

**THE PRIME MINISTER**

No. 1132/QĐ-TTg

**THE SOCIALIST REPUBLIC OF VIETNAM**

**Independence - Freedom - Happiness**

*Hanoi, October 09, 2024*

**DECISION**

**Approving the Digital Infrastructure Strategy through 2025, with an orientation towards 2030**

**THE PRIME MINISTER**

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

*Pursuant to the Law on Telecommunications dated November 24, 2023;*

*Pursuant to the Law on Cyberinformation Security dated November 19, 2015;*

*Pursuant to the Law on Cyber Security dated June 12, 2018;*

*Pursuant to Resolution No. 50/NQ-CP dated May 20, 2021 of the Government on the Action Program of the Government to implement the Resolution of the 13<sup>th</sup> National Party Congress;*

*Pursuant to Resolution No. 54/NQ-CP dated April 12, 2022 of the Government promulgating the Government's Action Program to implement the National Assembly's Resolution on the Plan on economic restructuring in the 2021-2025 period;*

*At the proposal of the Minister of Information and Communications.*

**DECIDES:**

**Article 1.** To approve the Digital Infrastructure Strategy through 2025, with an orientation towards 2030 (hereinafter referred to as the Strategy) as follows:

**I. VIEWPOINTS**

1. Digital infrastructure is the foundation of the economy: Vietnam's digital infrastructure (comprising 04 main components: (i) Telecommunications and Internet infrastructure; (ii) Data infrastructure; (iii) Physical-digital

infrastructure; (iv) Infrastructure for digital utilities and digital technologies as services) must have hyperscale and ultra-wideband, and be universal, sustainable, green, smart, open, and secure to meet the demands of the digital economy, digital society, and digital government, contributing to ensuring national defense and security.

2. Advanced, modern digital infrastructure on par with developed countries: Digital infrastructure is prioritized and protected by the government, akin to transportation and energy infrastructure, aimed at reaching the level of developed countries.

3. Synchronized development: Digital infrastructure is planned and implemented in parallel and in sync with transportation, electricity, lighting, underground infrastructures, and other technical infrastructures. Enterprises shall coordinate with each other to effectively develop digital infrastructure based on shared use and infrastructure sharing.

4. Strong government, strong market: The State creates a favorable environment for enterprises from all economic sectors to invest in and develop digital infrastructure. The market for digital infrastructure products and services will grow quickly and sustainably in a competitive, fair, and healthy environment. Large-scale domestic economic groups, state-owned and private enterprises will develop and operate efficiently, become internationally competitive, and play a pivotal role in leading the development of digital infrastructure.

5. Network safety and security is a prerequisite for the entire process of digital infrastructure design, testing, evaluation, operation, and utilization: Protection of network safety and security is a critical, continuous, and inseparable task in the development of digital infrastructure.

## **II. VISIONS**

Digital infrastructure is the foundation for Vietnam to become a modern and smart digital nation.

Digital infrastructure of Vietnam will be advanced, modern, well-coordinated, secure, and sustainable, on par with developed countries, thereby helping Vietnam achieve upper-middle-income status by 2030 and high-income status by 2045.

## **III. OBJECTIVES**

1. Objectives to be achieved by 2025:

- To universalize fiber optic coverage to all households;
- To ensure 100% of provinces, centrally-run cities, hi-tech parks, centralized information technology parks, research and development centers, innovation centers, industrial parks, stations/ports/international airports have available 5G mobile services;

- To put at least 2 new international submarine fiber optic cables into operation;
- To establish data centers supporting AI applications (AI Data Centers);
- To develop new data centers that meet green standards in accordance with international benchmarks, with Power Usage Effectiveness (PUE) not exceeding 1.4;
- To ensure, on average, each citizen has 01 Internet of Things (IoT) connection;
- To assign each citizen 01 digital identification;
- To enable over 50% of the adult population to have their own digital signatures or electronic signatures.
- To develop platforms offering digital technologies (IoT, AI, big data, blockchain, cybersecurity, etc.) as services, serving as soft infrastructure for economic and social development;

