efforts to support exports by creating appropriate structures. Currently, the activities of the REC are aimed at comprehensive export support, both through financial mechanisms and other instruments. In addition, the Center should provide support to Russian investors abroad. The REC aims to support high-tech exports and implements a program to subsidize the interest rate for companies that produce high-tech products. At the same time, the REC provides assistance in protecting intellectual property, adapting and certifying Russian products on foreign markets. These are important and timely measures to support knowledge intensive exports, but it should be noted that the REC's activities are currently focused on supporting exports of goods, not services.

However, KIBS involve specialization according to Balassa index (BI) [Balassa, 1963], it can be lost this direction as BI (measured as Russian share of world KIBS exports, divided by its share of total world service exports) has downward slope. The BI measures the degree of importance of a product within the exports of one market to another relative to the importance of the same country 's exports in the exports of that product to the world. If the Balassa index for a product is more than 1, it means that product involves specialization. If it is less than 1 it means that no specialization is involved in the product. Comparative advantage is generally seen as quite permanent based on fixed local characteristics, but in case of KIBS it could be high-educated workforce, investments. Again, the question of which knowledge intensive activities Russia should specialize in remains

unanswered. The possibilities are enormous, information services to professional, consulting services. How is it known that Russia should really focus on this comparative advantage? Is Russia better exporter of KIBS to export travel services, for example? Modern trade theory does not explain which knowledge intensive activity should be engaged in, because it is presumed that capitalist entrepreneurs have made the right choice. If private entrepreneurs are allowed to choose those production activities that are most profitable locally, it is argued, they will choose those that reflect their country's comparative advantage. Thus, the national state can leave it up to market forces to select the most appropriate activity.

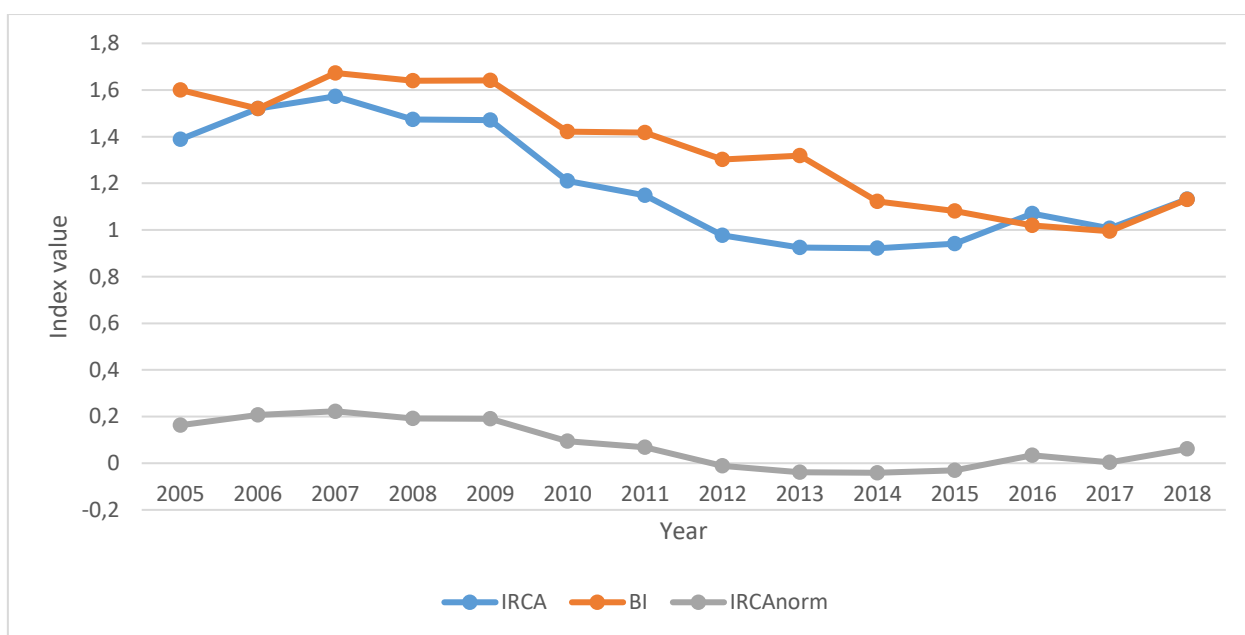


Figure 11. Russian Balassa index, index of relative comparative advantage, normal index of relative comparative advantage

Source: compiled by the author

Additionally, index of revealed comparative advantage (IRCA) shows that Russia has really small comparative advantage in this kind of export. The IRCA presents the extent of commodity specialization in a country's exports relative to the share of that commodity in world exports. A high value indicates comparative advantage of a country in the production of a particular good. When the RCA index of a country is greater than 1, this means that the share of that commodity in the country's exports is higher than the world's average and the country has a comparative advantage on the product or service. Meanwhile when the IRCA is less than 1, it means that the country has no comparative advantage on the product. To

improve treatability and the analysis of the IRCA, the index can be normalized to take maximum or minimum values, respectively, between 1 and -1. As, IRCA_{norm} is between -0.33 and +0.33 during all studying period, so Russia has neither an advantage nor a disadvantage exists [fig.11].

The development of KIBS goes in parallel not only with the dynamics of investment, but also with the ability to introduce innovations. Russia takes 45th place in the innovation index. Over the last three years, Russia has been steadily improving its positions in the innovation input sub-index, while innovation output indicators have been falling. The index evaluates Russian innovation system's strengths and weaknesses. The country's competitive advantages include employment rate among females with a university degree. Russia is second in this indicator, unchanged from last year. Russia is also one of the Top 20 by indicators such as number of graduates in science & engineering (13th), pupil-teacher ratio in schools (14th), knowledge-intensive employment (15th), and gross tertiary enrolment (17th).

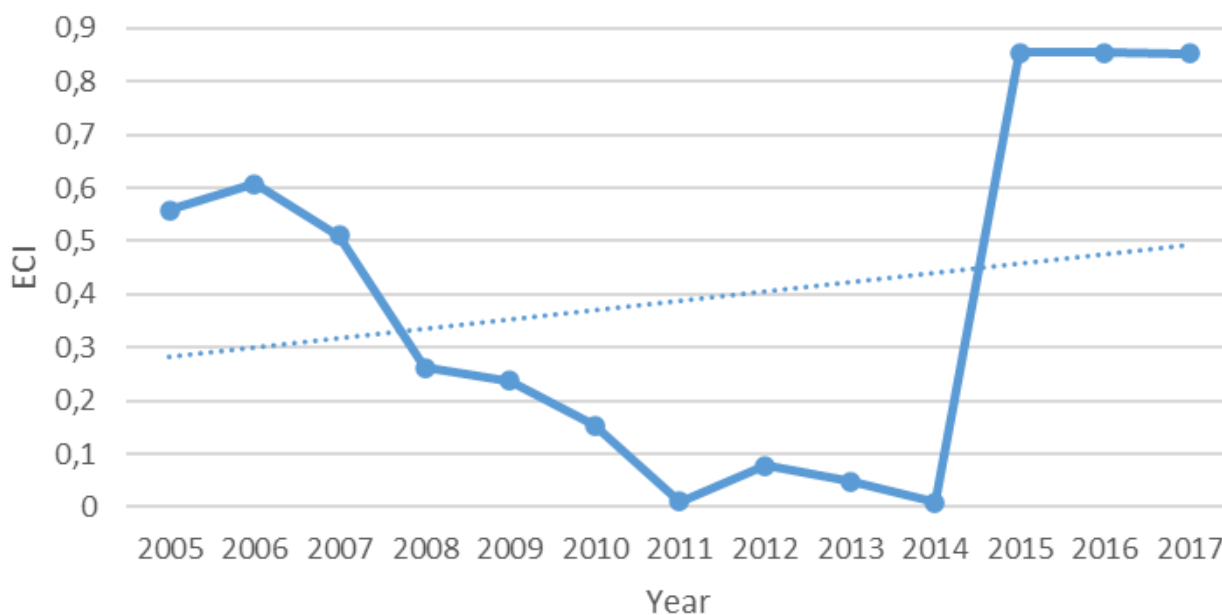


Figure 12. Russian economic complexity rankings

Source: compiled by the author

And last and not the least, the Economic Complexity Index (ECI) is, respectively, measures of the relative knowledge intensity of an economy. ECI measures the knowledge intensity of an economy by considering the knowledge intensity of the products and service it exports. ECI has been validated as a relevant

economic measure by showing its ability to predict future economic. This circular argument is mathematically tractable and can be used to construct relative measures of the knowledge intensity of economies. Russia is on 27 level in the world, the leader is Japan in 2017 (2.03). Moreover, there was a huge growth in the indicator in 2014, because the calculation of the indicator included a new currency post-crisis price level. But still, the level of ECI in Russia is comparatively small, because of lack of investment in R&D in KIBS field and because of inexistence of developing strategies of knowledge intensity economy improvement in that time [fig.12].

Rodriguez & Melikhova (2015) argued that in Russia it has been "traditional" to neglect business services, because non-technological innovations are not considered as crucial as technological ones for fostering economic development. But manufacturing companies rarely adopt complex innovation strategies under the existing conditions [Roud, 2018], and only 10% of industrial enterprises are involved in technological innovation [Gokhberg & Roud, 2016]. KIBS could play an important role in rendering the economy more innovative [Doroshenko, 2011]; some researchers argue that some of the attention given to sectors like energy and traditional manufacturing should be devoted to KIBS like IT or design services [Gershman et al., 2018].

