

# Overview on China's Policy System of Internet Plus Action Plan

Chen Lei<sup>1</sup>, Wang Baicun<sup>1</sup>, Huang Sihan<sup>2</sup>, Yao Lei<sup>3</sup>, Bian Dacheng<sup>3</sup>, Fan Xin<sup>4</sup>

1. Center for Strategic Studies, Chinese Academy of Engineering, Beijing 100088, China
2. School of Mechanical Engineering, Beijing Institute of Technology, Beijing 100081, China
3. Institute of Informatization and Software Industry, China Center for Information Industry Development, Beijing 100044, China
4. School of Mechanical and Materials Engineering, North China University of Technology, Beijing 100043, China

**Abstract:** The Internet Plus action plan (IPAP) plays a crucial role in promoting China's industry upgrades and high-quality development of its economy. As IPAP is evolving into a new phase of in-depth development, related technologies are constantly being upgraded and various industrial integration models are emerging. Therefore, it is urgent to systematically investigate recent policies and plans related to IPAP, analyze its current situation, and identify related problems, and then, to further optimize relevant policy systems. This study systematically reviews the recent policies and plans, both national and local, released to promote IPAP. Based on the review and surveys, the current problems related to the IPAP policy system, including fragmentation of policy documents, homogenization of local policy documents, inadequate supporting measures, and lack of phased evaluation methods, are discussed. Moreover, the following policy recommendations are proposed to promote IPAP's further development: (1) establish and improve a systematic policy formulation mechanism for IPAP, (2) improve the coordination system to promote IPAP, (3) reasonably strengthen the financial support for IPAP, and (4) improve related laws, regulations, and standards on IPAP. This paper is expected to act as a guideline for relevant research on IPAP policy systems.

**Keywords:** Internet Plus action plan; policy system; policy supply; improvement measures

## 1 Introduction

"Internet Plus" leverages the outcomes of innovation in information technology to promote deep integration with various sectors of the economy and society; push for organizational change, technological progress, and efficiency improvement; boost the innovation power and productivity in the real economy; and create a new form of economic and social development with the Internet as the infrastructure and innovation factor [1]. It has gradually penetrated various fields of the real economy; led to new forms of businesses, such as sharing and digital economies; and fostered a new driver for economic growth.

China attaches great importance to the strategic value of Internet Plus, and has taken various measures to accelerate its development process. The *2015 Government Work Report* proposed to develop the Internet Plus

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**Corresponding author:** Wang Baicun, research assistant of Center for Strategic Studies of Chinese Academy of Engineering. Major research fields include intelligent manufacturing, science and technology policy, and development strategy. E-mail: wangbc@cae.cn

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action plan (IPAP); integrate the mobile Internet, cloud computing, big data, and the Internet of Things with contemporary manufacturing; and encourage a healthy development of e-commerce and industrial networks [2]. The *Guiding Opinions of the State Council on Actively Promoting the "Internet Plus" Campaign* (hereafter Guiding Opinions) necessitates efforts to foster new drivers and strengths for economic and social development, and boost the development and innovation capacity of Internet Plus in various industries. The *2019 Government Work Report* aims to create industrial Internet platforms and expand the initiatives of Intelligent Plus to facilitate transformation and upgrading in manufacturing [3]. After years of rapid development, a new generation of artificial intelligence technology has emerged through the integration and innovation of all types of advanced technologies, with enhanced computing power as the core support and big data applications as the key content [4]. All these efforts have taken Internet Plus to a new stage of development—Intelligent Plus, and opened new avenues for the transformation and upgrading of traditional industries and enterprises [4–8]. In face of the COVID-19 pandemic, the Internet Plus technology has played a prominent role in containing the virus and reopening the economy. Thus, advancing its application to wider areas should be prioritized in dealing with post-COVID challenges. Efforts should be made to connect all factors and links of industrial and value chains to completely release the huge potential of Internet Plus [9].

