**BULGARIAN MINISTRY OF TRANSPORT INFORMATION TECHNOLOGY AND COMMUNICATIONS (MTITC)**

**ITU COUNCIL WORKING GROUP ON INTERNATIONAL INTERNET-RELATED PUBLIC POLICY ISSUES (CWG-INTERNET)**

# **Online Open Consultations on**

***“International Internet-Related Public Policy Issues on Harnessing New and Emerging Telecommunications/ICTs for Sustainable Development”***

*(October 2019-January 2020) Deadline for submissions: 3rd January 2020*

*Questions:  
1. How will new and emerging telecommunications/ICTs impact both the internet and sustainable development, including the digital economy?  
2. What are the opportunities and challenges for the adoption and growth of the new and emerging telecommunications/ICTs and internet?  
3. How can governments and the other stakeholders harness the benefits of new and emerging  
telecommunications/ICTs?  
4. What are the best practices for promoting human skills, institutional capacity, innovation and  
investment for new and emerging telecommunications/ICTs?*

MTITC collected information by multistakeholder approach consultation: answers were received from Ministry of Finance, Ministry of Justice, Ministry of Envronment and Water, Ministry of Regional Development and Public Works, Ministry of Enetgy, Ministry of Economy, Ministry of Education, Ministry of Labour and Social Policy, Bulgarian Academy of Science

***SUMMARY***

There is no widely accepted definition of the digital economy and reliable statistics on its key components and dimensions, especially in developing countries, are lacking. So measurement is difficult. The world is characterized by a yawning gap between the under-connected and the hyper-digitalized countries.First driver is the ability to collect, use and analyze massive amounts of machine-readable information (digital data) about practically everything.

Platformization is the second driver. Platform-centered businesses have a major advantage in the data-driven economy. Platforms facilitate transactions and networking as well as information exchange.

Telecommunication Industry will fully unleash the power of 5G. Core telecom services will continue to dominate the value contribution to the mid-size and large enterprise business. The focus of the telecoms should stay with the customer: offering turnkey solutions to businesses via integrated services and improving the customer journey throughout the whole lifecycle. Telecoms continue to struggle with decreasing revenues and have to optimize with no compromise in every direction.

If we want to use digital technologies to improve life for everyone, we will have to go about it consciously and deliberately – with civil society, companies and governments recognizing their interdependence and working together. The speed and scale of change is increasing – and the agility, responsiveness and scope of cooperation and governance mechanisms needs rapidly to improve. The unique benefits and risks arising from the dramatic increase in computing power and interconnectivity in the digital age reinforce our underlying interdependence. CREATING AN INCLUSIVE DIGITAL ECONOMY need to find ways to promote financial inclusion, innovation, investment and growth while protecting people and the environment with no one left behind. The immense power and value of data and digital public goods in the modern economy can and must be harnessed requiring new models of collaboration for future development. The slowing progress in bringing more people online points to the urgent need for new approaches to building digital infrastructure, expanding access to it. Where getting online is possible and affordable, efforts are to be done to empower groups that are discriminated against and excluded.

The best practices for promoting human skills, institutional capacity, innovation and investment for new and emerging telecommunications/ICTs are:

Smart energy grids (an electrical grid, which includes a variety of operation and energy measures including smart meters, smart appliances, renewable energy resources, and energy efficient resources).

Supervisory Control and Data Acquisition (SCADA) is a control system architecture that uses computers networked data communications and graphical user interfaces (GUI) for high-level process supervisory management, but uses other peripheral devices such as programmable logic controller (PLC) and discrete Proportional Integral Differentiator (PID) controllers to interface with the process plant or machinery.

Intelligent transportation systems (an advanced application which aims to provide innovative services relating to different modes of transport and traffic management and enable users to be better informed and make safer, more coordinated, and 'smarter' use of transport networks).

Smart city initiatives (as an urban area that uses different types of electronic Internet of Things (IoT) sensors to collect data and then use insights gained from that data to manage assets, resources and services efficiently).

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| 1. **How will new and emerging telecommunications/ICTs impact both the internet and sustainable development, including the digital economy?** |

There is no widely accepted definition of the digital economy and reliable statistics on its key components and dimensions, especially in developing countries, are lacking. So measurement is difficult. The world is characterized by a yawning gap between the under-connected and the hyper-digitalized countries. First driver is the ability to collect, use and analyze massive amounts of machine-readable information (digital data) about practically everything.

