

Requirements for improving the institutional system for science and technology development in the new context

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- **Abstract:** The institution for science and technology development is a set of legal norms issued or recognized by the State, regulating social relations arising in scientific research activities, experimental research and development, technology development and application, and innovation to promote the key role and driving force of science and technology in socio-economic development, serving the common goals of the country. This article analyzes the requirements and discusses some solutions that need to be implemented in relation to improving the institution for science and technology development to meet those requirements in the current period.
- **Keywords:** science and technology; institutional improvement; renovation; research and development.



Ho Chi Minh National Academy of Politics celebrates the 2025 Vietnam Science and Technology Day and awards the outstanding units _ Photo: HCMA

1. Introduction

Currently, our country is entering a new era of development, with many basic and urgent requirements for the synchronous improvement of institutions, including institutions on science and technology (S&T). The 13th National Party Congress clearly stated new contents on rapid and sustainable development of the country in accordance with the new context: “Rapid and sustainable development is based mainly on science and technology, innovation and digital transformation. It is necessary to renew thinking and action, proactively seize opportunities in a timely manner, effectively exploit the opportunities of Industrial revolution 4.0 associated with the process of international integration to restructure the economy, develop the digital economy, and digital society, considering this a decisive factor to improve labor productivity, quality, efficiency, and competitiveness”⁽¹⁾.

2. Content

2.1. The requirement for rapid, sustainable, and inclusive development necessitates the improvement of institutions for science and technology development

The concept of sustainable development emerged in the early 1980s and became widely popular across the world in the late 1980s. The requirement for sustainable development necessitates development that meets the needs of the present generation but does not cause difficulties or obstacles in meeting the needs of future generations. The concept of sustainable development was discussed at the Earth Summit on Environment and Development held in Rio de Janeiro (Brazil) in 1992. Accordingly, the condition for sustainable development requires a close, reasonable, and harmonious combination of the three pillars of development: economic development must be associated with solving social problems and environmental protection. This conference agreed to convey to all governments a clear message about the urgency of ensuring harmony among economic growth, social development, and environmental protection.

Nowadays, the goal of rapid and sustainable development has become an objective requirement for development in most countries globally. Depending on the level of development and specific conditions, countries all determine goals of rapid and sustainable development and propose solutions to gradually realize it in an appropriate manner.

In Vietnam, the requirement for sustainable development has been identified as follows: “We need economic development coupled with social progress and equity, not increasing the gap between rich and poor and social inequality. We need a humane, united, mutually supportive society, oriented towards progressive and humane values, not unfair competition, “big fish swallowing small fish”, for the selfish interests of a few individuals and groups. We need sustainable development, in harmony with nature to ensure a healthy living environment for current and future generations”⁽²⁾.

Inclusive development is understood as a type of chain development between products of a commodity, one type of production, service, consumption between different economic sectors; between people and economy, society, culture and environment; between domestic and foreign development on the basis of “taking the people as the center” in order to achieve rapid, sustainable social development and comprehensive human development.

The essence of inclusive development is to develop economic production with a comprehensive, continuous connection (linkage) along the product chain; from there, develop a comprehensive, continuous connection along the process and relations of economic and social production under the impact of globalization through the market mechanism and international integration. In inclusive development, whether in the economic, political, social, or environmental fields, everything originates from people and directed towards the goal of comprehensive human development.

Rapid, sustainable, and inclusive development is a consistent requirement in the country’s development strategy, for the goal of people, based on people, by people, in which rapid and sustainable economic development holds a central position and is the means to soon bring our country to become an industrialized country in a modern direction.

Compared with the requirements of rapid, sustainable, and inclusive development, the current S&T institution in Vietnam still shows many limitations and shortcomings. Specifically: there are no strong legal constraints between S&T activities and sustainable development goals; current laws do not fully cover new fields (such as artificial intelligence, biotechnology, etc.); the mechanism to ensure inclusive development and fairness in accessing and benefiting from S&T has not been clearly demonstrated; the investment management mechanism for S&T is still scattered, ineffective, the process of allocating funding for scientific research is still complicated and slow; the connection between training, research and practical requirements of rapid, sustainable and inclusive development goals has not been ensured.

To overcome limitations and shortcomings, the law on science and technology needs to supplement regulations that national science and technology programs must be linked with sustainable development goals; establish stricter regulations on requirements for assessing environmental and social impacts on new technology products; supplement legal mechanisms to encourage research and application of green technology, circular economy and support sustainable business models. It is necessary to update and supplement a number of concepts, terms, and scope of regulation to cover new technology fields; supplement provisions to encourage the application of artificial intelligence, big data... in research and production; and soon codify policies on technology sandboxes (testing environments), especially in the fields of health, finance, and education.

