

Improving the quality of human resource training in the logistics industry in the context of digital transformation in Vietnam today

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Abstract: Training high-quality logistics human resources is an urgent need, serving as a fundamental driver for the development of trade and the competitiveness of Vietnam's economy. However, as of now, the training of high-quality logistics human resources in Vietnam still faces many limitations and limitations. These include a shortage of logistics tutors with specialized training, academic-heavy curricula that do not focus on specific skills and professional practices, and limited application of information technology and digital skills. This article clarifies the current state of logistics human resource training in Vietnam, identifies the opportunities and challenges, and proposes solutions to enhance the quality of high-quality logistics human resource training in Vietnam today.

Keywords: Logistics; Training quality; Logistics personnel; Digital transformation.

1. Introduction

Logistics industry in Vietnam is playing an increasingly important role, as the "blood vessel" of the economy, contributing to connecting production, distribution and consumption, as well as improving the competitiveness of Vietnamese goods in the international market. Digital transformation (DT) in the logistics industry is the process of integrating technology and digital into supply chain operations, aiming to comprehensively improve the thinking, vision, values and operating methods of a logistics enterprise. Technologies such as artificial intelligence (AI), Internet of Things (IoT), and Big Data are applied to processes such as procurement, warehousing, transportation, distribution, warehouse management, order processing, payment and customer care. This helps to increase operational efficiency, reduce costs and improve customer experience. To meet that change, training high-quality human resources (HR) for this industry is not only a need, but has become an urgent requirement to ensure sustainable and effective development.

2. Research content

2.1. Overview of research on digital transformation and related issues

2.1.1. Digital transformation context

Digital transformation can be understood as the process of shifting from a traditional model to a digital model by applying new technologies such as Big Data, IoT, Blockchain... and technology software to change the management, operation, processes, working methods and culture of the organization.

Digital transformation includes 3 stages: (1) Digitization: Converting real information into digital form for easy storage, searching, and sharing. (2) Applying digital technology to business processes (Digitalization): Using software to make operations simpler and more efficient; (3) Digital transformation: Using technologies such as artificial intelligence, Internet of Things, etc. to collect, process, and analyze data comprehensively and thoroughly, leading to changes in the model and way of operating of the organization.

The CDS may include [Reis, J et al., 2018]:

Technology: Use of new technologies such as social networks, smartphones, tablets and/or other technological devices.

Organization: Changes in the organization's operations or the creation of new business models.

Social: Human impacts such as user experience, openness or resistance/resistance to change.

Digital transformation brings certain benefits in terms of internal operational efficiency of the organization such as: improving internal processing efficiency, quality and consistency of the system through reducing intermediate steps with higher accuracy. Digital transformation can also facilitate better real-time review of activities and results by integrating structured and unstructured data to provide better representation of organizational data and integrating data from different sources.

However, digital transformation can also give rise to other concerns related to (i) investment costs; (ii) information security risks; (iii) changes in working culture; (iv) changes in working models and methods... as well as requirements for human resource skills. responsible for specific activities in the organization.

2.1.2. Orientation of digital transformation of higher education in Vietnam

Since the 2000s, the Vietnamese Government has begun to pay more attention to integration, especially in the field of education in general and higher education in particular. This is a common trend in the world related to digital transformation with a series of documents expressing the policy of developing and innovating education and training on information technology application platforms such as: Project "Building a learning society in the period 2012-2020" identifies the basic factors to build a learning society and lifelong learning need to be based on a developed information technology infrastructure, supporting teaching and learning [Government, 2013]; Resolution No. 29-NQ/TW of the 8th Central Executive Committee, Session XI on Fundamental and Comprehensive Innovation of Education and Training identifies the viewpoint of perfecting the national education system towards an open education system, lifelong learning and building a learning society; Promote the application of information technology in teaching and learning [Central Executive Committee 8, Session XI, 2013]; The education development strategy for the period 2011-2020 determines that it is necessary to diversify learning methods to meet human resource needs and create lifelong learning opportunities for people. To implement digital transformation and move towards organizing completely online training, higher education institutions in Vietnam must also satisfy different requirements of state management agencies. Specifically, for university level, educational institutions must satisfy different conditions regarding: Online training technology infrastructure; Learning materials system serving teaching and learning; Teaching staff; Support staff to ensure the implementation of online training activities; Internal document system regulating and guiding the organization of online management and training [Government, 2012].