Platformization is the second driver. Platform-centered businesses have a major advantage in the data-driven economy. Platforms facilitate transactions and networking as well as information exchange.

Digitalization affects communications, services, staff development, businesses, the economy. Duplication and transportation of information (eg via the Internet) reduces the cost to companies. Once provided on the Internet, digital data can be delivered anywhere in the world at any time. Modern businesses are being forced to adapt quickly to these changing realities in order to be competitive. The number of cloud service users and the number of documents uploaded to the cloud doubles every year.

The new economic reality requires a constant increase in speed for all processes and activities, as well as customer demands. Digitization and use of key information and process management technologies in the company becomes a prerequisite for business survival. Documents and information are getting bigger and their management needs to be simplified and with less resources such as time, human power and finances. Therefore, all strategic efforts are currently focused on speed, efficiency and productivity.

Digitalization itself creates new dimensions in energy and resource consumption. According to various sources, the global energy consumption of information and communication technologies in 2018 is around 2300 terawatt hours (TWh). The internet accounts for 10% of global electricity consumption. The energy requirements of data centers including server, storage and network technologies, as well as major infrastructure systems are increasing. With the development of ICT, the consumption of raw materials is also growing at a critical rate, with problems arising from the uncritical disposal of end-of-life equipment. In some cases, digitalization can help save energy and resources, for example with intelligent traffic control systems, it can be at the service of using environmentally friendly technologies that put humanity at the center of the concept. The main concern is that processes that we are not prepared for, such as loss of personal and information autonomy, customer dependence on IT and IT companies, business ethics in the use of data, responsibility for users of digital goods and services, are also triggered in parallel. Workplace and job loss issues also come up on the agenda where hardware and software systems handle cheaper, faster, and sometimes better.

The concept of sustainable development implies that economic growth, social inclusion and environmental protection are complementary. Sustainability goals can only be achieved if there is adequate readiness for these changes and sufficient staff are available to do so. The acquisition of state-of-the-art technology-related skills is an essential element for employees so that they can maintain both working capacity and social participation.

The advent of new technologies in telecommunications / ICT (5G, Blockchain and AI) will have a positive impact on the development of the internet and digital economy due to the high speed of data traffic provided by 5G technology, the increase in the number of users using the Internet, access and utilization. Blockchain technology, as well as the ability to build next-generation smart systems.

New telecommunications technologies have enormous potential for transformation of the economy and society, with major aspects of this being the link between physical and electronic systems, the analysis of large data sets, online commerce, blockchain technologies and digital citizenship. These paradigms can not only increase the productivity of existing businesses and sectors in the economy, but also increase competition in different markets and accelerate the pace of innovation, open up completely new market niches, promote energy efficiency through smart air conditioning and energy management , improve accessibility to quality education, healthcare and administrative services, as well as communication between people, business and the public sector. Negative risks, in turn, are linked to increased long-term unemployment, the digital exclusion of parts of the population and the market concentration of companies in some sectors.

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| 2.**What are the opportunities and challenges for the adoption and growth of the new and emerging telecommunications/ICTs and internet?** |

They will deliver seamless back-end integration capabilities through micro services, enabling self-service ad-hoc advanced analytics for the vast majority of the user roles and delivering cloud-native containerized business functions

The analytical approach would also enable Telecoms to get to know their client needs better and offer custom services – based on their preferences.

Telecommunication Industry will fully unleash the power of 5G. Core telecom services will continue to dominate the value contribution to the mid-size and large enterprise business. The focus of the telecoms should stay with the customer: offering turnkey solutions to businesses via integrated services and improving the customer journey throughout the whole lifecycle. Telecoms continue to struggle with decreasing revenues and have to optimize with no compromise in every direction..

Data is a form of capital that cannot be exhausted and can be reused to open up significant growth opportunities or to generate benefits in ways that cannot be foreseen when creating data.

