

MINISTRY OF SCIENCE AND TECHNOLOGY
DEPARTMENT OF HIGH TECHNOLOGY

THE NATIONAL STRATEGY

FOR ARTIFICIAL INTELLIGENCE RESEARCH,
DEVELOPMENT AND APPLICATION
THROUGH 2030

(ENGLISH TRANSLATION)



2021

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**THE NATIONAL STRATEGY FOR ARTIFICIAL
INTELLIGENCE RESEARCH, DEVELOPMENT AND
APPLICATION THROUGH 2030**
(English translation)

2021

DECISION

Promulgating the national strategy for artificial intelligence research, development and application through 2030¹

THE PRIME MINISTER

Pursuant to the June 19, 2015 Law on Organization of the Government; and the November 22, 2019 Law Amending and Supplementing a Number of Articles of the Law on Organization of the Government and the Law on Organization of Local Administration;

Pursuant to the November 13, 2008 Law on High Technologies;

Pursuant to the Government's Resolution No. 50/NQ-CP of April 17, 2020, promulgating the Government's program of action for implementation of the Political Bureau's Resolution No. 52-NQ/TW of September 27, 2019, on a number of lines and policies on active participation in the Fourth Industrial Revolution;

At the proposal of the Minister of Science and Technology,

DECIDES:

Article 1. To promulgate the national strategy for artificial intelligence research, development and application through 2030 (below referred to as the Strategy) with the following principal contents:

I. DIRECTING VIEWPOINTS

1. Artificial intelligence (AI) is a field of core technology of the Fourth Industrial Revolution, which makes important contributions to creating a breakthrough development of production capacity, improving national competitiveness, and boosting sustainable economic growth.

¹ Công Báo Nos 147-148 (02/02/2021)

2. To inherit and bring into full play latest achievements of the mankind, research, develop and apply AI in combination with socio-economic development tasks and objectives, assurance of national defense and security, and development of science and technology; to promote potential of enterprises and effectively exploit all resources; to step by step receive, master and eventually create technologies.

3. To concentrate resources to create and develop important AI products and services in which Vietnam has competitive edge; to make focused investment in the application of AI in a number of fields related to national defense and security, resource and environment management, and provision of services to the people; and to strongly develop AI-applied enterprises and AI startups.

II. OBJECTIVES

To intensify research, development and application of AI for it to become an important technology field of Vietnam in the Fourth Industrial Revolution. By 2030, Vietnam will become a center for innovation and development of AI solutions and applications in the ASEAN region and the world.

1. Objectives by 2025

a/ To develop AI into an important technology field of Vietnam

- To bring Vietnam into top 5 countries in the ASEAN region and top 60 countries in the world regarding AI research, development and application;
- To build 5 regionally prestigious AI brands;
- To develop 1 national center for big data storage and high performance computing.

b/ To develop Vietnam into an innovation and AI solution and application development center

- To form 2 national AI innovation centers; to increase the number of AI innovative startups and total amount of investment capital in the field of AI in Vietnam;

- To upgrade or form 10 key AI research and training institutions.

c/ To contribute to building an innovative society and effective government, protecting national security, maintaining social order and safety and boosting sustainable economic growth

- To widely apply AI in public administration and online public services in order to reduce the time needed for processing jobs, streamline apparatuses, and reduce the waiting time and costs for the people;

- To improve operating effectiveness of the state administrative management system in distribution and use of social resources, social

management and urban management, especially in big cities like Hanoi, Ho Chi Minh City and Da Nang.

2. Objectives by 2030

a/ To develop AI into an important technology field of Vietnam

- To bring Vietnam into top 4 countries in the ASEAN region and top 50 countries in the world regarding AI research, development and application;

- To build 10 regionally prestigious AI brands;

- To develop 3 national centers for big data storage and high performance computing; to connect the system of data centers and high performance computing centers in the country to form a network for sharing big data and computing capacity to serve AI development;

- To form 50 open, linkable and connectable data sets in various industries and socio-economic fields to serve AI research, development and application.

b/ To develop Vietnam into a strong innovation and AI solution and application development center

- To form 3 national AI innovation centers;

- To develop high-quality human resources specialized in AI, including a contingent of AI application experts and engineers; to quickly increase the number of Vietnam's scientific works and patent applications concerning AI;

- To have at least 1 representative in the group of 20 leading AI research and training institutions in the ASEAN region.

c/ To contribute to promoting an innovative society and effective government, protecting national security, maintaining social order and safety, and boosting sustainable economic growth

- To universalize basic AI application skills among direct workers in order to boost innovation, reduce cost, and improve productivity and quality of people's life;

- To apply AI to serve national defense and security tasks, rescue and salvage activities, disaster prevention and control, and incident and epidemic response.