It is necessary to make transparent the review process and allocation of research funding and have a mechanism to prioritize topics serving sustainable development (environment, renewable energy, climate change, public health...). Establish a flexible financial mechanism to support small and medium enterprises, innovative startups, and increase financial autonomy for research institutes and universities. There should be a mechanism to prioritize investment in science and technology in remote, mountainous, and ethnic minority areas; have policies to support female workers; create an open knowledge sharing mechanism; and reduce barriers to accessing science and technology information. A mechanism should be built to promote cooperation among schools - enterprises - the State in training high-quality human resources.

Resolving these issues will contribute to creating a complete, clear and solid legal basis for scientific research activities, experimental research and development, technology development, technology application, deployment of science and technology services, and innovation to promote the key role of science and technology, meeting the requirements and goals of rapid, sustainable and inclusive development of the country.

2.2. The requirement to proactively adapt to Industrial revolution 4.0 requires the completion of the institution for science and technology development.

Entering the 21st century, the world witnessed the emergence and development of breakthrough technologies in economic, political, and social life, marking the transition to Industrial revolution 4.0. Characterized by its profound impact and rapid speed, this Revolution poses challenges not only in terms of legal aspects but also in the law-making process⁽³⁾, including laws on science and technology.

Industrial Revolution 4.0 puts pressure on the State to build appropriate institutions to regulate new emerging issues. The law-making process must accurately reflect the characteristics of technology as well as how they impact social life. Legislative bodies often find it difficult to attract technology developers and software engineers to their staff. In the rapid development of science and technology, "Policymakers are not only unaware of the nature and significance of new technologies but may not even know what they actually need to know, while their responsibility is to develop legal rules to regulate those technologies"⁽⁴⁾.

Furthermore, the rapid development of the industrial revolution also puts pressure on the speed of adaptation of science and technology laws to newly emerging issues. Unlike the speed of technological development, the speed of law-making is more difficult to change. The legislative process must ensure rigor and caution to produce laws that are balanced in interests, technically sound, and comprehensive in covering social situations so that they promote development and social progress. This process requires each law to be thoroughly researched, all related issues to be carefully considered, all relevant stakeholders to be consulted, and adoption to be based on comprehensive discussion.

The need to adapt to Industrial revolution 4.0 requires Vietnam to increase technological autonomy and move towards developing new technologies in a number of key areas with strengths, potential, and large room for growth. Mastering core technology, source technology, and technology of Industrial revolution 4.0 to quickly absorb and apply it to the development of new products and services, especially key products and national brands, and to carry out digital transformation of enterprises... The institution for science and technology development must create a legal basis to carry out the tasks set forth by the 13th National Party Congress: “promoting national digital transformation, developing the digital economy on the basis of science and technology, and innovation; improving productivity, quality, efficiency and competitiveness of the economy, harmoniously and effectively connecting domestic and international markets... Promoting research, transfer, and strong application of achievements of Industrial revolution 4.0 in all areas of social life, focusing on a number of key industries and fields with potential and advantages to serve as a driving force for growth in the spirit of catching up, progressing together and surpassing in a number of fields compared to that of the region and the world”⁽⁵⁾.

This requirement needs the prompt amendment and supplementation of a number of articles of the 2013 Law on Science and Technology and related documents, especially regulations on the management of science and technology tasks; policies to promote science, technology and innovation; management and incentive mechanisms for science and technology organizations; financial investment mechanisms for science and technology organizations; controlled testing mechanisms... Directly related to this requirement, General Secretary To Lam proposed a number of key solutions, focusing on building a legal corridor for digital development, creating a foundation for Vietnam to seize opportunities from Industrial Revolution 4.0⁽⁶⁾.

2.3. The requirements for developing a socialist-oriented market economy needs the completion of the institution for scientific and technological development.

To meet the requirements of developing a socialist-oriented market economy in the new context, it is necessary to create a complete, synchronous, and feasible legal foundation for socio-economic development, directly serving the completion of the socialist-oriented market economic institution, especially the requirements that contribute to increasing the competitiveness of economic institutions; the capacity to quickly adapt to the practical operation of the market economy; removing difficulties and obstacles for investment and business activities, creating a legal basis for applying the achievements of Industrial revolution 4.0; and at the same time effectively controlling negative impacts.