The ability to collect, use and analyze value chain data is a key factor in gaining competitive advantage for and enhancing enterprise efficiency. It is at the heart of increasing productivity, improving or promoting the creation of new products, processes, organizational methods and markets - the so-called 'Data-Based Innovation' (DDI). Using data and analysis can increase productivity by about 5-10% faster than in non-consumer and non-consumer companies. Data and analysis can also show the way to tackle global challenges, including climate change and natural disasters, health and aging, water, food and energy security and mass urbanization. However, how do new technologies enter businesses, do existing business models change? Some industrial enterprises see a lot of potential in artificial intelligence, such as companies in the metalworking industry, for example. However, in the European context, few industrial companies are already using AI applications. According to the Digital Economy and Social Index 2019 report, https://ec.europa.eu/digital-single-market/en/desi

34% of businesses share information electronically, 21% use social media, 12% have large databases, 18% use cloud services, and 17% SMEs have e-commerce.

It is significant that more businesses have concrete plans to develop in this direction over the next two years. In general, topics such as business analytics, robotics and AI, Industry 4.0 and cloud computing are increasingly becoming a focus for mid-sized companies.

The use of cloud services, in turn, requires the protection of data privacy and security, as well as active mechanisms for protecting intellectual property. Internet governance is associated with ethical issues stemming from automation and artificial intelligence.

Higher data traffic speeds with 5G technology will also allow massive DDoS attacks and the ability to use artificial intelligence technology to create malware.

In this regard, we believe that the introduction of new technologies in telecommunications / ICT will lead to new challenges in the development of cybersecurity and data protection.

Opportunities generally relate to increased value added generated by the economy, the quality of life of the population and the effectiveness of climate change measures. The challenges are related to the lack of digital literacy of the population, especially among marginalized groups and the varying degrees of adoption of digital technologies by businesses, as well as the risk of gaining excessive market concentration from digital leaders. Building digital infrastructures could also delay the adoption of digital technologies, as well as the lack of accessibility and a unified ecosystem for digital public services. A key challenge will be to promote cybersecurity as a horizontal paradigm in the introduction of digital technology in all walks of life.

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| 3. **How can governments and the other stakeholders harness the benefits of new and emerging telecommunications/ICTs?** |

If we want to use digital technologies to improve life for everyone, we will have to go about it consciously and deliberately – with civil society, companies and governments recognizing their interdependence and working together. The speed and scale of change is increasing – and the agility, responsiveness and scope of cooperation and governance mechanisms needs rapidly to improve. The unique benefits and risks arising from the dramatic increase in computing power and interconnectivity in the digital age reinforce our underlying interdependence. CREATING AN INCLUSIVE DIGITAL ECONOMY need to find ways to promote financial inclusion, innovation, investment and growth while protecting people and the environment with no one left behind. The immense power and value of data and digital public goods in the modern economy can and must be harnessed requiring new models of collaboration for future development. The slowing progress in bringing more people online points to the urgent need for new approaches to building digital infrastructure, expanding access to it. Where getting online is possible and affordable, efforts are to be done to empower groups that are discriminated against and excluded.

Citizens, businesses and governments often face barriers to access to data, reluctance to share, including within organizations and sectors, concerns about the possible disclosure of confidential information (personal data and business secret).

There are several approaches to improving data access: community-based data sharing agreements; open data; portability of data; data markets.

There are various initiatives aimed at tackling security breaches and privacy and commercial interests, but efforts across sectors are not the same in pace and success. This requires the creation of data management frameworks that are coherent across the economic sectors, society and countries, including public sector organizations. The entry and use of new and emerging telecommunications / ICTs is driven primarily by reducing connectivity costs, financing infrastructure and building user-friendly internet services, with sufficient system security. Protecting human rights and data confidentiality are areas where telecommunications policy plays a significant role.

Improved communication with citizens and businesses in terms of saving resources and time, as well as ensuring transparency are key advantages of new telecommunications and information technologies. Blockchain technologies, for example, can be used to effectively archive arrays of sensitive information and promote e-citizenship. Industry 4.0 paradigms, such as the Internet of Things, can be used to effectively manage energy and water, traffic and autonomous vehicles, as well as disaster risk. Big data, in turn, can contribute to effective public resource planning and quality policy evaluation.

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| 4.**What are the best practices for promoting human skills, institutional capacity, innovation and investment for new and emerging telecommunications/ICTs?**​​ |

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Other SMART initiatives

Good practices include measures to improve companies 'access to markets in third countries, to share digital platforms, with all the benefits of the single market, and to facilitate SMEs' access to databases.