The support of state policies—which involve 11 campaigns in 20 sectors/industries, including manufacturing, energy, agriculture, environmental protection, medical care, and transportation—provides an important driving force for the rapid development of Internet Plus. The Internet Plus policies covered in this paper mainly refer to the administrative or legally bound documents issued by the central government or local governments, with the aim of promoting IPAP and aligning the Internet with traditional industries to foster new forms and models of industrial development. Given the complex social environment and rapidly changing situation of science and technology innovation, the development of a set of scientific, standardized, and effective policies based on the new arrangements and requirements of the state on Internet Plus and through the sorting out and analysis of existing research outcomes has become an urgent task in promoting the application of the initiative on ground. This study selects the Internet Plus-related policies issued by governments at various levels as the subject of research, and proposes specific measures for achieving the development goals by analyzing existing policies and problems, to provide theoretical reference for improving the Internet Plus policy and strengthening its framework on emerging technologies and associated industries.

## 2 Current statuses of Internet Plus policies

Based on the various interactions between the innovation system and the government, the technological innovation policy goals can be classified into two categories: task-oriented and diffusion-oriented [10]. Task-oriented goals emphasize technological innovation, which aims to achieve the goals set by the state and enhance international competitiveness. Therefore, the government is in the central position for decision-making, implementation, evaluation, and allocation of funds for technological innovation, with priority given to the development of cutting-edge technologies of strategic value. In contrast, diffusion-oriented goals focus on expanding the technological capabilities to industrial applications, where the research and development process is often led by industry associations or research institutions. The role of the government is to promote the development of new technologies by shaping a favorable environment for education and training, technological standardization, and collaborative innovation among industry, academia, and research institutes. IPAP aims to build a new network infrastructure and promote the development of Internet Plus with both task- and diffusion-oriented features through a deeper integration with traditional industries.

Science, technology, and innovation policy tools can be classified into three categories—supply-, environment-, and demand-oriented [11]—and Internet Plus-related policies can also be roughly categorized into these three categories. The policy texts used in our study were acquired from the following channels: (1) central and local government websites, with Internet Plus as the keyword for searching policies and regulations; (2) policy database—"Bailu Thinktank"—with results verified and double-checked. As of June 2020, 43 Internet Plus policy documents issued by the state and over 140 documents issued by Beijing, Hebei, Anhui, Shandong, Zhejiang, Ningxia, and other provinces (municipalities and autonomous regions) have been collected.

## 2.1 Laying the groundwork for the Internet Plus policy system

At the central government and ministerial levels, the Guiding Opinions [1] has created top-level designs and made overall arrangements for the formulation of Internet Plus policies. In terms of the Internet Plus policies that have been issued, relevant ministries and commissions have proposed specific implementation goals, priority tasks, and safeguard measures that reflect the requirements of different fields considering their characteristics and shortcomings. The Internet Plus policies introduced by the ministries and commissions cover over 20 industries and sectors, including intelligent manufacturing, energy, agriculture, environmental protection, medical care, transportation, supervision, government services, elderly services, public services, education, tourism, and logistics. In terms of policy goals, most policies are task-oriented, and in terms of policy tools, all supply-, environment-, and demand-oriented policies are covered.

As of April 2019, 31 provinces (municipalities and autonomous regions) have devised Internet Plus-related policies. Among them, 29 provinces have studied and devised these policies, including implementation opinions and action plans, based directly on the Guiding Opinions. Most of the Internet Plus policies issued by localities have touched upon the priority areas mentioned in the Guiding Opinions, and some localities have introduced policies with distinctive local features to promote a more targeted implementation of IPAP considering the characteristics of local industries.

## 2.2 Advancing IPAP through pilot demonstrations and major projects

At the central and ministerial levels, the Guiding Opinions necessitate efforts to encourage Internet Plus pilot demonstrations and promote region-wise and chain-based development [1]; support the building of pilot demonstration zones on independent innovation and contemporary agriculture, conduct tryouts on innovation policies, and cultivate the ecosystem of Internet Plus. Tryouts and demonstrations have also been prioritized in IPAPs for various priority areas promulgated by relevant ministries and commissions.

At the local level, Anhui, Liaoning, Jiangsu, Chongqing, Fujian, Hubei, Henan, Shanxi, Heilongjiang, Qinghai, and other provinces (municipalities and autonomous regions) have proposed in their own IPAP implementation guidelines to support the Internet Plus demonstrations in key regions and cities; foster numerous Internet Plus demonstration parks, platforms, and enterprises; actively apply for the national pilot programs on Internet Plus policy innovation; explore innovation in institutions and systems considering the objectives and tasks for policy tryouts provided by the state; break down the policy barriers to the access of new industries, data opening, and market regulation; establish a multitiered and wide-ranging system for promoting tryouts and demonstrations; summarize and promote appropriate practices and successful experiences; and leverage the catalytic effect of model demonstrations. The regions such as Beijing, Zhejiang, and Yunnan have established reserves of Internet Plus projects, with the aim of undertaking major Internet Plus projects of the state, and pushed for the exposition and implementation of Internet-based integration and innovation development projects.

