

# TECHNOLOGIES



## TOP 5 AI-TRENDS AFFECTING DIGITALIZATION STRATEGY FOR BUSINESS AND GOVERNMENT

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The impact of the pandemic is driving increased investment in digitalization and the use of AI. As a leading company, Speech Technology Center sees a significant increase in demand for Russian-developed AI solutions focused on such areas as computer vision, speech recognition and public safety. Over the past three years, our export revenue have grown fivefold, largely due to increased demand for large-scale projects. With one of the largest R&D teams in the industry and more than 30 years of experience, Speech Technology Center recognized in 2020 as a winner of the CHiME Speech Separation and Recognition Challenge (CHiME-6) proving the leadership of Russian based AI technologies. Based on such experience here are top-5 AI trends for 2022:

- **AI digital independence**

The countries of APAC, LATAM, Middle East and Africa taking a closer look at the possibility of creating their own private AI platforms based on Russian solutions to reduce the risk of anchoring to the foreign cloud solutions and achieve national digital sovereignty.

- **AI-enabled enterprise employee experience**

In the era of social distancing and remote work, digital communication

is reaching a completely new level. This is driving interest in using AI in a form of enterprise assistant for overburdened departments that are struggling to hire people. Combined with communication tools and task planning, AI could help automate routine tasks to free up teams.

- **AI inclusivity**

The availability of digital services to users opens up a demand for the implementation of AI with “inclusiveness”, when the service is convenient for all segments of the population and ages. As an example, we see the creation of AI-based voice assistants/chatbots as a single window of access to the public services that designed previously in traditional forms of mobile applications or web portals.

- **AI voicetech enhancing human behavior and communication**

The trend is in the transition from communication with a speech recognition system (chat bot, voice robot) to solutions that analyze live communication between people, helps to increase efficiency (assistant) and ensure safety not only for the telephone communication channel, but also in real face-to-face interactions.

- **AI development focus and ROI expectations is changing**

Basic AI technologies are becoming “commodities” – available to startups and corporations. The innovative R&D focus is where the threshold of applicability only crossed for solving real business cases: speech recognition for phone calls is a common task, but for live communications in a front office desk is extremely difficult. AI development automation through Automated Machine Learning significantly improve simple cases resolution without involving researchers. AutoML is a major driver for future AI projects rapid growth. At the same time on a business side the focus for innovation shifted from technological breakthroughs to the tangible results of AI implementation. C-level tired of spending budgets on a low probability of success projects and rather focused on the niche use of AI but with the rapid results.

# Technologies used

During the survey as part of the annual RUSOFT study in 2020, the question regarding the popularity of operating systems (OS), DBMSs and programming languages among developers was changed. Instead of simply mentioning technologies, respondents were asked to estimate what proportion (in terms of time spent on developing appropriate solutions and applications) is accounted for by each technology used. As a result, it became possible to have a more objective picture, since before, when assessing the popularity of software, both a small company with 5 developers and a large one, which employs thousands of specialists, had one vote.

At the same time, it must be admitted that the change in the popularity of OS, DBMSs and programming languages could well be tracked in previous years, albeit with less accuracy.

Due to the much larger number of respondents in the survey in 2021 (in 2020, the survey did not turn out to be complete due to the pandemic), it gave more accurate data, both in terms of the number of mentions and the intensity of programming for different OS and DBMSs, as well as the intensity of using programming languages. At the same time, with a significantly larger number of respondents, the share of small software companies participating in the survey

increased, and they indicate, on average, much fewer operating systems, DBMSs and programming languages than large enterprises. Accordingly, the average rate of their mention also decreased. Thus, it cannot be concluded that most operating systems, DBMSs and programming languages have become less popular in 2021 than in 2020. However, taking this into account, various comparisons can be made. For example, one can compare the data obtained as a result of surveys in 2019 and 2018, when there was a more similar structure of the array of surveyed companies.

## Operating systems

With regard to the popularity of operating systems among software developers, with all the random fluctuations over the past 14 years, several clear trends can be traced. First, the frequency of mentions of MS Windows has decreased from 94–97 % first to 84–88 %, and in the last 2 years – to 74–79 %. The days when almost all the developers interviewed created solutions for Windows seem to be a thing of the past forever.

In 2020, the GNU Linux family even took the lead, slightly overtaking Windows. The growth in the number of mentions of Linux is quite consistent with the

trend that was identified in previous years. There was some doubt about the sharp drop in the popularity of Windows. The survey in 2020 turned out to be incomplete due to the insufficient number of companies participating in it. Therefore, it was not worth rushing to announce the obvious leadership of GNU Linux.

In 2021, Windows again took the first place in terms of the number of mentions of the operating system, with quite a decent lead over the GNU Linux family. However, if you add related UNIX-like systems (Android and Tizen) to GNU

Linux, then the share of companies that mentioned at least one system from this group will be 82 %. This indicator turned out to be higher than that of Windows, even if we add MS Windows Mobile and MS Windows Phone to it, which no one mentioned separately from Windows. Due to the fact that the 2021 survey was conducted with an increased number of respondents and gave quite reliable results, it can be said more definitely about the superiority of the GNU Linux family over the Windows family in terms of popularity among software developers.

### TOP-10 used operating systems, %

	OS name / Year of survey	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
1	MS Windows	97 %	94 %	93 %	96 %	94 %	88 %	92 %	87 %	93 %	84 %	89 %	88 %	74 %	79 %
2	GNU Linux family	64 %	54 %	54 %	59 %	60 %	65 %	51 %	59 %	60 %	57 %	59 %	72 %	76 %	67 %
3	Android	—	—	6 %	4 %	37 %	33 %	43 %	36 %	43 %	39 %	53 %	58 %	60 %	49 %
4	iOS	—	—	—	—	28 %	24 %	34 %	29 %	35 %	36 %	49 %	49 %	50 %	41 %
5	Mac OS	26 %	9 %	15 %	19 %	32 %	31 %	33 %	32 %	33 %	37 %	48 %	48 %	31 %	20 %
6	Open/Free/ NetBSD	25 %	7 %	9 %	9 %	13 %	10 %	14 %	13 %	11 %	11 %	19 %	22 %	8 %	7 %
7	MS Windows Mobile	41 %	17 %	16 %	15 %	23 %	17 %	15 %	23 %	19 %	20 %	14 %	18 %	2 %	1 %
8	Oracle (Sun) Solaris	26 %	16 %	15 %	19 %	19 %	14 %	15 %	11 %	16 %	7 %	13 %	13 %	3 %	3 %
9	MS Windows Phone	—	—	—	—	19 %	19 %	22 %	23 %	21 %	15 %	12 %	13 %	2 %	1 %
10	Tizen	—	—	—	—	—	—	—	—	4 %	7 %	5 %	8 %	6 %	2 %

According to the results of the 2021 survey, the MS Windows operating system also lost its sole leadership in terms of the share of time spent on developing solutions and applications: UNIX-like systems with open source (GNU Linux, Android and Tizen) and

the Windows family (with MS Windows Mobile and MS Windows Phone) have the same indicator of 43 % each. However, some UNIX-like systems fell into the “Others” category (first of all, Aurora together with Sailfish), and the share was not calculated separately for them.

Consequently, the Windows family, at least by a meager amount, is still inferior in terms of the intensity of developing solutions for the OS. In addition, there is also the proprietary UNIX-like system Oracle Solaris with a 0.1 % rate.

Taking a leading position by UNIX-like operating systems was predicted by RUSSOFT analysts in 2022–2023, but this happened a little earlier. It is possible that Windows will regain its leadership for a year (maximum for two), but more likely there will be a further decline in the popularity of this OS. At the same time, there are prerequisites for accelerating this process. The coming years will test whether Windows can hold its ground without having an artificially created monopoly position.

Of course, users are very reluctant to switch to other operating systems instead of the one they are used to. However, the motivation for software developers to remain committed to MS Windows and its MS Office application is getting smaller and smaller every year. Moreover, Microsoft has shown itself to be an unreliable supplier in Russia, having submitted to the US sanctions policy.

OS for mobile devices from Microsoft: MS Windows Mobile and MS Windows Phone already have almost zero indicators. They have failed to gain any popularity in the competitive environment. In 2022, these operating systems will be removed from the core ones, and Aurora will be added instead (along with Sailfish, on the basis of which it was created).

According to the results of the 2021 survey, Aurora OS was mentioned more often than MS Windows Mobile and MS Windows Phone, although it was not included in the list of the main ones in the questionnaire. It was indicated by 2 % of the surveyed companies in the “Other OS” category.

Tizen OS for mobile devices, unlike Sailfish (Aurora), was not included in the Domestic Software Registry (there is only Smart TV Tizen). In the spring of 2018, the state corporation Rostelecom proposed to the Russian government to oblige officials to use smartphones based on the domestic OS Sailfish. Experts

### Share of major operating systems by time spent on developing solutions and applications for them

	2019	2020
MS Windows	42.5 %	42.9 %
Linux Family	30.0 %	32.5 %
Android	7.8 %	9.9 %
iOS	6.8 %	7.7 %
Mac OS	8.9 %	4.1 %
Open/Free/NetBSD	3.9 %	1.1 %
MS Windows Mobile	0.0 %	0.1 %
MS Windows Phone	0.0 %	0.0 %
Oracle Solaris	0.0 %	0.1 %
Tizen	0.2 %	0.5 %

doubted that in this way it was possible to achieve the massive use of the Sailfish OS, since devices with this system would have limited functionality. In addition, civil servants tend to use their own smartphones, on which they install the applications they need to work.

At the beginning of 2019, Sailfish received the Russian-language name Aurora. Promotion under the new name has become more active.

Also in June 2019, it became known that the Russian corporate messenger PostLink became the first Russian corporate software with the implementation of voice calls for the Aurora mobile OS. In the same 2019, there was the first mention of this OS in the annual RUSSOFT survey.

In November 2019, it became known that Russian Railways was ready to introduce the Russian mobile OS Aurora

among its employees. The corresponding agreement was signed between Russian Railways, the Open Mobile Platform company and Industry Center for the Development and Implementation of Information Systems, a subsidiary of Russian Railways. It is aimed at implementing pilot projects for the implementation of hardware solutions for specialized mobile devices of Russian Railways employees based on a domestic mobile operating system.

Another contender for exclusion from the main operating systems is Oracle Solaris. It was mentioned by 3 % of the surveyed companies, although only 2 years ago they were 13 %, and in 2008 – 26 %. However, the intensity of development for it is already almost zero. Oracle carried out large-scale dismissal of Solaris developers a few years ago. Although the full cessation of development and support for this OS was not announced, its resurrection is already unlikely.

The data of the RUSSOFT survey can be compared with the world statistics of the OS popularity. According to NetMarketShare data, back in January 2020, Windows held the lead in all devices and until November of the same year was approximately on par with Android. Then it began to lag behind sharply. In July 2021, the gap became quite decent: Android was used by 41.44 % of users, while Windows was used by 30.27 %. At the same time, the indicator was growing for Android in previous months, while for Windows it was decreasing.

If we consider NetMarketShare statistics only for desktop computers, then nothing threatens Windows leadership yet, but the share of this OS nevertheless declined rapidly (from July 2020 to July 2021 from 77.74 % to 72.97 %), while the share of Linux increased (from 1.85 % to 2.38 %). Mac OS X also declined from 17.07 % to 15.4 %.

Due to the fact that Google, under pressure from the US authorities, made its Android operating system an instrument of political pressure (new smartphones of the Chinese company Huawei may not have updates to this OS, as well as related services from Google), in 2020 doubts arose about further growth of Android popularity. There are incentives to more actively create alternative operating systems with full functionality. They have already appeared in China, Russia and other countries, but in Russia the transition to them did not occur very quickly.