2.1.3. Logistics human resources

Management theory has affirmed that human resources are valuable assets; in the field of logistics, human resources are the core factor that determines the success or failure of the organization - management and operation process of logistics enterprises. Human resources are human resources, closely related to the population, an important part of the population, playing a role in creating material and spiritual wealth for society. Depending on the approach, the concept of human resources can be different, therefore, the scale of human resources is also different. With the approach based on human labor capacity: human resources are the labor capacity of society, all people with normal physical development have the ability to work [Tran Xuan Cau & Mai Quoc Chanh,

2012]. Thus, logistics human resources are human resources, the labor capacity of society in the field of logistics, all people with normal physical development have the ability to participate in labor in logistics enterprises.

The quality of human resources is the synthesis of the qualities and strengths of workers who are and are ready to demonstrate them in the practice of economic and social development. It includes important factors such as: physical strength, intelligence, ethics, capacity, skills and aesthetics of workers. Each of these factors has a certain position, role and effect in creating the quality of human resources, but they are always related, closely related and complementary to each other to create the comprehensive development of human resources [Duong Anh Hoang, 2012].

High-quality human resources in the logistics sector are human resources that must meet the requirements of the market (requirements of domestic and foreign logistics enterprises), which are: knowledge: expertise in logistics, economics, information technology, foreign languages; skills: technical, finding and creating jobs, working safely, individual and team working skills; good working attitude and style, responsibility for work. Most importantly, the ability to be creative in finding suitable solutions to adapt to new and complex situations of the profession.

High-quality human resources play a very important role in the development of the logistics sector. It is one of the factors that determine the success and the fundamental and comprehensive transformation of the logistics sector's activities. Creating high-quality human resources is a condition to shorten the gap, serve the connection between supply and demand, promote economic growth and accelerate the industrialization and modernization of the country, serving the goal of sustainable development. Improving the quality of human resources is a condition for our country's logistics sector to integrate with the international community.

2.2. Current status of human resource training in Vietnam's logistics industry

Regarding the demand for logistics human resources. Vietnam's logistics industry is in a period of strong development and full of potential. However, the industry's human resources are facing many challenges of "*both lack and weakness*", which is one of the main barriers for Vietnam to realize the goal of becoming a regional logistics center.

In 2023, according to the World Bank's ranking, Vietnam's Logistics Performance Index (LPI) ranked 43/139 ranked economies, a significant improvement compared to 53 in 2010. In the ASEAN region, Vietnam is in the top 5, equal to the Philippines and behind Singapore, Malaysia, and Thailand. If considering emerging markets, Vietnam is in the group of 10/50 emerging logistics markets in the world and is considered a country with the leading logistics development potential in Southeast Asia . [Ministry of Industry and Trade, 2024] . According to the government newspaper , in 2024, Vietnam will have about 34,476 logistics service enterprises with a total of 563,354 employees working. The logistics market has the participation of more than 5,000 enterprises providing 3PL logistics services, including 100% foreign-owned enterprises providing transnational logistics services, with big names in the list of the 50 largest logistics companies in the world such as DHL, Kuehne + Nagel, DSV, DB Schenker... According to the Draft Strategy of the Government on developing Vietnam's logistics services in the period 2025 - 2035, with a vision to 2045, the goal is that by 2035, the industry's growth rate will reach 8-12%; 80% of logistics enterprises will be digitally transformed; 70% of workers will be professionally trained; 70-80% of

outsourcing ratio; logistics costs/GDP will account for 12-15% (currently 16-18%); LPI ranking will reach 40 or higher.

