HUMAN CAPITAL IN VIETNAM'S DIGITAL ECONOMY

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Abstract: ***In the context of global digital transformation, human capital plays a crucial role in promoting economic growth and sustainable development. This article analyzes the current state of human capital in Vietnam's digital economy, focusing on aspects such as digital skills, soft skills, foreign language proficiency, and labor productivity. While Vietnam benefits from a young workforce and access to advanced technologies, several challenges persist, including a low proportion of workers with professional qualifications, limited digital skills, a skills gap between urban and rural areas, and a shortage of foreign language proficiency and lifelong learning capabilities. These challenges necessitate a comprehensive human capital development strategy for Vietnam, emphasizing digital skills training, educational reform, promotion of lifelong learning models, and the refinement of labor policies to adapt to the evolving digital economy.***

• Keywords: *human capital; digital economy; digital skills.*

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1. Introduction

In the context of global digital transformation, human capital - encompassing the skills, knowledge, and creativity of individuals - has become a critical foundation for promoting sustainable development across nations (OECD, 2022). According to the World Economic Forum (WEF, 2020), the rapid advancement of technology is projected to displace 85 million jobs globally by 2025. Human capital is not only considered an invaluable resource for economic development but also a decisive factor in building a sustainable society in the digital age. As technologies such as artificial intelligence, big data, and automation reshape production methods and operational processes across most industries, the adaptability of the workforce becomes paramount in maintaining and expanding productivity, thereby ensuring the competitiveness and progress of nations on the international stage. Therefore, human capital is an increasingly important resource.

For developing countries like Vietnam, developing human capital to adapt to the digital society is particularly urgent. A World Bank survey (2021) indicates that approximately 70% of Vietnam's workforce lacks basic digital skills, a concerning statistic given the increasingly demanding requirements of the labor market in the technological era. This digital skills deficit within the labor force poses significant barriers to the integration and development of the Vietnamese economy in the current context of globalization and digital transformation. To address this challenge, Vietnam requires a comprehensive and well-structured human capital development strategy. This plan needs to prepare a workforce equipped with the necessary skills, knowledge, and creativity to confront changes in technology and the workplace. Policies are needed to promote education and vocational training tailored to the actual needs of the digital economy, and promote collaboration between educational institutions, businesses, and the government in designing flexible training programs that respond to the demands of the labor market. This article presents an analysis of the current state of human capital in Vietnam's digital society and subsequently proposes several recommendations aimed at assisting Vietnam in building a highly skilled workforce capable of adapting effectively to digital technologies, contributing to the nation's competitiveness in the digital age.

2. Human Capital in the Digital Economy: Roles and Challenges

Human capital encompasses the skills, knowledge, and competencies acquired through learning, training, and experience. The OECD (2022) indicates that, in the digital age, the concept of human capital expands to include digital skills and the ability to adapt to new technologies, enabling workers to cope with rapid changes in the labor market. The World Economic Forum (2020) has emphasized that, to meet the demands of the digital society, nations need to focus on emerging digital skills such as data analytics, cybersecurity, and artificial intelligence (AI). These skills not only improve labor productivity but also enable workers to thrive in high-tech and innovative fields.

Digital skills are understood as a collection of abilities to use digital devices, communication applications,

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and the internet to access and manage information. These skills facilitate the creation and sharing of digital content, communication, collaboration, and problem-solving effectively and creatively in both work and life. UNESCO (2023) defines digital skills as ranging from basic skills (such as using digital devices and online applications) to advanced skills, which entail the ability to leverage advanced digital technologies (AI, machine learning, big data analytics, etc.) to enhance performance and adaptation in specialized fields. The World Bank (2021) also provides a digital skills framework with seven main competency groups: software and device operation; data and information literacy; communication and collaboration; digital content creation; information security; problem-solving; and specialized digital competencies - each group is divided into four levels of proficiency, from basic to advanced. Thus, the digital competence of workers is not limited to knowing how to use computers and the internet but also encompasses the ability to think critically, innovate, and adapt to new technologies. According to the International Labour Organization (ILO, 2023), in a knowledge- and technology-based economy, skills training - particularly skills related to digital technology - is essential for promoting economic growth.