To sum it up, on one hand, Russia shows a huge potential in export of KIBS growing, in particular, in computer and professional, and management consulting services and strong position in architectural services due to nuclear plant architectural designs. On the other hand, there is some factors and indicators, such as, enhancement of investments climate, the services trade balance, the export growth, the net export, the indicators of export specialization of KIBS, which should be evolved on the national, regional and international levels due to the future market expansion.

2.3 Prospects for export development: a predictive approach

Speaking of the potential, it is good to show the expected export trends for this type of service. Short-term forecasting of key economic variables has a long tradition, as many important business and investment decisions are based on forecasts for the outlook of the economy [Blix et al., 2001]. With the important role that trade has played in this wider process of development, it comes as no surprise that forecasts of exports and imports of major trading nations and regional blocs have become a central feature of providers of economic forecasts.

This forecast focuses on the Box-Jenkins (1976) approach to identification, estimation, diagnostic and forecasting a univariate time series model – ARIMA. Time series forecasting models use the past movements of variables in order to predict their future behavior.

Before doing any analysis of time series, one can plot the data by using standard plots and summary statistics to see the behavior of the data. The techniques of model identification which are most commonly used were propounded originally by Box and Jenkins. Their basic tools were the sample ACF and the PACF pattern to see whether given data is stationary in its level and variability, if not some possible transformations can be made, for example, by taking the differences of data values there can be made data stationary in its level on the other hand variability can be handled by taking log of the values, sometime both differences and log can be made in ordered to make data stationary, which is not always possible. There should be the outliers and document these with full explanation.

Next the estimation of parameters in ARIMA model can be made with a nonlinear least square method, maximum likelihood or method of moments. It is to be noted that estimating the parameters for the Box-Jenkins models are quite complicated nonlinear estimation problem. For this reason, the parameter estimation should be left with a high-quality software program, such as STATA that fits Box-Jenkins models. It is very important to remember the principle of parsimony which

means trying to fit a model having minimum number of parameters as a simple model always outperform more complex model.

A good model should have statistically significant coefficients and low AIC or BIC as compared to the other fitted model. Finally, a diagnostic check for fitted models is made to analyze the residuals from the fit for any signs of non-randomness.

The ARIMA model is based on the stationary time series. Therefore, when modeling a discrete time series, there should first study the stationarity of the time series, and then analyze and judge the data sequence generation process. The ARIMA model includes moving average process (MA), autoregressive process (AR), autoregressive moving average process (ARMA), and ARIMA process according to whether the original sequence is stationary or not. Autoregressive moving average (ARMA) model: ARMA (p, q) is a hybrid process of autoregressive moving averages. The formula is:

$$y_t = \varphi_1 y_{t-1} + \varphi_2 y_{t-2} + \dots + \varphi_p y_{t-p} + a_t - \theta_1 a_{t-1} - \theta_2 a_{t-2} - \dots - \theta_q a_{t-q} \quad (1)$$

The ARIMA model is the arithmetic sum of autoregressive AR model and moving average MA model. Where $\{a_t\}$ is a white noise sequence that satisfies the mean and constant variance of 0 and φ_i is the estimated parameter of the model, θ_i is the estimated parameter of the model.

The simple statistic of Russian KIBS export is not-stationary date, the total value of Russian KIBS exports has increased exponentially. In reality, most economic variables are non-stationary, so they have to go through a transformation process called differencing before become stationary. In order to make it stationary there is a creation $\ln(\text{export of KIBS}) = \ln(\text{exp})$ and $D.\ln(\text{exp}) = d\text{lexp}$ (the first difference). Now, the is a stationary time series which has no trend and includes only constant, so the forecast can be predicted.

In order to ensure the smoothness of the sequence, there is carrying out the Dickey-Fuller test. From the software operation results, L_1 is significant as t -9.83 [fig.13], so there is stationarity in difference variable. In addition, the Dickey Fuller

test shows that the original variable is not stationary, but the differences variable is stationary so we need to use differences $d=1$ in the ARIMA models.

Dickey-Fuller test for unit root Number of obs = 54

	Test Statistic	Z(t) has t-distribution		
		1% Critical Value	5% Critical Value	10% Critical Value
Z(t)	-9.832	-2.400	-1.675	-1.298

p-value for Z(t) = 0.0000

D.dlexp	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
dlxp						
L1.	-1.272074	.1293866	-9.83	0.000	-1.531707	-1.012441
_cons	.0190139	.0144866	1.31	0.195	-.0100556	.0480834

Figure 13. The Dickey Fuller test

Source: compiled by the author with STATA

Next, there are dlexp ACF and PCF maps. The maximum hysteresis order is 25. It can be seen from the ACF diagram [fig.14] that the autocorrelation of the first order exceed the significant boundary, while the other autocorrelation values do not exceed the significant boundary, so we can determine the ARIMA model p is 0.

Table 3

Values of two possible ARIMA models

ARIMA	Const	L1.ma	L2.ma	L3.ma	L4.ma	L5.ma	L6.ma	L7.ma	AIC	BIC
(0,1,1)	- .00090 71	-1	-	-	-	-	-	-	- 77.464 67	- 73.486 7
(0,1,7)	- .00079 32	- 1.17 8235	.24436 29	- .13148 98	.6931 61	- .93421 77	.75631 54	- .44990 78	- 80.939 96	- 65.028 09

Source: compiled by the author with STATA

According to the PACF, it can be seen that the first-order and seven-order partial autocorrelation values exceed the significant boundary, while the other partial autocorrelation values do not exceed the significant boundary. Therefore, q is 1 or 7 in the ARIMA model. Therefore, the ARIMA model we obtained is ARIMA (0,1,1) or ARIMA (0,1,7).

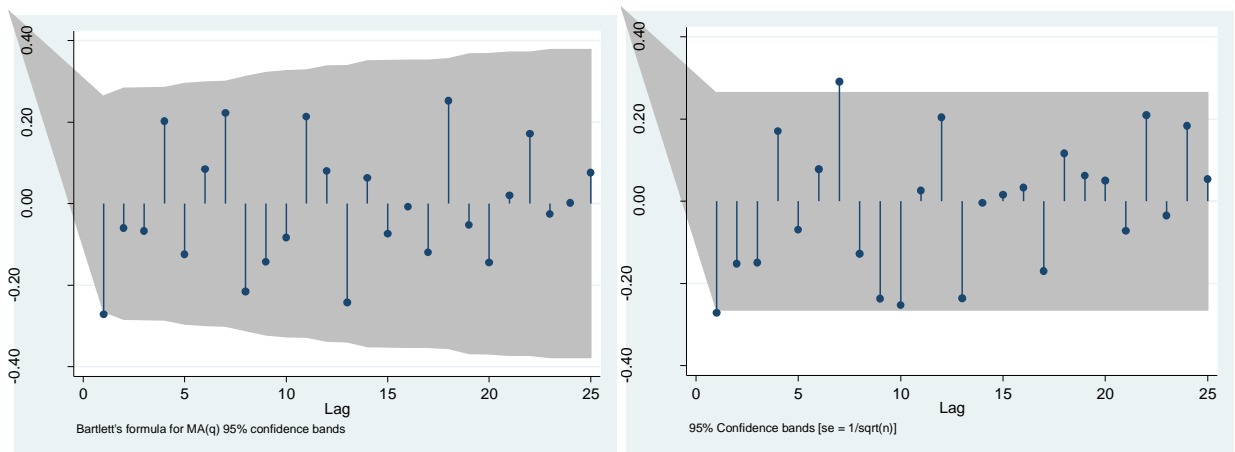


Figure 14. ACF and PCF maps

Source: compiled by the author with STATA

Now, test for first order autocorrelation using the LM statistic (Breusch-Godfrey). In case of ARIMA (0,1,1), there is an autocorrelation ($0.00 < 0.05$), and in case of ARIMA (0,1,7), there is no autocorrelation ($0.0829 > 0.05$), ARIMA (0,1,7) should be used [fig.15].

```
. estat bgodfrey, lags(1)
```

Breusch-Godfrey LM test for autocorrelation

lags (p)	chi2	df	Prob > chi2
1	28.932	1	0.0000

H0: no serial correlation

```
. estat bgodfrey, lags(7)
```

Breusch-Godfrey LM test for autocorrelation

lags (p)	chi2	df	Prob > chi2
7	12.585	7	0.0829

H0: no serial correlation

Figure 15. Breusch-Godfrey autocorrelation checking

Source: compiled by the author with STATA

So, the formula of forecasting is

$$\begin{aligned} \text{exp}_7 = & -0.0007932 + 1.178235a_1 - 0.2443629a_2 + 0.1314898a_3 - 0.693161a_4 \\ & + 0.9342177a_5 - 0.7563154a_6 + 0.4499078a_7 \end{aligned} \quad (2)$$

