DEVELOPING DIGITAL HUMAN RESOURCES TO PROMOTE DIGITAL ECONOMIC DEVELOPMENT IN VIET NAM TODAY

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Summary

In the context of science and technology penetrating every corner of each person's life, they are changing people's perception of social life in general and the economy in particular. One of the factors that determines the competitiveness and speed of digital economic development of the country is digital human resources. Viet Nam has expanded digital skills training in education, businesses, and the public sector, while promoting the development of fields such as big data, cybersecurity, and artificial intelligence. However, the quality and quantity of digital workforce still fall short of market demand, creating an urgent need for training and capacity building. The article proposes some solutions to develop digital human resources towards developing Viet Nam's digital economy in the current context of integration.

PROBLEM STATEMENT

Currently, most countries in the world are aiming to develop a digital economy. Viet Nam is considered one of the countries with the fastest digital economic growth rate in Southeast Asia, with strong investment from the government and active participation of the private sector. Viet Nam's digital economy is growing rapidly; however, to turn that growth into sustainable development, it is necessary to have a synchronous, comprehensive, and focused digital human resource development strategy. One of the factors that determines the competitiveness and speed of digital economic development of the country is digital human resources. Viet Nam, with a young, dynamic population and the ability to quickly adapt to technology, has great potential to develop high-quality digital human resources. The government has been implementing many policies to promote digital transformation to build and develop digital human resources to respond and adapt to the current digital transformation context. On the other hand, digital human resources must not only meet the domestic context but also have innovative thinking and the ability to work in a global environment. However, Viet Nam's digital human resources are also facing numerous challenges, including a lack of specialized skills, a gap between training and the actual needs of businesses, and a differentiation in qualifications between regions. To maximize this potential, Viet Nam needs to strengthen international cooperation, innovate training programs, and build a comprehensive digital ecosystem to improve the quality and integration ability of the workforce in the digital age. Therefore, there is a need for synchronous and specific solutions to improve the capacity of digital human resources in accordance with the current digital economy.

THE ROLE OF DIGITAL HUMAN RESOURCES IN DIGITAL ECONOMIC DEVELOPMENT

In the context of the current digital transformation, digital human resources is no longer a strange term but a fairly common term for businesses. Digital human resources are not only the IT team but also the workforce working in most departments of the business, such as marketing, sales, operations, and finance, as long as they have the capacity to use digital tools, analyze data, communicate on digital platforms, and solve problems with technological thinking. In other words, digital human resources are a workforce with digital knowledge, skills, and thinking, capable of using, creating, and mastering digital technology to create practical value for businesses.

Digital economy is a term that refers to economic activities that are operated through the use of digital technology, the internet, and digital platforms. The digital economy includes activities such as e-commerce, online financial services, digital marketing, digital manufacturing, and information and communication technology services. The goal of the digital economy is to create growth through e-commerce platforms and the connection of businesses through digital platforms.

Therefore, digital human resources are a crucial factor in promoting the development of the digital economy,

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creating sustainable development for the country. Specifically:

Digital human resources are the decisive factor for national productivity and competitiveness. Digital human resources play a key role in improving labor productivity and national competitiveness. In the digital economy, technology only brings value when there are human resources that meet the requirements. Digital human resources are a workforce with digital skills that not only help improve productivity and innovation but also help the country adapt to the digital age. In the context of international integration, this workforce is not only an advantage for businesses but also a key factor in ensuring the overall competitiveness of the economy. On the other hand, they not only liberate the energy of traditional labor but also generate labor productivity, bringing competitive value in the context of today's digital technology development. Today, digital human resources are quite popular in many fields and bring high labor productivity to businesses. In other words, developing digital human resources will be a decisive factor in improving productivity, promoting innovation, and strengthening the country's competitive position in the digital economy era.

Digital human resources impact national competitiveness. Digital human resources play a direct role in improving national competitiveness in digital economic development. A workforce with digital skills helps the country master technology, innovate, and create products and services with high added value, thereby increasing competitiveness in the global market. According to the World Economic Forum (2025), countries with a high rate of digitally skilled workers, such as Singapore and Malaysia, are among the leading groups in digital competitiveness. Digital human resources not only improve public administration efficiency and optimize business operations but also create new economic sectors, directly contributing to digital GDP growth. In the context of increasingly fierce global competition, countries with developed digital human resources are key to excelling in innovation capacity and public service quality. Conversely, countries lacking digital human resources face the risk of falling behind, becoming dependent on technology, and experiencing reduced investment attractiveness. Therefore, investing in digital skills development has become a strategic priority for countries to establish sustainable competitive advantages in the digital age. For Viet Nam, strongly developing digital human resources is not only a requirement to keep up with the digital transformation trend, but also a decisive factor in helping to improve the country's competitive position in the regional and global digital economy.