Thus, with this Draft Strategy, the demand for human resources of logistics service providers in Vietnam is very large. Moreover, the increase in import-export activities, e-commerce and FDI investment has created great pressure on human resource demand. According to the Ministry of Industry and Trade, the Vietnamese logistics industry will need to supplement a large number of human resources in the coming years. It is estimated that by 2030, the entire Vietnamese logistics industry (including logistics service enterprises and manufacturing enterprises with logistics departments) will need 2 million to 2.2 million workers. However, the current human resource supply only meets about 10% to 40% of the demand, creating a huge gap that logistics enterprises are facing [Ministry of Industry and Trade, 2024]. Also according to the survey results of VLA, 50% of logistics enterprises need to recruit 15 - 20% more employees. While the number of workers with formal training in logistics services only accounts for about 5 - 7% of the number of workers currently working in this field [Ministry of Industry and Trade, 2024]. This shows that current logistics human resources do not meet the requirements of the logistics service industry, especially lacking both the quantity and quality of high-quality human resources.

Regarding enrollment targets, Vietnam currently has about 50 universities nationwide training in Logistics with an annual scale of about 3,500 - 4,000 undergraduate and graduate training targets. For college training, there are currently about 23 colleges with Logistics training programs with an annual scale of about 3,000 - 3,500 students.

Regarding the undergraduate training program in Logistics. Universities nationwide train human resources in Logistics in the following forms: standard programs, high-quality programs, and advanced programs. The training programs in Logistics and Supply Chain Management of universities in Vietnam are currently built according to the application orientation. However, the structure of the knowledge blocks and the duration of practical courses, the number of practice credits of the courses are often only at a modest level (20-35%). Therefore, the undergraduate training programs of universities are still heavily academic, too broad in scope, and lack of depth in specific skills and professions. Moreover, the application of innovative modern teaching methods is still limited. This makes the training quality (CLĐT) not meet the labor requirements of enterprises. Many units after recruiting have to retrain, which takes a lot of time and money. In addition, the Logistics industry is interdisciplinary and international in nature, students studying this industry need foreign languages and information technology to meet the needs of the job, but in the training program, many schools have not really focused on training on this issue. Therefore, the rate of Vietnamese graduates recruited to work in reputable logistics agencies, enterprises and branches of multinational logistics corporations is still low, facing many difficulties.

Regarding the teaching staff. Logistics is a new training major compared to other majors of many training institutions. The teaching staff of this major is currently lacking and has not been properly trained in the major. The whole country has only about 6 universities that train doctoral degrees in this major (National Economics University (NEU); University of Transport (UTC); University of Science and Technology (Hanoi National University/Ho Chi Minh City National University); Ho Chi Minh City University of Economics (UEH); RMIT University Vietnam). This is the main reason why the research and teaching force of Logistics is still lacking and thin. Some young

teachers, with little practical experience, have not been properly trained in logistics, so they encounter many difficulties in the teaching process. In addition, there are still very few leading experts who do in-depth research on logistics, the teachers are mainly experts from other fields who have switched to teaching, and there is little in-depth research experience in this field.

2.3. Opportunities and challenges of digital transformation in the training process of Vietnamese logistics human resources

Digital transformation is an inevitable trend and is having a strong impact on all industries, including logistics. For human resources in the Vietnamese logistics industry, digital transformation brings many opportunities to improve capacity and efficiency, but also poses many challenges that require adaptation and innovation.

2.3.1. About opportunities

The context of Vietnam is increasingly integrating deeply with the world economy and the 4.0 industrial revolution. The strong development of the digital revolution globally will contribute to promoting the digital transformation process in the logistics service industry to meet the development requirements of e-commerce and in line with the trend of converting from traditional business to modern business forms based on digital platforms. The development of international trade, e-commerce and the wave of foreign direct investment (FDI) has also created a huge demand for logistics human resources, especially high-quality human resources. This encourages universities to expand their scale and improve training quality.