- To apply AI, together with digital transformation, to boost the growth of a number of industries.

III. STRATEGIC ORIENTATIONS

1. Building a system of legal documents and a legal framework concerning AI

- To formulate and improve policies and laws to create an open legal framework meeting the requirement on intensification of AI research, development and application in life.

- To develop and apply AI following the human- and enterprise-centered approach, avoiding abuse of technology and infringement upon lawful rights and interests of organizations and individuals.

2. Building data and computing infrastructure to serve AI research, development and application

- To boost the sharing of data and form shared-use, shared and open databases to serve AI research, development and application. To formulate data sharing mechanisms on the principle of mutual benefit, thus creating the motive force for sharing of data and, at the same time, ensuring data access authorization and avoiding disclosure or leakage of personal data of individuals or organizations.

- To increase national capacity regarding high performance computing, cloud computing, and fog computing.

3. Developing AI ecosystems

- To develop human resources: To universalize basic AI and data science (DS) application skills among the youth in order to promote their innovative way of thinking. To intensify the application of forms of short-term and medium-term certificate training programs on AI for students specialized in various disciplines and workers wishing to change their occupations.

- To build organizations: To attract domestic and overseas resources for building AI and DS training, development and application centers. The State shall invest in building a number of key research, talent and hi-quality human resource training centers for AI and DS at top universities and research institutes.

- To carry out research and development activities: To concentrate efforts on researching and developing a number of urgent and important AI platforms and products to serve the domestic, regional and global markets. To apply AI to increase output efficiency of research and development activities in other fields.

- To step up the building of incubation centers and attract investment for development of AI businesses: To apply solutions for raising investment capital for development of AI businesses and brands in Vietnam.

4. Intensifying the application of AI

- To develop AI application enterprises: To increase the number of AI development and application businesses in order to meet domestic demands in a number of fields for which data, technologies and investment funds are available.

To intensify the application of existing AI software platforms and open applications.

- To apply AI in national defense and security and socio-economic fields: To develop a number of Vietnam's special AI products and step by step form the AI industry in Vietnam. To encourage ministries, sectors and localities to use AI applications and services in order to increase operating efficiency in distribution and use of social resources and improve quality of state management, social management and urban management.

- To improve awareness about AI: To increase capacity, qualifications and awareness about AI data and applications of officials, civil servants, enterprises and the people.

5. Promoting international cooperation in the field of AI

- To participate in the organization and implementation of bilateral and multilateral scientific research cooperation programs and projects on AI. To promote the development of AI research cooperation establishments and centers; cooperation projects on technology transfer and patent and industrial property rights utilization between Vietnamese enterprises and foreign businesses in the field of AI; and hi-quality AI human resource training centers and programs serving the domestic and global markets.

- To exchange experts, researchers and students between Vietnamese organizations and enterprises and foreign AI research and training organizations and enterprises. To join international AI associations and federations and other AI organizations. To invite AI experts who are foreigners and overseas Vietnamese to come to Vietnam to participate in consultancy, research and training activities in the field of AI.

- To improve institutions and policies to attract foreign direct investment and multinational hi-tech conglomerates to build AI research, development and application centers in Vietnam.

IV. TASKS AND SOLUTIONS

1. The Ministry of Science and Technology

- To formulate and additionally improve legal documents on industrial property rights related to AI.

- To expand projects on building community data under the Scheme on digitalized Vietnamese knowledge system; to connect AI communities and open science communities in Vietnam; to support research projects on mastering and building local platforms for high performance computing, cloud computing and fog computing; to regularly organize activities connecting academic and research communities and occupational communities specialized in AI and DS development and application at home and abroad.

- To widely apply the forms of public-private partnership and co-sponsorship for AI training centers, AI research and development centers, and AI application centers; to invest in building key AI and DS research groups at a number of public universities and research institutes; to invest in physical foundations of key laboratories specialized in AI and DS at a number of public universities and research institutes; to step up the building of AI innovation centers and AI brands of Vietnam in the world.