In mid-January 2020, it became known that Huawei is starting to pay developers to create applications for the company's operating system, Harmony OS. Thus, the Chinese manufacturer is accelerating the development of its own ecosystem in order to reduce and completely eliminate its dependence on Google services.

The data of the RUSSOFT survey have not yet shown the negative influence of

political games on the growth of Android popularity.

Among other operating systems (not included in the TOP-10), respondents mentioned in recent years mainly real-time operating systems, for example, QNX, VxWorks, ThreadX, MQX, Contiki, LynxOS, RTOS. Moreover, as a rule, they mentioned them only once. Until 2016, the number of mentions of real-time operating systems grew from year to year, which was consistent with global trends. According to the survey results of the last 5 years, such growth has not been observed, however, 3–5 % of the companies consistently indicate their use of such systems.

In 2019, MSVS (Mobile System of the Armed Forces) and Elbrus also appeared, but they were also mentioned only once. In addition, WebOS (an embedded open operating system based on the Linux kernel for smart TV) has two mentions.

In 2021, 9 respondents (4 %) indicated development not for a specific OS, but for browsers, or reported that they have cross-platform solutions. Obviously, more of them have appeared. When it comes to a specific OS, then Aurora (Sailfish) has 4 mentions (2 %), and the rest have no more than one (real-time OS RTOS, QNX, as well as OS for set-top boxes: tvOS, webOS, RokuOS).

The range of operating systems that have both a large number of mentions and only one mention has clearly narrowed in recent years.

In recent years, plans have been reported for the development of new operating systems in Russia. In March 2019, Kaspersky announced that it was creating its own OS with an advanced security system. It appeared at the end of 2019 in two versions: for the corporate segment, including government agencies, and for ordinary users. As reported on the company's website,

KasperskyOS allows you to create cyberimmune solutions that are resistant to most types of cyberattacks. This is especially important for industries and solutions with increased information security requirements. The company invites developers to create solutions for KasperskyOS, but there has not been a single mention of this OS in the annual survey of software companies conducted by RUSSOFT.

The plans to develop a national operating system for the Internet of Things became known in the fall of 2017 from a document prepared by a working group led by Sberbank as part of the cybersecurity action plan for 2017–2024 under the Digital Economy program. It is assumed that it will surpass foreign counterparts in key performance parameters, security and fault tolerance, and it can be used in all types of cyber-physical systems. However, the development of this system should be completed only by the end of 2021.

If we compare the popularity of OS for different categories of companies, then it can be noted that solutions for mobile operating systems are more often developed by the companies that have more than 50 % of their income from exports, as well as the companies whose headquarters are located outside Moscow and St. Petersburg. Development for MS Windows and GNU Linux family is more required by the companies that receive the main income in the domestic market.

**The intensity of development of solutions for operating systems by companies with different shares of exports in total revenue and different locations of the headquarters, %**

	MS Windows	Mac OS	GNU Linux family	Open/Free/NetBSD	Oracle Solaris	iOS	Android	Tizen
Export share								
export less than 50 %	48.8 %	1.7 %	34.8 %	1.5 %	0.1 %	5.1 %	6.1 %	0.6 %
export over 50 %	36.4 %	7.9 %	27.0 %	0.5 %	0.2 %	11.3 %	15.3 %	0.3 %
Head office location								
Moscow	36.7 %	3.5 %	47.7 %	2.1 %	0.0 %	4.6 %	5.0 %	0.0 %
St. Petersburg	58.4 %	1.4 %	25.9 %	0.9 %	0.1 %	5.9 %	6.9 %	0.4 %
Other regions	40.0 %	5.6 %	25.7 %	0.6 %	0.2 %	10.6 %	14.4 %	1.0 %

## DBMS

The frequency of mentioning almost all main database management systems (DBMS) included in the table changed insignificantly from year to year (as well as their ranking by this indicator) until 2020. Random fluctuations of this indicator for each DBMS were not very large, but they still had a place. The only exceptional thing was the steady growth in the share of the free object-relational database management system PostgreSQL.

In 2020, the range of DBMSs mentioned by at least 5 % of respondents sharply reduced. There are only 10 of them left, and in previous years there were about 15. Since not a large number of companies participated in the survey in the pandemic year, verification of the results was required. The 2021 survey confirmed the version according to which the number of popular DBMSs among developers has decreased: 5 % and more

have only 7 systems: PostgreSQL, MySQL, MS SQL, Oracle, SQLite, Firebird and MongoDB. At the same time, all of these most popular DBMS (except PostgreSQL) recorded a significant reduction in the mention rate (% of all surveyed companies). And if you do not take into account the data of the defective survey of 2020, and compare with the results of the survey of 2019, then this indicator increased only for MongoDB and PostgreSQL.

For many years, the three most popular among DBMS developers: MS SQL, MySQL and Oracle have remained unchanged. They only occasionally changed places. In 2018, the composition of the top three changed for the first time: PostgreSQL made its way into it, pushing Oracle to the 4th place. Over the past 2 years, PostgreSQL has confidently ranked first, both in the number of mentions and in

the intensity of solution development for DBMS (more on that below).

It is noteworthy that MS SQL, which has been leading for many years, first gave way to MySQL (an open source database for e-commerce, online transaction processing developed and supported by Oracle Corporation) in 2019. However, in 2020–2021, it still retains the second place.

Apparently, such a large number of DBMSs, which was mentioned earlier, is no longer needed: 5–6 basic ones are enough and some more for specific tasks.

Popularity of SQLite, a compact embedded DBMS, has been growing for a long time. If in 2010–2011 it was mentioned by 5–9 % of respondents, then by 2019 this figure increased to 35 %, but in 2020 it decreased slightly to 29 %, and in 2021 to 12 %.

### Main DBMS used, % of all surveyed companies

	survey year/DBMS	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
1	MySQL	47 %	40 %	59 %	56 %	56 %	54 %	42 %	53 %	61 %	72 %	54 %	43 %
2	PostgreSQL	17 %	15 %	26 %	30 %	28 %	28 %	33 %	36 %	51 %	66 %	79 %	78 %
3	MS SQL	63 %	74 %	70 %	66 %	70 %	67 %	59 %	61 %	67 %	62 %	58 %	51 %
4	Oracle	49 %	55 %	51 %	47 %	45 %	39 %	36 %	37 %	40 %	41 %	40 %	31 %
5	SQLite	9 %	5 %	12 %	10 %	19 %	12 %	10 %	19 %	25 %	35 %	29 %	12 %
6	MS Access	19 %	9 %	19 %	17 %	18 %	19 %	17 %	18 %	16 %	23 %	8 %	4 %
7	Firebird	11 %	9 %	10 %	13 %	16 %	15 %	11 %	11 %	14 %	13 %	13 %	5 %
8	MongoDB	—	—	—	—	—	—	—	—	6 %	10 %	35 %	26 %
9	IBM DB2	13 %	14 %	9 %	10 %	12 %	12 %	8 %	8 %	7 %	9 %	8 %	2 %
10-11	MSDE	7 %	5 %	5 %	5 %	7 %	2 %	2 %	4 %	6 %	7 %	0 %	2 %
10-11	Sybase ASE	6 %	3 %	3 %	6 %	8 %	6 %	2 %	3 %	5 %	7 %	4 %	3 %
12-14	IBM Informix	7 %	5 %	7 %	7 %	6 %	4 %	1 %	3 %	6 %	6 %	4 %	1 %
12-14	Sybase ASA	6 %	6 %	5 %	6 %	6 %	3 %	2 %	2 %	4 %	6 %	4 %	2 %
12-14	Lintier	—	—	—	—	—	—	—	3 %	4 %	6 %	4 %	1 %
15-16	SAP DB	6 %	5 %	7 %	5 %	5 %	3 %	5 %	2 %	6 %	5 %	6 %	1 %
15-16	InterBase	9 %	7 %	7 %	10 %	6 %	6 %	3 %	3 %	7 %	5 %	4 %	2 %
17	Paradox	4 %	3 %	3 %	2 %	4 %	3 %	1 %	2 %	5 %	4 %	2 %	1 %
	Other	13 %	8 %	7 %	8 %	10 %	9 %	5 %	9 %	14 %	13 %	8 %	12 %

Changing the wording of the corresponding question in the questionnaire in 2020 made it possible to determine not only the number of companies using DBMSs, but also how intensively each of them was developing for the most famous DBMSs. According to the second indicator of popularity, PostgreSQL is still in the lead. The new formulation showed that in the DBMS

rating there were only 6 database management systems with an indicator that cannot be considered close to zero.

In 2021, the rate of application development for PostgreSQL slightly increased, and decreased for MS SQL and MongoDB. There are no obvious and unambiguous changes for the rest of the DBMSs.

In 2021, the rating included 17 DBMSs. This is exactly the number the respondents were asked to rate in the questionnaire sent to them. At the same time, the surveyed companies had the opportunity to indicate other DBMSs for which they developed. In recent years (with the exception of 2020), up to 10 DBMSs fell into the "Other" category.



One of the systems, MongoDB, later became the main one.

Almost all DBMSs in the “Other” category were mentioned no more than 1–2 times (more often once). At the same time, it was not necessarily every year, but the composition of this category is constantly changing. Only Redis does not fall out of this trend, but the respondents have never mentioned it more than two times. The Cassandra DBMS was also consistently specified 1–2 times, but in 2021 it did not have a single vote, and Redis got 2 votes again.

In 2019, for the first time, but only once, the respondents mentioned the ClickHouse DBMS, a database management system developed by Yandex, which allows you to store and quickly process large amounts of information to create analytical reports. In 2021, it received 7 mentions of respondents at once (4 % of all surveyed companies). Therefore, in 2022, it can be transferred to the number of the main DBMSs after MongoDB.

In 2021, the following DBMSs were also mentioned among “Others”:

- 3i DPP (Big Data Processing Platform),
- NoSQL (designation for a wide class of heterogeneous DBMSs that differ significantly from traditional relational DBMSs),
- Arenadata DB (analytical distributed DBMS built on the MPP system with open source Greenplum),
- Greenplum (massively parallel DBMS for PostgreSQL-based data warehouses),

### Share of DBMSs by the intensity of application development for them (survey data from 2020 and 2021), %

		2020	2021			2020	2021
1	PostgreSQL	35.8 %	38.5 %	10	Lintor	0.2 %	0.1 %
2	MS SQL	32.4 %	29.2 %	11	SAP DB	0.2 %	0.1 %
3	Oracle	9.6 %	10.0 %	12	MS Access	0.1 %	0.2 %
4	MySQL	8.7 %	9.3 %	13	InterBase	0.1 %	0.1 %
5	MongoDB	7.5 %	4.3 %	14	IBM Informix	0.1 %	0.1 %
6	SQLite	3.1 %	2.0 %	15	Sybase ASA	0.0 %	0.1 %
7	Firebird	1.3 %	0.6 %	16	Paradox	0.0 %	0.1 %
8	IBM DB2	0.6 %	0.3 %	17	MSDE	0.0 %	0.2 %
9	Sybase ASE	0.5 %	0.8 %				

- ViQube (analytical DBMS),
- HANA (resident relational DBMS of the SAP company),
- Azure Table (cloud-based corporate data warehouse),
- etcd (distributed storage of configuration parameters specified in the form key/value),
- Quant-Hybrid (hybrid object-relational DBMS for collecting and analyzing data from production equipment and technological processes).

Two companies indicated their own DBMS (one of them is Codex Server, and the other is without a name).