The 13th National Party Congress set the orientation the country’s development in the 2021-2030 period, in the field of science and technology, “Promoting national digital transformation, developing the digital economy on the basis of science, technology and innovation; improving productivity, quality, efficiency and



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competitiveness of the economy, harmoniously and effectively connecting domestic and international markets”⁽⁷⁾. This policy is specified in Resolution No. 50/NQ-CP dated May 20, 2021, of the Government on the Government’s Action Program to implement the Resolution of the 13th National Party Congress. In particular, regarding the law on science and technology to serve the development of the market economy, focusing on the following aspects: (1) Resolving difficulties and inadequacies of current legal documents, improving the investment and business environment, and enhancing national competitiveness. (2) Perfecting legal regulations related to science and technology and renovation, proactively participating in Industrial revolution 4.0 and digital transformation. (3) Developing a mechanism for a controlled testing institutional framework (sandbox) for scientific research, technology development, and innovation activities; policies to attract and effectively use all investment resources for science and technology and innovation; expanding science and technology development funds of enterprises. (4) Developing policies to promote the private sector, individuals, and large enterprises to invest in venture capital for creative startups; developing a public-private partnership mechanism in venture capital for science and technology, and renovation. (5) Establish mechanisms to prioritize strengthening potential and supporting strong research groups to participate in scientific research, technological development, implementation of tasks in national science and technology programs, participation in international conferences, and international publications. (6) Develop policies and solutions to encourage enterprises to establish research and development and renovation centers in Vietnam. Support to strengthen the connection among domestic enterprises and foreign-invested enterprises, and between enterprises and research institutes, universities in research and development and innovation activities.

In many documents and speeches, General Secretary To Lam requested stronger breakthroughs in institutional development, removing bottlenecks and barriers, taking the people and enterprises as the center, mobilizing and unlocking all internal and external resources, people’s resources, developing science and technology synchronously and smoothly, all for the development of the country’s economy, culture, and society, and for improving the material and spiritual life of the people⁽⁸⁾.

In a socialist-oriented market economy, the role of the private economy is to pioneer, “successfully implement the cause of

industrialization and modernization of the economy, enhance national competitiveness, be socially responsible, contribute to improving the people's lives, participate in building a civilized and modern society and contribute to building a dynamic and internationally integrated Vietnam”, “For the private economic sector to be able to carry out its mission and realize that aspirational vision, the most important factor is to continue to have breakthrough reforms in institutions, policies and business environment so that the private economy can maximize its potential, and become the driving force leading the economy to reach out to the international market... The State needs to focus on stabilizing the macro economy, perfecting institutions, ensuring that the economy operates according to market principles, minimizing intervention and eliminating administrative barriers, the “ask-give” mechanism, truly managing the economy according to market principles and using market tools to regulate the economy...; it is necessary to encourage private enterprises to participate in strategic areas, develop important infrastructure, high technology, spearhead industries, and energy security. Expand opportunities for private enterprises in major national projects, co-participating with the State in some strategic industries and special fields, enhancing research and technological innovation capacity”⁽⁹⁾.

2.4. The requirement of proactive and active international integration is to perfect the institution for science and technology development.

According to the foreign policy of the 13th National Party Congress, the country will continue to proactively and actively integrate deeply and comprehensively into the international community. This process creates both opportunities and challenges for the country's socio-economic development. In this context, it is necessary to create a legal framework for Vietnam to integrate deeply, comprehensively, and effectively, develop breakthroughs, rise strongly, realize development goals and aspirations, while limiting negative impacts and challenges related to social issues, ensuring national security and social stability.

In terms of opportunities, international integration creates conditions for breakthroughs through early implementation and completion of digital transformation, and building legal institutions, infrastructure, and digital human resources. Developing countries have a great opportunity to go straight into building modern digital infrastructure instead of having to spend money converting old infrastructure to modern infrastructures as developed countries must. The next stage of international integration helps expand the development space of the nation in the context of traditional trade and investment tending to slow down due to the effects of protectionism and the post-Covid-19 pandemic. The trend of multilateral cooperation continues to value international law, the United Nations Charter, in line with ensuring international peace and security.

Regarding challenges, integration increases the dependence of the national economy on the external market, making the economy vulnerable to fluctuations in

the international market. In recent times, the monitoring, implementation, and promotion of the enforcement of international agreements and commitments have seen much progress, but bottlenecks remain in relations with some important partners and in the effectiveness of implementation; the enforcement of agreements and commitments is not yet high. Challenges have emerged in ensuring national security and protecting and maintaining territorial sovereignty, especially in cyber security, new generations of weapons and military equipment, fake information, etc. The global context has many unpredictable fluctuations, and competition among major powers directly affect the international order, the process of building, implementation, and enforcement of laws, thereby affecting the process and level of implementation of international commitments.