Smart specialization, accompanied by shared experience and investment, has a positive role to play. Joint research projects in the field of telecommunications and information innovation are needed to accelerate their market launch. It is good practice to develop a common European data ecosystem and data center for data support and sharing, targeted free access, sharing, use and re-use of data. This is an opportunity for small businesses to enjoy the benefits of digital without requiring excessive investment. We consider it particularly important to create the framework conditions for secure, standardized, interoperable and reliable business data.

We believe that it is good practice to promote employees' skills in familiarizing and training them with the new telecommunications / ICT capabilities in order to apply new technologies in the work process.

From a skills perspective, good practices include digital literacy from an early age, the introduction of digital teaching methods at all stages of education, and the provision of digital literacy courses for adults. In addition to the digital literacy courses mentioned above, the exchange of experience with experts from countries with advanced digital infrastructures and ecosystems, as well as the provision of conditions for attracting and retaining highly qualified personnel, are beneficial for institutional capacity. ICT innovation and investment can be fostered by promoting innovative practices and entrepreneurship by providing channels for financing high-risk projects, optimizing insolvency procedures and improving business-academia links. Reducing the administrative burden and in particular the full rollout of an effective eGovernment is also key to attracting investment and speeding up business processes. Establishing effective mechanisms to protect market competition is, in turn, important for the long-term support of innovation.

Ministry of Labour and Social Policy informed that Investments in appropriate quality skills and high-tech know-how under OP HRD will continue in 2019 with the launch of the operation Skills with a budget of BGN 33 million. The operation provides an opportunity for Bulgarian employers to receive financial support for trainings for both employees in their enterprises and for newly employed unemployed persons. The operation aims to support employers in addressing digital skills shortages and adapting jobs to the digital transformation of the Bulgarian economy by funding innovative specific training that provides the link between employers' requirements and the required set of skills that employees should possess. Due to the considerable interest shown by employers, the procedure is expected to train at least 26 000 employees and at least 1 600 unemployed persons to be employed by the applicant companies.

The Ministry of Regional Development and Public Works strives to use the new telecommunications and information and communication technologies (ICT) in all areas of its work. With regard to our public policy discussions and stakeholder consultations at local level, we have successfully used electronic online questionnaires for our partners, thus facilitating our communication with stakeholders and thus receiving feedback on various public issues. When communicating with partners from abroad (eg the European Commission, the World Bank, the Organization for Economic Co-operation and Development, etc.), we successfully organize or participate in teleconferences and video conferencing, which also facilitate our communication.

As new opportunities and challenges in the use of information and communication technologies, we believe that the use of social media and Internet platforms to share information and discuss important topics of local and regional importance at local level should be encouraged and strengthened. The use of mobile applications to inform local communities could also be strengthened and introduced.

**In a holistic manner:**

**Ministry of Justice**

In recent years, the global economy has become noticeably digital. E-Government is an essential tool for implementing important policies that make the economic and social environment increasingly competitive and rapidly evolving.

With its membership in the European Union, the Republic of Bulgaria is moving towards achieving high standards in its socio-economic development. The existing strategic European eGovernment documents and the European Commission's recommendations to individual Member States are aimed mainly at achieving a new level of active, bilateral communication, both within the administration and between institutions and users, which through technology and processes provides a more open and transparent management mechanism. In response, Bulgaria is committed to following the set path and implementing all measures related to the introduction of e-governance.

E-government is the main platform for the digital transformation of public institutions, to increase the quality of administrative services, to switch to rational electronic processes of public sector operation and management and for accessing information held by public institutions electronically. E-government is seen as a means to enhance the effectiveness of processes, both in the administration itself and in its interaction with other public authorities, citizens, employees, business through the use of electronic services.

Technological and regulatory links exist between e-Justice and e-Government. E-Justice should facilitate access to justice by citizens and businesses and increase the efficiency of the Bulgarian Justice Sector. The concept of e-Justice is an integral part of judicial reform. A number of measures have been taken both at national and European level to improve and accelerate the processes, of the transmission and service of judicial and extrajudicial documents in civil and commercial matters between the Member States, by discussing and introducing documents between authorities through the creation of a decentralized information system.

Bulgaria, as a member of the EU, is to further develop and achieve e-government and e-services, respectively e-justice. The legislation currently in force covers a number of laws and regulations, such as the Electronic Governance Act , the Electronic Document and Electronic Certification Services Act , the Personal Data Protection Act , etc.

