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## **Digital Skill Workforce in Vietnam's Logistics Industry in the Context of Digital Transformation**

**Doan Thi Yen**

University of Labour and Social Affairs, Hanoi, Vietnam

Corresponding Author: **Doan Thi Yen**

### **Abstract**

Digital transformation is creating many challenges for labor in general and logistics workers. One of the challenges is to have a digital workforce that meets the requirements of digital transformation. Currently, the digital workforce in logistics enterprises, as well as the digital workforce in the labor market supplying logistics enterprises, have not met the requirements. Based on the secondary and primary data

collected from the survey of 56 employees in logistics enterprises, combined with the results of interviews with experts and business leaders, the article summarizes the current situation of digital skilled workforce in the logistics industry and propose some recommendations to develop digital skill workforce for this industry thi in the context of digital transformation.

**Keywords:** Digital Transformation, Digital Skills, Logistics Industry, Workforce

### **1. Introduction**

Along with the development of the 4th Industrial Revolution, the trend of digital transformation is taking place strongly in most countries around the world. In Vietnam, the Party and State have made requirements for the country's development to 2030, aimed at accelerating the national digital transformation. On June 3, 2020, the Prime Minister issued Decision No. 749/QĐ-TTg approving the "National Digital Transformation Program to 2025, with orientation to 2030" <sup>[1]</sup>. One of the key goals of the program is to develop a digital skill workforce. With the logistics industry, according to the Vietnam Logistics Business Association (VLA), Vietnamese logistics enterprises are facing a shortage of professional staff and well-trained workers in the field of logistics services. Although Vietnam has about 6,000 employees working in the field of logistics, the number of trained workers in logistics services only accounts for about 5-7% of the total number of employees working. People with experience and understanding of international law are still lacking. Meanwhile, this is a field that requires employees to not only understand the legal system and practices of the host country, but also understand international law and have a wide relationship. This situation leads to a shortage of skilled and digitally skilled human resources in logistics enterprises (Le Thi Minh Trang, 2021) <sup>[2]</sup>. The article provides an overview of the current situation of the digital workforce in the logistics industry. Compared with the needs and capacity, there are some recommendations to develop the digital workforce of logistics industry in the context of digital transformation.

### **2. Theoretical Background**

#### **2.1 Digital Transformation**

The term 'digital transformation' is widely used in the world. However, due to the degree of influence as well as approach and scope of digital transformation in all aspects of socio-economic, there are different views on this term. According to Tech Republic <sup>[3]</sup> (The social community's online magazine for professionals IT), digital transformation is defined as "how technology is used to make the process more efficient". According to Gartner <sup>[3]</sup>, "Digital transformation is a business use digital technologies to change business models, create opportunities, new revenue and value". Microsoft <sup>[3]</sup> introduces the concept of transformation Digitalization is rethinking the way organizations bring together people, data, and processes program to create new values. The Ministry of Information and Communications of Vietnam <sup>[3]</sup> defines "Digital transformation is the process of total and comprehensive change of individuals and organizations about how to live, work and produce on the environment digital field with digital technologies". In terms of business, FPT <sup>[3]</sup> believes that "Digital transformation is the process of changing from a traditional model to an enterprise digitalization by applying new technologies such as big data (Big Data), Internet of Things objects (IoT), cloud computing (Cloud)... changing operating methods, leadership ethics, work processes, company culture". In general, digital transformation is the process by which people use data and digital technologies

to change the way of development, completely change the way of life and work of people and organizations.

## 2.2 Digital Skills

According to OECD (2016) <sup>[4]</sup>, digital skills are the ability to develop, operate and maintain ICT systems at different levels, with this view, digital skills are divided into 3 levels: basic, intermediate moderate and raise. The European Parliament (2004) <sup>[5]</sup> defines digital skills as the confident use of information technology for work, leisure, study and communication. According to Ferrari, A. (2013) <sup>[6]</sup>, is the ability to use digital devices to perform activities such as data mining, communication and collaboration, digital content creation, problem solving and assurance. Safety and security in the digital environment. According to UNESCO (2018) <sup>[7]</sup>, digital literacy is defined as the ability to use digital devices, communication applications and networks to access and manage information.