## 2. Objectives to be achieved by 2030

- To provide 100% of users with optical fiber access with speeds of 1Gb/s or higher;
- To expand 5G mobile broadband coverage to 99% of the population;
- To build and ensure the capacity and readiness to pilot 6G technology;
- To deploy and put into operation at least 06 new submarine fiber optic cables, with a minimum total design capacity of 350 Tbps of submarine fiber optic cables;
- To complete and put into use at least 01 additional submarine fiber optic cable fully owned by Vietnam;
- To deploy and put into use at least 01 new international terrestrial fiber optic cable;
- To ensure the total design capacity of submarine fiber optic cables meets a minimum redundancy requirement of 1+2 (available capacity must be 03 times the actual usage);
- To develop hyperscale data centers, data centers supporting artificial intelligence (AI); edge data centers to meet domestic needs and be ready to develop regional digital hubs;
- To increase IoT connections to reach the global average, or 04 connections per citizen;
- To enable over 70% of the adult population to have their own digital signatures or electronic signatures.

## **IV. KEY TASKS**

### **1. Telecommunications and Internet infrastructure**

a) To popularize high-speed, low-latency connections to households, authorities, enterprises, and organizations, including: fiber optic cables and new-generation WiFi; etc.

b) To enhance investment in the development of international transmission systems (submarine cables, terrestrial cables, satellites) and high-capacity domestic transmission systems, ensuring backup needs and diverse, safe, and sustainable connections.

c) To encourage telecommunications enterprises to invest and share international fiber optic cables to ensure efficient capacity utilization and save investment capital. Additionally, to research and invest in at least 02 submarine fiber optic cables fully owned by Vietnam. To develop a plan for quickly deploying new submarine fiber optic cables (which shall be completed in less than 02 years) in case of a sudden increase in demand.

d) Domestic transmission system: To optimize existing infrastructure and continue building and expanding high-speed broadband fiber optic networks to villages nationwide, ensuring readiness for broadband fiber optic connections for households in need. To research and supplement fiber optic routes along highways and other transportation routes to meet domestic transmission capacity needs and for backup purposes.

dd) To focus on expanding coverage and improving the quality of 5G services in key areas: public administrative areas; key historical-cultural sites, famous landscapes, and tourist zones; medical facilities; colleges, universities; transportation hubs; systems of roads, railways, waterways; shopping centers, residential complexes; high-density areas; commercial buildings, hotels; towns and rural key areas.

e) To develop 5G and next-generation wireless communications. To prepare necessary conditions for deploying new technologies in the development of digital infrastructure such as 6G, Open RAN, open data models, etc.

g) To be ready with the frequency spectrum for next-generation technologies (6G, new-generation WiFi, satellite, etc.).

h) To fully implement the next-generation Internet Protocol (IPv6) for the entire Internet network of Vietnam.

### **2. Data infrastructure (data centers, cloud computing)**

a) To develop and attract investments in data infrastructure, including data centers and cloud computing infrastructure, ensuring that they are safe and sustainable, meet international benchmarks and green standards.

b) To attract both domestic and foreign investments in hyperscale data centers; data centers supporting AI applications; and edge data centers.

c) To develop national data centers, multi-purpose data centers; regional multi-purpose data centers.