## 2.3 Expanding from more open to more constrained sectors

At the central and ministerial levels, the Guiding Opinions sets the goal of “further enhancing the role of the Internet in supporting mass entrepreneurship and innovation” [1], and considers Internet Plus innovation and entrepreneurship as the priority action. In addition, it stresses the need to promote the gathering, opening, and sharing of various resources; foster a strong atmosphere of entrepreneurship and innovation in the society; and create a new driver for economic development.

At the local level, 25 provinces (municipalities and autonomous regions), including Beijing, Tianjin, and Shanghai, have taken Internet Plus entrepreneurship and innovation as a priority action, special campaign, or priority task; encouraged the use of the Internet to promote innovation and entrepreneurship; cultivate new types of online entrepreneurship service platforms at multiple levels, such as innovation/entrepreneurship studios, maker spaces, incubators, and accelerators; build Internet Plus innovation/entrepreneurship demonstration bases with sound incubation conditions, strong carrying capacity, and integrated services of entrepreneurship guide; and promote the development of crowd innovation, crowd sourcing, crowd funding, collective support, and other models.

## 2.4 Shifting from general policies to practical and operable measures

At the central and ministerial levels, the Guiding Opinions lays out 11 areas for further deepening of the integration of the Internet with various economic and social sectors, with the aim of turning new businesses generated by the Internet into new driving forces of economic growth and creating a new pattern of integrated development of the cyber and real economies. The *Guiding Opinions of the State Council on Deepening the Integration of Internet Plus Advanced Manufacturing for the Development of Industrial Internet* [12] proposes to deepen the integrated development of the Internet and advanced manufacturing industry from six directions (i.e., laying a solid network foundation, building a platform system, strengthening industrial support, promoting convergence and application, improving the ecosystem, strengthening safety and security, and promoting open cooperation), and develop more specific and practical policies. The *Notice of the General Office of the Ministry of Industry and Information Technology on Comprehensively Promoting the Construction and Development of Narrowband Internet of Things* [13] provides detailed supporting policies precisely at the level of ground-laying. Focusing on the movement of the policy system from macro-guidance to development facilitation and on-ground implementation, the approaches of advancing IPAP have also shifted from general policies to practical and operable measures.

At the local level, the *Notice of the General Office of the People's Government of Shanxi Province on the Issuance of the "Enterprise to Cloud" Action Plan of Shanxi Province (2018–2020)* [14] proposes to introduce the primary application of cloud computing to small-, medium-, and micro-sized enterprises, with a focus on formulating differentiated "enterprise to cloud" strategies; promote the deep application of cloud computing in large- and medium-sized enterprises through "mobile," "Internet," "intelligent," and other technologies; and ensure an effective implementation of the *Guiding Opinions of the People's Government of Shanxi Province on Deepening the Integration of Internet Plus Advanced Manufacturing for the Development of Industrial Internet*. The *Notice of the Tianjin Rural Work Committee on the Plan for the Implementation of the Tri-Net Plus Project through the Integration of Internet Technology and Modern Agriculture* [15] necessitates an effective implementation of IPAP in the contemporary agricultural sector, with a focus on the implementation of the Tri-Net Plus Project (i.e., "Internet of Things," "E-commerce Network," and "Information Network" Plus Agriculture) and in line with the essence of the *Notice on the Issuance of the Three-year Action Plan on Internet Plus in Modern Agriculture*. In the *Opinions of the General Office of the People's Government of Shaanxi Province on Accelerating the Construction of the Province-wide Comprehensive Transportation System* [16], five information platforms have been proposed for promoting intelligent transportation, improving information services, and realizing Internet-empowered smart transportation at the micro-level. These platforms are a perfect example of the operable and practical policy initiatives introduced at the local level.