Beyond economic benefits, human capital development in the digital age also yields social advantages. Individuals with digital skills can more easily access digital services (such as e-government services, healthcare, and online education), thereby promoting social inclusion. Particularly in the context of the COVID-19 pandemic, digital skills have become essential for workers to adapt to remote work and online learning models. However, significant disparities in digital skills persist globally across demographic groups and nations, creating a "digital divide." UNESCO (2023) cautions that, although 95% of the world's population lives in areas with 2G mobile coverage, a lack of digital skills is causing severe inequality in both developed and developing countries.

The robust growth of the digital economy not only necessitates enhanced digital skills but also transforms the organization and operation of work, posing new requirements and challenges for human capital. Digital transformation is not merely about applying technology; it also entails a shift in labor models, work skills, and professional mindsets of workers. These changes are placing significant pressure on workforce training and development, demanding a substantial adjustment in human capital development strategies in Vietnam. One of the most evident impacts of the digital economy is the shift from traditional work models to flexible work arrangements. Digital technology has broken down the physical boundaries of the office, enabling workers to work remotely through digital tools such as online meetings, digital project management, and cloud computing. According to a Microsoft report (2022), a large proportion of the global workforce desires to maintain remote work or a hybrid model combining office and remote work, and many businesses are also willing to embrace this model. In Vietnam, this trend became more apparent after the COVID-19 pandemic, especially in the information technology, finance, and digital marketing sectors. This places demands on workers not only for flexibility and self-management skills but also for mastery of remote work support tools. Workers are now being evaluated not only based on hours worked but, more importantly, on efficiency and output.

In addition to changes in work models, the rapid advancement of automation and artificial intelligence is creating fundamental shifts in the labor market. Technologies such as artificial intelligence, machine learning, chatbots, and process automation are gradually replacing many repetitive tasks, particularly in manufacturing, finance, customer service, and even healthcare. The World Economic Forum (2020) predicts that a significant proportion of current jobs will be affected by automation within the next few years. This poses a major challenge to the workforce: without timely adaptation and upskilling, workers may face job losses or have to transition to jobs requiring higher-level skills. Instead of being replaced by technology, workers need to learn how to use technology to enhance their productivity and increase value for businesses. This is not only a technical requirement but also a challenge in terms of adaptability and a lifelong learning mindset.

3. The Current State of Human Capital in Vietnam's Digital Economy

3.1. Skills and Labor Productivity

The proportion of formally trained workers in Vietnam remains low. As of the end of 2023, the workforce possessing qualifications or certifications (from elementary vocational level and above) reached only 14.1 million people, accounting for 27% of the total workforce. Conversely, 38.3 million workers (73%) had not received any professional training (General Statistics Office, 2023). In other words, the majority of Vietnam's labor force consists of unskilled workers who have not been systematically equipped with professional skills, including technological skills. This poses a significant challenge to improving digital skills proficiency, as most workers lack the fundamental technical knowledge to acquire advanced digital skills.

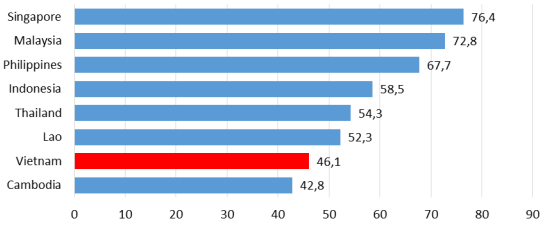
Highly skilled workers constitute only 11.67% of the total workforce, lagging behind other countries in

the region such as Thailand (15.08%) and Malaysia (28%) (Manpower Group, 2022). The skill level of Vietnamese workers ranks seventh among the ASEAN 9 countries and falls into the middle group, positioned 93rd out of 141 countries and territories assessed (Government of Vietnam, 2021). International statistics also indicate that the overall skill level of Vietnamese workers is limited compared to many countries. According to estimates by the ILO, the majority of Vietnamese workers fall into the medium-skilled category, while the proportion of highly skilled workers is very low.