From this, several issues are raised regarding the building and perfection of institutions, including those related to science and technology. First of all, it is necessary to improve the legal system in accordance with international treaties and international commitments that Vietnam has signed; proactively perfect the defense system to protect the economy, enterprises, and domestic markets in accordance with international commitments; closely link the process of international integration with enhancing the overall strength, renovation, and improvement of domestic institutions. In addition, it is necessary to continue to internalize international commitments in the economic field such as FTAs as well as issues related to peace and security. It is necessary to proactively participate in formulating international treaties and laws as well as building domestic laws on new and global issues such as climate change, digital economy, and cybersecurity within the framework of the United Nations, ASEAN, and other multilateral institutions.

This requirement demands that competent state agencies promptly amend and supplement a number of articles of the Law on Intellectual Property to implement commitments in international treaties to which Vietnam is a member, perfecting laws on intellectual property, ensuring the protection and effective, rational exploitation of intellectual assets created by Vietnam; encouraging commercialization and transfer of intellectual property rights, especially patents in Vietnam, based on compliance with domestic laws and ensuring national interests; thereby attracting multinational companies to establish research and development facilities in Vietnam. After the Law amending and supplementing a number of articles of the Law on Intellectual Property is passed by the National Assembly, detailed regulations and implementation guidelines will continue to be amended, supplemented, and replaced in accordance with the provisions of the Law. At the same time, it is necessary to amend and supplement a number of articles of the Law on Technical Standards and Regulations, the Law on Product and Goods Quality, the Law on Atomic Energy... to resolve the limitations, inadequacies, contradictions, and overlaps in these laws, ensuring that they meet the practical requirements of the country and international integration.

2.5. Requirement to promote innovation in national governance towards modernity, effectiveness, and efficiency

Since the 12th National Congress, the Communist Party of Vietnam has proposed a policy of renovating national governance towards modernity, effectiveness, and efficiency. Accordingly, national governance is understood as the process in which the State, enterprises, social organizations and people interact and coordinate with each other in the process of building, promulgating and implementing laws and policies for socio-economic development, both ensuring the rights and interests of the subjects and optimizing the use of resources, aiming at the harmonious and sustainable development of the country.

Resolution No. 27-NQ/TW dated November 9, 2022 of the 3rd Conference of the 13th Party Central Committee on Continuing to build and perfect the socialist law-ruled State of Vietnam in the new period, identified the task: “Renovating national governance towards modernity, effectiveness, efficiency, focusing on development management; ensuring the supremacy of the Constitution and law, enhancing transparency, accountability and the people’s participation”.

To implement this policy, one of the solutions that is both a key and breakthrough is to promote the application of scientific and technological achievements and renovation in all three pillars participating in national governance, namely the State, enterprises, and people. That requires quickly removing institutional bottlenecks in general, and institutions in science and technology in particular.

The Politburo issued Resolution No. 57-NQ/TW dated December 22, 2024, on Breakthrough in science, technology, innovation and national digital transformation. Implementing this important policy requires state agencies to quickly institutionalize, amend and improve the law to create a clear legal corridor for entities to promote research, development, application of science, technology and innovation, “creating the main driving force to rapidly develop modern productive forces, improve production relations, renovate national governance methods, develop the socio-economy, prevent the risk of being left behind, bring the country to breakthrough development and prosperity in the new era”⁽¹⁰⁾. This requires the comprehensive amendment and supplementation of the law on science and technology. In particular, it is necessary to pay special attention to building a controlled testing mechanism in science and technology activities, amending management mechanisms, and technical and economic norms that are no longer suitable, renovating policies to attract and employ talented people in the state apparatus, creating breakthroughs in promoting innovation networks, connecting talents, especially in key industries and fields such as science and technology; education and training, healthcare, information, communications, digital transformation, etc. Ensuring that the development institution truly “plays a creative role and strengthens inspection, supervision and maximum reform of administrative procedures, reduces costs, and creates the highest convenience for people and businesses”⁽¹¹⁾. Changing the mindset of building and improving

institutions from passive to proactive, anticipating and orienting social relations, and transforming from a management mindset to a development-creating mindset.

3. Conclusion

To contribute to realizing the goal by 2030 that Vietnam is a developing country with a modern industry and a high average income, science and technology must truly play a key role, creating a strong driving force for socio-economic development. To do so, it is necessary to quickly complete the synchronous institutions, in which the focus is placed on the institution for science and technology development and innovation, so that the institution for science and technology development and innovation becomes one of the competitive advantages of the country. That process requires the competent authorities to synchronously carry out solutions to respond to the core and urgent requirements that are being raised, which are to develop a socialist-oriented market economy, adapt to globalization, international integration and Industrial Revolution 4.0, and renovate the country in a modern, effective and efficient direction to bring the country to rapid, sustainable and inclusive development ■

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