### 3. Physical-digital infrastructure

a) To integrate sensors and digital technology applications into essential infrastructures such as transportation, energy, electricity, water, and urban systems, making them a key component of digital infrastructure.

b) To develop physical-digital infrastructure ensuring widespread operation, improving labor productivity, optimizing resource utilization, and increasing the flexibility in deploying systems to reduce deployment time and enhance efficiency.

c) To build and promote interoperability and communication between IoT devices and networks through middleware solutions.

d) To utilize 4G/5G mobile networks for IoT solutions, leveraging cloud computing power, and integrating advanced technologies like artificial intelligence (AI) to develop industries.

dd) To foster the development of physical-digital infrastructure in significantly impactful sectors such as smart transportation, smart healthcare, smart education, smart factories, smart agriculture, and smart tourism, etc., thereby enhancing the economy's competitiveness.

e) To develop digital twins that simulate and monitor real-world objects through data and information collected from sensors, IoT devices, and other data sources, boosting transparency, innovation, and efficiency in healthcare, education, public services, industrial production, transportation, energy, logistics, construction, etc.

### 4. Digital utilities and digital technologies as services

a) To develop infrastructure for digital utilities and digital technologies as services, focusing on platforms such as digital identity; digital authentication; digital payments, digital invoicing; data integration, data sharing; digital document verification; digital signatures and digital signature certification.

b) To design digital utilities to provide soft infrastructure for citizens and enterprises to perform core digital transaction functions - starting from digital identity, digital payments, digital invoicing, digital document verification, and data exchange. Digital utilities and platforms providing digital technologies as new services will be developed to meet the needs of the digital economy and digital society.

c) To develop platforms offering digital technologies as services, utilizing less data, requiring less computing power, and consuming less energy, providing technologies like AI, blockchain, and IoT as services.

d) To utilize AI, blockchain, and IoT technologies as services to smarten and automate economic and social activities.

## **V. SOLUTIONS**

### **1. To improve the institutional framework**

a) To research and promulgates decrees and circulars guiding the Law on Telecommunications towards: facilitating the provision of broadband services at affordable prices; ensuring fair competition; protecting users; attracting domestic and foreign investments; responding to and preventing law violations in telecommunications infrastructure; ensuring the effectiveness and efficiency of State governance.

b) To research, develop, and implement controlled pilot mechanisms, waive certain responsibilities conditionally to test new technologies, products, services, or business models.

c) To develop and improve other legal documents providing a legal framework for digital infrastructure development.

d) To research and develop policies promoting the issuance and use of digital signatures suitable to economic conditions and increasing the number of individuals carrying out administrative procedures and electronic transactions.

### **2. To give priority to developing digital infrastructure on par with transport and energy infrastructures**

a) Competent State authorities shall promulgate policies and regulations to ensure that technical infrastructures of other sectors (transport, electricity, lighting, etc.) can be shared and commonly used with telecommunications infrastructure in order to support the development of telecommunications infrastructure and ensure the overall investment efficiency of the economy.

b) To improve policies, promote and ensure that sectoral, regional, and provincial master plans are prepared for digital infrastructure development (prioritizing spaces and locations for it, and facilitating the development of broadband infrastructure, data storage centers, Internet exchange stations, and international connection landing stations, etc.).

c) To develop large-scale domestic economic groups, state-owned and private enterprises that operate efficiently and are internationally competitive, playing a pivotal role in leading the development of digital infrastructure.

d) To build national and regional data centers in line with information and communications infrastructure master plans, integrate them with electricity

infrastructure, submarine fiber optic cables, landing stations, domestic fiber optic backbone networks, and Internet exchange stations.

dd) To research and develop frequency plans and master plans to fully and promptly meet the frequency needs for the development of broadband wireless communications (4G, 5G, and next generations) as well as the needs for the development of IoT infrastructure.

e) To improve policies and ensure the ability to deploy broadband infrastructure on par with infrastructures of other sectors (transport, construction, water supply and drainage, lighting, energy) on a principle that they can be further shared and commonly used.

g) To enhance coordination, sharing, and common use of telecommunications infrastructure to increase investment efficiency, support enterprise infrastructure development and construction, ensure aesthetic appeal, and ensure public safety; implement advanced infrastructure sharing methods (passive and active).

h) To develop and implement local master plans for development of technical infrastructure for passive telecommunications.

i) To promote the sharing of common network infrastructure among service providers in accordance with law regulations in order to expand 4G and 5G coverage while minimizing investment costs.

k) To research and deploy satellite communication systems that cover extremely disadvantaged areas in mountainous, border, island, and remote areas.

l) To monitor and analyze user experience quality indicators.

m) To promote innovation and develop 5G applications for various economic sectors.