## 2.3 Digital Skills Workforce

According to Victor Gekara *et al* (2019) <sup>[8]</sup>, the digital workforce is an economically active population that has the necessary digital skills and can use those skills to transform lives and quality of life, job performance. Carolina Feijao *et al* (2021) <sup>[9]</sup> argue that the digital workforce is a group of working-age workforce who are knowledgeable and able to use information technology and the internet in their work process. The article approaches the digital workforce, including people aged 15 years and older with digital skills who are employed and those of working age who are able to work and have digital skills who are looking for a job.

## 3. Research Methods

The article collects information from statistics of the Ministry of Labor, War Invalids and Social Affairs such as surveys of enterprises and employees (about labor demand, current skills, skill requirements,...); Data of the General Statistics Office such as enterprise surveys to determine the demand for labor by industries, employment of the labor force by skill group, related research works and reports of organizations and businesses, documents on workforce development, labor and employment.

The primary source of information is inherited from the survey results of a ministerial-level scientific research project with 56 questionnaires at logistics enterprises (Doan Thi Yen, 2021) <sup>[10]</sup>, combined with the results of interviews with state managers in the field of labor, employment at all levels, experts, representatives of business associations and leaders of logistics enterprises. Descriptive statistical methods (describing the actual situation) and comparative statistics on the change in digital skills workforce across industries and in logistics enterprises was used.

## 4. Research Results

### 4.1 Workforce Development Policies for Digital Transformation in the Logistics Sector

Logistics is a service industry that plays the role of supporting, connecting and promoting socio-economic development of the whole country as well as of each locality. Thanks to logistics activities, the process of distribution and circulation of goods is organized, and scientific management to best meet the requirements of customers. There are many factors affecting the performance of the industry, in which human resources are

an important factor determining the success or failure. Therefore, policies to promote the development of a digital workforce for logistics in the context of digital transformation play a very important role.

At the Prime Minister's Decision No. 749/QĐ-TTg dated June 3, 2020 approving the "National Digital Transformation Program to 2025, with a vision to 2030" <sup>[1]</sup>, logistics is one of the priority fields should be given to digital transformation. 2021 is the first year of implementation of the five-year socio-economic development plan 2021-2025. This is also the year that Vietnam and the world affected in many ways by the Covid-19 pandemic in the world. In that context, the Government, ministries, sectors and localities have promptly issued many policies related to logistics to both ensure the role of logistics in maintaining the supply chains of goods and services so as not to be interrupted, at the same time, orienting a new and breakthrough direction for Vietnam's logistics sector in the coming time, in which, the Prime Minister has approved the Scheme of the Plan to restructure the service industry. By 2020, with a vision to 2025 in Decision No. 283/QĐ-TTg dated February 19, 2020 <sup>[11]</sup>, which sets a goal for logistics and transportation services to contribute 8-10% of GDP by 2025, service growth rate 15-20%, logistics service outsourcing rate reached 50-60%, logistics costs decreased to equivalent to 10-15% GDP, ranked the Logistics Performance Index (LPI) at No. 50 and above in the world ranking.

The Ministry of Transport has issued Decision No. 2269/QĐ-BGTVT <sup>[12]</sup> dated December 8, 2020 approving the Digital Transformation Program of the Ministry of Transport until 2025, with orientation to 2030 with the following targets: i) Raise awareness of digital transformation extensively in the Ministry of Transport, make digital transformation an organic component in all management activities of the Ministry of Transport, accompanying businesses operating in the field of transportation in all digital transformation activities; ii) Creating institutions for the development and management of new transport and logistics business models, developing policies focusing on the use of digital technology for all areas of State management of the Ministry of Transport carriage,... Order to promote the supply of quality human resources for the digital transformation of the logistics industry, many universities also tend to open the logistics and supply chain industry, so far there are 30 universities out of a total of 286 universities across the country. In addition, some universities have adjusted the program towards high-quality teaching, taught in English, with foreign certificates (Ministry of Industry and Trade, 2020) <sup>[13]</sup>.