- To organize AI basic research and reverse engineering at a number of mathematics and AI research institutions so as to master technologies and keep up with advances in the field of AI and make initial contributions to the development of new AI methods; to concentrate on researching and developing a number of AI products based on sources of Vietnam's particular data and knowledge; to implement the national key AI research program in association with postgraduate training; to research and develop a number of important AI service and product platforms such as natural language processing, computer vision, automatic processes, data-based AI technologies, robots and self-propelled vehicles in a number of fields for which data and technologies are available and the domestic market has demand, then target regional and global markets.

- To step up the formation of open professional groups in different fields so as to shorten the time for obtaining complete research outcomes; to boost shared use, sharing and opening of data, technologies and AI applications along the direction of multi-disciplinarity, inter-disciplinarity and transdisciplinarity in order to accelerate the production of outcomes and improve output efficiency of research and development activities in other fields; to extensively provide refresher training in open platforms of AI data and applications; to promote AI open-source communities and forums; to encourage enterprises to place orders to research institutes and universities for research and development of Vietnam's particular AI products.

- To organize series of AI events; to support domestic individuals and organizations to participate in international seminars, exhibitions and contests on AI; to participate in the organization and implementation of bilateral and multilateral scientific research cooperation programs and projects on AI; to promote the development of AI research cooperation establishments and centers; cooperation projects on technology transfer and exploitation of AI patents and industrial property rights between Vietnamese enterprises and foreign enterprises; high-quality AI human resource training centers and programs serving the domestic and global markets; to exchange experts, researchers and students of Vietnamese organizations and enterprises with foreign AI research and training organizations and enterprises. To join international AI associations, and federations and other organizations.

2. The Ministry of Information and Communications

- To formulate and additionally improve legal documents on e-transactions, establishment and sharing of data, and sandboxes, thus creating a favorable space for pilot activities with a separate legal framework serving the pilot application of AI in potential fields; to formulate standards and technical regulations on formats of AI technologies and products.

- To form data and computing platforms: To formulate regulations and lists of professional databases subject to shared-use, sharing and opening by ministries, sectors and localities; to promote the culture of building and shared-use, sharing and opening of data among scientific communities, enterprises and the people; to step up the implementation of the National Data Strategy; to concentrate public investment in forming shared-use, shared and open administrative databases in the course of building of an e-government; to build reliable data sharing frameworks so as to promote cooperation in sharing data among enterprises and individuals in the private sector; to integrate shared-use, shared and open data of ministries, sectors and localities into the National Data Portal; to apply methods of public private partnership and co-sponsorship in building high performance computing, cloud computing and fog computing platforms and systems; to formulate mechanisms to assist and promote the use of domestic platforms and mechanism for linking and sharing high performance computing, cloud computing and fog computing systems.

- To encourage the formation of organizations providing short-term training to researchers, technicians and managers, thus meeting requirements on research and development of AI products in economic groups, companies and research units; to promote and intensify the formulation of a number of short-term and medium-term certificate training programs on AI and DS; to provide short-term training programs on integration of AI and DS technologies on third parties' devices.

- To establish enterprises to provide integrated solutions based on AI and DS technologies combined with blockchain technology, cloud computing and Internet of Things; to formulate incentive mechanisms and apply AI and DS technologies to boost digital transformation; to build and provide technical infrastructure facilities and AI and DS services in order to step up digital transformation and provide AI services and applications to help domestic enterprises deeply engage themselves in supply chains of the global market, meet demands of the logistics market, e-commerce and digital economy.

- To promote the development and use of AI applications in the field of data and cyber security, urban management, social management, public administration, and telecommunications; to formulate policies and programs to encourage information technology groups and enterprises to develop open data and software platforms serving the development of AI applications; to encourage

Vietnamese technology groups and enterprises to research and master technologies and develop particular AI products of Vietnam.

- To implement programs on communications to raise awareness of officials, civil servants, enterprises, the people, youths and students about AI data and applications; to realize solutions to raise awareness about AI so that sectors, authorities, organizations, mass associations and individuals thoroughly understand the role and benefits of AI and necessary basic skills required to acquire and develop AI applications, paying attention to solutions to raise awareness about change management.

3. The Ministry of National Defense

- To build a national center on big data storage and high performance computing, cloud computing and fog computing.

