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INTEGRATED APPROACH TO THE CONCEPT OF "INTERNET GOVERNANCE": ESTABLISHMENT OF INFORMATION SYSTEMS WITH THE USE OF AI TOOLS AND ENSURING THEIR DEVELOPMENT

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Abstract. This article offers a review of the concepts of "Internet Governance", as well as the role of information systems and advanced technologies in them. The article attempts to analyze the barriers and threats in this direction, as well as to identify a qualitatively new pattern ("phase pattern") of information systems in the Internet space and integrate it into the concept of "Internet Governance". Threats such as Darknet "dark internet", "blockchain" opposition, instability of internet connection, etc. are also given. The author cited the existing analytics on the concept of "Internet Governance", and also formulated theoretical and applied regularity, which is important to take into account in the further development of information systems and risk assessment in the formation of international information ecosystem with the use of advanced technologies. The article provides normative-legal mechanisms of the concept realization and substantiation of its significance in the conditions of legal uncertainty. The phases of information systems development are considered in detail, as well as the characteristic features of each phase and their role in the formation of information systems. The author cited generalizing documents on the concepts of "Internet Governance" to substantiate his positions, and also considered the possibilities of information systems development, taking into account the individual national experience (operation of the "Gostech" system and other ecosystems). The article attempts to highlight the system-wide approach to information systems and the possibility of their reaching the international level within the framework of the general concept of "Internet Governance".

Keywords: Internet Governance concept, information systems, "block" system, Darknet (dark internet), AI modules

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Mankind always creates the right technology
for the wrong purposes
P. Buckminster Fuller

Currently, an increasingly relevant strategic issue is "Internet governance", approaches and specifics of relations in the Internet space and the mechanics of interaction between actors at the international and national levels, including AI-based information systems [10]. However, in technical literature and periodicals, the issue is often leveled down to data transmission and the speed of such data transmission or data processing. From the point of view of international legal concepts, the issue of Internet governance is shifted towards the theory of "spheres" and division of the Internet space into them, i.e., each sphere includes a group of states and relevant norms, technical regulations, according to which the Internet and, consequently, data streaming is controlled by a particular state, namely the introduction of regimes "anonymized data", "personal data", etc. From a legal point of view, the concept of "Internet Governance" is considered deeper, as the legal framework is based on the prototype acts of a specific state before the adoption of the relevant instrument at the international level. In addition, the question regarding information systems (public and private) is also leveled, which now poses more analytical challenges for the research of this topic in the projection of information relations in the "Internet" network.

Information systems (digital ecosystems) in the Internet certainly occupy a special place and have a certain strategic resource for the development of the concept of "Internet governance". However, there are still many questions related to their development, "evolution", etc.

This raises a request for detailed consideration of legal issues in the context of Internet governance.

Legal and technical analysis at the international and comparative-legal level will allow to determine some substantive aspects of the concept of "Internet Governance", as well as the interrelation of international and national direction, risk factors that such a concept may entail. In addition, it should be noted the semantic meaning of such a concept, which in turn affects data processing, data transmission methods, the legal regime of data and algorithms of information retrieval and reading, the use of AI technologies for the functioning of information systems (digital ecosystems).

The semantic component of the concept of "Internet Governance" includes national legal doctrines, international and multi-stakeholder approaches. Such diverse content suggests some inconsistency and even technical errors of the Internet itself. The latter are reduced to a comparison with the paradox of Buraly-Forty, which consists in the contradiction of the theory of sets and in which the construction of a set (as a regular process and phenomenon) is possible. The Internet, like this theory, is also contradictory and complex due to its national legal nature, approaches to normative-legal support and regulation in different states. Accordingly, if we consider the "Internet" network in the conditions of such regulatory and technical challenges, we should say about the tendency of transformation into an international one and complication by a multi-stakeholder approach. This pattern of the Internet itself can be assessed as a positive dynamic towards the gradual unification of legal regimes and regulatory standards.

We believe it is correct to consider several approaches to the concept of "Internet Governance": geopolitical (substantive), international legal, multi-stakeholder approach (artificial intelligence projects in the darknet). We will also consider the relationship of the concept of "Internet Governance" with artificial intelligence (AI) technology and information systems (digital ecosystems).