The concept of European e-Justice is based on the principle of interconnection of different independent national systems. The Member States and the European Commission are working towards a digital e-justice society. Together, we have achieved significant results by creating various electronic tools from which e-CODEX be mentioned as an outstanding example. Nevertheless, the variety of legal systems and technical solutions in the Member States, as well as the different status of digitisation of their judicial systems, remain the main challenges to e-justice. It would be important to focus the work on a limited number of areas in which digitalisation will mostly strengthen cross-border judicial cooperation and ensure the participation of all Member States.

In the context of the diversity of national legal systems, finding a pan-European solution would provide a secure framework for the future development of e-justice. The variety of technical solutions can be managed by increasing the interoperability of national and European electronic systems. Interoperability in the area of e-Justice is provided by e-CODEX, a secure network that is not tied to a single provider and allows for the electronic exchange of information. Therefore, it has the potential to be used to connect different systems in the field of justice and beyond.

For the introduction and development of e-government and e-justice in the Justice sector, the Ministry of Justice has developed a sectoral strategy, which is the founding document for the unified formation, planning, implementation, coordination and control of law enforcement policy conducted by state institutions in the cooperation with citizens, business and professional organizations. The document has been developed in accordance with the government programs of the Republic of Bulgaria for the development of e-government and the initiative of the European Commission i2020 and reflects the importance of the processes for the development of accessible and efficient e-justice.

In this regard, the Ministry of Justice of the Republic of Bulgaria deals the introduction of e-justice as a set of means through which:

* Operation of only electronic files and documents by the judicial authorities;
* Access to national registers electronically in real time;
* Access to legal information in real time;
* Improving the interaction and integration of the information systems of the legislative, judicial and executive power in the Republic of Bulgaria;
* Linking our national legislation and registers with similar European registers and structures;
* The provision of administrative services by electronic means;
* Enhancing the general legal culture of citizens;
* The extension and maximum application of internal and international classifiers in line with the sector’s commitments towards the EU;
* Justice as far as possible close to and for the benefit of citizens and businesses.

The current sectoral strategy sets out the policies, objectives and actions planned to be carried out by Ministry of Justice of the Republic of Bulgaria in support of the adopted overall strategy for e-government and the е-justice concept.

The main objective of the strategy is to increase efficiency in the Justice sector by using fully electronic documents from the legislative, executive and judiciary bodies as well as interacting with other administrative bodies, organizations, citizens and businesses.

The strategy defines the rights, responsibilities and obligations in the sector with respect to the construction, maintenance, provision and use of the IT tools through which e-justice and e-government will function. The responsibilities of the executive to build, maintain and make available for use the entire infrastructure and components of the e-justice and the e-governance, while ensuring the principle of non-interference with the judiciary activity. An obligation on the authorities of the judiciary is to use the e-justice components according to the IT rules and procedures adopted by them to ensure the strict implementation of the regulations and international commitments made in the field of the e-justice.

Тhe vision for e-Government and e-Justice is a natural extension of the Public Administration Strategy and the European e-Justice Strategy.

Any electronic information service related to the law enforcement system as well as the electronic exchange of legal information through communication channels can be categorized as an e-justice service. In this sense, there are a number of services in Europe and around the world that fall into the category of e-justice:

* Internet-based public information services (or even data sharing between citizens and law enforcement organizations);
* Internet-based information exchange services between organizations (business to business);
* Intranet-based services to support the organization's procedures (such as workflow management systems);
* Law enforcement communication services (such as secure e-mail services using digital signature);
* Digital audio and video recording services (such as court hearing systems);
* Video communication services (such as remote monitoring or remote listening systems).

The vision for e-justice is not limited to the use of e-services, but is relevant to a number of areas of civil, criminal and administrative law. In this sense, e-justice is a horizontal issue in both Bulgarian justice and cross-border European proceedings.

**Ministry of Envronment and Water**

The basis for Investing under the European Funds in the next programming period 2021-2027 is circular economy as a policy that is stimulated at European Union level. Digitization should be seen as one of the contributing factors to the circular economy due to its ability to bring visibility and intelligence to the production and use of products, materials, raw materials and equipment, by creating a knowledge base on the location, condition and availability of assets. One of the highlights of circular economy-based business models is that instead of the usual sale, durable products are leased, rented, or owned and used when possible. Therefore, it is recommended that the transition to product-service systems be one of the key solutions to accelerate the transformation to a circular economy and digitalization is a basic prerequisite for this process.