3. To mobilize resources, allocate fundings and human resources for implementation

a) The State shall ensure fundings for the implementation of tasks and solutions outlined in this Strategy, through order placement, task assignment, or bidding by the State.

b) Telecommunications enterprises shall develop plans to consider their transition into digital infrastructure enterprises, reallocate their human resources, and increase the proportion of digital technology experts.

c) To prioritize funding from science and technology resources, as well as national programs, for the development of digital technology, national product development programs for the development of digital products, digital services, digital infrastructure development solutions, and tasks related to research, development, and technology transfer related to digital infrastructure.

d) To support and attract private enterprises to invest in and develop digital infrastructure.

dd) To organize the implementation hereof and effectively use fundings from the Vietnam Public-utility Telecommunication Service Fund to support infrastructure development and popularize fixed broadband and mobile broadband telecommunications services in border and mountainous areas, highlands, coastlines, coastal areas and islands, and ethnic minority-inhabited areas, and areas with exceptionally difficult socio-economic conditions as well as areas where efficient commercial provision of services under the market mechanism is unlikely to be possible; whereby ensuring the combined protection of border areas on land and sovereignty over seas and islands.

e) To develop and train high-quality human resources in digital technology to meet the demands of digital infrastructure development; to establish human resource linkages between educational institutions and research institutes with telecommunications enterprises and digital technology enterprises.

4. To protect network safety and security, and user rights

a) To implement legal documents, policies, and their guiding documents prescribing protection of network security and safety, and personal data.

b) To address illegal sources of information upon requests of competent State authorities.

c) Digital infrastructure providers shall refuse cooperation and business with organizations and enterprises that violate the law regulations, and to prevent any organizations, enterprises, or individuals engaging in illegal activities from using their infrastructure.

d) To protect user rights, respond to and prevent law violations related to telecommunications infrastructure.

dd) To ensure network security and safety for digital infrastructure, including the implementation of multi-layer protection measures, monitoring, early warning, incident response, and timely system recovery.

5. To conduct research and development

a) To research and apply new technologies in the deployment of broadband Internet access networks, including Low Earth Orbit (LEO) satellites, etc. to meet the needs of people using broadband access services in remote, isolated areas and islands, while ensuring infrastructure for IoT applications (disaster prevention, disaster warning).

b) To research and develop "Make in Vietnam" products, and to develop digital infrastructure. To research and implement the commercialization of 5G and cloud computing to modernize Vietnam's digital infrastructure.



c) To promote the research, development, and application of digital technologies such as artificial intelligence, blockchain, IoT, and big data.

d) To research and develop digital technology platforms as national-level foundational services.

dd) To develop 6G technology through an open ecosystem (devices, solutions, applications, etc.) that includes components such as open platforms, open technologies, and open-source codes.

e) To research and develop public key infrastructure, and to promote the development of electronic transactions.

g) To enhance scientific and technological research in the filed such as: distributed computing and storage, encryption algorithms, consensus mechanisms, and smart contracts, etc. To research and develop the fundamental platforms of AI, blockchain, and IoT.

#### 6. Standards and regulations

a) To review and establish national technical standards and regulations for broadband service quality on par with developed countries.

b) To establish national technical standards and regulations for components of digital infrastructure (telecommunications, Internet, data centers, etc.) ensuring quality, safety, and the application of green, environmentally friendly technologies, in line with international standards.

c) To actively participate in global standardization activities for 6G, artificial intelligence (AI), blockchain, and IoT.