1. Geopolitical (content) approach to Internet governance. Network neutrality of groups of states in digital spheres.

Independent domestic platforms that exist in the form of information systems and ecosystems gradually exert external influence on the transformation of most social and economic relations. However, these units themselves do not play any sovereign and distinctive role, but, at the same time, contribute to the activation of state sovereignty in the information space. Each of the information systems, ecosystems are created for the purpose of promoting information services, their replication or creating a unified environment of trust. Trust environments (meaning the formation of the direction of "transparent" relations in the Internet, digital space, which allow users to carry out their activities on trust with various actors) in many respects resemble closed ecosystems, in which citizens can, in addition to services, perform labor functions, offer technical solutions, form their own personal offices, interface, etc.

The Gostech system acts as a universal platform that accelerates the launch of services that include channels, product factories, standard solutions, basic platform services, data factory, state cloud (data storage), information security, and infrastructure production process. Such digital transformation of the state is identical to the cases of other states.

The Russian Federation has created and is improving the information system "Gostech", which includes: ready-made services, No-code and Low-code services, technological services, development services, infrastructure services. This system offers both to create technical solutions with the help of various resources and to provide and replicate new services and solutions. In addition, at the strategic session of Gostech, which was held in St. Petersburg, the participants of the regional pilot of service

design discussed the methodology of client-centered service design and applied it to analyze their own solutions (platform, information systems) [2]. Client-centered design is based on user requests and expectations, as well as on statistical information and modeling of each request from different categories of users [4]. Such events indicate the gradual integration of regional solutions with federal ones, which in many ways indicates not just replication, but real lobbying for a unified information system and confirmation of the theory of information spheres into which the international space is divided.

A separate direction at the level of the Gostech system is AI systems and autonomous modules, which also to some extent affects the development of information systems at the federal and regional levels.

International practice of centralization of digital systems like the Gostech system should also be considered. For example, in the U.S. the GSA (U.S. General Administration) portal has been created, the task of such a portal (service) is to create and replicate the concept of "government as a service". The platform provides not only an understanding of the regulatory process or basic information on procurement and other services, but also gives full access to initiatives (e.g., technology modernization fund, digital strategy, etc.) and the opportunity to join them, as well as a module for SME certification, etc. The digital platform is also linked to the e-government portal and the tender portal (support measures, in terms of various technical solutions, as well as administration of information systems), which allows us to talk about the state's own digital ecosystem, which is semi-closed (as one can familiarize oneself partially with the information without creating a personal account). Processing of information from e-government portals, combination of data is also based on AI modules.

In Canada there is a service "Open Government", which provides access to various services and services. This service contains four blocks: "open data", "open government", "open information", "open dialog". "Open data" consists of a complete database of labor, legal, military, and other resources with all accompanying statistical and legal documents. "Open Government" includes a section on license (right to use content on open platforms", analytical information, feedback forms and documents on the development of "open government" as a national information resource. "Open Information", which includes a search on the open information field, the strategy of the government "as a service", the federal library of knowledge, etc. The "Open Dialogue" resource includes a blogosphere ("blog of the state", where information on activities and projects is published), proposals on regulativity and the possibility to leave a comment. The blog is also moderated on the basis of an automated AI-regulation.

In the UK, there is also an identical resource "Government Digital Service". The service contains identical materials, but they are informational only, and the service is in the project stage of development.

Such services allow states to create utilitarian digital ecosystems that are closed block architectures. Such blocks form their own principles of Internet governance and ideas about the Internet and information systems as key platform solutions. At the

same time, content and data are processed by automated AI tools embedded in the system, which also complicates the history of individual blocks on the Internet, with information exchange on the Internet and raises questions about the accessibility of certain information.

Information state systems create their own services, logistic chains and form domestic marketplaces, services of services, etc. within each state. Such trends form "block" principles and the beginnings of radical information sovereignty in the sphere of international relations (in the sphere of the Internet). Such trends are justified in terms of lobbying for their domestic platforms, technical products by each state, which demonstrates import substitution tactics. But such things also give rise to the formation of "digital cannibalism", which is understood as a fierce competition of "technologies ahead of the curve", accompanied by such trends as parallel imports, and the lack of quality products on the digital market, strict content moderation based on a certain algorithm (AI tools, modules). At the same time, it should be noted that content moderation is not always of high quality. This creates even more fierce conditions for the development of international information relations and the formation of common standards and trust building between the digital markets of states.