## 3 Main problems in the supply of Internet Plus policies and cause analysis

### 3.1 Fragmentation of Internet Plus policies at the central level

In the early stage of Internet Plus development, the state policies were mainly task-oriented, with the overall goal more oriented toward infrastructure construction and the emphasis placed on technical and industrial aspects. The relevant business was mostly associated with the Ministry of Industry and Information Technology, the National Development and Reform Commission, and the Ministry of Finance and the Ministry of Science and Technology [17]. The relevant departments responsible for work in this field have devised and issued a series of policy documents at a relatively high frequency. Meanwhile, there has been an overlap between certain contents, and the continuity and purpose of some documents are weak. For example, all Internet Plus-related policy documents [12,18,19] have proposed opinions and requirements for the development of a network infrastructure, and the contents in these documents have a certain degree of similarity. Local governments are often overwhelmed by the implementation of all types of policies [20]. The above problems are attributable to the following three factors.

(1) Fragmented policy-making. The relevant policy makers have different access to information and knowledge of related fields, and the standards they use for reviewing the operability of Internet Plus policies also differ. The lack of sufficient coordination and cooperation among various actors results in the duplication and wastage of

resources in formulating Internet Plus policies [21].

(2) Fragmented policy implementation. Government agencies have set up internal departments and posts according to their functions, and the functions, responsibilities, and mandates of the various departments tasked with the implementation of Internet Plus policies are not the same; most Internet Plus-related affairs need to be shared by all departments, yet some departments are overly sensitive about their functional boundaries, which has resulted in an unreasonable distribution of power for implementing these policies at different levels [22].

(3) Fragmented policy evaluation. Despite the promulgation of the Guiding Opinions, China has not yet established a unified set of standards for evaluating the implementation results of Internet Plus policies, and lacks scientific evaluation methods and criteria. The relevant authorities are not strong enough in managing the evaluation work, and certain evaluation personnel do not have the professional capability required for the work. Under the cumulative effect of the above factors, the evaluation of Internet Plus policies has not been completely implemented and has not played an appropriate supervisory role.

### 3.2 Homogenization of local Internet Plus policies

Twenty-nine provinces (municipalities and autonomous regions) have devised Internet Plus policies at the provincial level by directly referring to the Guiding Opinions. Some of these documents have simply copied the Guiding Opinions, putting local policies on the same bandwidth as central documents, with no evident differentiation between regions. For example, Hebei, Shanxi, Yunnan, and Shaanxi have proposed the same development goals as the Guiding Opinions, while Heilongjiang and Shaanxi have listed the same priority actions as the Guiding Opinions.

From the perspective of policy tools, the phenomenon of local policy homogeneity can be classified into two types: vertical homogeneity (i.e., some local governments have simply copied the central policies without completely considering their own comparative advantages) and horizontal homogeneity (i.e., some local governments have mechanically referred to the policies issued by experienced local governments and simply replicated their successful practices [23], making their industrial development policies highly similar). These problems can be attributed to the following two factors.

First, some regions blindly follow the key areas laid out in the Guiding Opinions while performing their work. Without completely studying the foundation of local industries and the regional endowment of production factors, they consider the key areas of the Guiding Opinions as the core content of their own Internet Plus policies. Owing to the weak foundation and lack of notable features, the implementation of these policies cannot yield the desired results. For example, the construction of Internet infrastructure in remote rural areas is still lagging behind, the awareness of agricultural producers of intelligent products is relatively low, the use of agricultural data resources is not efficient, and the phenomenon of data fragmentation is prominent. Thus, the development of smart agriculture through Internet Plus has remained stuck in the demonstration stage [24].

Second, the formulation and implementation of local policies lack effective guidance. Although the Guiding Opinions have clarified the main direction for creating Internet Plus policies, some localities lack effective coordination with the central government in formulating these policies and the interaction among different localities is inactive, which results in the homogeneity of priority areas in the Internet Plus policies of various regions and lack of individualized development features.

### 3.3 The main tasks for implementing the Internet Plus policies remain unclear

In promoting the implementation of Internet Plus policies, some localities have not thoroughly studied these policies and failed to completely capture their essence. The implementation process has gone astray from time to time. Driven by the pursuit of “fashionable concepts,” some localities have taken up the tasks of building industrial parks or pilot projects and constructed various Internet industrial or business parks. On the surface, the results may seem impressive, but in reality, there is often an imbalance between the supply and demand. Meanwhile, policy implementation is out of sync with the purpose of policy-making, and sometimes, missteps in policy implementation may even cause misunderstanding among the public [25,26]. These problems can be attributed to the following three factors.