- To promote the development and use of AI applications in military affairs, national defense, smartization and modernization of equipment and ammunition, formulation of tactical plans, national defense systems, systems on prevention of, coping with and quick response to, cyber warfare, biological warfare and chemical warfare and rescue and salvage activities, disaster prevention and control and incident and epidemic response.

4. The Ministry of Public Security

- To formulate and additionally improve legal documents on protection of privacy, human rights and public security and order related to AI development and application and assurance of cyber security for AI-related activities.

- To build a national center on big data storage and high performance computing, cloud computing and fog computing.

- To utilize AI applications in national public security systems, immigration management systems and hi-tech crime prevention and control systems; to formulate technical solutions to proactively prevent and combat crimes using AI scientific achievements.

5. The Ministry of Education and Training

- To implement STEAM training programs for the youth; to extensively implement programs on universalization of data building and AI application skills for the youth; to step up the implementation of formal training programs on AI and DS; to intensify the inclusion of subjects of data analysis and AI application in training programs of different disciplines at universities and colleges.

- To encourage domestic technology groups to invest in building high-quality AI and DS research institutes and training establishments; to invest in a number of universities that provide graduate and postgraduate training in a number of AI and DS disciplines.

- To promote the development and utilization of AI applications in the field of education for forecasting in-demand careers in the market; identifying criteria for evaluating students and supporting them in identifying their career strengths upon graduation; automating teachers' professional processes; identifying criteria to achieve study objectives; personalizing learning activities and improving efficiency of study with assistance of virtual teachers and tutors; and helping students improve their awareness.

6. The Ministry of Planning and Investment

- To formulate special mechanisms for innovation centers to attract venture investment funds to invest in AI innovative startups in Vietnam.

- To improve institutions and policies to attract foreign direct investment and multinational hi-tech groups to build AI research, development and application centers in Vietnam under the Political Bureau's Resolution No. 50-NQ/TW of August 20, 2019, on orientations for improving institutions and policies and raising quality and effectiveness of foreign investment and cooperation through 2030.

7. Ministry of Finance

To promote the development and application of AI in the finance sector; to balance and arrange funds for implementation of the Strategy in accordance with law.

8. Ministry of Industry and Trade

- To collect, standardize and share domestic open data sets in the industrial sector as input for existing applications to meet the demand for AI application.

- To promote the development and utilization of AI applications in the industrial sector in order to renovate, smartize and automate production processes, and improve productivity and quality of industrial products.

- To promote the development and utilization of AI applications in ecommerce: forecasting of demand trends and optimization and automation of the process of negotiation and bargaining with suppliers; automation of workshops and management; optimization of sale and classification of products; optimization of prices, personalization of marketing, and real-time display of websites; personalization of recommendations, provision of online assistance with virtual assistants and chatbot; automatic payment at stores and improvement of distribution.

9. The Ministry of Agriculture and Rural Development

- To collect, standardize and share domestic open data sets in agriculture as input for existing applications to meet the demands for AI application.

- To boost and develop AI applications in hi-tech agricultural production for renovation, smartization and automation of production processes, improvement of productivity and quality of agricultural products, assurance of production processes and origin transparency, and provision of clean food to consumers.

10. The Ministry of Transport

To promote the development and utilization of AI applications in the fields of traffic, transport and logistics: automatic detection and identification of vehicles and speed and automation of the handling process at road traffic surveillance and control centers; renovating the process applied at traffic control stations and toll plazas combined with detection and identification of vehicles; provision of data serving the optimization of logistics systems; provision of automatic routing and customer consulting in technology-based transport models; research into and application of solutions to warn vehicle operators about dangerous circumstances; provision of support for making of statistics, evaluation, analysis and making of plans to serve the maintenance and servicing of traffic infrastructure facilities, formulation of transport master plans, and intelligent transport management.

11. The Ministry of Culture, Sports and Tourism

To promote the development and utilization of AI applications in the field of culture and tourism: development of digital cultural industry; automation of the process of building digitalized databases on Vietnam's destinations and cultural heritages combined with user-centered smart tourism consulting services; forecast of trends and personalization of tourism types based on analysis of information on users' viewpoints on social networks, thus contributing to improving quality of tourism planning and smart tourism services.

12. The Ministry of Labor, Invalids and Social Affairs

To provide AI and DS consultancy and training to laborers who wish to change their occupations.