2. An international legal approach to Internet governance. International non-governmental organizations.

International Internet governance relations are shaped by the positions of international governmental and non-governmental organizations. However, we will allow ourselves to consider the positions of international non-governmental organizations, due to the fact that these collaborations serve as a significant source of lobbying for the "block" system of international information relations. This contributes to the development of quality analytics.

Internet Corporation for Assigned Names and Numbers (ICANN)

(Domain Name and IP Address Management Corporation) ICANN has repeatedly emphasized that ensuring a healthy collaborative ecosystem of international relationships is critical to the development of Internet Governance. The organization plays a significant role in the development of these areas. ICANN's primary mission is to ensure the stability and security of the Internet's unique identifier systems. Periodically, working groups have published studies on the topic of ICANN development in the ecosystem of Internet relations, where the main role of ICANN is reduced to coordinating, based on the following principles: reciprocity (guarantees of information exchange through the Internet without threats); respect (respect for the choice of content, etc.); reliability (development of methodology for user interaction); reasonableness (transparency and accountability of coordinating systems); reality (measurability and manageability of the theory of "Internet Governance" in practice) [4].

Such an approach is justified, but attention should be paid to ICANN's status (non-governmental organization), which may not allow it to act as a sole coordinator and carry out even minimal regulation. Therefore, it should be noted that the role of ICANN cannot be overestimated and the role of working groups, which the organiza-

tion creates by its own efforts (including projects in the field of international education, such as APIGA, which indirectly touches on AI issues) [6]. At the same time, the concept of "Internet Governance" and the role of coordinator in this direction implies a higher (publicly recognized) status of the organization and its real ability to implement this direction.

The Internet Society (ISOC) (Internet Society)

This international (non-governmental) organization was founded in 1998, and its main goals are: to build and support Internet communities; to promote the development and use of Internet infrastructure, technologies, and open standards; and to advocate for policy. To achieve these goals, the organization promotes the open development of Internet standards, protocols, administration, and technical infrastructure; supports education; publishes and provides accurate information about the Internet; and serves as a focal point for promoting the Internet as a positive tool and public good.

The organization has prepared a document "A healthy internet for Future Generation", which is structured as a roadmap [6]. This roadmap includes the following elements:

- Internet development (bridging digital, educational gaps, improving public networks);
- the potential of the Internet (expansion of the "Advancing the Internet" program with two modules: introduction to the key factors that are necessary for openness and globalization, security; educating people on the different ways in which the Internet influences policy, trends in technology, etc.);
- Creation of a publicly accessible repository of the crowdsourced Internet community. The function of the repository will be to track global Internet threats, as well as to monitor various kinds of propaganda on the Internet.

The mentioned directions also indirectly touch upon new technologies, but AI-tools are not mentioned separately. However, taking into account the indicated task of overcoming digital divides, ensuring the functioning of the repository, the question of the role of AI in current tasks can also be raised, as almost every information system can contain an AI module for automatic search and detection of Internet threats. Special attention is paid to the issue of machine learning (as a direction of the AI-sphere). Thus, it is with the help of this technology that the process of learning by means of algorithms is used, which makes digital ecosystems more accessible and convenient (in terms of interface) to use.

Internet Governance Forum (IGF) (Global Internet Governance Forum)

The Global Internet Governance Forum is engaged in building a common framework for cooperation and development of the Internet. The Forum aims to facilitate the exchange of information and best practices and to take full advantage of the expertise of the academic, scientific and technical communities; to advise all stakeholders by proposing ways and means to accelerate data availability and the availability of sustainable Internet connectivity in developing countries; to strengthen and broaden

stakeholder participation in existing and/or future Internet governance mechanisms, especially from developing countries; to identify emerging issues, bring them to the attention of relevant bodies; and to promote the participation of stakeholders in the Internet governance process.

At the same time, in addition to more general directions, back in 2017, a mini-report on the outcome of the session "Artificial Intelligence in Asia: what has changed?" was published, in which the following check-list of directions that should be implemented was announced [16]:

- Providing access to training data on which machine learning is based requires significant revision of regulations regarding the production (creation and generation) of and access to data;
- the use of data in the storage of digital platforms (systems), as well as the use of storage space for providing access. In addition, we note that very little attention is paid to the period of data storage in cloud systems, often companies set a period of up to 30 days, which is somewhat at odds with data protection and the purpose of data processing;
- features of analytical work in relation to the "AI arms race" track;
- Lack of design and testing work when implementing AI on digital platforms, in medicine, etc;

In addition, individual countries, such as Malaysia, are cited as having basically no checks and balances in terms of regulations, policies and standard for privacy and data processing using AI tools.