According to the JetBrains survey, which was completed in the summer

of 2020, the TOP-3 DBMSs in use in the world for the last year had the following composition: MySQL (66 %), PostgreSQL (36 %), MongoDB (35 %). In Russia, PostgreSQL is the leader (61 %), MySQL accounts for 42 %, MongoDB and Redis each have 30 %. JetBrains noted that Russians use ClickHouse 10 times more often.

Despite the fact that the circle of especially demanded database management systems is narrowing, in recent years new DBMSs have been developed, which are required for fundamentally new tasks that have not existed before. For example, in 2016, Mail.ru Group announced plans to break into the database management systems market with its open source DBMS Tarantool. It was tested on domestic products, but later it would be distributed (primarily as a replacement for Oracle) both in Russia and abroad. Respondents have not mentioned this system in their answers yet.

In November 2019, Nokia announced that it has created a software solution for automating developments in the Industrial Internet of Things (IIoT), which is based on the Tarantool DBMS.

In September 2020, the Mail.ru Group holding announced plans to invest RUB300 million in the development of the Tarantool DBMS and its popularization all over the world. The money will be used to improve the security of the system, launch English-language support and strengthen the international development team.

Up to and including 2021, not a single software developer interviewed by

RUSSOFT mentioned Tarantool as a DBMS for which they create applications.

#### Popularity of DBMS in different categories of companies

Companies that generate more than half of their revenue from sales abroad were more likely to use PostgreSQL compared to the developers focused more on the Russian market. However, the popularity of PostgreSQL grew faster particularly among the companies for which the Russian IT market is the main one. As a result, this DBMS in 2021 was indicated by 81 % of companies with an export share of less than 50 % and 80 % of companies with an export share of more

than 50 % (that is, the indicators for these categories of companies made equal).

The larger the company, the larger the set of used DBMS it has. Therefore, among companies with a turnover of more than \$5 million, all DBMSs are mentioned more often than among smaller companies. The only exception in 2021 was MySQL.

Development for MS SQL, MySQL and MongoDB DBMS is much more often used by companies with an export share of more than 50 %.

### The main DBMS used by companies of different sizes and with different shares of foreign sales, % of all surveyed companies

DBMS	Company size		Foreign sales	
	turnover less than \$5 million	turnover over \$5 million	less than 50 % of turnover	more than 50 % of turnover
MS SQL	48 %	62 %	49 %	68 %
MySQL	45 %	36 %	43 %	56 %
Oracle	25 %	54 %	32 %	32 %
PostgreSQL	76 %	87 %	81 %	80 %
SQLite	9 %	23 %	14 %	16 %
MS Access	4 %	3 %	4 %	4 %
Firebird	4 %	5 %	5 %	0 %
MongoDB	26 %	26 %	24 %	52 %
IBM DB2	1.4 %	5 %	2 %	4 %
Sybase ASE	2 %	5 %	3 %	4 %
MSDE	1 %	3 %	1 %	8 %
InterBase	1 %	3 %	2 %	0 %

DBMS	Company size		Foreign sales	
	turnover less than \$5 million	turnover over \$5 million	less than 50 % of turnover	more than 50 % of turnover
Sybase ASA	2 %	0 %	2 %	0 %
IBM Informix	1 %	0 %	1 %	0 %
SAP DB	1 %	0 %	2 %	0 %
Paradox	1 %	0 %	1 %	0 %
Lintor	1 %	0 %	1 %	0 %
Others	12 %	12 %	10 %	19 %

## Programming languages and tools

In 2020, the wording of the question regarding programming languages has changed dramatically. They were no longer divided into main ones and others. At the same time, the share of the company's specialists who use the programming languages suggested in the list was assessed.

Consequently, the popularity of programming languages was determined by other parameters. Therefore, the survey results obtained in 2020 regarding this popularity cannot be correlated with the survey data of previous years.

The question about programming tools was completely excluded from the questionnaire, on the recommendation of the experts helping to prepare it. They decided that the information about the popularity of these tools was not very interesting.

There was only one question about programming tools, and it was formulated as follows: "What proportion (approximately) of your company's employees use the programming

### The most popular programming languages in Russian software companies (2021 survey data)

		Share of employees using this programming language	Percentage of surveyed companies using this programming language
1	Java	21.4 %	52.8 %
2	C#	17.9 %	49.5 %
3	JavaScript	16.2 %	65.6 %
4	C++	14.5 %	55.7 %
5	Python	6.3 %	49.0 %
6	C	6.0 %	28.3 %
7	PHP	5.3 %	44.3 %
8	Kotlin	4.1 %	26.8 %
9	Swift	1.8 %	20.1 %
10	Visual Basic .NET	1.7 %	10.4 %

languages listed below?” The results of the surveys before the corresponding changes in the questionnaire in 2020 are presented below (after analyzing the data of the last survey).

The distribution of places in the rating of the most popular programming languages by the share of employees who use them has not changed over the year. Even the indicator for rating turned out to be almost the same for all languages in 2021 as in 2020. However, the rating expanded due to the inclusion of Kotlin and Swift languages (instead of 8 ranked languages, there were 10) into it. As a result of the addition of these two languages, Microsoft’s Visual Basic .NET was pushed back from the 8th to the 10th place.

Java took the lead in the main rating in 2019 (even before the questionnaire was changed) and ranks first in both 2020 and 2021 in terms of the share of employees using this programming language. However, in terms of the number of mentions of the companies surveyed in the past two years, JavaScript turned out to be the leader (by a significant margin from the rest).

Some other (except for the main 10) programming languages were mentioned by 29 % of the surveyed companies (they are used by 4.7 % of employees from the entire staff of the surveyed companies). Most often, respondents mentioned Go (3.8 % of the companies surveyed); Delphi (3.3 %); 1C (3.3 %); Golang (2.8 %); Ruby (2.8 %). They also mentioned the programming language of the company Oracle, which provides tools for complex data processing (PL/SQL – 1.9 %); a declarative programming language used to create, modify and manage data in a relational database (SQL – 1.4 %); a language that extends JavaScript, TypeScript (1.4 %). Objective-C, Erlang and Lua, a programming language designed to be embedded in other applications, have 0.9 % each. Programming tools Unity, Scala, Lazarus, Groovy, FORTRAN, Fort, Elixir, Brightscript, ASP.NET Core (a free

cross-platform framework for creating open source web applications), ABAP (a programming language developed by SAP for programming business applications in the SAP environment) are mentioned once each.

The data of the RUSOFT survey can be compared with the results of other studies. In the summer of 2020, JetBrains completed its fourth annual development ecosystem survey. Based on its results, JetBrains decided to compare how Russian programmers differ from foreign colleagues: 20 thousand programmers from 18 countries were interviewed, among them there were 2.5 thousand respondents from Russia.

This year, according to JetBrains, Python bypassed Java in the list of the most used languages both in Russia and in the world. However, the majority of respondents still choose Java as their main language. TypeScript and C++ have pushed PHP out of the five most used languages in the world, while in Russia PHP is still at the 4th place.

TOP 5 programming languages for the world: JavaScript (70.6 %), Python (56.1 %), Java (55.6 %), TypeScript (28.5 %), C++ (27.6 %); for Russia: JavaScript (62.8 %), Python (46.8 %), Java (36.5 %), PHP (24.5 %), TypeScript (23.1 %).

There is a similar picture in the answers regarding languages in the “Additional” category: Russian developers are more attracted to new languages. They are more likely to learn Go and Kotlin, while they learn Python, Java, TypeScript, and PHP less often.

TOP-5 languages that the respondents started or continued to learn during the last 12 months: in the world – Python (31 %), JavaScript (26 %), Java (22 %), TypeScript (20 %), Go (18 %); in Russia – JavaScript (24 %), Python (23 %), Go (22 %), Kotlin (18 %), Java (15 %).

Go and Kotlin are leading in the global list of languages that the respondents plan to switch to. For Russia, the list is the same, with the only difference that Kotlin is in the first place.

Some programming languages are no longer used at all. Nevertheless, the need for the ability to program in them may arise. In April 2020, it became known that in several US states, searches were unsuccessfully conducted for specialists in the COBOL programming language to update the software used in the employment system: due to the increase in the number of unemployed amid the coronavirus pandemic, it could no longer cope with the load.

At the same time, the Fortran programming language, created in 1957, is experiencing a sharp surge in popularity. In the TIOBE rating, it was in the last 50th place in the summer of 2020, but by April 2021, it was on the 20th line. Despite its venerable age, Fortran continues to evolve and be used in various fields – its most current version was released at the end of 2018.

In the TIOBE rating in April 2021, the C language is in the lead with an indicator of 14.32 %, and Java is in second place almost on a par with Python, which ranks the third (they have 11.23 % and 11.03 %, respectively). C++, C#, Visual Basic, and JavaScript come next. In the year since April 2020, there has been only one change in the ranking in the TOP-7: Java and C have swapped places.

In early December 2020, GitHub, a collaborative IT project development service, published a new rating of the most popular programming languages used by platform users. JavaScript kept the first place in it. Python comes next, followed by Java. TypeScript, which is rapidly gaining popularity, has risen to the fourth place. The fifth line was taken by C#. PHP, C++, C, Shell, and Ruby come next.

At the end of February 2020, an analyst firm IDC released forecasts for DevOps

developers. Analysts focused on the Chinese market, as well as on practical recommendations for 2020 and subsequent years.

By 2024, IDC expects 56 % of companies will not restrict the use of artificial intelligence (AI) and machine learning to application development: they will be used in design, quality management, security and deployment of new technologies. By 2023, 70 % of companies will invest in retraining and training employees, including third-party services, to acquire new skills and get acquainted with new working methods.

By 2023, the number of part-time developers (including business analysts, data workers, and data researchers) in China will double. In particular, the number of part-time developers will increase from 1.8 million in 2019 to 3.6 million.

By 2023, the number of organizations issuing codes for specific applications will increase from 3 % to 30 %.

By 2022, the accelerated modernization of traditional applications and the development of new ones will increase the share of cloud applications to 25 %, driven by the use of microservices, containers and dynamic orchestration.

By 2023, 40 % of DevOps teams will be investing in expanding tools and focusing on key business performance metrics, such as costs and revenues as operations become more important in end-to-end application performance and business impact.

The growing dependence of applications on open source components has ensured the rapid growth of analytic tools. By 2023, software component analysis tools, which by February 2020 are used only by some organizations, will be used by 45 % of firms.

By 2023, 60 % of Chinese companies will have built their own software ecosystems, and 50 % will have access to key reusable code components from public libraries.

By 2024, the share of open source software sourced from their respective libraries will double, that is, to 25 %, and the remaining 75 % will be customized according to the business models or use cases of organizations.

By 2024, applications that fully use DevOps will account for less than 35 %. Enterprises recognize that not all applications can benefit from the complex operations spanning development and manufacturing associated with continuous integration and continuous delivery.

In the rating of development tools, clear leadership has remained with MS Visual Studio over the past 10 years. For the second place, the struggle is no longer between IntelliJ IDEA of the St. Petersburg company JetBrains and the free Eclipse with the participation of Xcode. According to the results of the 2019 survey, Eclipse has pulled away from everyone else, coming close to the leader. IntelliJ IDEA firmly took the third place.