### 4.2 The Current Situation of the Workforce with Digital Skills in the Logistics Industry

In recent years, the logistics service industry in Vietnam has been developing very rapidly, the number of which has increased rapidly, from a few state-owned forwarding enterprises in the early 90s to now, there are more than 300,000 enterprises registered activities in the field of logistics across the country with about 1.5 million employees. However, most of Vietnam's logistics enterprises are small and medium sized. According to the General Statistics Office, up to 41.4% of enterprises are micro-sized (under 5 employees); 53.8% of enterprises have

small scale (under 50 employees); 4.12% of medium-sized enterprises (under 300 employees). The number of large-scale enterprises accounts for only 0.7%. Regarding the labor structure in the total number of employees working in the logistics industry, workers working in road, railway and pipeline transport enterprises account for 60.1%; in the field of warehousing and transportation support activities accounted for 32.51%; water transport 5.06%, postal and delivery 2.31%; Air transport 0.02%. (General Statistics Office, 2019) [14].

Due to development rapidly, human resources to supply the logistics market in Vietnam are currently in serious shortage. According to the Vietnam Logistics and Forwarding Association (VIFFAS), there are no accurate statistics on human resources serving in the field, but only in the association's member companies, the total number of employees is about 5,000 people. In addition, it is estimated that there are about 5,000 people performing freight forwarding services (professional or semi-professional). However, compared to the requirements, Vietnam's logistics human resources have not met both quantity and quality. According to the Vietnam Logistics Business Association (VLA), currently, logistics human resources can only meet about 40% of the industry's needs with an average growth rate of 30% per year.

According to a survey by the Vietnam Logistics Research and Development Institute (VLI) conducted in 2020, up to 60% of logistics enterprises face difficulties due to limited human resources. In the next 3 years, on average, logistics service businesses need up to 20,000 employees, production and trading businesses need more than 1 million workers with logistics expertise. Due to the high demand, there are thousands of businesses that are very confused and have difficulty in finding logistics workers, especially the logistics workforce with digital skills (the skills required of logistics workers about ITI when surveying). This is remarkable in training human resources in the logistics industry, when in fact this industry is in dire need of human resources to perform professional skills in implementing digital transformation.

According to the survey results of the Ho Chi Minh City Development Research Institute [15], 36.3% said that human resources in the logistics industry in Vietnam have limitations in professionalism; 24.2% assessed the lack of high-quality human resources; 21.7% said that there is no title of logistics officer in enterprises; 18.96% assessed that universities did not have a major in logistics training. Among logistics enterprises, 53.3% are lacking in staff with professional qualifications and logistics knowledge, 30% of enterprises have to retrain staff after recruitment and only a small percentage 16.7% of enterprises are satisfied with the professional qualifications of their employees.

It is forecasted that by 2022, logistics service businesses need about 18,000 more employees, and production, trade and service businesses need over one million employees with logistics expertise. Logistics service enterprises in Vietnam are lacking in highly qualified human resources. Meanwhile, the supply of labor for the logistics service industry only meets about 40% of the actual demand. According to forecasts, the demand for logistics human resources in Vietnam by 2025 is about 300,000 professional employees, out of about 1.2 million people operating in the logistics field (Nguyen Thi Cam Loan, Bui Thi To Loan, 2019) [16].

Regarding the level of implementation of digital transformation in the logistics field, according to VLA, most businesses have just stopped at the level of digitization, that is, converting operational data into electronic storage, but without connectivity and capability; the ability to look up data as well as process orders on the online platform. The level of application of science and technology in logistics service providers is still not high. International standard software has not been applied much in Vietnam. The majority of Vietnamese logistics businesses are providing from 2 to 17 different logistics services, of which mainly forwarding, transportation, warehousing, express delivery and customs declaration services. Notably, up to 50%-60% of enterprises are applying different types of technology, but international software has not been applied much, so there are inappropriate and incompatible applications. There is also the psychology of not really trusting digital technology applications (such as security, safety, solvency) and the habit of afraid of change of business leaders and employees are also obstacles. Obstacles and difficulties in digital transformation of logistics enterprise [17].

One of the reasons for the limited labor supply for the logistics sector is that there are very few universities that officially train and grant bachelor's or engineering degrees in logistics and supply chain management. According to the Ministry of Public Works, with the current demand of about 20,000 people, there are only about 15 training institutions both majors and majors related to logistics (have not really met actual needs). Therefore, most logistics workers receive short-term training in logistics training centers (Ministry of Industry and Trade, 2020) [13].