In 2022, the work of the forum was devoted to the issue of resilience of the "Internet" network [13]. The main areas addressed by the forum include the following topics: preventing fragmentation of the Internet, data management and privacy protection, information/cyber security, and the use of advanced technologies, including artificial intelligence. Despite the pressing issues regarding "blockchain" systems on the Internet and issues of fragmentation, resilient connectivity, exploring the potential of digital technologies (AI) for information/cyber security on the Internet remains relevant. This is due to its fundamental and applied nature at the same time. Providing security with AI tools in the format of digital ecosystems or other solutions can enable the creation of quality and resilient components for the Internet of Things. The combination of regenerative AI, one of the main functions of which is content analytics, will allow not only preventive measures for content selection and moderation, but also its structuring in cloud, local systems.

However, despite the wide opportunities to "apply" AI for the safe development of the Internet (a possible solution regarding block systems), there are many risks, in particular, related to the design orientation on human needs of AI systems, which creates conditions for taking into account the interests of man and citizen (at present, only a "humanoid robot" is being developed, but its functionality is predominantly automated). In addition, there is a particularly acute issue of responsibility for data processing, for ensuring the security of storage facilities, for cases of fault tolerance of the system

on which the AI-module operates. It was also noted at the forum that society needs to adapt to the transformation that AI tools will cause, which will affect cooperation both between states and between information platforms. Also, the model of platform management at the AI level is imperfect and underdeveloped at present.

These tasks require the full cooperation of governments, businesses, and public organizations. Continuous human oversight (of AI modules and information system capabilities) remains essential to ensure that algorithms do not lead to undesirable or uncontrollable outcomes. Capacity building is essential in an advanced technology deployment environment. Data policies for implementing AI literacy, skills development, and language resources for vulnerable populations (people with disabilities and minority and low-indigenous populations) are needed to articulate a truly global approach to advanced technologies. Regulatory frameworks should include principles to help social media and other platforms. fulfill obligations to manage content that could harm individual state regimes and human rights. Frameworks should facilitate a global dialog about the moderation of online content to empower users, including the most vulnerable.

In general, IGF contributes to capacity building for Internet governance and provides analytical and policy support for advanced technologies. It is important to note that the IGF is one of the few platforms that connects AI and the development of the Internet, digital platforms, etc. Such a link is essential to ensure the stability of the Internet, security and stable connectivity for data transfer.

Thus, based on the above analysis, organizations are engaged in the development of the Internet agenda, while integrating various areas, including artificial intelligence technologies. Understanding this interconnection and interdisciplinary nature, we can more confidently assert that international information systems and government platforms (systems) can develop only under the condition of AI tools and other advanced technologies. It is important to note that only under this condition in the future is it possible to develop global standards that do not just regulate one subject area, but several interdisciplinary areas.

3. A multi-stakeholder approach. The impact of artificial intelligence projects in the Darknet and the changing Internet.

At present, there are published articles in which the authors consider this issue from a purely political point of view, although there are many issues of other content. Thus, the multistakeholder approach is understood as the expansion of the number of participants in the international information space, such as states and non-state actors [1]. Accordingly, it is assumed that in such a paradigm the states can move to the second role in terms of political decision-making and other issues. Such issues are: infrastructure and its location (installation and determination of location, technical modes, etc.), communication technologies, legal support and opportunities for the application of certain standards in the field of communication and software used. As well as the issues of import substitution, which are also interrelated with the development of the Internet. Due to the peculiarities of the multi-stakeholder approach, as well as

the increasing role of "shadow actors" in the agenda of "Internet Governance", as well as the development of advanced technologies, it is important to consider most strategic issues through the prism of the multi-stakeholder approach.

If we consider this issue outside of political censures, it is enough to recall the case of Chat GPT, which we will touch upon in this article. The OpenAI company developed and implemented it without ever creating a risk map for the development of education, economic and information areas. The Chat GPT tool, based on regenerative artificial intelligence, quickly entered superficial areas such as advertising and marketing, creating a very large information "boom". This event was followed by widespread adoption and testing in all areas. Such a case study demonstrated that in deeper or industry-specific areas this technology provides false results, changes the input and the data being sought. This complicates the development of the information market and creates "imaginary" innovative directions for the development of such industries as medicine, industry, information security, legal assistance.