## Most popular development tools

	Survey year / development tool	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
1	MS Visual Studio	46 %	64 %	60 %	62 %	45 %	36 %	53 %	49 %	57 %	55 %	57 %	58 %
2	Eclipse	19 %	25 %	19 %	6 %	16 %	15 %	34 %	12 %	25 %	28 %	26 %	43 %
3	IntelliJ IDEA	10 %	5 %	3 %	8 %	9 %	4 %	14 %	9 %	21 %	26 %	26 %	33 %
4	Xcode	—	—	—	—	—	2 %	14 %	6 %	15 %	18 %	27 %	26 %
5	WebStorm	—	—	—	—	—	—	—	2 %	10 %	12 %	21 %	24 %
6	NetBeans	—	—	—	—	—	3 %	8 %	0 %	7 %	10 %	18 %	18 %
7	Another	—	—	—	—	—	—	15 %	24 %	20 %	16 %	15 %	21 %
	Do not use	—	—	—	—	—	—	—	24 %	16 %	9 %	11 %	10 %

## Technological trends

The list of the main technological trends has not undergone significant changes in recent years. In general, it does not differ much among the most famous analytical companies.

Only some additions (in particular, regarding the interconnections of promising technologies) and quantitative estimates are introduced annually. In addition, the trend names have changed in some way and more precise definitions have appeared.

In November 2020, IDC released the Top 10 Global CIO Forecasts for 2021 and beyond. As the pandemic has escalated, CIOs have faced enormous challenges and a road to recovery lies ahead. For many business leaders, this is not just a return to the previous state, but a complete rethinking of what kind of business to do and how to run it.

By 2022, 65 % of CIOs will provide digital technologies and equip actual performers with data, AI and security to improve their productivity, adaptability and efficiency of decision-making in conditions of rapid change.

By 2021, without finding adaptive measures to counter the growing number of cyberattacks, social unrest, trade wars and sudden crises, 30 % of CIOs will not be able to ensure the trust of customers, the basis of their loyalty.

By 2023, the IT deployment “debt” that has accumulated during the pandemic will be a heavy burden on 70 % of CIOs, leading to financial strains, reduced IT responsiveness and “forced” migration to the cloud.

By 2023, in the event of global crises, 75 % of CIOs will become integral participants in business decision-making, as digital infrastructure becomes the “operating system” of the business,

evolving from ensuring its continuity to redefining the business concept.

Striving to provide a secure, distributed work environment, by 2024 50 % of CIOs will accelerate robotization, automation and equipping IT systems with new capabilities, which will pose them a difficult task of managing these transformations.

By 2023, CIO-led groups of counteraction to unfavorable factors will be an integral part of 65 % of organizations, with a focus on digital infrastructure resilience and flexible financing for different scenarios.

By 2025, 80 % of CIOs in collaboration with business unit managers will implement intelligent tools for identifying, studying and predicting changing customer behavior to offer an exclusive customer experience that will increase the loyalty level.

By 2025, 60 % of CIOs will have implemented (low/no-code) development tool management to improve the productivity of IT staff and developers in departments, help them respond to unforeseen needs and accelerate innovation on the intellectual periphery of the network.

By 2025, 65 % of CIOs will have implemented ecosystem, application, and infrastructure management systems that provide interoperability, flexibility, scalability, portability, and operational responsiveness.

By 2024, 75 % of CIOs will assume new responsibilities for managing employee health, social security, and location data to comply with insurance, health, safety, and tax law requirements.



**Today large businesses are aiming to reduce time-to-market by team augmentation or with the help of an experienced IT outsourcer. Such a contractor will provide speed and necessary expertise across the entire technology stack, from architecture design to maintenance, including the service approach. Such conditions allow IT companies to expand much faster. In particular, this year we have built up a full team of over 1300 specialists! Now we work on more than 150 projects using both classic corporate technologies and the new ones – for example, Go and Flutter in fintech, retail, and the public sector.**

**Dmitry Peterson**  
Chief Operating Officer  
SimbirSoft

**SimbirSoft**

## Blockchain

It is assumed that a distributed transaction system allows enterprises to abandon intermediaries in any transactions: whether financial transfers or conclusion of contracts. Blockchain technology eliminates the need for the functions of trusted storage, transmission and validation of information, which are now entrusted to banks, depositories, notaries, document management systems and state registers.

Many developers of blockchain platforms claim that they can be used to control illegal arms trafficking and even draw public attention to environmental issues.

In the long term, this technology is capable of dramatically changing entire industries. The most promising

applications are asset tracking, claims processing automation, internal and joint accounting, and smart city and IoT systems.

At the end of 2019, Gartner predicted that it would be technically possible to scale the blockchain by 2023, and it would be able to support trusted private transactions with the necessary data confidentiality. In one form or another, 60 % of CIOs plan to implement blockchain in the next three years.

On April 20, 2020, the State Development and Reform Committee of the PRC announced its intention to develop blockchain technology, making it one of the components of China's technological infrastructure. This committee, in

particular, plans to fund blockchain-related projects and promote initiatives related to this technology.

In mid-October 2020, PwC presented its analysis, according to which blockchain technologies would ensure the growth of the world economy by \$1.7 trillion by 2030. The analysis is part of a series of PwC studies devoted to scenarios for the use of new technologies and their impact on the economy. PwC believes that "blockchain can help many organizations restore and reorganize their structure" in the new conditions.

## Artificial intelligence (AI) and robotization

Even before the pandemic, IDC predicted that European spending on artificial intelligence in 2020 would be \$10 billion, with the average annual growth rate (in compound percentages, CAGR) would be of 33 % until 2023. After the outbreak of COVID-19, IDC revised its forecast, anticipating certain changes in costs in 2020. Many industries, in particular, transportation and consumer services, will be forced to revise their investments in IT downward. On the other hand, AI is a technology that can play a significant role in helping organizations and communities cope with the large-scale challenges posed by quarantine measures and restrictions. In all sectors, the public sector will demonstrate an increase in AI investment. Hospitals will

use AI to accelerate diagnosis of COVID-19 and automate consultations for patients on self-isolation using chatbots. The authorities will also use AI to assess compliance with physical distance requirements.

The spread of the coronavirus COVID-19 would still lead to an explosive growth in spending on artificial intelligence in the world, according to IDC analysts, who announced their forecast on April 9, 2020.

In 2020, the volume of investments in developments based on artificial intelligence technologies grew by 40 %, reaching \$67.9 billion, according to data from the AI Index Report 2021 from researchers at Stanford University.

According to the forecast of Gartner, published in the fall of 2020, in 2021, the revenue of the global market for robotic process automation (RPA) software would reach \$1.89 billion, an increase of 19.5 % over the year. Despite the economic consequences of the COVID-19 pandemic, the RPA market will continue to grow at double-digit rates until 2024.

## Internet of things

In early March 2021, the analytical company IoT Analytics presented a forecast for the development of the Internet of Things based on its own data and data from market participants.

Healthcare topped the list of segments with the largest growth in IoT implementation. It is followed by smart grids, connected cars and smart city apps. It is assumed that spending on IoT in the US healthcare sector will grow by almost 39 % and reach \$188.2 billion by 2025, while at the end of 2020 this figure was \$72.5 billion.

According to GSMA forecasts, by 2025 the number of IoT connections will double to almost 25 billion worldwide, and as the popularity of IoT increases, the risk of cyberattacks increases. IoT cybersecurity is a concern of 95 % of respondents to a survey conducted by IoT Analytics, with nearly 40 % “very concerned” about potential IoT vulnerabilities, and 88 % said they support the implementation of IoT security rules and the adoption of industry standards for managing cybersecurity best practices. The IoT security market is expected to grow to \$36.6 billion by 2025, up from \$12.5 billion in 2020.

In 2021, 5G networks will indeed become available to a wide range of consumers. Analysts believe 5G connections will grow to 1.8 billion by 2025, and high speed, increased bandwidth, low latency and high power can significantly accelerate IoT connectivity. Analysts predict 5G will become the main technology for connecting to the IoT.

However, LPWAN and 4G will continue to play a prominent role in connecting to the Internet of Things. The main focus in

this case is on the efficient transmission of small amounts of data using devices that require a wide coverage area and a long battery life.

In April 2021, CRN/USA introduced readers to five new IoT technologies that are redefining the capabilities of IoT devices, opening up new horizons for their use:

1. Battery-free sensors;
2. Container technologies for microcontrollers;
3. A mesh network of sensors (wearable devices of the future will be able not only to measure the heart rate, physical activity and sleep quality, but also to accurately track the movements of the human body);
4. Network segmentation for IoT applications (with the advent of 5G networks around the world, the technology of their segmentation is considered as a way of organizing a network for IoT devices with different requirements for latency, connection reliability, bandwidth, etc.);
5. TinyML (an emerging technology for hardware and software solutions that allows machine learning algorithms to be implemented in low-power miniature chips – microcontrollers).

## VR/AR

The segment did not meet the expectations of equipment manufacturers, sales of devices for AR/VR turned out to be significantly lower than planned, and vendors of mass devices lost interest in the topic.

At the same time, the global market for virtual and augmented reality technologies, according to forecasts by BCC Research, will show an annual growth of 60.5 % and will reach \$40 billion by 2022.

## Quantum computations

In April 2020, it became known that the US Presidential Administration, when planning the state budget for 2021, decided to increase spending on quantum informatics by 20 % to \$237 million. At the same time, it reduces the cost of scientific activities in 2021 as a whole by 10 %.



## Russia and global technological trends

According to the Forrester Consulting survey commissioned by Experian, 63% of Russian top managers believe investing in data, analytics and artificial intelligence is a prerequisite for business growth. In Russia, companies of various sizes took part in the survey: from medium (500–1,000 employees) to large (up to 5 thousand employees), very large (up to 20 thousand) and global (more than 20 thousand employees), doing their own business in the oil and gas industry, finance and telecom.

The first Russian blockchain platform Jovi was presented at the St. Petersburg International Economic Forum in early June 2019. IT company CROC has become an anchor partner of the developer of the new platform, Noosphere, and will use it when working on blockchain projects for customers. You can test and launch a corporate blockchain on the Jovi platform in just one day.

According to the roadmap for the development of blockchain in Russia within the framework of the Digital Economy program presented at the CIPR-2019 conference, the blockchain is proposed to be used in all state information systems, including voting at the municipal level and control over the spending of budgetary funds. Financial and insurance activities, transportation and storage, public administration, healthcare and manufacturing are among the priority areas for the implementation of distributed ledger technologies. The roadmap authors argue that the effect of the blockchain technology introduction in Russia by 2024 may amount to over RUB 1.5 trillion.

According to the study conducted by the international company Perenio IoT in the first half of 2019, the Russian Internet of Things (IoT) market might exceed RUB 700 billion by 2025. At the same time, the growth rate of the IoT market volume will

most likely remain positive regardless of any development dynamics of the Russian economy and higher in relation to many industries. The fact is that the market is promising not only for solution providers, but also allows you to manage costs, optimize, obtain financial results in the system of city administration, housing and public utilities, transport, agriculture, and personal budget management.