Learn about the current situation of labor using IT in the work of the logistics industry. According to the survey results of 5 groups of authors on typical industries including logistics, information technology, retail, banking and tourism, it shows that in 2021, the number of employees working in the logistics industry will be about 1.77 million people. The percentage of employees working with information technology accounts for a low rate (about 32.9%), much lower than the banking industry (77.6%), and information technology (94.2%). Retail industry (41.9%) (Fig 1).

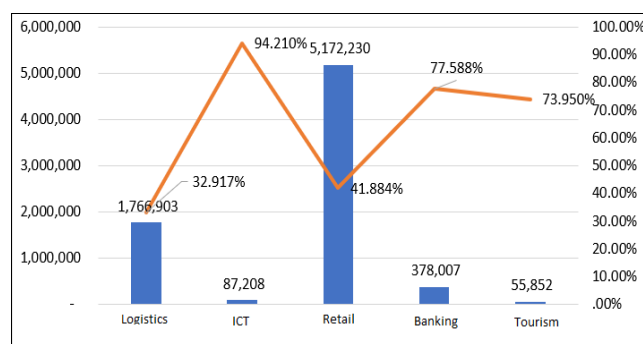
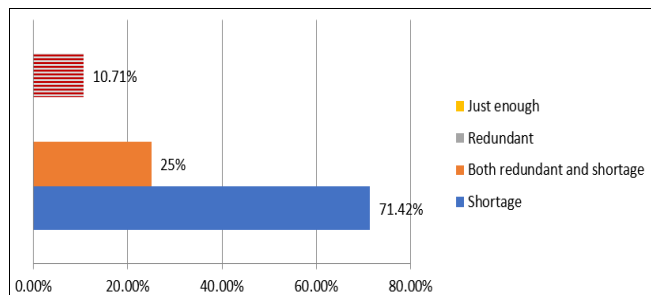


Fig 1: Employees using information technology at work classified according to a number of industry groups

#### 4.3 Assessing the Demand for Digital Employees in Logistics Enterprises

The survey results of logistics enterprises on the level of responsiveness in terms of the number of digital skilled workers compared to the current workload show that 36 out of 56 of the respondents rated that there was a shortage of

digital skilled workers (accounting for 71.42%), 14/56 comments rated the situation as being both redundant and lacking (accounting for 25%) and 6/56 rated it as sufficient (10.71%) (Fig 2). Thus, according to the assessment of the number of digital skilled workers, the shortage of digital skilled workers is a common and common situation in many logistics enterprises. Any business thinks that there is an excess of digital skills workers.



**Fig 2:** Assessment of logistics enterprises on the demand for digital skilled labor

Finding out the reasons why logistics enterprises do not have enough digital skilled workforce, obtained the following results (Table 1).

**Table 1:** Reviews of businesses logistics on the reason for the lack of digital skilled workers

*Unit of measure: comments, %*

Reason	Number of comments	Ratio (%)
Unable to hire the right person	43	76.8
Many people with digital skills move to other companies to work	27	48.2
Not actively self-training workers with digital skills	42	75.0
Not paying attention to attracting digitally skilled workers	29	51.8

Thus, it can be seen that the workforce of digital skills in logistics enterprises is very lacking. There are many reasons why businesses lack digital workers, of which the majority of opinions are that they cannot recruit suitable workers from the market, followed by businesses that have not actively trained their digital skilled workforce.

Investigation results of the Institute of Research and Development, University of Economics According to the National People's Committee, currently, up to 80.26% of the workforce in the Logistics companies are still mainly trained through daily work, 23.6% of employees attend domestic training courses, 6.9% hire foreign experts to train, and those who participate training courses abroad account for only 3.9% (Nguyen Thi Cam Loan, Bui Thi To Loan, 2019) [16].

Regarding the level of foreign languages and information technology: according to information on the website of the Ministry of Industry and Trade, human resources in the logistics industry lack comprehensive knowledge, limited applied knowledge, and have not kept up with the development of world logistics gender. The English level of logistics staff is not high. According to a survey conducted by the Vietnam Logistics Business Association (VLA) in 2018, only 29% of employees were rated good in IT and foreign languages, while 41% were quite good.

Comparison of standard digital skills and practical digital skills on the basis of the built digital skills framework and the results of a survey of 56 employees in logistics enterprises, with the results in Table 2.