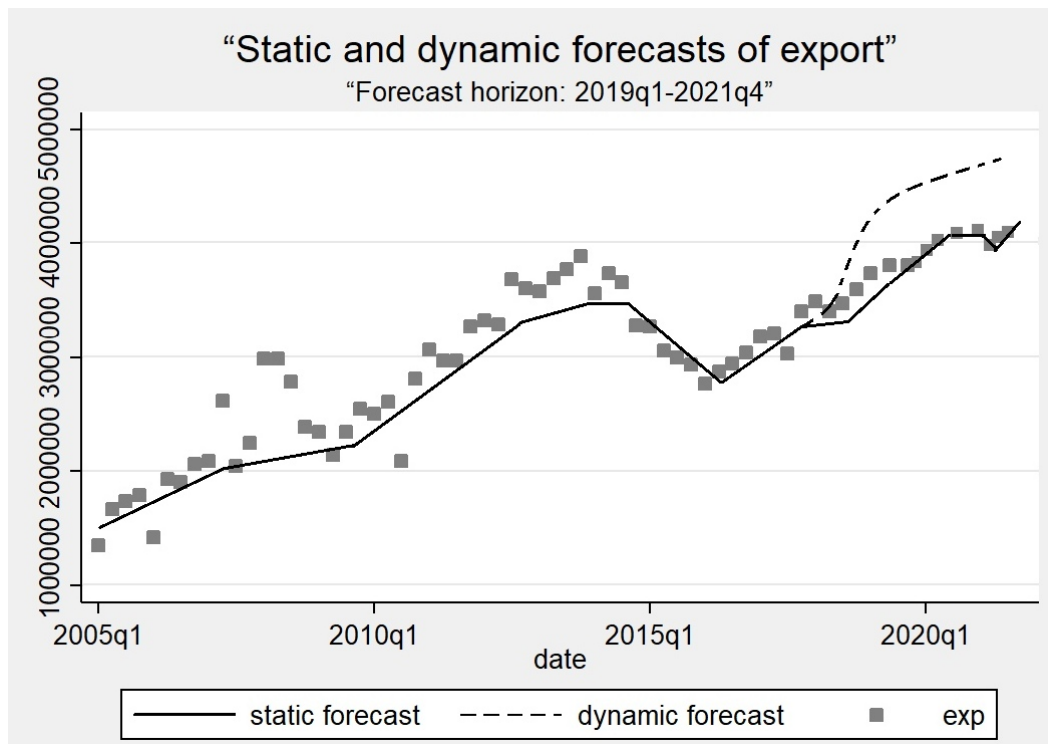


Figure 16. Statistic and dynamic forecast for Russian KIBS export

Source: compiled by the author with STATA

The ARIMA model is used to forecast the export of KIBS trade in 2020-2021, The projected static value for 2021 is USD 16.851 million, Overall, in line with expectations, Russian export in KIBS will be development [fig.16].

It is important to underline that not only indicators which was describe above influence on this forecast but, also, investments are important, thus it influence on export potential.

Increase human capital investment and cultivate specialized talents in view of the shortage of professional talents in Russian KIBS trade, the government needs to take corresponding measures to train more high-level knowledge-based and applied talents. In some universities and research institutes to open more professional courses related to trade in knowledge intensive services, increase investment in a variety of vocational skills training. The establishment of a sound service trade talent management library and service agencies, thereby enhancing the professional quality of employees and the quality of character.

An important factor for the development of this category of services is the volume of R&D spending, which remains in Russia at an unacceptably low level for

the transition to the innovative path of development – about 1% of GDP compared to the orientation of advanced countries to transition to the level of 3-4% of GDP. Potential is generated by the innovation sector. At the same time, the Russian budget plans to reduce the level of expenditures on civil science, which further exacerbates the problem of developing a range of research and development services. At the same time, the concept documents on economic modernization, such as the "Strategy for innovative development of the Russian Federation for the period up to 2020", contain a desire to increase the share of private spending on R&D. Thus, by 2020, it is planned to increase domestic spending on research and development to 2.5-3% of GDP, of which more than half should be carried out by the private sector, but this will not be possible due to the COVID-19 crisis.

Foreign investors also contributed to the rise of the Russian service sector. According to the Central Bank of the Russian Federation, the inflow of foreign direct investment (FDI) to Russia in 2000 amounted to USD 2.7 billion, while about half of this amount (about USD 1.3 billion) was directed to the services sector. By 2018, its FDI inflows had increased to USD 5.8 billion. The Direction of FDI flows to the Russian services sector was not constant during the review period. So, in the early 2000s, their favorite areas of application were real estate transactions and wholesale and retail trade. Along with FDI, the country received the latest technologies, as well as best management practices. As a result, in a relatively short period of time, the Russian service sector has significantly changed its appearance and in a number of key indicators (the number of personal computers, large-format Internet connections, as well as the number of mobile phones) has significantly approached the level of developed countries.

Because of the COVID-19 the forecast could be not truth, as it was said above, the service trade is sensitive to economic instabilities. However, the impact of the pandemic will be short-term and the economy would recovery easier than after crisis 2008 or 2014, if the vaccine is invented by the fall.

3 Russian on the world market of knowledge intensive services

3.1 Creating of common Eurasian Economic Union service market

Because of the growing trend of trading services and forecast of KIBS export despite COVID-19 future crisis, Russia have to think about synergy their power in economic integrations, such as, Eurasian Economic Union.

In the modern world, developed countries traditionally pay great attention to the organization of the service sector, not only because of the high share of the tertiary and quaternary sectors in world GDP, but also because of its indirect impact on a number of economic spheres. Thus, by eliminating barriers to trade in services, cooperating countries receive obvious benefits in terms of specialization in accordance with comparative advantages, expanding potential sales markets, increasing trade turnover and concomitant reduction in relative costs, as well as, a higher quality of a wide range of services and a lower price for the consumer. In an established economic system where all sectors of economic activity are closely linked, countries that have secured free trade in services also receive indirect benefits that subsequently contribute to increased integration and joint economic growth.

The importance of increasing the export of services by the EAEU member countries is growing, the volume of which is not so significant so far. A certain potential in the development of the service sector is associated with a common services market, the need for which is determined by:

- existing growth prospects and a significant share in GDP in such sectors as education, construction, healthcare, finance, telecommunications, transport, tourism and KIBS. Without the formation of a single market for services, it is difficult to ensure stable economic growth of both the member countries and the EAEU as a whole, as well as attract foreign investment;

- the legal foundations of the unified services market established by the Treaty on the EAEU within the framework of specific obligations of the Union states to form it, taking into account a differentiated approach. The formation of a single services market (according to the positive integration method) is based not only on removing barriers to the supply of services, but also on the delivery of services on the basis of issued permits without additional confirmation, under the conditions of the national regime, the most favored nation treatment, taking into account the non-use of quantitative and qualitative investment restrictions, recognition of qualifications;

- the state of the service markets of the EAEU countries, which are only at the beginning of the path of integration into the global services market. The creation of a single harmonized, coordinated and coordinated market for EAEU services will increase the services competitiveness of participating countries in the framework of intra-regional trade;

- the formation of a market for services on the same principles as the market for goods. Today, national service markets are more protected than commodity markets by the state from foreign competition. International trade in services is regulated more strictly by the state, and banking services, insurance, consulting, auditing, business services are monopolized and largely diversified;

- the slower pace of liberalization of the market for services compared to the market for goods, existing barriers to the harmonization of national rules and the mutual recognition of national rules governing the activities of the market for services, as well as the continued fragmentation and segmentation of the national markets of the participating countries;

- heterogeneity of demand for services and pronounced territorial segmentation, the localized nature of the services market and the prevailing number of non-price barriers to entry into the national services market.

One of the most significant indirect effects of service sector liberalization is related to production. The fact is that in the process of production and marketing of most goods, the consumption of a number of services is involved, which are taken

into account in the total volume of costs. Consequently, the liberalization of trade in transportation, communication, sales, and KIBS, and the subsequent reduction of prices with a parallel increase in quality, can significantly reduce the final cost of production and ensure a strong competitive advantage of the product in the global market. In addition, since the largest share of services is delivered through a commercial presence, increased trade in services leads to an increase in foreign direct investment (FDI) in the state's economy. The presence of foreign firms through FDI, in turn, means an influx of human and physical capital, as well as technology and know-how, into the host country's economy. This organization of service delivery creates jobs for the local population, which is also an undoubted plus.

It is worth noting that the elimination of restrictions on trade in services directly affects the main goals pursued by deeply integrated associations – the freedom of movement of factors of production. Thus, the liberalization of the financial sector provides a new level of freedom of capital movement within economic associations, and the above effects contribute to an increase in the quality of the labor force. Thus, there is an important link between the liberalization and development of a country's service sector and its involvement in global value chains, as well as, its impact on the further integration of States and their economic growth rates. Today, all associations that are at a high stage of integration pay special attention to removing barriers to trade in services due to its significant potential effect. Such integrated associations that ensure the free movement of goods and services include the European free trade Association (EFTA), Common market of the South America (Mercosur), the Association of Southeast Asian Nations (ASEAN) and the European Union (EU). The EU is under economic and monetary Union, have made the most progress towards integration, achieving free movement of goods, factors of labor, services, and circulation of the single currency. The EAEU, which formally stands at the same stage of integration development, has yet to implement the process of final formation of a single market for services.