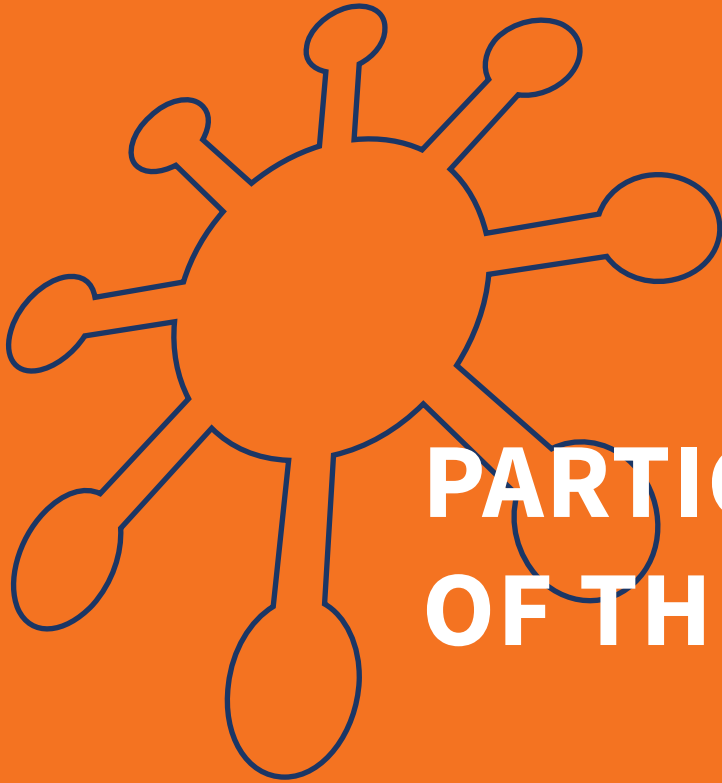
According to Perenio experts, housing and public utilities and development will be the most promising areas of IoT technology application. It is in these segments that a breakthrough and the greatest return from the use of these technologies are expected in the next 5–7 years. The implementation of the Smart City project, one of the directions of the Digital Economy state program, will become a key driver for the development of the Internet of Things.

The volume of the market for dispatching and automation systems of resource consumption recording is estimated at RUB 5 billion. Intelligent accounting, security systems, connection of housing and public utilities devices to LPWAN, optimization of solid waste removal: all these areas are now actively developing in Russia, and the potential volume of the IoT market for housing and public utilities is estimated at 200 million devices.

The Internet of Things, according to PwC's forecast, may become one of the factors for the Russian economy growth. The expansion of such technologies in the next few years can reduce costs by RUB 2.8 trillion. Savings can be even larger if cybersecurity threats are mitigated, regulation emerges and IoT standards are implemented, market participants add.

In particular, the economic effect from the introduction of IoT in the electric

power industry will amount to about RUB 532 billion, in healthcare – RUB 536 billion, in agriculture – RUB 469 billion, in the transport industry – RUB 542 billion. The effect in housing and public utilities by 2025 may reach RUB 3.6 trillion.



# **PARTICIPANTS OF THE SURVEY**


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<b>3iTech</b>	Moscow	3itech.ru	info@3itech.ru	(495) 645-4306	Text and media processing products	Artificial Intelligence, Big Data & BI, Smart City
<b>3kex</b>	Krasnoyarsk	3ksigma.ru	info@3ksigma.ru	(902) 945-6719	Basic software development (DBCS, OS, office applications, virtualization tools, programming languages and tools)	Smart City
<b>404studio</b>	Orel	404studio.ru	office@404studio.ru	(4862) 78-2696	Website designing	
<b>4px</b>	Moscow	4px.ru	we@4px.ru	(495) 181-1619	Full Cycle Digital Agency	Artificial Intelligence, Big Data & BI, Blockchain Technology
<b>7 Red Lines</b>	Moscow	7rlines.ru	a.gavrilovich@7rlines.com	(965) 277-9107	Custom software development	AR & VR Development, Big Data & BI
<b>A2B</b>	Ufa	a2b.su	zaripov@a2b.su	(905) 355-9194	Replicated enterprise (institution) management, document flow automation, design and production process systems (ERP, CRM, ECM, EDMS, CAD, APCS and other)	
<b>ABISoft</b>	Saint-Petersburg	abisoft.biz	info@abisoft.spb.ru	(921) 936-1280	Custom software development	
<b>AGNEKO</b>	Moscow region	agneko.com	sales@agneko.com	(495) 660-3590	Custom software development	
<b>AIC</b>	Moscow	en.aic.ru	reception@aic.ru	(499) 350-5674	Intelligent design, plain and simple.	Big Data & BI
<b>ALFASATCOM</b>	Moscow	Alfasatcom.ru	info@alfasatcom.ru	(916) 601-3838	Custom software development	BigData & BI, IoT
<b>Alliance+ (Internet-agency)</b>	Bryansk	alianscompany.ru	sergejkonet@mail.ru	(920) 605-9345	Custom software development	Artificial Intelligence, Big Data & BI
<b>Andsoft</b>	Saint-Petersburg	andsoft.ru	admin@andsoft.ru	(921) 301-2085	Basic software development (DBCS, OS, office applications, virtualization tools, programming languages and tools)	
<b>Aquarius Software</b>	Kostroma	aqua-soft.ru	info@aqua-soft.ru	(910) 660-4618	Basic software development (DBCS, OS, office applications, virtualization tools, programming languages and tools) , Custom software development	

Company	Head office location	Web	E-mail	Phone	Specialization	Expertise in areas corresponding to global technological trends
<b>Aquilon Software Technologies</b>	Kazan	aquilon-st.ru	dir@aquilon-st.ru	(843) 524-7366	Custom software development	Big Data & BI
<b>AraxGroup</b>	Moscow	araxgroup.ru	info@araxgroup.ru	(495) 504-8263	Replicated enterprise (institution) management, document ow automation, design and production process systems (ERP, CRM, ECM, EDMS, CAD, APCS and other)	Artificial Intelligence
<b>Arcadia</b>	Saint-Petersburg	softwarecountry.com	info@softwarecountry.com	(812) 610-5955	Custom software development	AR & VR Development, Artificial Intelligence, Big Data & BI, IoT
<b>A-Real Consulting</b>	Yaroslavl	xserver.a-real.ru	hello@a-real.ru	(800) 555-9297	Information security solutions	
<b>Artezio</b>	Moscow	artezio.com	sales@artezio.com	(495) 981-0531	Custom software development	Artificial Intelligence, Big Data & BI, Blockchain Technology
		<p>Artezio is an international technology company that specializes in professionally solving complex tasks in digital business transformation and custom software development.</p> <p>Artezio is included in the list of the world's best outsourcing service providers (The Global Outsourcing 100) and one of the top developers in several professional categories according to Clutch, the rating and reviews platform. The company's experience and professionalism have been highlighted by a number of international analytical agencies.</p> <p>Among Artezio's clients are customers from Russia, Europe, and the US. We create innovative solutions in various spheres: banking and finance, healthcare and tourism, and build solutions that are used by millions of people around the globe.</p> <p>Artezio's development centers are located in Moscow, Saratov, Nizhny Novgorod, Saint Petersburg, Minsk, Vitebsk, and Mogilev. Additionally, the company has representative offices in the US, Canada, and Poland.</p>				
<b>ASD Technologies</b>	Nizhny Novgorod	asdtech.co	dfeshin@asdco.ru	(963) 672-7526	Developers of personal accounts / self-service portals for fintech, telecom operators and service providers.	Big Data & BI
<b>AssetData</b>	Moscow	assetdata.market	au@assetdata.market	(965) 320-8512	Replicated enterprise (institution) management, document ow automation, design and production process systems (ERP, CRM, ECM, EDMS, CAD, APCS and other)	Artificial Intelligence, Big Data & BI, IoT
<b>ASV</b>	Perm	asv.ru	a.kazymov@asv.ru	(912) 885-3300	Replicated enterprise (institution) management, document ow automation, design and production process systems (ERP, CRM, ECM, EDMS, CAD, APCS and other)	Smart City

Company	Head office location	Web	E-mail	Phone	Specialization	Expertise in areas corresponding to global technological trends
<b>Auriga</b>  	Moscow	auriga.com	pr@auriga.com	(495) 713-9900	Custom software development	AR & VR Development, Artificial Intelligence, Big Data & BI, IoT
<p>Established in 1990, Auriga (<a href="http://www.auriga.com">www.auriga.com</a>) is recognized as one of the Top-100 leading outsourcing software R&amp;D providers worldwide. Headquartered in Boston, MA with 600+ employees, seven development centers across six time zones, 13+ embedded testing R&amp;D labs and 100+ projects yearly for medical device, automobile and construction tools manufacturers, telecom and power management companies, chip manufacturers, our company offers maximum flexibility in terms of processes, communications, issue resolution while conduct project in strict compliance to quality and risk management standards (ISO 13485).</p>						
<b>Axbit</b>	Samara	axbit.ru	info@axbit.ru	(495) 414-1404	IT Services from site development and mobile applications to comprehensive enterprise automation.	AR & VR Development, Smart City
<b>Axilon Consulting</b>	Moscow	axilon.ru	info@axilon.ru	(916) 815-3499	Information and Analysis Platform (CPM, BI)	Big Data & BI
<b>BACUP IT</b>	Novosibirsk	bacup.ru	a.r.rakhimov@bacup.ru	(383) 325-0771	Custom software development	Artificial Intelligence
<b>BaseALT</b>	Moscow	basealt.ru	org@basealt.ru	(903) 288-1093	Basic software development (DBCS, OS, office applications, virtualization tools, programming languages and tools)	
<b>Bee Pitron</b>	Saint-Petersburg	beepitron.com	all@beepitron.com	(812) 740-1800	Replicated enterprise (institution) management, document flow automation, design and production process systems (ERP, CRM, ECM, EDMS, CAD, APCS and other)	IoT
<b>BellSoft</b>	Saint-Petersburg	bell-sw.com	info@bell-sw.com		Basic software development (DBCS, OS, office applications, virtualization tools, programming languages and tools)	BigData & BI, Blockchain Technology, IoT
<b>BETA</b>	Saint-Petersburg	beta.spb.ru	info@beta.spb.ru	(906) 259-3820	Custom software development	Artificial Intelligence, Big Data & BI, IoT, Smart City
<b>Bitrixoid</b>	Novosibirsk	b-id.ru	info@b-id.ru	(383) 380-5259	Website designing	
<b>Budget and Finance Technologies</b>	Moscow	bftcom.com	info@bftcom.com	(495) 784-7000	Software and consulting solutions for public sector and business	Big Data & BI

Company	Head office location	Web	E-mail	Phone	Specialization	Expertise in areas corresponding to global technological trends
<b>Business Automatics</b>	Moscow	npc.ba	info@pba.su	(495) 221-2965	Build and support complex, intelligent information and analysis systems	Artificial Intelligence, Big Data & BI, Smart City
<b>CEREBRO</b>	Moscow	cerebrohq.com	info@cerebrohq.com	(499) 110-3482	Replicated enterprise (institution) management, document ow automation, design and production process systems (ERP, CRM, ECM, EDMS, CAD, APCS and other)	Big Data & BI
<b>Chilisoft</b>	Moscow	chilisoft.ru	info@chilisoft.ru	(905) 537-2692	Replicated enterprise (institution) management, document ow automation, design and production process systems (ERP, CRM, ECM, EDMS, CAD, APCS and other)	BigData & BI, IoT, Smart City
<b>CodeInside</b>	Penza	codeinside.ru	info@codeinside.ru	(8412) 63-6736	Custom software development	Artificial Intelligence, IoT, Smart City
<b>CommFort software</b>	Novosibirsk	commfort.com	support@commfort.com	(383) 380-4274	Replicated enterprise (institution) management, document ow automation, design and production process systems (ERP, CRM, ECM, EDMS, CAD, APCS and other)	
<b>CrossTech Solutions Group</b>	Moscow	ct-sg.ru	info@ct-sg.ru	(495) 741-8864	Information security solutions	Artificial Intelligence, Big Data & BI, IoT
<b>CVisionLab</b>	Taganrog	cvisionlab.com	info@cvisionlab.com	(905) 454-3313	Custom software development	AR & VR Development, Artificial Intelligence, Big Data & BI, IoT, Smart City
<b>CyberTech</b>	Saint-Petersburg	trikset.com	mikhail@trikset.com	(911) 917-6186	Educational solutions for the study of modern technology and robotics	IoT
<b>Diasoft</b>	Moscow	diasoft.ru	pr@diasoft.ru	(495) 780-7575	Global provider of financial technologies	Artificial Intelligence, Big Data & BI
<b>Digital Mind Development</b>	Krasnoyarsk	dmdevelopment.ru	dmd@dmdevelopment.ru	(3912) 05-0778	Custom software development	Artificial Intelligence
<b>DIP (stp "dip")</b>	Saint-Petersburg	ntp-dip.ru	dip_zenit@mail.ru	(911) 928-8478	Basic software development (DBCS, OS, o ce applications, virtualization tools, programming languages and tools)	
<b>Directum</b>	Izhevsk	directum.ru	office@directum.ru	(3412) 72-1100	Replicated enterprise (institution) management, document ow automation, design and production process systems (ERP, CRM, ECM, EDMS, CAD, APCS and other)	Artificial Intelligence