13. The State Bank of Vietnam

To promote the development and utilization of AI applications in the field of banking: analysis and forecast of demands for bank loans and loan borrowers and assistance for credit extension; detection of fraudulent acts; personalization of banking services for customers; and provision of immediate assistance services by virtual assistants and chatbot.

14. The Ministry of Natural Resources and Environment

To promote the development and utilization of AI applications in the field of natural resources and environment: forecast of data on natural resources and the environment, application of AI in monitoring, collecting, measuring, and

surveying land, natural resources and the environment in order to provide and share information and data on real-time monitoring and basic survey on land, natural resources and the environment; and assurance of effective handling of environmental pollution and response to climate change.

15. The Ministry of Health

- To collect, standardize and share domestic open data sets in the field of health as input for existing applications to meet the demand for AI application.

- To develop AI applications in the field of health and community health care: assistance for medical doctors in carrying out remote detection and diagnosis, making decisions, and provision of health monitoring and care services for patients; personalization of medical treatment, and research for drug production and preparation.

16. The Ministry of Justice

To formulate and additionally improve legal documents on legal liability of subjects related to AI.

17. The Vietnam Academy of Science and Technology

To build a national center for big data storage and high performance computing, cloud computing and fog computing.

Article 2. Organization of implementation

1. The Ministry of Science and Technology shall act the focal point in summing up information on the implementation of the Strategy; assume the prime responsibility for organizing the implementation of the Strategy; make and send annual reports to the Prime Minister; organize preliminary review of the implementation of the Strategy up to 2025 and identify priority tasks and schemes for the next period up to 2030.

2. Related ministries, sectors and agencies shall organize the implementation of the Strategy within the ambit of their assigned functions and tasks and in accordance with current regulations.

3. Provincial-level People's Committees shall implement the Strategy, ensuring consistency and synchronism with implementation of local socioeconomic development plans; and intensify the use of AI applications in urban management, social management and public administration.

4. Research institutes and universities shall base themselves on contents and solutions set out in the Strategy to formulate contents on implementation and propose implementation solutions to ministries, sectors and localities.

5. Ministries, sectors and localities shall annually send reports on implementation of the Strategy to the Ministry of Science and Technology before December 15 for summarization and reporting to the Prime Minister.

6. Funds for implementation

- Funds for implementation of the Strategy include state budget funds, enterprises' funds, international donations and funds raised from other lawful sources in accordance with law.

- For state budget funds, current regulations on state budget decentralization shall apply. Ministries, ministerial-level agencies and provincial-level People's Committees shall base themselves on objectives and tasks stated in the Strategy to estimate funds for implementation of the Strategy under regulations.

- To step up the mobilization of financial sources from organizations, individuals and enterprises at home and abroad that participate in implementation of the Strategy in accordance with law; and include tasks assigned to ministries, sectors and localities in other related national target programs.

Article 3. Effect and implementation responsibility

This Decision takes effect on the date of its signing.

Ministers, heads of ministerial-level agencies, heads of government-attached agencies, and provincial-level People's Committee chairpersons shall implement this Decision.

For the Prime Minister

Deputy Prime Minister

VU DUC DAM

APPENDIX

KEY PROGRAMS, PROJECTS OF THE NATIONAL STRATEGY FOR RESEARCH, DEVELOPMENT AND APPLICATION OF ARTIFICIAL INTELLIGENCE UNTIL THE YEAR 2030

(Persuant to Decision number 127/QĐ-TTg dated 26 January 2021 of the Prime Minister)

No	Programs, Projects	Organizing agency	Coordinating organization	Implementation period
1	Developing highquality AI human-resource until the year 2030 project	Ministry of Education and Training	Ministry of Science and Technology; Ministry of Information and Communications; Ministry of Labor – Invalids and Social Affairs	2020 - 2030
2	Establishing 03 national centers for data storage and high efficiency computing project	Ministry of Defence; Ministry of Public Security; Viet Nam Academy of Science and Technology	Ministry of Information and Communications; Ministry of Science and Technology	2020 - 2030
3	National scientific and technological AI-related program	Ministry of Science and Technology	Related ministries and agencies	2020 - 2030
4	Supporting AI enterprises in accordance with the National digitalization program	Ministry of Information and Communications	Ministry of Science and Technology	2020 - 2030
5	Establishing open specified data groups for research and development of AI in Viet Nam	Ministry of Science and Technology	Related ministries and agencies	2020 - 2030