There is already a legal framework for the formation of a single market for services, but it is not as developed as the European Union. The Treaty on the EAEU, which entered into force on January 1, 2015, is the main source of the Union's law. The law of the Union includes international agreements within the Union, international agreements of the Union with a third party, and resolutions of the Supreme Eurasian economic Council, the Eurasian intergovernmental Council, and the Eurasian Economic Commission (EEC). The Treaty on the EAEU established the principles and goals of the Association, obligated States to strive to ensure the free movement of all factors of production, goods and services and a coordinated, coordinated or unified policy in the designated areas of economic activity. The agreement provides for the achievement of these goals by eliminating barriers in the designated areas and gradually eliminating exemptions that contradict the principles of free trade. The provisions of the Treaty on the EAEU are enshrined in 118 articles and 33 Annexes, which bring together the majority of existing international treaties and regulations of the EAEU bodies.

In general, the Treaty on the EAEU mainly consists of provisions prepared at the time of the creation of the Customs Union, and later - the Common economic space, within which the freedom of movement of all four freedoms, including services, was first designated. The table of contents of the Agreement identifies 4 parts, described in the following order: Establishment of the Eurasian economic Union, Customs Union, Common economic space, Transitional and final provisions.

Section XV of the Treaty on the EAEU "trade in services, establishment, activity and investment" aims to ensure freedom of trade in services, establishment, activity and investment within the EAEU. To achieve this goal, the member States of the Union undertake not to apply new discriminatory measures against suppliers from the Union States. Moreover, all member States of the EAEU are committed to provide most favored nation treatment in the services market and privatization, meaning the provision of no worse than third countries, as well as national treatment to citizens of allied States, that is conditions not less favorable than its own citizens.

Annex 16 to the EAEU Agreement contains provisions that regulate the common EAEU services market. KIBS are in sectors in which the common services market already operates.

The fourth part of the Agreement includes transitional and final provisions, fixing the terms of entry into force of the items listed in the Agreement, as well as prescribing the procedure for entry and exit from the Union, the procedure for making changes to the Agreement and the relationship of the Treaty on the EAEU with other international agreements. Thus, the final formation of the single market for services is planned to be completed by 2025.

It is also worth noting that a certain basis and starting point for the liberalization of the services market for most members of the EAEU was laid when they joined the WTO, which is not only a member of Belarus. (Kazakhstan has joined the WTO in 2015, and now it is still in process of adoption). It may be easier for countries members to interact with distant foreign countries as part of a regional integration. For instance, after the creation of a free market for services the EAEU may take part in the negotiations of the TiSA. The Trade in Services Agreement (TiSA) is a trade agreement currently being negotiated by 23 members of the WTO, including the EU. Together, the participating countries account for 70% of world trade in services.

Difficulties with the formation of a common market for services, as well as, in the case of a common market for goods, can be overcome by transferring the functions of regulation and control over the implementation of established norms to the Eurasian Economic Community (EEC). To date, plans have been developed to liberalize a number of service sectors, but in order to move to the single market of services, it is necessary to solve the issues of their regulation at the supranational level, giving the EEC the appropriate powers. In any case, it is necessary to streamline the implementation of Supervisory functions in the sectors (subsectors) services, which operates a single market for services, and to ensure alignment with EAEU to the question of harmonization and taxation of national regulation of services sectors included in the single market.

Thus, the modern legal framework of the EAEU prescribes the elimination of barriers and identifies areas and ways to harmonize trade in services in all areas including KIBS. However, within the framework of the Treaty on the EAEU, numerous provisions are described in detail, stipulating special conditions for regulating trade in services in cases where it concerns state and public interests.

3.1.1 Problems of e-commerce in EAEU in context of KIBS

KIBS are strongly connected with electronic commerce, as services can be purchased from the long distance. According to an analytical study by Morgan Stanley, by 2024, the Russian e-commerce market will reach RUB 3.491 trillion. To realize the growth potential, a well-developed strategy is necessary, such as creation the common market, and tax policy takes a special place here.

All the several problems of taxation of electronic commerce in the EAEU countries are also characteristic of the EU and the USA. One of these problems relates to the taxation of digital products and online services in the B2C (transactions between end-consumers and enterprises) and C2C (transactions between end-consumers) segments. First, online KIBS trade is hard to control. Now it is possible to establish the identity and location of the buyer only by credit card. But if the payment is made through an anonymous payment system, it becomes impossible to determine the buyer. The problem of the inability of tax authorities to track electronic transactions is unresolved for all states. The possibilities for tax evasion in a situation of lack of reliable technologies seem limitless. Consequently, it is necessary to develop new technologies to identify transactions in cyberspace. One of such identification mechanisms can be a cloud-based electronic signature, with which people could register all their actions on the Internet, in particular, conduct and confirm transactions. Also, on the agenda is the development of blockchain technology a smart contract that provides guarantees for transactions and captures all changes in the process of their execution.

The second significant problem is the inferiority of the tax legislation of the EAEU member countries in terms of regulating the taxation of electronic commerce, which include trade of services. Thus, in none of the laws is the definition of electronic commerce, knowledge intensive business services or other relevant definitions fixed. Moreover, the terms themselves were regularly used in official documents. In addition, the classification of digital products, dividing them into goods and services, is still not introduced, as it is in all international organizations.

According to A. M. Abarbekova, Deputy Director of the EEC Financial Policy Department, such a rapid development of global e-commerce can positively affect the growth of the budgets of the EAEU countries, and harmonization of tax systems in terms of taxation of Internet commerce VAT (value-added tax) is a priority for the EEC. So, on the current stage, it is important to achieve a common understanding of possible options for a qualitative change in the system of taxation of mutual trade.

The next problem of the creation the common market in digital economy is caused by the predominance of intangible assets over tangible ones. In particular, one of the knowledge intensive business services, computer services, "software as a service" (SaaS) has become widespread, where a consumer can use the capabilities of software located in a virtual storage "cloud" for a certain amount of time. Thus, the problem of mobility of intangible assets arises, since enterprises, wanting to reduce the amount of taxes paid, prefer to transfer the rights to such assets to affiliated companies that are registered in offshore jurisdictions. The mobility of business functions has the same feature, that is, the ability to organize and manage business processes at any distance. For example, several individuals (legal or physical), simultaneously located in different jurisdictions, can provide marketing services for Russian companies. The solution to this problem is considered to be an approach in which the place of sale of services is tied to the location of the buyer. However, this approach is not sufficiently effective, since its application in the model of multiple buyers is extremely difficult if financing the creation of an intangible asset is carried out by a large number of users, residents of different

countries. Also, the digital economy is characterized by a large number of users with a digital services buyer. Therefore, with the regular occurrence of such situations, a new service may appear on the market - an "offshore buyer". In this case, individuals and organizations - residents of states with a preferential tax system, will register the acquisition of an intangible asset (license) for themselves and provide the right to use to persons registered in the EAEU in exchange for virtual currency or "gratuitous cash payment".

Under the influence of the digital economy on the taxation system, the complexity of the constructions of the norms of tax legislation occurs. For example, the EU Executive Regulation No. 1042/2013 establishes special provisions according to which the location of the end user of electronic services is determined.

International organizations offer various ways of improving the taxation of e-commerce. The report presented to the OECD, 2014 analyzed the situation in the digital economy, presented the dynamics of development and made recommendations for further improving the efficiency of its taxation. In addition, the European Commission — the Executive body of the European Union responsible for preparing draft laws, based on the fact that the tax must be paid in the source country, has developed a document that entered into force on January 1, 2015, according to which telecommunications, radio broadcasting and electronic services will be taxed in the country of residence of the consumer. United Nations Commission on International Trade Law is also actively working on the issue of e-commerce. It has created a model law on e-commerce that has been adopted by many countries. In addition, more and more States are joining the UN Convention on the use of electronic communications in international contracts. The world trade organization, the United Nations Conference on trade and development (UNCTAD) and other international organizations also deal with e-commerce issues and offer solutions that are similar in many ways.

EAEU countries should not introduce new taxes, but should regulate the taxation of electronic commerce within the existing tax system. Further transformations of tax laws should be carried out on the basis of the principles

established at the Ottawa Conference in 1998, which today have not lost their relevance:

- similar tax rules;
- suppression of cases of tax evasion;
- certainty and simplicity (the presentation of taxation rules in a clear and easy to understand form, the ability of consumers to pre-determine the tax consequences of transactions;
- the flexibility and dynamism of the tax system, corresponding to the level of development in technology and commerce.

As possible ways to solve the above problems, there are some solutions:

- the creation of new technologies that allow tax authorities to identify and track transactions in cyberspace;
- ensuring high-quality collection of statistical data in the field of electronic commerce;
- improvement of the provisions of the existing tax legislation: expand the definition of "services" by including the term "electronic services", add the definition of "place of delivery" for electronic services;
- the use of an offshore company as the owner of an online store, which will solve many problems, in particular confidentiality of ownership, legal income generation and optimization of tax payments.

The knowledge intensive services sector deserves detailed reflection in statistical reporting, more in-depth research, and the closest attention from authorities and other potential stakeholders — the business community, industry associations, and others. Taking into account the experience of the European Union, it is worth noting the expediency of forming a coordinated model for evaluating knowledge intensive exports of the countries of the Eurasian Economic Union.