Company	Head office location	Web	E-mail	Phone	Specialization	Expertise in areas corresponding to global technological trends
<b>DocLab</b>	Ufa	freshdoc.ru	avtushov@freshdoc.ru	(495) 212-1484	Custom software development	Artificial Intelligence
<b>Dom programm</b>	Saint-Petersburg	domprog.com	info@domprog.com	(812) 337-2136	Custom software development	Artificial Intelligence
<b>Ecomash IT</b>	Moscow	ecomash-it.ru	kodeks@ecomash.info	(495) 481-2220	Replicated enterprise (institution) management, document ow automation, design and production process systems (ERP, CRM, ECM, EDMS, CAD, APCS and other)	
<b>Econophysica Ltd</b>	Tomsk	econophysica.com	contactus@econophysica.com	(3822) 90-03-10	Custom software development	Artificial Intelligence, Big Data & BI, Blockchain Technology
<b>eidos</b>	Rostov-on-Don	facebook.com/lubarsky.ru	sergey@lubarsky.ru	(918) 558-3785	Basic software development (DBCS, OS, o ce applications, virtualization tools, programming languages and tools)	Artificial Intelligence, Big Data & BI
<b>EmDev Limited</b>	Saint-Petersburg	emdev.ru	akakunin@emdev.ru	(812) 385-5778	Custom software development	
<b>EPAM Systems</b>	Moscow	epam.com	ask_ru@epam.com	(495) 730-6362	Custom software development	AR & VR Development, Artificial Intelligence, Big Data & BI, Blockchain Technology, IoT, Smart City
<b>ErmineSoft</b>	Novosibirsk	erminesoft.com	denis@erminesoft.ru	(913) 926-2697	Custom software development	AR & VR Development, Artificial Intelligence, IoT, Smart City
<b>EuroMobile</b>	Saint-Petersburg	euromobile.ru	info@euroml.ru	(812) 331-7576	Information security solutions	BigData & BI, IoT, Smart City
<b>eVeloopers</b>	Saint-Petersburg	evelopers.com	info@evelopers.com	(812) 032-4321	Custom software development	
<b>EveryTag</b>	Moscow	everytag.ru	hello@everytag.ru	(495) 008-1695	Information security solutions	
<b>Fast Reports</b>	Rostov-on-Don	fastreport.ru	info@fastreport.ru	(863) 227-0740	Basic software development (DBCS, OS, o ce applications, virtualization tools, programming languages and tools)	
<b>FayGroup</b>	Moscow region	faygroup.ru	info@faygroup.ru	(964) 786-6003	Custom software development	

Company	Head office location	Web	E-mail	Phone	Specialization	Expertise in areas corresponding to global technological trends
<b>ForClasses</b>	Ekaterinburg	moyklass.com	info@moyklass.com	(495) 108-5239	Replicated enterprise (institution) management, document ow automation, design and production process systems (ERP, CRM, ECM, EDMS, CAD, APCS and other)	
<b>Foresight</b>	Moscow	fsight.ru	info@fsight.ru	(495) 137-5498	Replicated enterprise (institution) management, document ow automation, design and production process systems (ERP, CRM, ECM, EDMS, CAD, APCS and other)	Artificial Intelligence, Big Data & BI, IoT, Smart City
<b>GDC Services</b>	Kazan	icl-services.com	pr@icl-services.com	(800) 333-9870	Custom software development	AR & VR Development, Artificial Intelligence, Big Data & BI, IoT
<b>Geoscan Group</b>	Saint-Petersburg	geoscan.aero	info@geoscan.aero	(812) 363-3387	Professional unmanned technologies	AR & VR Development, Artificial Intelligence, IoT
<b>GS Labs</b>	Saint-Petersburg	gs-labs.ru	alexey.goilo@gs-labs.ru	(911) 000-3347	Integrated solutions for the formation of ecosystems for the creation and delivery of digital products based on proprietary technologies	IoT, Smart City
<b>HARMAN Connected Services</b>	Nizhny Novgorod	harman.com	Olga.Sheinfeld@harman.com	(905) 664-1155	Global leader in connected car technology, lifestyle audio innovations, professional audio and lighting solutions, and design and analytics	AR & VR Development, Artificial Intelligence, Big Data & BI, IoT, Smart City
		<p>HARMAN Nizhny Novgorod (founded in 1991, staff – 700 eng.) is following modern trends in Artificial Intelligence, Machine Learning and Natural Language Processing. Our end-to-end software engineering, IoT and data analytics services enable the world's top automotive, mobile and communications, retail and healthcare and software-enabled businesses drive innovation-led growth. HARMAN NN provides cloud technology services, services supporting the Internet of Things and Mobile Applications for Android, iOS, QNX, Java and other mobile platforms. In March 2017, HARMAN became a wholly-owned subsidiary of Samsung Electronics. Customers: Samsung, Jaguar-Land Rover, Mercedes, OnStar/GM, PSA PeugeotCitröen, MSC Cruises, Nielsen, Huawei, Thales, Roche, MainCare, Facebook etc.</p>				
<b>High Technologies Center</b>	Izhevsk	htc-cs.ru	dpletnev@htcmail.ru	(906) 818-7668	Custom software development	Artificial Intelligence, Blockchain Technology
<b>IBIK LLC</b>	Moscow	ibik.ru	director@ibik.ru	(977) 261-1668	Basic software development (DBCS, OS, o ce applications, virtualization tools, programming languages and tools)	
<b>IceRock Development</b>	Novosibirsk	icerockdev.com	info@icerockdev.com	(495) 109-7329	Custom software development, Mobile applications	Blockchain Technology, IoT





Company	Head office location	Web	E-mail	Phone	Specialization	Expertise in areas corresponding to global technological trends
<b>Infoopteka</b>	Moscow	infoopteka.com	office@infoopteka.com	(495) 150-3426	Replicated enterprise (institution) management, document ow automation, design and production process systems (ERP, CRM, ECM, EDMS, CAD, APCS and other)	
<b>INFOPRO</b>	Moscow	info-pro.ru	post@info-pro.ru	(800) 600-2401	Information security solutions	BigData & BI, IoT, Smart City
<b>Information Systems and Services</b>	Novosibirsk	isands.ru	ashovkun@isands.ru	(913) 377-9002	Replicated enterprise (institution) management, document ow automation, design and production process systems (ERP, CRM, ECM, EDMS, CAD, APCS and other)	Smart City
<b>Inostudio Solutions</b>	Taganrog	inostudio.com	russoft@inostudio.com	(8634) 32-0318	Custom software development	AR & VR Development
<b>INOVENTICA Technology</b>	Moscow	inoventica-tech.ru	info@inoventica-tech.ru	(495) 646-7308	Information security solutions	
<b>Inreco LAN</b>	Vladimir	inrecolan.com	sergey.pyatigorskiy@inrecolan.com	(4922) 44-4090	Custom software development	Artificial Intelligence
<b>INTERFACE</b>	Novosibirsk	interface.nsk.su	interface@interface.nsk.su	(913) 912-2216	System Integration	Big Data & BI
<b>Internet-Frigate</b>	Novocherkassk	ifrigate.ru	main@ifrigate.ru	(86352) 2-4110	Navigation systems & Geographic information systems (GIS)	Artificial Intelligence, Big Data & BI, IoT, Smart City
<b>IQ300</b>	Naberezhnye Chelny	IQ300.ru	info@iq300.ru	(927) 480-6426	Replicated enterprise (institution) management, document ow automation, design and production process systems (ERP, CRM, ECM, EDMS, CAD, APCS and other)	Blockchain Technology, Smart City
<b>iSpring</b>	Yoshkar-Ola	ispring.com	valentina.bulygina@ispring.com	(960) 099-0074	Online Training Software	
<b>ISPsystem</b>	Irkutsk	ispsystem.ru	k.petrunina@ispsystem.com	(914) 001-7106	Embedded software (equipment, devices)	
<b>IT "Design Soft"</b>	Ekaterinburg	d-soft.ru	info@d-soft.ru		Replicated enterprise (institution) management, document ow automation, design and production process systems (ERP, CRM, ECM, EDMS, CAD, APCS and other)	
<b>IT Pro</b>	Moscow	biqube.ru	mail@biqube.ru	(499) 347-8480	Custom software development	Artificial Intelligence, IoT

Company	Head office location	Web	E-mail	Phone	Specialization	Expertise in areas corresponding to global technological trends
<b>IT Universe</b>	Samara	it-universe.ru	info@it-universe.ru	(846) 979-8080	Software development	Artificial Intelligence
<b>Ittransition</b>	Saint-Petersburg	ittransition.com	info@ittransition.com	(495) 640-8937	Custom software development	AR & VR Development, Artificial Intelligence, Big Data & BI, Blockchain Technology, IoT
<b>IVCS Ltd</b>	Innopolis	iva-tech.ru	m.tuktarova@iva-tech.ru	(916) 794-2562	Developers of innovative IT solutions for building a modern digital infostructure	Artificial Intelligence
<b>IW Group</b>	Simferopol	iw-group.pro	alexey@ideas-world.com	(978) 015-6915	Custom software development, Mobile applications	
<b>IZZIO</b>	Moscow	izz.io	info@izz.io	(905) 520-3080	Custom software development	Artificial Intelligence, Big Data & BI, Blockchain Technology, IoT
		<p>IZZIO, LLC is a software design and development studio for the digital transformation of different-sized businesses and gov agencies, which specialize in web and mobile applications, high-load information systems, developing and embedding CIPF in the software. The company creates projects based on various technologies: blockchain, AI, Big data, IoT, as well as has a number of own developments for different areas. IZZIO, LLC has an indefinite Russian Federal Security Service (FSB) license to develop solutions using CIPF.</p> <p>The flagship product of the company (in the List of Russian software) is the IZZIO blockchain platform with an integrated module based on GOST (Russian National Standard) cryptography: an infrastructure based on the LCPoA consensus algorithm and a set of tools that allow you to easily and cost-effectively create various products based on blockchain technologies.</p>				
<b>JoyCraft Games</b>	Saint-Petersburg	joycraft-games.com	company@joycraft-games.com	(981) 862-7328	Computer games	
<b>KAMIS</b>	Saint-Petersburg	kamis.ru	info@kamis.ru	(812) 274-3522	Replicated enterprise (institution) management, document ow automation, design and production process systems (ERP, CRM, ECM, EDMS, CAD, APCS and other)	Smart City
<b>King Bird Studio</b>	Moscow	kingbird.ru	ask@kingbird.ru	(495) 540-5229	Mobile applications	AR & VR Development, Artificial Intelligence, Big Data & BI, Blockchain Technology, IoT, Smart City
<b>KODEKS</b>	Saint-Petersburg	kodeks.ru	kodeks@kodeks.ru	(812) 740-7887	Replicated enterprise (institution) management, document ow automation, design and production process systems (ERP, CRM, ECM, EDMS, CAD, APCS and other)	AR & VR Development, Artificial Intelligence