Digital human resources have a pervasive impact on the entire economy. Digital human resources have a strong, pervasive impact on the entire national economy. Digital human resources not only promote labor productivity and economic growth, but also transform traditional production models into modern models, liberating human labor. Through the application of digital technology, data, and automation, digital human resources contribute to optimizing production processes, reducing costs, improving product quality, and management efficiency. Thanks to that, digital human resources become a catalyst for spreading the digital transformation process, promoting innovation and economic growth of the country.

Status of digital human resources in Viet Nam's digital economy. The GDP growth rate in 2024 of the whole economy reached 7.09% compared to the previous year. Considering the period 2011-2024, the GDP growth rate in 2024 was only lower than the growth rates in 2018, 2019, and 2022 (Bao Ngoc, 2025). In which the proportion of the digital economy in 2024 is estimated to reach 18.3% of GDP, the growth rate exceeds 20%/year, 3 times higher than the GDP growth rate, the fastest in Southeast Asia. Retail e-commerce reached 25 billion USD in revenue, an increase of about 20%. Viet Nam is in the top 10 countries with the fastest e-commerce growth rate in the world. The annual growth rate of non-cash payments increased by more than 50%, leading the Southeast Asia (Ha Van, 2025).

In addition, Viet Nam currently has more than 240 universities, of which nearly 160 have technical training majors: Information technology, electronics - telecommunications, and information security. Of the more than 57,000 IT students them each year in Viet Nam, only about 30% of meet the skills and expertise required by businesses; the remaining 70% need to be arranged for additional training at the business for 3-6 months to achieve corresponding work efficiency (Quoc Hai, 2025). In the current occupational labor structure, the number of workers in the field of information technology and digital technology is about 1.5 million people. According to TopDev (2023), the demand for IT human resources by 2025 is expected to reach 700,000, while the current number is only about 530,000 people. The rate of IT human resources is estimated at 1.1% of the total 51 million workers nationwide. This rate is relatively low compared to some countries such as the US (4%), South Korea (2.5%), and India (1.78%). In reality, Viet Nam is facing the risk of a shortage of highly skilled human resources to carry out digital transformation, while the demand for recruiting businesses to carry out digital transformation is increasing. In the context of the digital economy becoming a crucial driving force for economic growth in each country, digital human resources are considered a core factor determining the current economic growth rate. Although Viet Nam has the advantage of a young population and rapid development of science and technology, its digital human resources still have some disadvantages that affect the development of the digital economy today.

Digital human resource training is focused and has many changes; training quality is moving towards more comprehensive and effective. However, currently in our country, training facilities with sufficient capacity, equipment, and training methods that meet international standards for digital human resources are still limited, not meeting the requirements. On the other hand, the gap between training and the practical needs of the market is still very large. Trained human resources lack practical skills, foreign languages and an understanding of new technology. Many training programs are still heavy on theory, not focusing on practice, and some students have to start over after graduation, not meeting the needs and not adapting to the current digital economy.

Serious shortage of digitally skilled personnel: Departments such as marketing, sales, or customer care still have very limited ability to use and apply technology. Many employees are not proficient in tools such as ChatGPT, Canva AI, CRM, or customer data analysis software, making it difficult for businesses to effectively exploit the invested technology. In addition, the workforce lacks digital skills such as the ability to process and analyze data, and the ability to apply AI to optimize work has not been optimally utilized. Support tools such as GPT chat, Notion AI, or internal chatbots are often overlooked or only used at a rudimentary level, causing businesses to miss many opportunities to optimize performance.

Fear of change: One of the biggest barriers comes from within the business itself. Many employees are familiar with traditional ways of working and are hesitant about the emergence of new AI tools or software. The fear of being replaced or learning new things causes the digital transformation implementation process to stagnate or be ineffective.

The mechanism and policies to attract investment capital for digital human resource development are not really favorable and open enough to attract investors as well as other entities to participate in the digital human resource development process in our country.

The uneven distribution of digital human resources among localities is also a factor affecting economic development. Digital human resources, as well as the development of science and technology, are concentrated in large cities such as Ha Noi, Ho Chi Minh City, Da Nang... while mountainous areas or underdeveloped localities have not received much attention. This reality affects the ability to access digital technology as well as the development of the digital economy among localities. In general, it can be seen that the digital human resources in our country are currently lacking in both quantity and quality, the distribution and usage mechanisms are uneven, and have not met the needs of digital economic development in the current context.