#### 7. To conduct measurement, management, supervision

a) To establish digital infrastructure development indicators for each locality and the entire country, in alignment with international standards. To implement systems for measurement, monitoring, and State governance of digital infrastructure.

b) To conduct surveys, collect data, and publish results on the implementation of the objectives, tasks, and solutions for digital infrastructure development as outlined in this Strategy, at both national and local levels.

#### 8. To foster domestic and international cooperation

a) To cooperate with foreign organizations and enterprises to attract resources, knowledge, and digital technology transfers.

b) To proactively and actively participate in international organizations and initiatives on digital infrastructure, and building new international legal frameworks, standards, and principles for digital infrastructure that align with Vietnam's goals and interests.

c) Enterprises shall learn from international experiences and seek opportunities for cooperation in developing digital technologies, applications, digital solutions, and digital infrastructure.

d) To foster cooperation between the Ministry of Information and Communications and relevant ministries and sectoral authorities to develop coordinated action plans for implementing and improving regulations and policies for digital infrastructure development.

dd) To foster cooperation between State authorities and enterprises in researching and developing digital infrastructure.

#### 9. To disseminate and build capacity for digital Infrastructure operation

a) To disseminate the message of "Developing digital infrastructure with an open ecosystem, creating digital trust" to build social consensus and gain the support of the State.

b) To organize seminars and conferences on digital infrastructure, collaborate with media agencies to promote and raise awareness of the significance and importance of digital infrastructure development, thereby fundamentally changing people's habits in the new digital society.

c) To communicate and disseminate the characteristics, responsiveness and service provision capabilities of high-quality fixed broadband and mobile broadband infrastructure (5G, 6G), so that individuals and organizations can assess their needs (regarding speed, latency, etc.) for various purposes (such as healthcare, education, e-commerce, etc.), and from that, order such services from digital infrastructure enterprises.

d) To spread awareness and provide basic digital skills to the public, including basic skills such as accessing and using the Internet, online shopping, making electronic payments, public online services, and ensuring personal data security.

dd) To launch awareness campaigns to promote the benefits of transitioning from isolated information technology infrastructure to cloud computing, with the aim of increasing the usage of cloud computing by domestic enterprises.

## **VI. ORGANIZATION OF IMPLEMENTATION**

### 1. The Ministry of Information and Communications shall:

a) Assume the prime responsibility for organizing the implementation of this Strategy, deploying systems for monitoring, managing, measuring, and evaluating the development of digital infrastructure to ensure the objectives, tasks, and solutions of this Strategy are achieved.

b) Guide and urge ministries, sector authorities, provinces, centrally-run cities, and enterprises to implement this Strategy.

c) Research, propose, or promulgate policies that encourage enterprises to invest in digital infrastructure; develop markets for leasing telecommunications networks and purchasing data capacity; and enhance the sharing of inter-sector technical infrastructure and infrastructure among telecommunications enterprises.

d) Encourage enterprises from all economic sectors to participate in investing in and developing digital infrastructure.

dd) Implement tasks and solutions to ensure national network safety and security, actively respond to challenges from cyberspace, as assigned in Decision No. 964/QĐ-TTg dated August 10, 2022, by the Prime Minister.

e) Coordinate with the Ministry of Science and Technology in researching and proposing mechanisms that prioritize and support research, development, and mastery of digital infrastructure technologies.

g) Coordinate with the Ministry of Home Affairs and the Ministry of Education and Training in researching and proposing mechanisms for training and developing human resources to manage, operate, and develop digital infrastructure.

2. The Ministry of Public Security shall:

a) Implement tasks and solutions to ensure national network safety and security, actively respond to challenges from cyberspace as assigned in Decision No. 964/QĐ-TTg dated August 10, 2022, by the Prime Minister.

b) Enforce law regulations on cybersecurity and protect personal data.