**Table 2:** Comparison table of digital skills standards and practical competencies of workers in the logistics industry

S. No	Specific skills	Standard	Reality	Difference
1	Operation of digital equipment	3.20	2.90	0.3
2	Information and data mining	3.81	3.48	0.33
3	Communication and cooperation	3.92	3.74	0.18
4	Digital Content Creation	3.33	2.73	0.6
5	Problem solving	3.9	3.36	0.54
6	Safe and secure	3.81	3.37	0.44

Table 2 shows that logistics personnel are rated weakest in the group of digital content creation skills with a score gap of 0.6 from the standard and the group of problem solving skills with a score gap of 0.54. The remaining skills also have a gap between requirement and practice. The lowest distance digital device operation skill with 0.3 points.

From the above information, it can be seen that the quality of the digital workforce is increasingly improving. The workforce has acquired the foundational skills to use digital technology and the internet to do the job. The digital skills gap between practice and standards is narrowing. Digital skills such as digital device operation, information and data mining, communication and collaboration are highly valued for proficiency. However, the quality of the digital workforce is still limited. Most new workers only have basic skills and preliminary understanding to handle simple jobs. Higher-level, more specialized skills such as digital content creation, problem solving, safety and security are not high. Only a small number of workers can meet this requirement.

**5. Discussion and Implications**

State management agencies need to complete digital transformation policies, including services, transformation policies from e-Government to digital government, policies on training high-quality digital human resources, policies on digital business investment, policies on digital transformation. Information security, digital sovereignty and intellectual property: The government should promote the development of e-Government in association with the role of the leader, promote the application of IT in administrative reform to improve quality, performance of State agencies, better serve people and businesses. The Ministry of Education and Training should have policies to encourage universities to open logistics majors.

Enterprises need to change their thinking about digital transformation, in which to invest at the leadership level. Digital transformation is inevitable for logistics activities. The purpose of digital transformation is for businesses to participate in a broader supply chain, bringing greater economic efficiency. At the same time, choose a digital transformation model suitable to the capabilities of the business and must have a methodical plan to have a reasonable and quality recruitment, training, and employment plan.

Enterprises need to link with universities in recruiting and training logistics workforce. It is possible to periodically organize professional testing sessions as well as training programs to improve qualifications and digital capabilities for employees at affiliated universities. As a result, human



resources are trained in a methodical and continuous manner, soon catching up with new trends of the market and the world on digital transformation. They have to promote on-the-job training (on-the-job training), helping to equip employees with the necessary knowledge and digital skills through practical work and the guidance of a qualified staff member. more experience to master the job; Enterprises should also send employees to study to improve digital knowledge (preferably study abroad) about logistics and supply chain to be equipped with the most advanced knowledge about logistics to experience the environment and digital environment around the world. world. There are effective policies in attracting and using talents, digital workforce from abroad with attractive income and working environment.

In addition to actively participating in training courses organized by enterprises, it is necessary to actively train themselves in digital skills and skills to meet current job requirements through different forms. Besides, it is necessary to proactively equip digital skills and skills to meet the changing work of businesses in the coming time. Forms employees can participate in are seminars, short-term skills training courses in the market, participation in information technology skills training classes at centers, universities, etc. vocational education institutions,... They need to research, learn and actively train information technology, skills to work in a digital environment to have more job opportunities, sustainable jobs in the context of digital transformation, take advantage of and adapt to forms of digital transformation. new way of working. Focus on training self-study and self-adaptive skills to ensure employment and income in the future. They should access and take advantage of the State's employment support and guarantee policies, policies to support vocational training, employment for youth, support programs of socio-political organizations... to continuously improve working capacity and access job opportunities in the context of digital transformation.