Therefore, it is important to implement a multi-stakeholder approach in order to monitor such risks and form a possible list of threats to technologies. The state in this case does not occupy a "second" place in international relations, but without taking into account the activities of non-state actors, it is impossible to develop international relations in the information sphere in general and in the Internet.

We emphasize that this approach touches upon the possibility of Internet governance by hybrid organizations, which include business entities and other actors that influence the Internet, its future opportunities, product economics, and the direction of advanced technologies.

We believe that from the point of view of project management, the following aspects of the multi-stakeholder approach should be outlined:

1. Issues of new technologies, thanks to which sustainable connection to the Internet is provided: Open RAN, 5 G, 6 G (under development) [6];
2. Normative features of standards and their content in the telecom industry;
3. Features of the influence of "shadow" actors on the development of the Internet, through the creation of real working and artificially created technologies;
4. The aggravation of block relations in the Internet, transition to "closed" systems (in particular, through Darknet and the possibility of forming their own systems of Internet traffic management, etc.).

It should be noted that the multi-stakeholder approach is increasingly getting a "response" precisely in the issues of infrastructure components (to a greater extent, cloud solutions) and new technologies in the sphere of Internet governance. Such factor is explained by the aggravated international situation (relations between Russia and Ukraine), as well as extremely radical "block doctrines", which set their own standards. The standards are periodically lobbied and represent extremely new approaches to new technologies and digital components. These standards are usually dictated by global companies (transnational corporations) that are deployed in almost all jurisdictions.

From the point of view of international relations, one can notice a curious merger of IT and telecom industries in the concept of "Internet Governance". This sets a certain vector concerning the creation of new standards of international level. However, such standards should not be created in the perspective of the block conjuncture at the international level. Of course, it is not a question of approving absolutely every standard by a convention or other documents of similar legal level, but in order to organize individual standards and create a single vocabulary of terms and definitions in the international arena. In terms of standards, it should be noted that such standards can be standards that relate to new technologies and their description. And the dictionary of terms and definitions, taking into account today's circumstances, should include related, even indirect definitions, which reveal the current development of IT and telecom areas.

The pattern of development of the Darknet sphere (dark internet) in the "Internet" network is not insignificant [19]. This sphere is not a trend or an "imaginary" threat. It exists and creates its own regulatory and ecosystem rules of work in the Internet, as well as opportunities for using AI tools in information systems. This is a segment of the Internet that is hidden from public access and where connections are established between trusted participants using non-standard ports and protocols. In this segment the norms of work are established locally and by agreement of participants, they can vary depending on the agreements between them. Darknet sells data, closed documents, offers various services to enter government systems, etc. [15].

The above-mentioned segment can be considered as a system without content filtering and local regulation of relations between participants [14]. This is a direct and existing threat to the functioning of state information systems and the ability to work in them. It undermines their development and, in general, the introduction of new advanced technologies. Therefore, it is necessary to take measures to limit the regime of these segments. One of such segments is the meta-universe, only such technologies are more openly announced and disseminated, but the principles remain the same (operation of digital platforms in general). This also creates challenges and opportunities for establishing minimum standards for the operation of information systems in such environments.

Such proposals are not the result of trends or the embodiment of an elitist approach in current international relations. They allow for the optimization of existing processes and will slightly modify approaches to the doctrine of Internet governance, slightly expanding the list of actors that can participate at the governmental level. This will strengthen the fundamental beginning of Internet governance at the interstate level and lead to common standards, initial common understanding of some processes in the field of advanced technologies and information systems.

Of course, there are also difficulties that hinder the development of international standards, namely the current international crisis. Therefore, we believe that the most convenient means could be integration associations. The latter can complicate the situation with block systems of other states, add the problem of competition of

some standards before others. But we note that when implementing these approaches, quality analytics can gradually emerge and it will allow scientists and practitioners to develop unified approaches. These approaches could take into account the direction of multi-stakeholder approach. And gradually bring the "block regime" to the legal level, namely the format of integration associations, in which the principles of law and greater transparency of certain instruments are observed.

An important issue is ensuring information and cyber security in the context of the development of the Internet. There are threats such as Deep Fake (also originating from the Darknet segment, with the deployment of digital drug storefronts) and there are threats of a more complex nature that involve political and economic issues. For example, the use of ChatGPT in a global context to increase raw and false content in the international space. This exacerbates already existing problems of international relations and creates new challenges even for the multi-stakeholder approach and the whole concept of "Internet Governance".