First, some localities do not have a proper understanding of the top-level design of the policies. Although most

regions have devised Internet Plus policies in accordance with the Guiding Opinions, implementation and publicity are missing at the top level. In some regions, the local policies have not been aligned with the basic conditions and development status on ground, and the tasks for implementing IPAP lack clarity.

Second, the frequency of policy issuance is too high. Since the release of the Guiding Opinions, a series of Internet Plus-related policy documents have been issued at the ministerial level. However, due to the limited manpower, energy, and awareness for dealing with new and emerging issues, the local governments have been overwhelmed by the new policies and have no time to implement the old ones.

Third, the support of financial policies is not adequate. Many small- and medium-sized enterprises (SMEs) in China face financing difficulties, and most of them have to pay back their loans with the funds mobilized through social channels. The high costs, high risks, and heavy financial burdens have discouraged businesses from making Internet Plus investment and hampered the implementation of Internet Plus policies on ground.

### 3.4 Lack of effective evaluation of policy implementation

The most notable problem of local Internet Plus policies is the lack of policy evaluation objectives and systems, which has resulted in uncertainty in policy implementation. The results of the policy are not clear and difficult to judge. In addition, due to the rapid iteration of Internet Plus policies, some localities simply lack the knowledge required for evaluation, have no time or mechanism to conduct evaluation, or cannot translate the evaluation results into practical follow-up steps. There are two possible reasons for these problems.

(1) Lack of a complete assessment of the scientific basis and feasibility of Internet Plus policies. Due to the lack of validation and research in the policy designing process, some of the local Internet Plus policies are not scientific and even contradict with the law of development, and therefore, are inconsistent with the on-ground situation [26].

(2) Lack of follow-up evaluation of the implementation effect of Internet Plus policies. Since the promulgation of the Guiding Opinions, all localities have issued relevant policies to promote IPAP implementation, most of which have pledged, as part of the safeguard measures, to speed up the promulgation of special action plans for various industries. However, the actual situation in policy implementation can often be described as “Three Nos” (i.e., no supervision, no evaluation, and no rewards or punishments) [27].

### 3.5 Inadequate governance mechanism

Although the implementation of Internet Plus policies drives the intelligent transformation and boosts the creativity in various industries, it raises new issues, such as intellectual property rights and data ownership. In addition, public service and security problems triggered by bicycle sharing and car hauling are emerging, raising higher demands on the governance mechanism in Internet Plus-related fields; however, the relevant governance mechanism is still inadequate. There are three possible reasons for these problems.

First, the cost of violation is low, whereas the cost of defending rights is high, and the protection of intellectual property rights is not strong enough. In addition, the eco-environment of Internet Plus is highly open, and the innovative achievements of enterprises can be easily imitated and copied with extremely low costs. In contrast, enterprises with ownership of property rights need to spend considerable time and money in collecting evidence to defend their rights, which discourages them from investing in the development of Internet Plus.

Second, the ownership of data rights is not clear enough. Data form an important resource for promoting the development of Internet Plus and are closely related to the core interests of enterprises, yet the issue of data ownership has not been included in the scope of legal protection for a long time. If issues such as data ownership, data consolidation principles, and data security cannot be defined by rules, Internet Plus actions will be implemented half-heartedly, or even face strong resistance.

Third, the existing laws and regulations are still not sufficiently binding on new models and business forms. Taking bicycle sharing as an example, 2017–2018 saw a surge in China's bicycle-sharing market, yet improper behaviors, such as random parking of bicycles, have caused a host of social problems. Thus, it is imperative for the government to formulate laws and regulations to promote the orderly development of the bicycle-sharing market.

## 4 Countermeasures and suggestions

Based on the conditions of various localities and the country as a whole, it is important to explore an Internet

Plus policy system with systematic formulation, coordinated implementation, and standardized evaluation to improve the formulation, execution, and effect of the policies; promote the shift from individual to diversified policies, and from selective to functional policies; and ensure the smooth implementation of policies through the comprehensive safeguards of personnel, funds, security, and other factors and resources.