The combination of cyber physical systems, big data, big data mining, data mining, data analytics, Internet of Things (IoT) and new businesses models can create great opportunities for more sustainable value creation and a circular economy. Digital technologies such as artificial intelligence (art ificial intelligence) or blockchain opens new avenues to improve product traceability and transparency, and smart, in this sense, virtualized products allow manufacturers to monitor, control, analyze and optimize delivery efficiency, production and distribution and collect usage data.

Knowing the location of the product in real time enables increased availability of products and improves end-of-life treatment options - collection, repair, refurbishment, reuse, remanufacturing and recycling. Knowing the location and state of the product at all times enables advanced approaches to support, diagnose, and forecast the need and availability of components and products.

The predictability of maintenance thus ensured increases the reliability and availability of the product and enables the extension of product life and further remanufacturing. Having a product knowledge base promotes shared use through digital platforms and supports recycling systems.

The development of digital technologies is the basis for the introduction of new forms of interaction between producers and consumers in support of the circular economy. Digitization allows communication with users through virtual networks and platforms to create the necessary critical mass for the practical implementation of innovative circular business models. Marketing can be shifted from one-way to two-way communication through interactive dialogue, which is key to collaborative, user-centric, product development of circular products and services.

The role of information platforms is not only limited by the fact that they are a means of successful cooperation between science and business in the practical implementation of innovative technologies and products, but also for partnerships between enterprises - in the application of joint circular business models such as industrial symbiosis, for example, when managing specific waste streams, exchanging information on the availability and characteristics of raw materials in the supply chain.

In addition to contributing to the transition to a circular economy, digitalisation should also be evaluated as a progressive direction for improving environmental management approaches. Areas with significant potential are:

• Innovative crowdsourcing monitoring and control systems - enabling large amounts of data to be collected on environmental conditions, environmental damage and crime.

• Real-time natural disaster risk management systems.

• Enterprise emission prevention and control systems.

• Integrated and interoperable geoinformation systems and their implementation in spatial planning.

Digitalization, at least in its outlined aspects, faces some challenges, such as:

• The copyright of the data holders and the ability to share data that is confidential;

• Integration of big data held by multiple participants in processes and management of information flows;

• Need for specific expertise;

• The need for uniform standards and interoperability in information and communication technologies;

• Lack of awareness of the benefits of digitalization.

With regard to institutional practice in the public sphere, the use of digital models is strongly tied to the latest in scientific and technological infrastructure and contains great opportunities to achieve the goals of thesectoral governance and quality of service improvement in different public spheres. As an example, the MoEW is in the capacity of a consumer of the results of the National Science Program "Environmental Protection and Reduction" of the risk of adverse events and natural disasters "with a period of implementation 31.12.2022, the financing of the activities is provided by the Ministry of Finance education and science, and implementation by a consortium of scientific organizations and Higher schools with leading partners Bulgarian Academy of Sciences and Sofia University of St. Kliment Ohridski ". Objectives and expected results of the program can be assigned to Priority 3 “Achieving Sustainable Integrated regional development and exploitation of local potential ”from the Strategic Framework of the National Development Program: Bulgaria 2020. In particular, the implementation of the the program is served by the work package "Creating a unified geoinformation environment, "to allow the integration of geospatial data and information, as well as effectively sharing and delivering them in the following two main aspects:

1) Conduct research using the fullest possible set data from national and international sources. The use of such vast and diverse information stored in different organization and database structure is only possible through the creation of a comprehensive metabase with the development of appropriate automated access and reformatting procedures.

Comparison and joint analysis of different input / output multidimensional fields is only possible with the application of geographic information systems and technologies, which will also be part of a single geoinformation environment.

2) Conducting research using state of the art numerical data, dynamic and statistical models that require large computing resources. For obtaining reliable conclusions by assessing their degree of uncertainty are required ensemble (multimodel) simulations, varying many parameters and evaluating the sensitivity of the results. Moreover, the simulations must be made for a comprehensive set of global climate change scenarios. All this requires not only high-performance computing platforms (computer clusters, supercomputers, etc.) that BAS has / has access to, but also optimal organization of numerical experiments and data flow. That implies participation in the program of highly skilled numerical specialists methods, high-performance computer simulations and the most up-to-date information and communication technologies.