Although the productivity of Vietnamese workers has increased compared to previous years, it remains low within the region. In terms of purchasing power parity (PPP), Vietnam's labor productivity in 2020 reached USD 18,400, only 11.3% of Singapore's productivity level; 23% of South Korea's; 24.4% of Japan's; 33.1% of Malaysia's; 59.1% of Thailand's; 60.3% of China's; 77% of Indonesia's; and 86.5% of the Philippines'. Labor productivity in Vietnam within Southeast Asia is only higher than that of Cambodia (2.4 times higher); Myanmar (1.6 times higher); and Laos (1.2 times higher). If calculating labor productivity per hour worked in terms of purchasing power parity in 2019, Vietnam's productivity is only 8.99% of Singapore's level; 9.13% of Brunei's; 23.21% of Malaysia's; 40.31% of Thailand's; 49.31% of Indonesia's; 57.35% of the Philippines'; and 99.51% of Laos'. Labor productivity in Vietnam within Southeast Asia is only higher than that of Cambodia (2 times higher) and Myanmar (nearly 1.6 times higher) (General Staticsticsal Office, 2021).

3.2. Digital Skills

Figure 1. Digital Skills Scores of the Workforce in some Asia-Pacific Countries in 2019



Source: World Economic Forum, 2019

Digital transformation demands a workforce with advanced digital skills; however, a significant gap exists in Vietnam between market demand and the actual skills of the labor force. Vietnam continues to lag behind global standards. According to the World Economic Forum's ranking, the digital skills of Vietnam's workforce in 2019 ranked 97th out of 141 countries assessed. This index measures a nation's ability to develop, attract, and retain digital talent; a ranking of 97 indicates that Vietnam has considerable work to do to improve digital skills among its workers. The digital skills score of Vietnam's workforce is only 46.1 out of 100, significantly lower than that of other Asia-Pacific countries (World Economic Forum, 2019).

The skill score of graduates in Vietnam, including digital skills, is only 46.1 out of 100 points, ranking 116th out of 141 countries assessed, significantly lower than that of other countries in the region such as Indonesia and Malaysia (Figures 2 and 3).

Figure 2. The skill score of graduates in Vietnam (2019)

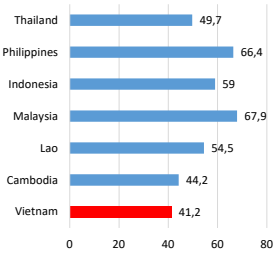
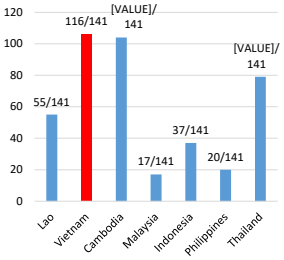


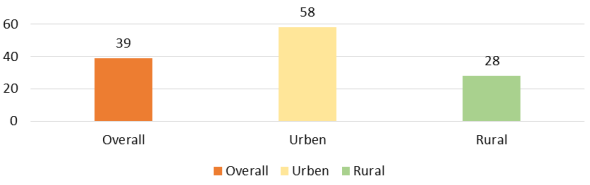
Figure 3. Skill Ranking of Vietnam Graduates (2019)



Nguồn: World Economic Forum, 2019

A study by UNICEF (2022) reveals that information technology skills among Vietnamese youth aged 15-24 are limited, with only 39% possessing digital skills. Notably, a significant disparity exists between urban and rural areas, with 58% of urban youth possessing information technology skills, compared to only 28% in rural areas - less than half. This situation raises concerns about digital human capital. As industries increasingly transition to digital platforms, if youth - the future workforce - are not equipped with adequate information technology skills, their access to digital employment opportunities will be limited, leading to the risk of exclusion from the modern labor market. While businesses increasingly demand workers with digital skills, the imbalance in technology access between urban and rural areas may create a labor divide, where the urban workforce has an advantage in participating in the digital economy, while rural workers are confined to traditional jobs with limited opportunities for advancement.