3. The Ministry of Planning and Investment shall:

Assume the prime responsibility for and coordinate with the Ministry of Finance and the Ministry of Information and Communications in researching and applying mechanisms that prioritize the allocation of investment capital for the development of digital infrastructure to perform the tasks of the Strategy.

4. The Ministry of Science and Technology shall:

Draft and finalize additional legal documents on intellectual property rights related to artificial intelligence and blockchain.

5. The Ministry of Construction shall:

Research, develop, and complete regulations on the integration of digital infrastructure components in civil constructions.

6. The Ministry of Transport shall:

Research, develop, and improve regulations on the integration of digital infrastructure components in transportation facilities.

7. The Ministry of Finance shall:

a) Assume the prime responsibility for and coordinate with the Ministry of Information and Communications in researching and applying mechanisms that prioritize the allocation of recurrent expenditures to perform the tasks of the Strategy.

b) Develop and improve mechanisms and incentive policies on taxes and fees to attract and encourage enterprises to invest in digital infrastructure development.

8. The Ministry of Industry and Trade shall:

a) Review and complete the legal framework to protect consumer rights related to the control of standardized contracts and general transaction conditions in the business and provision of digital infrastructure services.

b) Promulgate policies for the development of infrastructure to support the growth of e-commerce; promote the application of electronic contract solutions in commerce, support online dispute resolution in commerce; research, develop, and implement solutions to ensure secure transactions in e-commerce combined with electronic payments, contributing to reducing the use of cash in e-commerce transactions.

9. The State Bank of Vietnam shall:

Direct credit institutions and bank branches to accelerate the application of digital infrastructure to provide a diverse range of banking products and services.

10. People's Committees of provinces and centrally-run cities shall:

a) Develop and implement digital infrastructure development plans for their respective provinces and centrally-run cities in alignment with this Strategy.

b) Promulgate by themselves or request competent authorities to promulgate policies and regulations to support investment in digital infrastructure, promote the shared use of telecommunications infrastructure, and share technical infrastructure from sectors such as transportation, energy, lighting, water supply, drainage, underground infrastructure, and other technical infrastructures.

c) Research, develop, and issue local master plans for development of technical infrastructure for passive telecommunications.

d) Promote and support enterprises in investing in digital infrastructure; develop and announce plans to invest in and upgrade urban infrastructure, enabling the coordination among related entities in the investment and construction of well-coordinated technical infrastructures for sectors such as transportation, energy, lighting, water supply, drainage, underground infrastructure, and other technical infrastructures.

11. Vietnam Internet Association, Vietnam Software and IT Services Association, Vietnam Information Security Association, Vietnam Computer

Association, Vietnam Radio-Electronics Association, Vietnam Digital Communications Association shall:

a) Coordinate closely with the Ministry of Information and Communications in implementing tasks outlined in the Strategy.

b) Encourage members and enterprises to actively research, develop, manufacture, and provide high-quality digital infrastructure products and services; advocate for agencies and organizations to prioritize the use of digital infrastructure products and services from Vietnamese enterprises.

12. Telecommunications enterprises, Internet enterprises, data center providers, cloud computing providers, digital technology infrastructure providers, and enterprises hosting digital technology-as-a-service platforms shall:

a) Comply with the guidelines and requirements of the Ministry of Information and Communications and provincial-level People's Committees in the development of digital infrastructure and in the implementation of the tasks outlined in the Strategy, aligned with each enterprise's industry and field of operation.

b) Report annually or on an ad-hoc basis to the Ministry of Information and Communications on the situation and results of the implementation of the tasks, as guided and required by the Ministry of Information and Communications.

**Article 2.** This Decision takes effect from the date of signing for promulgation.

**Article 3.** Ministers, heads of ministerial-level agencies, heads of government-attached agencies, chairpersons of People's Committees of provinces and centrally-run cities shall be responsible for implementing this Decision.

**FOR THE PRIME MINISTER  
DEPUTY PRIME MINISTER**

**Nguyen Hoa Binh**