SOLUTIONS TO IMPROVE THE CAPACITY OF DIGITAL HUMAN RESOURCES IN THE CONTEXT OF DIGITAL ECONOMIC DEVELOPMENT IN VIET NAM TODAY

First, it is necessary to build and perfect a national digital skills framework as a basis for assessing and recognizing the professional capacity of digital human resources. The digital competency framework needs to describe the skills and knowledge of technology so that they can use digital technology and apply digital technology in their work in the most optimal and effective way. Building a digital competency framework is not only a standard for institutions to build appropriate training programs, but also helps businesses have a suitable digital workforce that meets the requirements of production and business activities. In addition, assessing the quality of human resources according to the digital competency framework is also an opportunity for human resources to have the capacity to compete in the international labor market.

Second, it is necessary to fundamentally reform the digital human resource training program. Universities, colleges, and vocational training institutions need to develop training programs that are linked to reality and suitable to the needs of businesses. The program is built based on a combination of the state schools and businesses. Businesses need to proactively participate in program design, provide experts and interns, while the State plays a coordinating role, provides financial support, and issues incentive policies. The training program needs to be built based on integrating digital capacity, digital thinking, data security, transparency, and humanity to meet the needs of current digital economic development.

Third, training institutions need to focus on improving the quality of lecturers, such as organizing training courses on science and technology, and digital technology skills, to improve the capacity of lecturers to meet current training requirements. In addition, encourage lecturers to participate in projects related to science and technology to improve their scientific research capabilities, as well as practical experience, to meet the needs of digital human resource training.

Fourth, allocate and invest in developing digital skills in rural and mountainous areas to ensure equal employment opportunities and participation in the digital economy. Expanding high-speed internet, community learning centers, and basic digital skills courses will help narrow the digital divide, contributing to the goal of sustainable economic development.

Fifth, raise awareness of the whole society about the digital economy and digital human resources. The press and media system needs to regularly and fully inform businesses and people about the digital economy and digital human resources. From there, gradually changing

the viewpoints, awareness, and thinking about the digital economy and digital human resources in the current context is an urgent and important need.

Sixth, the state needs to have policies to attract domestic and international experts and talents in the field of digital technology to participate in work. Policies to attract domestic and foreign experts and talents in the fields of AI, cybersecurity, and blockchain are currently very necessary. Through research-teaching-business consulting cooperation programs, they can be brought to work for a short time, share knowledge, and transfer experience, thereby improving the quality of digital human resources of businesses.

Seventh, develop an ecosystem to support the development of digital human resources synchronously and sustainably. The ecosystem is a place to train and improve the capacity to innovate digital human resources for the country. Therefore, it is necessary to deploy solutions to approach the digital education ecosystem to effectively connect the value chain between the components of the education system, businesses, and society. This is the fundamental direction to increase the intellectual strength, interdisciplinarity, and adaptability of the digital workforce in the future. This includes the formation of innovation centers, specialized training centers on digital technology, building open online learning platforms, and encouraging the private sector to participate in the process of training and developing human resources. The ecosystem will be a place to connect, train, and build a digital workforce to meet the requirements of digital economic development in the current context.

Eighth, focus on developing soft skills and digital thinking for digital human resources. Digital human resources are not simply human resources who know how to use digital skills at work, but also people with the ability to adapt, think critically, have teamwork skills, and time manage. These are key factors that help workers survive and develop in today's flexible, diverse, and constantly changing working environment. Science and technology are always changing and improving in the most beneficial and optimal direction, so training digital human resources with soft skills to use and optimally apply scientific achievements to work is a factor that creates digital economic development.

CONCLUSION

Developing digital human resources is a decisive factor for Viet Nam to realize the goal of becoming a country with a digital economy accounting for 30% of GDP by 2030. In the context of increasingly fierce global competition in technology, overcoming our current weaknesses in digital human resources is really necessary and important. Digital human resources are a crucial foundation, decisive for the digital transformation process and digital economic development in Viet Nam. In the context of increasingly fierce global competition, building and developing a digital workforce that meets requirements is not only an urgent requirement but also a long-term strategy that requires appropriate investment and solutions. Close coordination between the State, enterprises, educational institutions, and the whole society will create a strong driving force for Viet Nam to firmly step on the path of sustainable digital economic development and deep integration. However, the current workforce still lacks both quantity and quality, especially in specialized skills such as data analysis, cybersecurity, and AI technology. This puts Vietnam at risk of falling behind other countries in the region. Furthermore, the public sector also needs digital human resources to modernize governance, provide online public services, and increase operational efficiency. Therefore, developing digital human resources is not only a short-term solution but also a long-term strategy to help Vietnam take advantage of the opportunities of the 4.0 industrial revolution and deeper international integration. With appropriate solutions, Viet Nam can train and standardize a digital workforce that meets the requirements, is creative, adapts quickly, and is competitive in the global digital economy. This is a solid foundation for the country to enter a new stage of development - growth based on knowledge, innovation, and digital technology.

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