However, since knowledge intensive services are derivative in nature, there is reason to believe that as the Russian economy is restructured and scientific and technical potential is developed and implemented, their demand will still increase. At least, KIBS will be transformed to meet the needs of our country's population. In

this case, such a transformation will only contribute to qualitative changes in other sectors of the economy, thereby increasing their efficiency. In this case, the quaternary sector can become an important source of intensive economic growth. The need to transform the Russian economy into a postindustrial stage has been a pressing issue among economists over the past decades [Mikhailov, 2013].

As a result, there is a conclusion that the regulation of e-commerce operations is currently an urgent issue for the tax authorities of all States of economic entities. Countries whose digital companies are active abroad apply tax incentives and are interested in maintaining their positions and protecting their data from additional tax burdens. Conversely, States that import the benefits of the digital economy seek to avoid budget losses and try to oblige foreign firms to register and pay taxes. However, any country is looking for an optimal balance of benefits and sanctions for both residents and non-residents in the e-commerce sector. In order to improve the effectiveness of tax regulation of e-commerce, attention should be paid to international cooperation and take into account positive foreign experience in this area.

Trade in knowledge intensive services in the electronic platform is a process of global change in all spheres of activity, especially public administration. The emergence of new financial instruments based on digital technologies in the Russian economy requires solving a number of tax problems. Moreover, not only the state is interested in resolving tax issues as soon as possible, but also market participants – taxpayers, since the absence of specific legal aspects of defining digital money does not present the possibility of making changes to the Tax code and other legislative acts on taxes and fees of the EAEU. The policies of most countries in the world are largely dependent on the digital economy. The creation of a flexible system of foreign economic regulation, stimulating the development of the scientific and educational sector and high-tech industries, will become an indispensable condition for ensuring Russia's effective participation in the formation of the global scientific and technological space and will take its rightful place in the global market of knowledge intensive services [Krasnov et al., 2009].

3.2 Barriers to service trade on distant foreign countries

The completed creation of the common service market of the EAEU is planned for 2025. However, Russia should also develop areas for exporting knowledge intensive services to foreign countries and solve existing problems that prevent it from developing its export potential.

Firstly, the analysis of export flows of Russian knowledge intensive services has shown that the geography of the main partners in the trade of these types of services is extremely narrow. The list of major exporters of knowledge intensive exports of services is restricted for foreign countries by UK, USA, France, Netherland and Germany. This geographical structure of knowledge intensive services exports leads to excessive dependence on the foreign economic strategy of a narrow range of trading partner countries.

Perhaps, Russian KIBS companies should focus on developing economies with a low level of political influence. The fact that the import potential of developing countries is underutilized is confirmed by a comparison of their share in world imports of services and in Russian exports of services. According to the WTO, developing countries account for 38.3% of world imports of services. Domestic statistics on foreign trade in services do not allow us to accurately determine the share of these countries in Russian exports of services, since it contains a significant amount of services that are not distributed by country. However, even if all unallocated services are attributed to developing countries, their share in Russia's exports will not exceed 32%. If it is assumed that about half of the unallocated services are accounted for by this group of countries, which is more logical, their share in Russian exports will be less than 26%, which indicates that Russian service exporters have not mastered the markets of these countries. A careful review of the statistics of Russia's foreign trade in services shows that Russian export is particularly poorly developed in the markets of African, Latin American and middle Eastern developing countries. For example, four middle Eastern countries (the

United Arab Emirates (UAE), Saudi Arabia, Qatar and Kuwait) are among the world's 40 largest importers of services. They account for 3.9% of global imports of services. However, among the main Russian exporters of services, only the UAE is listed with a share of 1.4%. The picture is similar with Latin American countries.

At the same time, much attention should be paid to the fact that trade in knowledge intensive services of Asian countries is developing at the fastest pace in the world. Therefore, Russia faces the need to create an adequate export potential for knowledge intensive services in the Asian direction and to form a set of measures for its implementation. Strengthening the position of the Russian Federation in response to trade expansion in the markets requires the formation of a system of active promotion of Russian services to foreign markets. Currently, there is fierce competition between developed countries for the markets of South-East Asia and Africa. India, Korea and China have also joined the fight and are actively promoting their export programs. In this context, the purchase of high-tech assets abroad by Russian companies remains relevant as a quick, though costly, way to acquire modern technologies and best practices in a comprehensive manner.

Secondly, it was said above there is no harmonized classification of knowledge intensive services. The cases reviewed earlier show that this hinders trade and creates new disputes. This affects not only Russian trade with distant countries, but also trade in knowledge intensive services at the global level. But RUSSOFT plans to change the approach to determining the export parameters of the IT industry. The creation of a new methodology is due to the process of mergers and acquisitions. Thus, in 2018, foreign corporations announced the acquisition of three Russian companies - TRANSAS, Parallels and Luxoft. In this regard, it is necessary to review the methods of calculating some indicators, including the contribution to total export earnings. This will be done to meet the criteria of the world's analytical agencies within the framework of the country's software industry development concept. But other KIBS, such as R&D, professional, consulting, information, architectural services, do not plan to upgrade the system.

Thirdly, an analysis of Russian services exports reveals another weakness: our country is extremely cautious about using such a method of exporting services as "commercial presence in the country where the service is provided". This method involves the import of FDI and the establishment of foreign branches that produce services in the host country. For the world's largest service providers, this method of service delivery is the main one. So, in the EU, it accounts for about 70%, the same or more in the US, Japan and other developed countries. The use of this method of delivery is motivated by the desire of supplier companies to overcome barriers to cross-border delivery of services, to use the local attachment of a number of industries, as well as competitive advantages associated with territorial proximity to the consumer. For certain types of services, this delivery method may be the only one that allows for close and continuous contact between service providers and their consumers. It seems appropriate to find out the reasons for Russia's rare use of this method of delivery of services, as well as the possibility of its more active use.

Information about the volume of exports of services generated by the "commercial presence" can be obtained from special statistics on the activities of foreign branches. There are no such statistics in Russia yet. However, direct investment statistics can give some idea of the scale of this trade. According to it, Russia is currently a relatively large exporter of FDI. In 2016, it accounted for 1.3% of all accumulated FDI in the world (more than USD 335 billion). However, only about a third of this amount was invested in the creation of "classic" TNCs (transnational corporation) operating under generally accepted legally transparent schemes. At the end of 2014 the volume of foreign assets of domestic TNCs was USD 135-150 billion. The difference is explained, first, by the fact that not all FDI exported from Russia belongs to TNCs. Often investors are individuals who invest in real estate abroad. In addition, there are low-transparent direct investment funds and holding investment companies that provide investments in enterprises of a wide industry spectrum. And TNCs themselves do not invest all of their FDI in production abroad. They use part of the funds to support the external economic activity of the parent company. Finally, the main reason is that a significant portion of Russian FDI

is briefly held abroad and returned to the country in the form of foreign investment. The fact that this is the case is evidenced by the large share of offshores and so-called "transshipment bases" in the Russian import and export of FDI. "Transshipment bases" can be quite respectable jurisdictions, such as the Netherlands, Luxembourg, Austria and other European countries that allow such operations with capital.

Fourthly, Russia is focused on supporting state-owned companies, not private companies. An important step was the statement on the need to support the export of knowledge intensive services in the "Main directions of export development for the period up to 2030", presented at the beginning of 2015. For example, they spoke about the importance of creating conditions for the growth of exports of knowledge intensive services. It was said about engineering, technical, computer, educational services, as well as services related to the implementation of domestic technologies in the form of industrial property objects. However, the emphasizes in the work of existing institutions have always been shifted towards traditional export commodity items or aimed at supporting a narrow range of large state-owned companies. At the same time, knowledge intensive services companies remained in the shadows, and therefore did not receive effective support for export operations, let alone assistance in international expansion. In this situation, issues related to the search for new forms of non-financial support while simultaneously developing a standardized financial model for services companies entering the world market become particularly relevant. It should also be noted that there is a need for tax incentives for the development of the sector of knowledge intensive services, services in order to motivate their production and subsequent export.

So, the state is obviously obliged to provide some support to domestic companies operating on world markets (information support, assistance in organizing contacts) an important task of Russian foreign policy should also be to prevent discrimination of Russian companies abroad. This is achieved by concluding various bilateral intergovernmental treaties and agreements (on the promotion and mutual protection of investment, the abolition of double taxation). More attention

should obviously be paid to this issue in connection with the political views of different countries. For example, sanctions wars can also cause other problems for expanding the export market of KIBS.

For example, since September 2019, the US Department of defense, the General services administration and NASA have imposed a permanent ban on cooperation between US government agencies with a Russian company. The document prohibits purchasing "Kaspersky Lab" products not only for government agencies, but also for contractors, subcontractors, and suppliers of IT services for government agencies. They should also notify government agencies if they find the use of Russian developer's products during the contract. "Kaspersky Lab" continues to operate in the us market, which remains one of the largest for the company, the speaker stressed. Over the past 12 years, the Russian company has invested more than USD 500 million in this market. In 2018, it managed to increase online sales of new licenses in the North American market by 8%. The company's problems with American officials began in 2017, when "Kaspersky Lab" was accused of collaborating with Russian intelligence services. On October 1, 2018, a temporary ban on public procurement of the brand's products was introduced, which the company unsuccessfully tried to challenge in court. The current ban is permanent and will remain in effect until it is lifted by the Federal procurement Council. This example clearly demonstrates unfair competition in the computer services market.