Figure 4. IT Skills Among Youth Aged 15-24 (%)



Source: UNICEF, 2022

3.3. Foreign Language Proficiency and Soft Skills

Beyond digital skills, soft skills are also becoming a crucial factor in the digital transformation era. However, numerous surveys indicate that Vietnamese workers still lack communication skills, critical thinking abilities, and teamwork skills. According to a LinkedIn survey (2023), 85% of employers in Vietnam consider soft skills a decisive factor in hiring, but only 35% of workers are assessed as having good communication and teamwork skills. A McKinsey & Company report (2021) also emphasizes that 76% of businesses in Vietnam desire employees with problem-solving and creativity skills, but training programs at many universities and vocational centers still do not focus on these skills. The education system in Vietnam remains theoretically oriented, while the labor market demands practical skills and rapid adaptation to changes in the work environment.

Foreign languages, especially English, are increasingly becoming an important skill in the context of economic integration, but this remains a weakness of Vietnamese workers. According to the EF English Proficiency Index (2023), Vietnam ranks 60th out of 111 countries, lower than many countries in Southeast Asia such as Singapore, the Philippines, and Malaysia. A recent report by ManpowerGroup Vietnam indicates that Vietnam has a much lower proportion of workers with working-level English skills compared to other countries in the APAC region, such as Indonesia (10%), Malaysia (21%), or Thailand (27%), with only 5% of local workers meeting the foreign language requirements for the job (Manpower, 2023). A survey by Navigos Group (2022) reveals that 64% of businesses in Vietnam require employees to have English proficiency in their work, especially in the finance, information technology, and tourism industries. However, only about 30% of office staff have English proficiency that meets the requirements, while this rate is almost negligible among unskilled workers. This reduces job opportunities for Vietnamese workers in foreign-invested enterprises, as well as hinders the development of domestic businesses seeking to expand into international markets.

Adaptability and lifelong learning are also significant challenges for the Vietnamese workforce. In the context of rapidly changing technology and labor markets, updating new skills is essential for maintaining employment and improving labor productivity. A PwC survey (2023) shows that 83% of Vietnamese workers are willing to learn new skills to improve their job opportunities, but only 41% have the opportunity to be retrained. Although many large enterprises such as FPT, Viettel, and VinGroup have implemented internal training programs, small and medium-sized enterprises still lack the resources to invest in personnel training. This leads to disparities in opportunities to improve skills among different labor groups, increasing the risk of being excluded from the labor market for those workers who do not have access to regular training.

4. Conclusion

Digital transformation is profoundly reshaping production organization, business operations, and the labor market, creating an urgent need to enhance the quality of human capital. Vietnam currently faces numerous obstacles, including a low proportion of formally trained workers, disparities in digital skills across regions, low labor productivity compared to the region, and limitations in soft skills and foreign language proficiency. Without timely investment and reform strategies, Vietnam will encounter significant difficulties in keeping pace with the development of the global digital economy.

To address these challenges, a coordinated effort is required among the government, businesses, and the education system to develop a highly skilled workforce ready to adapt to the digital economy. Solutions include educational innovation towards integrating digital and soft skills, promoting vocational training linked to business practices, expanding access to lifelong learning opportunities, and enacting policies to support workers in the context of digitalization. In particular, Vietnam needs to focus on narrowing the skills gap between urban and rural areas to ensure a comprehensive and sustainable digital economy. The success of a human capital development strategy will not only determine Vietnam's competitiveness in the region but is also a key factor in helping the country maximize the potential of the Fourth Industrial Revolution, moving towards a modern and inclusive digital economy.

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