It is advisable to unify the logistics training program between schools and enterprises in such contents as: Objectives, content, programs, training methods; Training standards Training time; Training form, Training system. In which, strengthening the connection of enterprises in building output standards and training programs; Develop a standard training program for the logistics industry group (in which, clearly define the training specialties for the logistics industry close to reality). Tailor-made training programs for different levels of personnel including administrators, executive managers and employees;

Educational and training institutions need to develop training programs to meet the needs of digital transformation, put high-tech science and technology programs in logistics that are being widely used in the world into training programs; Open more training majors at universities in the direction of approaching digital transformation logistics: Applying the network of things connected to the Internet in transportation, warehousing, order management, labor management, management transportation in logistics activities, applied informatics in the field of e-commerce in international freight forwarding, customs declaration and purchase and sale of goods, virtual reality technology in identification and collection of goods. goods in stock... They also need to renovating interactive and practical training methods of new production models,

renovating university administration, promoting the application of information technology and digital technology in management and teaching activities. Innovating teaching methods according to the practical approach of applying digital technology in line with the trend of digital transformation logistics. Invest in training equipment in accordance with the training program in the direction of updating with digital transformation such as automatic equipment, industrial robots. It is useful to promote training and practice linkages with the business sector in the application of Information Technology because the business sector is the unit that directly recruits and attracts this human resource as well as the area with potential and strength. better capacity than schools in professional development, capacity for students, trainees at the schools.

## 6. References

1. Prime Minister. Decision No. 749/QĐ-TTg dated June 3, 2020 of the Prime Minister approving the National Digital Transformation Program to 2025, with orientation to 2030, 2020.
2. Le Thi Minh Trang. High quality human resource development solution for Vietnam Logistics industry, 2021. From <https://tapchicongthuong.vn/bai-viet/giai-phap-phat-trien-nguon-nhan-luc-chat-luong-cao-chong-nhanh-logistics-viet-nam-83289.htm>
3. Chau An. What is digital transformation, 2019. From <https://vnexpress.net/chuyen-doi-so-la-gi-3921707.html>. Accessed April 17, 2021
4. OECD. Skills for a Digital World. OECD Publishing, Paris, 2016.
5. European Parliament. The Future of work: Digitalisation in the U.S labour market, 2021. Retrieved from: [https://www.europarl.europa.eu/RegData/etudes/BRIE/2016/578959/IPOL\\_BRI\(2016\)578959\\_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/BRIE/2016/578959/IPOL_BRI(2016)578959_EN.pdf), accessed 18 June 2021
6. Ferrari A. DIGCOMP: A Framework for Developing and Understanding Digital Competence in Europe. JRC Scientific and Policy Reports. Y. Punie and B. Brecko, Institute for Prospective Technological Studies, 2013. <https://www.rebiun.org/sites/default/files/2017-11/JRC83167.pdf>
7. United Nations Educational, Scientific and Cultural Organization. Digital skills critical for jobs and social inclusion. UNESCO, 2018.
8. Gekara V, Snell D, Molla A, Karanasios S, Thomas A. Skilling the Australian workforce for the digital economy. NCVER, Adelaide, 2019.
9. Carolina Feijao, Isabel Flanagan, Christian van Stolk and Salil Gunashekar. The global digital skills gap: Current trends and future directions. Santa Monica, CA: RAND Corporation, Santa Monica, Calif., and Cambridge, UK, 2021.
10. Doan Thi Yen. Developing digital workforce to meet national digital transformation requirements. Ministerial-level project. Ministry of Labor, War Invalids and Social Affairs, Vietnam, 2021.
11. Prime Minister. Decision No. 283/QĐ-TTg dated February 19, 2020, approving the Scheme of the Service Sector Restructuring Plan to 2020, with a vision to 2025, 2020.
12. Ministry of Transport. Decision No. 2269/QĐ-BGTVT dated December 8, 2020 approving the Digital

- Transformation Program of the Ministry of Transport until 2025, with orientation to 2030, 2020.
13. Ministry of Industry and Trade. Vietnam Logistics Report. Industry and Trade Publishing House, 2020.
  14. General Statistics Office. Statistics on labor in logistics enterprises, Statistics Publishing, Vietnam, 2019.
  15. Nguyen Viet Huong, 2017. <https://saigonnewport.com.vn/tin-tuc/pages/xu-huong-logistics-4-0-nao-se-dua-doanh-nghiep-cat-cantrong-nam-2018.aspx>
  16. Nguyen Thi Cam Loan, Bui Thi To Loan. Human resources of the logistics industry in Vietnam, issues to be aware of in training. Scientific Journal of Cuu Long University. 2019; 13.
  17. Vietnam Logistics Business Association (VLA), Vietnam Logistics Research and Development Institute (VLI). Current status and recommendations for human resource development for Vietnam's Logistics industry. Short report, 2019.