Furthermore, on the microeconomic level, to improve the business climate in the service sector, a set of measures to support small and medium-sized businesses, a state policy to promote competition, unconditional respect for property rights, and reducing the impact of bureaucratic barriers on obtaining licenses, certificates, and paperwork is needed [Birukova, 2016].

Since July 2012, the Ministry of Economic Development of the Russian Federation has been providing Advisory and organizational support for the activities of this institution within the framework of an agreement on cooperation with the Russian Agency for export credit and innovation insurance against business and political risks ("EXIAR" Ltd.). According to the results of 2012, EXIAR provided

insurance coverage for 15 export projects with a total volume of supported exports of RUB 14 billion. Within the framework of these projects, Russian products were exported to Europe (Spain), Latin America (Cuba, Colombia), Asia (Vietnam, India, China) and the former USSR (Ukraine, Belarus). In Russia, financial support for exports is highly selective and elite in nature and is aimed, for example, at supporting such machine-building giants, as Rosatom in the construction of nuclear power plants. In this situation, it is necessary to search for new forms of financial and non-financial support while simultaneously developing a standardized range of services available to companies in this sphere entering the world market. Relatively few steps are being taken to increase the knowledge intensive export of services in Russia.

In 2009, based on Federal law No. 212-FL "on insurance premiums", the unified tax rate was reduced to 14% for its companies, which allowed Russian companies to have a tax burden only twice as high as that of competitors from India, China, Belarus and Ukraine. However, no other significant support measures have been taken, despite the fact that the industry has been growing at an average rate of more than 30% per year over the past ten years. The need to increase insurance incentives for Russian IT companies was reflected in early 2013, when the Russian government made proposals to extend tax benefits until 2020 for IT companies that were accredited by the Ministry of Communications in the form of insurance premiums at a reduced rate, while the full rate is 30%. Currently, 37% of IT companies are covered by this benefit. For the industry, where human capital is particularly important, and the cost of paying for its specialists makes up a significant part of business expenses, extending the benefits will help increase the industry's competitiveness not only in the domestic market, but also in the foreign market. It is also planned to simplify the tax system for IT companies with an annual turnover of up to 750 million rubles. (today, for IT companies with a turnover of 60 million rubles) and reduce the "threshold" for the number of employees of companies eligible for the benefit from 30 to 7 people, which will allow small companies to use this form of state support. Other proposals include expanding the ability of other organizations to participate in the authorized capital of IT companies

from 25% to 100% in order to create additional incentives for investment in this sector. Currently, Russia does not have a program to support knowledge intensive exports for private companies. Most of the tools that are available are actually mechanisms for supporting state projects and state-owned companies. In this situation, the probability of a significant breakthrough of Russian business in the technology race is extremely low.

Finally, there are also no institutions to support the economic interests of service providers. Attention should be paid to monitoring and evaluation, as well as to the timely correction of proposed programs and strategies. In this regard, the issue of accumulating statistical information and applying a clear methodology for analyzing the development of the segment of knowledge intensive services in the Russian Federation is acute. Such an approach should be applied on a systematic basis, taking into account foreign experience in the study of intellectual services for subsequent comparison of qualitative and quantitative parameters. Statistics in the field of foreign trade relations also lag far behind. Thus, a significant delay in the preparation of data by the Bank of Russia on bilateral trade in services reduces the ability of responsible ministries and departments to respond quickly to possible changes, and reduces the quality of potential foreign trade Advisory services from research centers and consulting agencies.

To sum it up, Russia has opportunities to export KIBS to distant foreign countries in Latin America and Asia. But a breakthrough in the development of knowledge intensive services exports is achievable, but not due to the supposed free exchange of technologies and assistance from foreign countries in modernizing Russia, but as a result of large-scale transformations in the Russian economy and its transition to an innovative development strategy, and the competent implementation of tactical measures to stimulate the export knowledge intensive services on foreign markets. Namely, development the classification of KIBS and approve it on the legislative level and implement it in statistical data; increase its presence in the country; the state should redirect the focus of support to private companies and think about creating of consulting agencies for KIBS export companies.

Conclusion

In the process of studying the Russian export potential of knowledge intensive services, the goal and objectives of the research have been achieved and the following series of conclusions can be drawn on their basis.

Analysis of the literature has shown that, although, there are different approaches and classification to study knowledge intensive services, a common problem for all areas of the KIBS research is the definition of the boundaries of the sector. It arises, as already due to the theoretical uncertainty of the commonly used term "knowledge intensive business services" and the criterion that distinguishes between knowledge intensive and traditional services. Also, there is no harmonized classification of knowledge intensive services. It happened because they still do not clarify does software, software implementation, consultancy services related to the installation of computer hardware, database, R&D on natural sciences, R&D on social sciences and humanities trading is a good or a service. The cases show that this hinders trade and creates new disputes. So, the WTO, the World Bank, UNCTAD and EAEU need to make a common basis for a new regulatory object. The most common classification covers computer; information; architectural, engineering, scientific; professional and management consulting; R&D services.

In the process of analyzing the world market of KIBS, it was established that, despite the problem of KIBS identification, the quaternary sector of the economy is developing rapidly. India, USA, UK take big places in the global market of knowledge intensive business services. Also, it is interesting that there are many offshore countries in the world's export KIBS leaders, that shows that statistic do not always accurately account for trade for this type of service.

Performed analysis shows that Russia has a fairly large export potential in KIBS. The largest position in the export of KIBS is professional services and consulting services in the field of management. It accounted for 44% of all sales for the analytical group of services under consideration. This is followed by the position,

computer services, Russia's export of such services amounted to in 2018, almost USD 3.5 million, or 29% of total exports KIBS. Approximately, the fifth part of deliveries falls on KIBS in the field of architecture, engineering services and technical areas (for a total of USD 5.8 million in 2018). A significant volume of exports on the considered positions are generated by organizations, nuclear and non-nuclear power. Currently, the leading industrial innovation export clusters include, first of all, the military-industrial complex and the closely related the nuclear complex, as well as the software development industry.

The study of trading indicators shows that there are some factors and indicators, such as, enhancement of investments climate, the services trade balance, the export growth, the net export, the indicators of export specialization of KIBS, which should be evolved on the national, regional and international levels due to the future market expansion. Furthermore, the lag in legal regulation of such areas as modern information technologies, e-commerce, administrative procedures related to electronic document management, and engineering negatively affects the export of knowledge intensive services. It is necessary to implement legislative and administrative measures in the service sector to create a favorable business climate and reduce political and commercial risks.

With the improvement of the above factors, the indicators for the export of knowledge intensive business services will be strengthened and the built model shows the export of these services, however, without taking into account the current situation with the pandemic.

Analysis of the creation of a common services market in the regional economic integration, the EAEU, assumes that strengthen Russia's position in the market of knowledge intensive services after the formation of this stage of integration. Also, there are several problems with creation common services market which should be solve by some recommendations. Firstly, difficulties with the formation of a common market for services, can be overcome by transferring the functions of regulation and control over the implementation of established norms to the Eurasian Economic Community (EEC). To date, plans have been developed to

liberalize a number of service sectors, but in order to move to the common market of services, it is necessary to solve the issues of their regulation at the supranational level, giving the EEC the appropriate powers. Secondly, as possible ways to solve the tax problems in electronic commerce are:

- the creation of new technologies that allow tax authorities to identify and track transactions in cyberspace;

- ensuring high-quality collection of statistical data in the field of electronic commerce;

- improvement of the provisions of the existing tax legislation: expand the definition of "services" by including the term "electronic services" and "knowledge intensive services", add the definition of "place of delivery" for electronic services and knowledge intensive services;

- the use of an offshore company as the owner of an online store, which will solve many problems, in particular confidentiality of ownership, legal income generation and optimization of tax payments.

A careful review of the statistics of Russia's foreign trade in services shows that Russian export is particularly poorly developed in the markets of African, Latin American and middle Eastern developing countries. But it was found out that Russia has opportunities to export KIBS to distant foreign countries. But it is important to underline that a breakthrough in the development of knowledge intensive services exports is achievable, but not due to the supposed free exchange of technologies and assistance from foreign countries in modernizing Russia, but as a result of large-scale transformations in the Russian economy and its transition to an innovative development strategy, and the competent implementation of tactical measures to stimulate the export knowledge intensive services on foreign markets. First of all, it could be possible by development the classification of KIBS and improvement it on the legislative level and implement it in statistical data. Besides, increase its presence in the country. What is more, the state should redirect the focus of support to private companies and think about creating of consulting agencies for KIBS export companies. Ensuring the economic interests of Russian service providers should be

carried out in the following main areas: strengthening the unified institutional infrastructure for the development of services exports; implementing a systematic approach to regulating foreign investment in services; developing legislative and administrative and technical measures related to creating a favorable business climate in the services sector; actively using regional and multilateral cooperation mechanisms to ensure the necessary conditions for domestic business to operate in foreign markets of services.

In general, the role export of knowledge intensive services export and the very sphere of knowledge intensive services in Russia is greatly underestimated. The attitude to services in Russia is largely the result of a lack of understanding of their role in the modern quaternary economy and, moreover, in the economic development of Russia in the context of its modernization and worthy integration into the international economic space. The most important function of the quaternary sector - the development of human capital, the accumulation and dissemination of scientific knowledge and other types of intangible assets-is overlooked. The transition of the Russian economy to a new model of development implies the priority expansion and renewal of the domestic service sector, as the most important direction of economic diversification. In this way, Russia can increase its export capacity through state support, participation in international economic integrations and competent analysis of market needs, thereby realizing its export potential.