Company	Head office location	Web	E-mail	Phone	Specialization	Expertise in areas corresponding to global technological trends
<b>KOMINTEL</b>	Saint-Petersburg	kom-intel.ru	konstvkv@kom-intel.ru	(812) 931-1272	Custom software development	Big Data & BI
<b>Kosta</b>	Saint-Petersburg	kostasoft.ru	info@kostasoft.ru	(812) 320-0607	Replicated enterprise (institution) management, document ow automation, design and production process systems (ERP, CRM, ECM, EDMS, CAD, APCS and other)	
<b>LABS</b>	Moscow	advalange.ru	info@advalange.com	(499) 350-2599	Embedded software (equipment, devices)	
<b>LANBilling</b>	Moscow	lanbilling.ru	itdep@lanbilling.ru	(495) 795-0677	Developers in the billing system for telecom operators	
<b>Lanit-Tercom</b>	Saint-Petersburg	lanit-tercom.ru	contact@lanit-tercom.com	(931) 330-9982	Custom software development	AR & VR Development, Artificial Intelligence, Big Data & BI, Blockchain Technology
<b>Lartech</b>	Saint-Petersburg	lar.tech	info@lar.tech	(812) 339-4501	Turnkey solutions for a wide variety of industries where long-distance data transmission is required, high autonomy, ease of installation and quick payback of implementation	IoT, Smart City
<b>League Of Code</b>	Saransk	leagueofcode.ru	welcome@Lcode.pro	(963) 149-1199	Replicated enterprise (institution) management, document ow automation, design and production process systems (ERP, CRM, ECM, EDMS, CAD, APCS and other)	
<b>Leantech</b>	Omsk	leantech.ai	info@leantech.ai	(923) 676-0266	Custom software development	Artificial Intelligence, Big Data & BI, Blockchain Technology
<b>Lexema</b>	Ufa	lexema.ru	market@lexema.ru	(3472) 84-7000	Development in the field of ai and robotization of business processes	Artificial Intelligence
<b>LOGUS</b>	Moscow region	logus.ru	ecology@logus.ru	(903) 664-1923	Custom software development	
<b>Luxoft</b>	Moscow	luxoft.com	Vvereschagin@luxoft.com	(495) 967-8030	Custom software development	Artificial Intelligence, Big Data & BI, Blockchain Technology, IoT
<b>Makves Group</b>	Moscow	makves.ru	info@makves.ru	(495) 150-5406	Software for audit and IT Resources monitoring	

Company	Head office location	Web	E-mail	Phone	Specialization	Expertise in areas corresponding to global technological trends
<b>Media technology</b>	Saint-Petersburg	sigmasms.ru	integration@sigmasms.ru	(904) 615-4608	Content provider for A2P text and multimedia messaging	
<b>Media-tel</b>	Moscow	media-tel.ru	info@media-tel.ru	(499) 272-7658	Custom software development	Artificial Intelligence, Big Data & BI, IoT
<b>Megaputer</b>	Moscow	megaputer.ru	info@megaputer.ru	(499) 753-0129	Basic software development (DBCS, OS, office applications, virtualization tools, programming languages and tools)	Artificial Intelligence, Big Data & BI
<b>Monolit-Info</b>	Saint-Petersburg	monolit.com	alex@monolit.com	(921) 937-8542	Replicated enterprise (institution) management, document flow automation, design and production process systems (ERP, CRM, ECM, EDMS, CAD, APCS and other)	
<b>M-Social</b>	Bryansk	msocialproduction.ru	a.trishin@msocialproduction.com	(962) 131-6236	Custom software development	BigData & BI, IoT
<b>Nexign, JSC</b>	Saint-Petersburg	nexign.com	office@nexign.com	(812) 326-1299	Custom software development	Blockchain Technology, IoT
<b>Noviy Disk</b>	Moscow	nd.ru	e-learning@nd.ru	(495) 785-6514	Custom software development	AR & VR Development, Artificial Intelligence, Smart City
<b>Oggetto</b>	Taganrog	oggetto.ru	paul@oggettoweb.com	(989) 612-7000	Custom software development	
<b>OKTET Labs</b>	Saint-Petersburg	oktetlabs.ru	info@oktetlabs.ru	(812) 335-4801	Custom software development	
<b>Overmobile LLC</b>	Novosibirsk	overmobile.ru	finance@overmobile.ru	(913) 798-0533	Computer games	
<b>Paradigma Soft</b>	Saint-Petersburg	paradigma-soft.ru	info@paradigma-soft.ru		Custom software development, Replicated enterprise (institution) management, document flow automation, design and production process systems (ERP, CRM, ECM, EDMS, CAD, APCS and other)	
<b>Pikyug</b>	Novorossiysk	pikyug.ru	py01@py01.ru	(8617) 61-0175	Custom software development	Big Data & BI
<b>PiterSoft</b>	Saint-Petersburg	piter-soft.ru	info@piter-soft.ru	(812) 333-0860	Replicated enterprise (institution) management, document flow automation, design and production process systems (ERP, CRM, ECM, EDMS, CAD, APCS and other)	

Company	Head office location	Web	E-mail	Phone	Specialization	Expertise in areas corresponding to global technological trends
<b>Polymatica</b>	Moscow	polymatica.ru	sales@polymatica.ru	(495) 748-8484	Replicated enterprise (institution) management, document ow automation, design and production process systems (ERP, CRM, ECM, EDMS, CAD, APCS and other)	Artificial Intelligence, Big Data & BI, IoT
<b>Printum</b>	Moscow	http:printum.io	dd@printum.io	(963) 766-2233	Replicated enterprise (institution) management, document ow automation, design and production process systems (ERP, CRM, ECM, EDMS, CAD, APCS and other)	Artificial Intelligence, IoT
<b>PROMT</b>	Saint-Petersburg	promt.ru	corporate@promt.ru	(812) 655-0350	<b>Replicated enterprise (institution) management, document ow automation, design and production process systems (ERP, CRM, ECM, EDMS, CAD, APCS and other)</b>	<b>Artificial Intelligence, Big Data &amp; BI</b>
	<p>PROMT is one of the world's leading developers of linguistic IT-solutions for enterprise-level clients and private users since 1991. The company is among the few machine translation software vendors from Europe and one of the TOP-10 companies globally.</p> <p>The company has thousands of corporate clients all over the world, such as Amadeus, Nornickel, Russian Railways, PayPal, Gazprom, LUKOIL, SpanishDict, Siemens, Mail.ru, TAdviser.</p> <p>PROMT uses the latest advances in the field of AI to create solutions for all popular platforms – Windows, MacOS, Linux, iOS, Android. PROMT MT software supports more than 50 languages and integrates with Microsoft applications and CAT-systems (SDL Trados, Memsource, Across).</p>					
<b>Qligent</b>	Nizhny Novgorod	qligent.ru	info@qligent.ru		Replicated enterprise (institution) management, document ow automation, design and production process systems (ERP, CRM, ECM, EDMS, CAD, APCS and other)	Big Data & BI
<b>QNIUM LLC</b>	Moscow	qniium.ru	office@qniium.ru	(495) 988-0764	Custom software development	AR & VR Development, Artificial Intelligence, IoT
<b>RAIDIX</b>	Saint-Petersburg	raidix.com	request@raidix.com	(812) 622-1680	Basic software development (DBCS, OS, o ce applications, virtualization tools, programming languages and tools)	Artificial Intelligence, Big Data & BI, IoT, Smart City
<b>Raketa</b>	Vladivostok	raketa.world	hello@raketa.travel	(925) 655-9000	Replicated enterprise (institution) management, document ow automation, design and production process systems (ERP, CRM, ECM, EDMS, CAD, APCS and other)	

Company	Head office location	Web	E-mail	Phone	Specialization	Expertise in areas corresponding to global technological trends
<b>RCO</b>	Moscow	rco.ru	info@rco.ru	(495) 287-9887	Custom software development	Artificial Intelligence
<b>RDTEX</b>	Moscow	rdtex.ru	marketing@rdtex.ru	(495) 995-0999	IT Services	Artificial Intelligence, Big Data & BI, IoT
<b>RED Soft</b>	Moscow	red-soft.ru	info@red-soft.ru	(495) 285-6268	<b>Basic and application software</b>	
		<p>RED SOFT — Russian developer and provider of IT solutions and services; Skolkovo resident, member of the "Domestic Software" and RUSSOFT associations. The company implements integrated projects in the field of data storage and management using its own technology stack. RED SOFT is an efficient team with more than 15 years experience in development in the Russian public and commercial sectors. RED SOFT has its own product line: RED OS, Red Database DBMS, Red Platform, Red Virtualization and others. All products are listed in the Unified Register of Russian Software and Databases. Among the company's customers there are more than 20 government bodies, including the Federal Bailiff Service of Russia, the Prosecutor General's Office of the Russian Federation and the Ministry of Defense of the Russian Federation. Projects are being actively implemented in the regions.</p>				
<b>Reksoft</b>	Moscow	reksoft.ru	rfi@reksoft.ru	(495) 926-1771	Custom software development	Artificial Intelligence, Big Data & BI, Blockchain Technology, IoT, Smart City
<b>RIT automation</b>	Novosibirsk	rit-it.com	lb@rit-it.com	(913) 700-8372	Embedded software (equipment, devices)	
<b>RNDSOFT</b>	Rostov-on-Don	rnds.pro	es@rnds.pro	(499) 110-9973	Replicated enterprise (institution) management, document ow automation, design and production process systems (ERP, CRM, ECM, EDMS, CAD, APCS and other)	AR & VR Development, Artificial Intelligence, Blockchain Technology, Smart City
<b>Roonyx</b>	Rostov-on-Don	roonyx.tech	vladimir@roonyx.tech	(909) 413-4138	Custom software development	Artificial Intelligence, Blockchain Technology
<b>Rubius</b>	Tomsk	rubius.com	info@rubius.com	(3822) 97-7772	Custom software development	AR & VR Development, Artificial Intelligence, Big Data & BI, Smart City
<b>RunCall</b>	Saint-Petersburg	runcall.ru	info@runcall.ru	(911) 949-4560	Custom software development	Artificial Intelligence
<b>RuNetSoft</b>	Saint-Petersburg	runetsoft.ru	mailbox@runetsoft.ru	(812) 337-2414	Website designing	AR & VR Development, Artificial Intelligence, Smart City