#### **4.1 Establishing a systematic mechanism for formulating Internet Plus policies**

First, a sound inter-agency coordination system and a control mechanism of persons responsible for policy formulation should be established. Inter-agency coordination should be strengthened to avoid random and one-sided policy-making, assign responsibilities to individuals, and urge them to earnestly fulfill their responsibilities of policy formulation. The rights of criticism and suggestion of stakeholders should be guaranteed simultaneously.

Second, a sound and diversified mechanism for participation in policy-making should be built. Convenient and effective channels should be established to encourage public participation in the formulation of Internet Plus policies.

Third, a talent introduction system that satisfies the requirements of regional economic development should be developed. The absorption of special professionals should be encouraged to provide highly intellectual support for establishing a systematic Internet Plus policy system.

#### **4.2 Building a sound working mechanism for effective coordination to promote the implementation of Internet Plus policies**

First, an inter-agency working mechanism to break down the barriers between departments should be established. If the implementation of Internet Plus policies involves multiple departments, a first-in-command mechanism can be established to better coordinate policy implementation; the various actors of policy implementation should strengthen communication and coordination, and implement the Internet Plus policies in a proactive and cooperative manner.

Second, the reform of the administrative system should be deepened. The relation between the central and local levels and that between higher and lower levels in the implementation of Internet Plus policies should be clarified, and a hierarchical and category-based collaboration mechanism should be established to promote a shift toward coordinated policy implementation.

Third, the implementation of Internet Plus policies should be supervised. Efforts should be made to establish a scientific and effective Internet Plus policy supervisory mechanism, and regularly monitor and assess the effect of implementation, optimize Internet Plus public services, improve the government performance appraisal mechanism, stimulate the enthusiasm of relevant departments, and guarantee the effect of Internet Plus policies.

#### **4.3 Diversifying the means of fiscal, taxation, and financial support for Internet Plus initiatives**

First, the hierarchical capital market should be gradually improved to be completely activated. Efforts should be made to boost the competitive atmosphere by lowering access to the financial market and encourage small- and medium-sized banks and other private financial institutions to support SMEs; accelerate the development of private capital market; optimize the management mechanism of the ChiNext board; and enhance the vitality of the capital market.

Second, the traditional lending models should be transformed through innovative financial services. New financing models, such as supply-chain finance, should be adopted to encourage banks to coordinate the provision of financial services to both core enterprises and upstream and downstream enterprises. Efforts should be made to lower the financing difficulties of SMEs and benefit those at the upstream and downstream of the supply chain.

Third, an innovative development of guarantee companies should be promoted in an orderly manner. The government should provide a stable support to guarantee agencies and guide the development of professional and commercial guarantee companies. In addition, while improving the risk-sharing and risk-compensation mechanisms of guarantee agencies, a sound guarantee system should be established.

#### **4.4 Establishing a system of Internet Plus laws, regulations, standards, and norms**

First, the protection of intellectual property rights should be strengthened. Efforts should be made to build a

platform for intellectual property transactions and services, and establish a mechanism for sharing resources and distributing benefits and a risk management system; introduce intellectual property protection for innovation outcomes and strengthen legal assistance in cross-border disputes over intellectual property rights; and improve Internet Plus laws and regulations to regulate online services and raise the cost of violations to curb infringement.

Second, the legislation on big data should be promoted. The legislative gap in the definition of data ownership should be filled to protect the legitimate rights and interests of data providers and demanders, and provide a legal basis for resolving disputes over data ownership.

Third, the Internet Plus governance mechanism should be improved. Efforts should be made to explore the building of an Internet Plus governance mechanism with the joint participation of all economic and social actors based on the principle of accommodative and prudent supervision, and improve the in-process guidance and ex-post supervision over the development of Internet Plus-related industries.

Fourth, the security of Internet Plus should be strengthened. Efforts should be made to promote foundational legislation in Internet Plus-related fields, formulate and revise administrative regulations, such as the Administrative Measures for Internet Information Services, and enhance the capability of guaranteeing information security on the Internet. To meet the demands of Internet Plus management, judicial interpretations and policy explanations should be improved; the existing laws and regulations should be better applied; and the efforts to identify and collect evidence, and conduct joint investigation and punishment for cyber-crimes should be maintained.

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