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70. URL: <https://www.trademap.org/> - site of International Trade center statistics.

Appendix

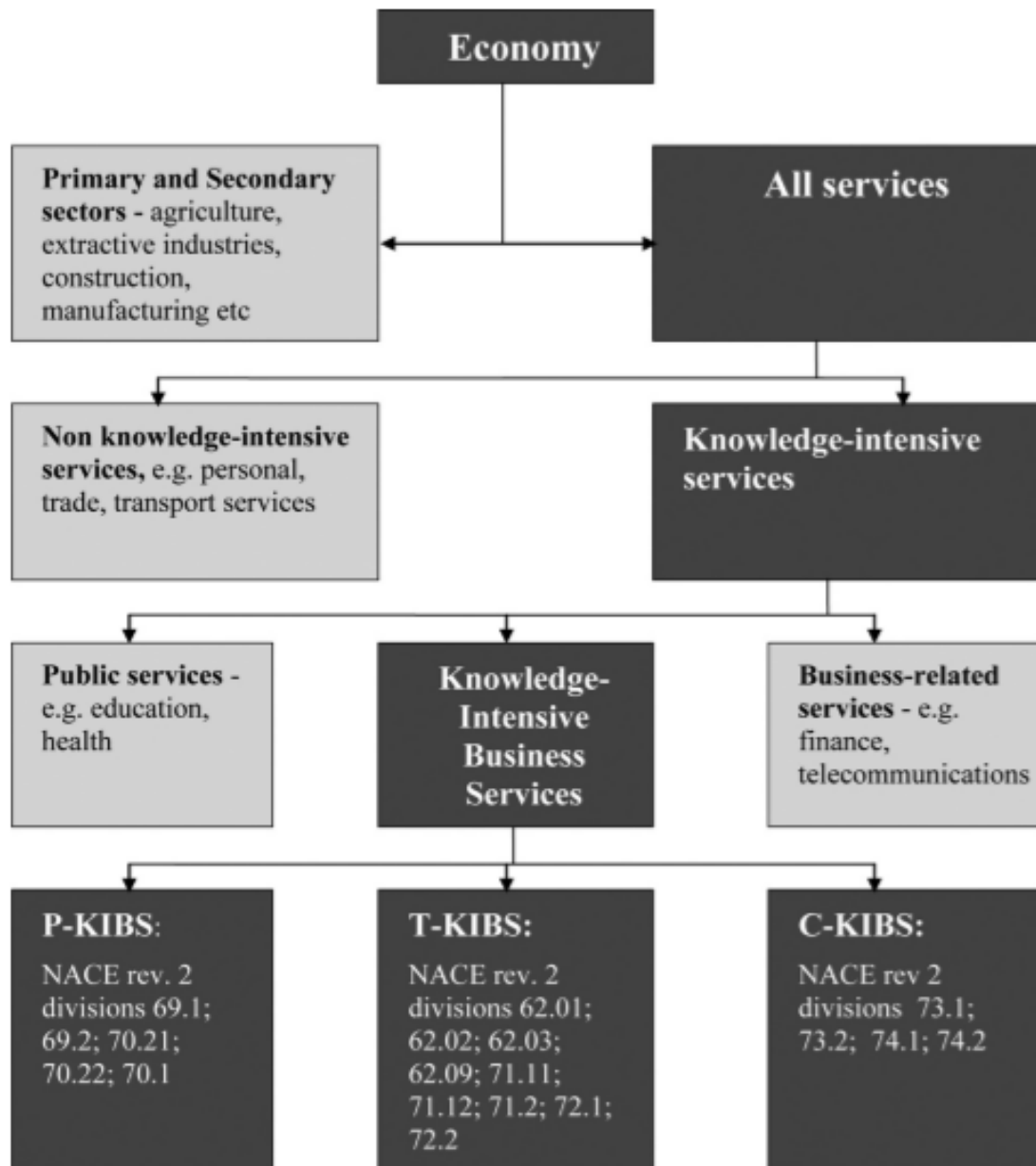
Appendix 1

Different approaches of KIBS identification

Author	Year	Included services in knowledge intensive services	Type of classification
F. Machlup	1962	Engineering services, legal services, auditing services, consulting services, a number of health services	Classification approach
Ian Miles, Nikos Kastrinos, Rob Bilderbeek, Pim den Hertog, Kieron Flanagan, Willem Huntink and Mark Bouman	1995	KIBS	Knowledge-intensive business approach
P. Windrum, M. Tomlinson	1999	Architecture, other construction service, software and other computer services, banking and financial services, design services, environment-related services, facility management services, insurance, services related to recruitment, marketing services and research, press and news services, research and development services. telecommunication services, technical engineering services, technology -related training	Functional approach
E. Muller, A. Zenker	1998	Audit management consulting, marketing, certification, advertising law, real estate activity	Labor contribution to value added and wages approach
Y. Kuzminov and others	2003	Consultation (including IT-consulting), audit, legal services, marketing services, evaluation activities, trust asset management, technological and financial audit, recruiting, advertising and PR, analytical services	Features of production approach

Source: compiled by the author

Classification of KIBS



Source: Miles I., Belousova V., Chichkanov N., Knowledge intensive business services: ambiguities and continuities // *The Journal of Future Studies, Strategic Thinking and Policy*, 2018

Comparison of service classifications

9. Telecommunications, computer and information services

EBOPS 2010		CPC 2.0	
code	Description	Code	Description
9.1	Telecommunications services	841	Telephony and other telecommunications services
		842	Internet telecommunications services
		846	Broadcasting, programming and programme distribution services
9.2.1	Computer services - Computer software	83143	Software originals
		8434	Software downloads
		84391	On-line games
		84392	On-line software
9.2.2	Computer services - Other computer services	8313	IT consulting and support services
		83141	IT design and development services for applications
		83142	IT design and development services for networks and systems
		8315	Hosting and information technology (IT) infrastructure provisioning services
		8316	IT infrastructure and network management services
		8713	Maintenance and repair services of computers and peripheral equipment
92919*	Other education and training services, n.e.c.		
9.3.1	Information services - News agency services	844	News agency services
9.3.2	Information services - Other information services	8394	Original compilations of facts/information
		8399*	All other professional, technical and business services, n.e.c.
		84312	On-line newspapers and periodicals
		84313	On-line directories and mailing lists
		84393	On-line adult content
		84394	Web search portal content
		84399	Other on-line content n.e.c.
845	Library and archive services		

10. Other business services

EBOPS 2010		CPC 2.0	
code	Description	Code	Description
10.1.1.1	Provision of customized and non-customized research and development services	811	Research and experimental development services in natural sciences and engineering
		812	Research and experimental development services in social sciences and humanities
		813	Interdisciplinary research and experimental development services
		83912	Industrial design services
10.1.1.2	Sale of proprietary rights arising from research and development	814	Research and development originals
		8392	Design originals
10.1.2	Other research and development services	8344*	Technical testing and analysis services
10.2.1.1	Legal services	821	Legal services
10.2.1.2	Accounting; auditing; bookkeeping; and tax consulting services	822	Accounting, auditing and bookkeeping services
		823	Tax consultancy and preparation services
		824	Insolvency and receivership services
10.2.1.3	Business and management consulting and public relations services	8311	Management consulting and management services
		8312	Business consulting services
		8319	Other management services, except construction project management services
10.2.2	Advertising; market research; and public opinion polling	836	Advertising services and provision of advertising space or time
		837	Market research and public opinion polling services
		83812	Advertising and related photography services
10.2.2.1	Advertising; market research; and public opinion polling	8596	Convention and trade show assistance and organization services
10.3.1.1	Architectural services	832	Architectural services, urban and land planning and landscape architectural services
10.3.1.2	Engineering services	833	Engineering services
10.3.1.3	Scientific and other technical services	8342	Surface surveying and map-making services
		8343	Weather forecasting and meteorological services
		8393	Scientific and technical consulting services n.e.c.
		8344*	Technical testing and analysis services