At the international level, technology not only creates new opportunities for the basic, creative and international potential of the concept of "Internet Governance", but also obstacles that can only exacerbate already established international relations and therefore complicate relations in the information space between states and other actors.

The international information system under the influence of these threats, as well as a multitude of block systems rather than integration systems, generates desynchronization of approaches regarding digital ecosystems (information systems), unified approaches to standards in the field of "Internet Governance". This complicates the transition to the development of unified international standards in terms of AI tools, digital platforms (information systems), i.e., currently, each state has already created its own state information systems, which develop approaches to information products and research them. Unfortunately, at the level of integration areas, these issues are not discussed in terms of developing common principles for information systems (digital ecosystems). In the future, this only undermines the importance of international mechanisms in terms of standardization of information systems and their importance of standardization. Of course, this direction is realized within the framework of the development of the intellectual property market, advanced technologies, however, in terms of the "Internet Governance" system. However, in the part of the "Internet Governance" system.

Proposals and introduction to a new approach to "Internet Governance" and information systems in which advanced technologies (AI modules, etc.) are embedded.

At present, there is no specific sequence or theory in the field of international information systems (digital ecosystems), applied beginnings for the development of this direction, despite the first practical vectors. We propose, based on analysis and practical experience, 3 phases of development of international information systems (digital ecosystems):

1) The first phase consists in the development of state information systems in each particular state, prescribing methods for them and the regulatory framework. Lack of integration bases and supranational, primary methods of regulation of information systems and advanced technologies used in them. At the international level it is possible to observe primary principles in the regulation of the Internet and information relations, information security relations, etc.;

2) The second phase consists in the transition from the state to the integration level of information systems, namely through the formation of common standards and digital directions to digital platforms at the level of integration associations of states;

3) The third phase implies the gradual establishment of a unified international information system (digital ecosystem), which sets unified standards in the field of content (illegal content), introduction of information/cyber security regulations and unified approaches to Big Data technology and personal data. Such approaches are only primary, it is necessary to develop artificial intelligence technologies (standards). In addition, we need to adjust to the system-wide vision through the digital ecosystem and its attributes. Of course, the culture of working with data and approaches to its processing with the help of AI modules of digital platforms should be primary in this direction.

Additionally, we note that the 2nd phase reflects the choice of a more stable and secure state information system and its implementation at the integration level. The integration level is a kind of filter and test of the future status of the international information system (digital ecosystem).

The third phase is characterized by its globality and the extension of normative frameworks such as standards, policies, regulations to states. In addition, it could act as a single normative center in terms of clarification of certain provisions in the field of "Internet Governance" and possible norms in the field of AI. We believe that the following systemic developments in the field of Internet governance are important from the perspective of international information systems and the introduction of AI tools (phase 3 of the development of international information systems):

- *creation of a basic "alpha+ standard"* that would generate IT, telecom in the concept of "Internet Governance". It is important that these elements are presented by analogy with the concept of "triunity" (Japan Society 5.0), as they are closely related to each other and in general create a single digital field for interaction between states, organizations (governmental and non-governmental levels);
- *development of AI tools at the initial level, in terms of the possibility of primary moderation of content* and information at the level of information systems (digital ecosystems);
- *optimization of terms and definitions* in this standard, or through a separate "desk book";
- *Removing barriers to sustainable Internet connectivity,* by adopting common protocols in the 4 G or 5 G realm;

- *Ensuring uniform data standards for* Internet operations and data policies;
- *provision of administrative and organizational tasks* in the sphere of development of the direction outlined in the article - creation of a governmental organization that will deal with the issues of Internet governance, taking into account the existing analytical and recommendation work performed by the International Internet Governance Forum (IGF).

At the same time, the described frames only represent the pre-international phase of development of information systems (digital ecosystem) at the interstate level. The realization of this phase requires an integration period, when the existing state systems will be tested and implemented at the level of several states. The final result of the development of frames can only be predicted.

In addition to these proposals, attention should be paid to such designs as "SAGE" or "Arpanet" [11] and centralized computers (A.I. Kitov Concept [3]). At the international level, although there is a domain architecture, root libraries, it is important to think about such designs. At the moment of time there is a beta project such as Yeti DNS. The project is focused on creating a parallel experimental active IPv6 DNS root system [16], which will provide some useful technical results in terms of network stability and maintaining its secure operation. Some additional issues are possible in terms of development of AI-technologies in the use of OS-solutions (quite popular direction in the medical sphere on the use of AI-tools) [17] to build a normal and stable solution architecture for integration or international solutions.