Company	Head office location	Web	E-mail	Phone	Specialization	Expertise in areas corresponding to global technological trends
<b>RusBITech-Astra</b>  	Moscow	astralinux.ru	sfedorov@astralinux.ru	(495) 369-4816	<b>Basic software development (DBCS, OS, office applications, virtualization tools, programming languages and tools)</b>	<b>Smart City</b>
<p>Astra Linux Group is one of the leaders in the Russian information technology market in the area of developing software and information security tools – operating systems of the Astra Linux family and virtualization platforms. The Company has been operating since 2008. Today Astra Linux team consists of more than 300 highly qualified developers and technical support staff.</p> <p>Astra Linux solutions are actively used to ensure security of Critical Information Infrastructure (CII) facilities.</p> <p>The company is a member of ‘Russoft’ and ARPP Software Developers association. Winner of international &amp; local awards.</p>						
<b>SDI SOFT</b>	Moscow	sdisoft.ru	info@sdisoft.ru		Replicated enterprise (institution) management, document flow automation, design and production process systems (ERP, CRM, ECM, EDMS, CAD, APCS and other)	<b>Big Data &amp; BI</b>
<b>Searchinform</b>  	Moscow	searchinform.com	info@searchinform.ru	(495) 721-8406	<b>Complex information protection</b>	
<p>SearchInform is a leading Russian developer of information security solutions. Today, the company’s current list of offered products includes instruments for comprehensive protection against internal threats: SearchInform Risk Monitor, SearchInform DLP, SearchInform SIEM, SearchInform FileAuditor – a DCAP solution, SearchInform Database Monitor – a DAM solution, SearchInform ProfileCenter based on automated profiling, TimeInformer for time-tracking and control of relevance of used websites and applications, as well as offers software as a service.</p> <p>SearchInform products are suitable for companies from all industries, where personal data is stored and processed, as well as commercial, medical, state secret, trade secret and know-how information is kept. The competence of the company is confirmed by a perpetual license from the Center for Licensing, Certification and Protection of State Secrets of the Federal Security Service of the Russian Federation, licenses from the Federal Service for Technical and Export Control of Russia, the products are included in the Unified Register of Russian Programs.</p>						
<b>SFERA</b>	Moscow	sphaera.ru	info@sphaera.ru	(495) 672-7036	Replicated enterprise (institution) management, document flow automation, design and production process systems (ERP, CRM, ECM, EDMS, CAD, APCS and other)	<b>BigData &amp; BI, Smart City</b>
<b>SimbirSoft</b>	Ulyanovsk	simbirsoft.com	info@simbirsoft.com	(800) 2009924	Custom software development	<b>BigData &amp; BI, Blockchain Technology, IoT, Smart City</b>

Company	Head office location	Web	E-mail	Phone	Specialization	Expertise in areas corresponding to global technological trends
<b>Sibedge</b>  	Tomsk	sibedge.com	contacts@sibedge.com	(3822) 70-1841	<b>A full-cycle global software development company focusing on an approach to business transformation that puts people first</b>	
		<p>Sibedge is a globally distributed software engineering company that puts people first. We combine our innovative technology vision with our clients' business objectives to help them have a smooth journey to digital transformation. For over 15 years, we have successfully implemented over 350 projects across more than 15 countries. We have offices in San Francisco, CA, and Moscow, Saint Petersburg and Tomsk, Russia. In 2019, the company opened a representative office in Australia.</p>				
<b>SIMETRA</b>	Saint-Petersburg	simetrargroup.ru	moscow@simetrargroup.ru		Solution for dispatching, monitoring and modeling transport and logistics flows	Artificial Intelligence, Big Data & BI, Smart City
<b>Smart Design</b>	Saint-Petersburg	smddev.com	info@smddev.com	(921) 932-7150	Custom software development	Artificial Intelligence, Big Data & BI, IoT
<b>Smart Life</b>	Moscow region	smart-life.pro	v.mironov@smart-life.pro	(968) 867-1162	Embedded software (equipment, devices)	BigData & BI, Smart City
<b>SMS-Information technologies</b>	Samara	sms-it.ru	info@sms-it.ru	(927) 263-8621	Proprietary software and creation of solutions for energy and industrial enterprises.	IoT
<b>SoftInform</b>	Tomsk	ssp-soft.com	sales@ssp-soft.com	(906) 950-2550	Custom software development	
<b>SoftLab-NSK</b>	Novosibirsk	softlab-nsk.com	trav@sl.iae.nsk.su	(913) 915-5915	Replicated enterprise (institution) management, document ow automation, design and production process systems (ERP, CRM, ECM, EDMS, CAD, APCS and other)	AR & VR Development
<b>Sonda Pro</b>	Miass	sonda.ru	sonda@sonda.ru	(35135) 3-0677	Custom software development	Artificial Intelligence, IoT, Smart City
<b>Statanly Technologies</b>	Saint-Petersburg	statanly.com	hello@statanly.com	(921) 875-2396	Custom software development	Artificial Intelligence, Big Data & BI, Smart City
<b>Supl.biz</b>	Tomsk	supl.biz	Evg@supl.biz	(913) 823-5866	Replicated enterprise (institution) management, document ow automation, design and production process systems (ERP, CRM, ECM, EDMS, CAD, APCS and other)	Artificial Intelligence, Big Data & BI
<b>SWDC RTSOFT</b>	Moscow	rtsoft.ru	rtsoft@rtsoft.ru	(495) 967-1505	Custom software development, Embedded software (equipment, devices)	AR & VR Development, Artificial Intelligence, IoT, Smart City



Company	Head office location	Web	E-mail	Phone	Specialization	Expertise in areas corresponding to global technological trends
<b>SWTECN</b>	Nizhny Novgorod	swtecnn.com	valery.kalachev@swtecnn.com	(903) 060-7607	Custom software development	
<b>T8</b>	<b>Moscow</b>	<b>t8.ru</b>	<b>info@t8.ru</b>	<b>(499) 271-6161</b>	<b>Telecommunication equipment</b>	<b>Artificial Intelligence, Smart City</b>
		<p>T8 is Russian developer and manufacturer of the dense wavelength telecommunications equipment (DWDM).</p> <p>Activities:</p> <ul style="list-style-type: none"> <li>– developing and manufacturing of DWDM equipment</li> <li>– optical networks design</li> <li>– R&amp;D in the field of laser physics and optical electronics</li> <li>– developing and manufacturing of the radio-photonic component base</li> </ul> <p>The DWDM platform includes equipment with 100-600G speed over the channel. The equipment is used for design of metro and backbone networks, connections between data-centers, and it is adapted to the new generation 5G networks. The main clients are telecom operators, IT companies, data centers, system integrators, government and industrial enterprises.</p>				
<b>TAP</b>	Tomsk	tomskasu.ru	info@tomskasu.ru	(999) 620-2759	Custom software development	IoT
<b>Telebreeze</b>	Tomsk	telebreeze.com	andrey.nikitin@telebreeze.com	(906) 948-3848	Solutions for video broadcasting platforms	Artificial Intelligence
<b>Telecontact</b>	Moscow	telecontact.ru	tele@telecontact.ru	(495) 744-5543	Contact Center Software	
<b>Test IT</b>	Moscow	testit.software	artem.kostriukov@testit.software	(950) 863-7003	Replicated enterprise (institution) management, document ow automation, design and production process systems (ERP, CRM, ECM, EDMS, CAD, APCS and other)	Artificial Intelligence
<b>Tezis LLC</b>	Ufa		TezisSoft@mail.ru	(996) 404-4231	Replicated enterprise (institution) management, document ow automation, design and production process systems (ERP, CRM, ECM, EDMS, CAD, APCS and other)	Artificial Intelligence
<b>Thales</b>	Moscow	thales-sentinel.ru	mikhail.chukhlomin@thalesgroup.com	(926) 996-4225	Information security solutions	IoT
<b>Transset</b>	Moscow	transset.ru	info@transset.ru	(499) 649-4668	Own platform - providing access, technical support	Artificial Intelligence, Big Data & BI, IoT
<b>TrueConf</b>	Moscow	trueconf.ru	pr@trueconf.ru	(495) 698-6066	Basic software development (DBCS, OS, o ce applications, virtualization tools, programming languages and tools)	Artificial Intelligence, Smart City

Company	Head office location	Web	E-mail	Phone	Specialization	Expertise in areas corresponding to global technological trends
<b>Tsifrovyye kontrol'nyye tekhnologii</b>	Rostov-on-Don	mt-r.ru	am@mt-r.ru	(800) 222-2061	Replicated enterprise (institution) management, document ow automation, design and production process systems (ERP, CRM, ECM, EDMS, CAD, APCS and other)	AR & VR Development, Artificial Intelligence, Smart City
<b>T-Soft</b>	Saint-Petersburg	t-soft.ru	office@t-soft.ru	(812) 665-5105	Development of computer training systems	AR & VR Development, Artificial Intelligence, Big Data & BI, Smart City
<b>UC Transport</b>	Moscow	podkontrolem.online	info@podkontrolem.online	(499) 677-1703	Replicated enterprise (institution) management, document ow automation, design and production process systems (ERP, CRM, ECM, EDMS, CAD, APCS and other)	Smart City
<b>Umbrella Alliance</b>	Taganrog	umbrellait.com	hello@umbrellait.com	(929) 815-0949	Website designing	AR & VR Development, Artificial Intelligence, Big Data & BI, IoT
<b>UNIVERSE-Soft</b>	Tomsk	universe-soft.ru	manager@universe-soft.ru	(495) 150-2152	Replicated enterprise (institution) management, document ow automation, design and production process systems (ERP, CRM, ECM, EDMS, CAD, APCS and other)	
<b>UserGate</b>	Novosibirsk	usergate.com	kk@usergate.com	(926) 975-6796	Information security solutions	Artificial Intelligence
<b>Usetech</b>	Moscow	usetech.ru	info@usetech.ru	(495) 660-5048	Custom software development	AR & VR Development, Artificial Intelligence, Big Data & BI, Blockchain Technology, IoT, Smart City
<b>Valmaster</b>	Saint-Petersburg	valmaster.ru	info@valmaster.ru	(812) 329-4459	Replicated enterprise (institution) management, document ow automation, design and production process systems (ERP, CRM, ECM, EDMS, CAD, APCS and other)	Smart City
<b>Videomatrix</b>	Ekaterinburg	videomatrix.ru	vmx@videomatrix.ru	(343) 204-7330	Developers in solutions using video analytics, neural networks and artificial intelligence in production	Artificial Intelligence, Smart City
<b>Visiology</b>	Moscow	visiology.su	ivan@visiology.com	(495) 133-6290	Replicated enterprise (institution) management, document ow automation, design and production process systems (ERP, CRM, ECM, EDMS, CAD, APCS and other)	Artificial Intelligence, Big Data & BI

Company	Head office location	Web	E-mail	Phone	Specialization	Expertise in areas corresponding to global technological trends
<b>VR Concept</b>	Moscow	vrconcept.net	cc@vrconcept.net	(495) 212-1147	Replicated enterprise (institution) management, document ow automation, design and production process systems (ERP, CRM, ECM, EDMS, CAD, APCS and other)	AR & VR Development
<b>Web3 Tech</b>	Moscow	web3tech.ru	ikuzmichev@wavesenterprise.com	(910) 450-2686	Custom software development	Blockchain Technology
<b>WebAnt</b>	Rostov-on-Don	webant.ru	v@webant.ru	(960) 466-0100	Mobile applications	AR & VR Development, Artificial Intelligence, Blockchain Technology, IoT, Smart City
<b>Webpraktik</b>	Rostov-on-Don	webpraktik.ru	info@webpraktik.ru	(995) 989-0179	Website designing	Artificial Intelligence, Big Data & BI
<b>WESMA</b>	Moscow	wesma.ru	manager@wesma.ru	(495) 118-2474	Website designing	Smart City
<b>WiFly</b>	Saint-Petersburg	wifly.net	admin@wifly.net		Marketing and monetization solution for Wi-Fi networks	BigData & BI, IoT
<b>YASP</b>	Saint-Petersburg	yasp.ru	welcome@yasp.ru	(812) 974-7403	Replicated enterprise (institution) management, document ow automation, design and production process systems (ERP, CRM, ECM, EDMS, CAD, APCS and other)	Artificial Intelligence, Big Data & BI, IoT, Smart City
<b>YouLK</b>	Novosibirsk	youlk.ru	info@youlk.ru	(383) 209-3430	Replicated enterprise (institution) management, document ow automation, design and production process systems (ERP, CRM, ECM, EDMS, CAD, APCS and other)	Artificial Intelligence, Smart City



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