Continuation of Appendix 3

10.3.2.1 Waste treatment and de-pollution	894	Materials recovery (recycling) services, on a fee or contract basis	
	941	Sewerage, sewage treatment and septic tank cleaning services	
	942	Waste collection services	
	943	Waste treatment and disposal services	
	944	Remediation services	
	945	Sanitation and similar services	
	949	Other environmental protection services n.e.c.	
10.3.2.2 Services incidental to agriculture, forestry and fishing	835	Veterinary services	
	861	Support services to agriculture, hunting, forestry and fishing	
10.3.2.3 Services incidental to mining, and oil and gas extraction	862	Support services to mining	
	8341	Geological, geophysical and other prospecting services	
10.3.3 Operating leasing services	7211	Rental or leasing services involving own or leased property	
	731	Leasing or rental services concerning machinery and equipment without operator	
	7321	Leasing or rental services concerning televisions, radios, video cassette recorders and related equipment and accessories	
	7323	Leasing or rental services concerning furniture and other household appliances	
	7324	Leasing or rental services concerning pleasure and leisure equipment	
	7325	Leasing or rental services concerning household linen	
	7326	Leasing or rental services concerning textiles, clothing and footwear	
	7327	Leasing or rental services concerning do-it-yourself machinery and equipment	
	7329	Leasing or rental services concerning other goods n.e.c.	
10.3.4 Trade-related services	611	Wholesale trade services, except on a fee or contract basis	
	612	Wholesale trade services on a fee or contract basis	
	621	Non-specialized store retail trade services	
	622	Specialized store retail trade services	
	623	Mail order or internet retail trade services	
	624	Other non-store retail trade services	
	625	Retail trade services on a fee or contract basis	
10.3.5 Other business services n.i.e.	6912	Gas distribution through mains (on own account)	
	692	Water distribution (on own account)	
	7212	Trade services of buildings	
	722	Real estate services on a fee or contract basis	
	83811	Portrait photography services	
	83813	Event photography and event videography services	
	83814	Specialty photography services	
	83815	Restoration and retouching services of photography	
	83819	Other photography services	
	8382	Photographic processing services	
	83911	Interior design services	
	83919	Other specialty design services	
	8395	Translation and interpretation services	
	8399*	All other professional, technical and business services, n.e.c.	
	851	Employment services	
	852	Investigation and security services	
	8531	Disinfecting and exterminating services	
	8532	Window cleaning services	
	8533	General cleaning services	
	8534*	Specialized cleaning services	
	855	Travel arrangements, tour operator and related services	
	8591	Credit reporting services	
	8592	Collection agency services	
	8593	Telephone-based support services	
	8594	Combined office administrative services	
	8595	Specialized office support services	
	8597	Landscape care and maintenance services	
	8599	Other information and support services n.e.c.	
	69112	Electricity distribution (on own account)	
	86312	Support services to electricity distribution	
	8632	Gas distribution services through mains (on a fee or contract basis)	
	8633	Water distribution services through mains (on a fee or contract basis)	
			Distribution services of steam, hot water and
	8634	air-conditioning supply through mains (on a fee or contract basis)	
	8635	Water distribution services, except through mains (on a fee or contract basis)	
	873	Installation services (other than construction)	
891	Publishing, printing and reproduction services		

Source: Manual on Statistics of International Trade in Services, (MSITS 2010)

World exporter and importer leader of KIBS by type, 2018

№	Computer services	Information services	R&D services	Professional and management consulting services	Architectural, engineering, scientific, and other technical services
TOP EXPORTERS					
1	India	USA	USA	USA	United Kingdom
2	China	Netherlands	Germany	India	Germany
3	Germany	Germany	France	Singapore	France
4	USA	Korea, Republic of	Netherlands	Germany	USA
5	Netherlands	France	Japan	France	Netherlands
6	France	Romania	Canada	Belgium	Canada
7	Israel	Poland	Belgium	Netherlands	Austria
8	Sweden	Australia	Sweden	Canada	Italy
9	Singapore	Singapore	Italy	Poland	Belgium
10	Finland	India	India	Japan	Singapore
11	Poland	Japan	Switzerland	Spain	Russian Federation
12	Austria	Bulgaria	Ireland	Switzerland	Sweden
13	Philippines	Greece	Austria	Ireland	Denmark
14	UAE	Russian Federation	Luxembourg	Russian Federation	Korea, Republic of
15	Denmark	Finland	Spain	Italy	Poland
TOP IMPORTERS					
1	United States of America	United States of America	United States of America	United States of America	Singapore
2	Germany	Germany	Ireland	Netherlands	Slovakia
3	Netherlands	France	Germany	Germany	Slovenia
4	France	Netherlands	Japan	Belgium	Sweden
5	Japan	Japan	Singapore	France	United Kingdom
6	Singapore	Singapore	Switzerland	Singapore	United States of America
7	India	Russian Federation	France	Switzerland	Australia
8	Italy	Italy	Belgium	Luxembourg	Austria
9	Ireland	India	Netherlands	Japan	Belgium
10	Denmark	Korea, Republic of	Sweden	Canada	Bulgaria
11	Finland	Poland	Korea, Republic of	Ireland	Canada
12	Brazil	Australia	Denmark	India	Colombia
13	Norway	Romania	Finland	Italy	Croatia
14	Russian Federation	Finland	Italy	Sweden	Cyprus
15	Poland	Brazil	Luxembourg	Spain	Czech Republic

Source: compiled by the author

Top Russian KIBS importers by type, 2018

№	Computer services	Information services	R&D services	Professional and management consulting services	Architectural, engineering, scientific, and other technical services
1	United States of America	United Kingdom	United States of America	United Kingdom	France
2	Germany	United States of America	Netherlands	Switzerland	United States of America
3	Ireland	Cyprus	Switzerland	Germany	Germany
4	United Kingdom	Netherlands	United Kingdom	United States of America	Netherlands
5	Cyprus	Latvia	Germany	Cyprus	China
6	Switzerland	France	Korea, Republic of	Netherlands	India
7	Netherlands	Ireland	France	Ireland	Finland
8	Kazakhstan	Germany	Luxembourg	Belgium	Kazakhstan
9	Czech Republic	Kazakhstan	China	France	Belarus
10	Hong Kong, China	Hong Kong, China	Japan	Italy	Turkey
11	Sweden	Switzerland	India	Austria	Switzerland
12	Slovakia	Belarus	Belgium	British Virgin Islands	Iran, Islamic Republic of
13	Singapore	Japan	Denmark	Kazakhstan	Uzbekistan
14	Belarus	Italy	Cyprus	Japan	Cyprus
15	<u>Luxembourg</u>	United Arab Emirates	Hungary	India	Bangladesh

Source: compiled by the author

Statistics data

year	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Russian export of computer services, US dollar thousand	374	576	1011	1549	1212	1273	1666	1995	2508	2650	2455	2663	3416	4060
Russian export of information services, US dollar thousand	47	55	85	94	78	85	86	92	102	121	98	93	124	127
Russian export of architectural, engineering, scientific, and other technical services, US dollar thousand	3214	3214	3214	3214	3214	3231	3578	3861	4339	3519	3479	3056	3128	3228
Russian export of professional and management consulting services, US dollar thousand	2419	3049	4195	5767	4505	5050	6508	6922	8189	7475	5367	5273	5709	6115
Russian export of Research and development (R&D), US dollar thousand	481	415	486	508	370	364	417	398	383	454	319	394	430	419
Russian export of KIBS, US dollar thousand	6535	7309	8991	11132	9379	10003	12255	13268	15521	14219	11718	11479	12807	13949
Russian services export, US dollar thousand	28845	35718	43860	57135	45796	49159	58039	62340	70122	65744	51615	50677	57729	64858
Russian import of computer services, US dollar thousand	378	475	754	1203	1219	1644	2144	2312	2908	3589	2771	3062	3398	3520
Russian import of information services, US dollar thousand	103	137	201	219	216	246	288	338	379	425	360	459	446	481
Russian import of professional and management consulting services, US dollar thousand	2105	2827	3902	5300	4272	4261	5154	5624	6477	5874	4922	4707	5412	5752

Continuation of Appendix 6

Russian import of research and development (R&D), US dollar thousand	112	134	103	102	107	73	114	168	180	159	160	164	128	172
Russian import of KIBS, US dollar thousand	2587	3575	4961	6827	5816	10340	12490	13427	15481	15721	11855	13105	15285	15826
Russian services import, US dollar thousand	40470	46273	60577	77555	63397	75278	91495	108926	128381	121022	88767	74567	88824	94658
% export KIBS	20	11	13	13	13	20	21	21	22	21	22	22	22	21
% import KIBS	6	7	8	8	9	13	13	12	12	12	13	17	17	16
% export KIBS of Russian total services export	11	11	13	14	13	20	21	21	22	22	23	23	22	22
% import KIBS of Russian total services import	6	8	8	9	9	14	14	12	12	13	13	18	17	17
Export per capita	0.0198	0.0573	0.0786	0.1078	0.0898	0.0959	0.1154	0.1292	0.1469	0.1357	0.1036	0.0990	0.1100	0.1152
Population, thousand	143474	142753	142220	142008	141903	142856	142865	143056	143347	143666	146267	146544	146804	14688
World growth of KIBS export, %	-	-	21.177	20.805	-7.269	26.245	14.903	16.810	6.329	24.719	-1.8020	4.9139	7.7228	-11.98
Russian growth of KIBS export, %	-	-	36.671	36.929	-16.757	7.4869	20.399	12.128	13.858	-7.366	-22.268	-4.233	11.291	4.7233
IRCA	1.3891	1.5201	1.5729	1.4733	1.4712	1.2097	1.1480	0.9772	0.9253	0.9214	0.9409	1.0702	1.0066	1.1321
BI	1.5995	1.5199	1.6731	1.6392	1.6412	1.4217	1.4176	1.3019	1.3188	1.1218	1.0810	1.0188	0.9946	1.1312
IRCA _{norm}	0.1628	0.2064	0.2226	0.1913	0.1906	0.0949	0.0689	-0.0114	-0.0387	-0.0408	-0.0304	0.0339	0.0033	0.0619
Cumulative amount of export growth in value, %	-	-	-	73.601	20.172	-9.2700	27.886	32.528	25.987	6.4917	-29.634	-26.502	7.0575	16.014

Source: compiled by the author