The above-mentioned advanced directions can also be conditionally divided into two possible tools for the development of the international information system (also integration systems):

- OS solutions for information systems [9], which is a convenient platform for the development of AI tools;
- local networks for stable maintenance of the data storage system (including for implementation of the systems of a single chain of computers according to the model of A.I. Kitov).

Let us explain that local networks, from the point of view of legal support of any information system, are more stable and reliable, which allows you to create a single window of data transfer, at the same time, also technical characteristics are not inferior to advanced cloud storage.

These trends should be considered throughout the identified phases of development of information systems (digital ecosystems), as well as taking into account conditions of unstable connectivity, in navigation systems, unstable connectivity, and weak hardware for certain indicators. Any new directions should be properly prescribed in state strategies, roadmaps, concepts, etc. Regulatory support will allow to create a unified algorithm and patterns of advanced technologies and subsequently ensure the connection of acts with each other (a system of international and national regulations). Taking into account geopolitical factors will also contribute to an additional

direction for development in the field of international information systems and their normative support. As it takes into account the influence of block systems and multi-stakeholder approach.

The multi-stakeholder approach can serve as a separate toolkit for developing phases of information systems and gradual transformation into an international (third phase). This allows most tools to be considered in the light of new analytical inputs and identified threats. Taking into account the experience of non-governmental agencies will strengthen the approaches in the regulatory direction and create more relevant material for their content. For example, data processing by regenerative artificial intelligence when using cloud storage in an information system. At the same time, we know only national experience in the above-mentioned vector, it is not difficult to imagine how many legal and other factors may arise in the integration information systems and international information systems.

According to the last remark, we can distinguish the following conditional features of normative support of integration and international information systems in the second and third phases:

- uniform safety regulations (international or integration level);
- selection of risk factors and analytics on new solutions and the possibility of their migration to the information system (digital ecosystem);
- peculiarities of regulation of open and closed loop (type) information systems;
- specifications of AI tools at the level of international information systems and integration systems;
- norm-setting at the information system level - updating the regulatory framework, establishing mechanisms for ranking the best practices of state information systems of each state.

Let us note that the integration and international information system (digital ecosystem) do not replace the 1st phase, namely the state information systems. We only outline and deduce the regularity ("regularity of information systems development with technical tools (advanced technologies) in the conditions of Internet governance) of their development in the future, as well as expansion to a more global level, beyond state borders. The trend is justified given the constant expansion of state systems, therefore their competition and the desire of individual actors to establish common standards is inevitable. In this article, we only deduce this pattern and note the very real system and forecast of information systems (digital ecosystems). In the conditions of the development of the concept of "Internet Governance" it creates special convergent conditions for such a deduced regularity, as the latter allows us to eliminate the barriers noted in IGF and to form a unified set of rules and proposals of this concept.

This pattern can be both a theoretical and applied rationale in subsequent documents on the creation and development of information systems (ecosystems) at the international level. The pattern includes all three phases and their "profiles" (i.e., descriptions of specific technologies, ways to replicate them, etc.). The profiles themselves only provide a description, but do not provide an "ideal recipe" for critical infrastructure

or individual technologies. The latter is formed within the framework of the described standards and most often comes from specific states. It should be additionally clarified that the standard-setting component at the level of the AI module [8] in the information system is the basis for all three phases and our proposed pattern, respectively. It is this component that can, under ideal conditions, form standards that will be processed by international operators. When taking this pattern into account, one should not forget the unfortunate experiences, e.g., the platform "digital regulations constructor" [5], etc. In this regard, with active improvement of profiles, all conceptual descriptions of phases can be realized gradually.

Thus, the above-mentioned proposals can ensure the development of a qualitatively new content base and become the supporting complex of the concept of "Internet Governance". Information systems at different phases of development are qualitative elements of this concept, which are constantly changing and utilize new end-to-end technologies. Such a unified system creates a new approach in the subsequent systematization of legislation, grouping of normative acts and their direction. Taking into account all the features of the development of the new digital environment and relations at the international level of the current period, such patterns, the gradual development of information systems is strategic in nature and can gradually eliminate information and legal uncertainty in the national and international agenda.

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