Digital transformation helps the Vietnamese logistics industry apply advanced, modern and smart technologies to management, operation and supply chain monitoring. Thereby, increasing efficiency, saving costs and time, as well as improving the ability to respond to market fluctuations. Digital transformation not only helps logistics enterprises save costs, increase efficiency and quality, but also encourages Vietnamese universities to regularly update and innovate training programs, have the opportunity to access international training programs, certificates and advanced logistics models from developed countries, thereby improving training quality to meet the needs of enterprises.

Logistics enterprises are increasingly aware of the importance of training high-quality human resources, so they actively cooperate with universities and colleges to provide internship and training opportunities and contribute to the development of training programs. Digital transformation brings great opportunities for innovating teaching methods, applying technology to training, helping students become familiar with modern tools such as: Warehouse Management System (WMS), Transport Management System (TMS), Artificial Intelligence (AI) and Big Data.

Digital transformation opens up many opportunities for Vietnamese logistics human resources to improve their expertise and learn new skills such as data analysis, information system management, automation technology operation, artificial intelligence (AI), IoT, blockchain, etc. This creates opportunities for them to be trained and improved to meet new job requirements, contributing to the strong development of the industry. The strong development of e-commerce platforms and smart logistics will create many new job positions for logistics human resources such as supply chain analysts, warehouse automation engineers, smart transportation system managers, logistics data specialists, etc. This creates opportunities for universities to open many new majors to meet the needs of Vietnamese logistics enterprises.

2.3.2. About challenges

A survey by the Ho Chi Minh City Institute for Development Studies shows that 53.3% of logistics enterprises lack qualified and knowledgeable staff in logistics, and only 6.7% of enterprises are satisfied with the professional qualifications of their staff [Ministry of Industry and Trade, 2024]. This reflects the urgent need to improve training quality and develop human resources in the industry.

According to Savills research (2024), logistics companies in Vietnam are looking for personnel capable of using modern logistics management software such as Warehouse Management System (WMS) and Transport Management System (TMS). The shortage of IT-skilled human resources has forced many companies to invest in retraining employees or hiring experts from abroad. [Ministry of Industry and Trade, 2024].

The fourth industrial revolution and the development of digital technology have created new requirements for skills and knowledge for the workforce in the logistics industry. Technologies such as artificial intelligence (AI), Internet of Things (IoT) and blockchain are being widely applied to optimize logistics processes, from warehouse management to transportation and delivery. Therefore, human resources in the industry need to be trained in these new technologies to meet the huge market demands.

There is also a growing demand for human resources in specialized areas of logistics such as green and sustainable logistics. Enterprises are increasingly focusing on minimizing environmental impacts through the use of environmentally friendly means of transport and optimizing logistics processes to reduce carbon emissions. This requires human resources with knowledge and skills in the field of green logistics.

Universities today are facing difficulties in terms of teaching resources, especially teachers who are properly trained in logistics, teachers who are able to teach in foreign languages and teachers with many years of practical experience. In addition, other common difficulties include the construction of modern training programs, simulation labs, and the purchase of specialized software that require large investment costs, causing difficulties for many training institutions.

Current human resources are still weak in terms of specialized skills, soft skills, foreign languages and the ability to apply technology. Training programs are still heavily academic and lack practicality, causing graduates to need a lot of time to retrain. Although there is cooperation, the connection between schools and businesses is still not really deep and effective, leading to training programs not being close to the practical needs of businesses.

3. Logistics human resource training solutions in the current digital transformation context

3.1. Raising awareness of digital transformation for leaders and teachers

Raising awareness of digital transformation for leaders and lecturers is a key factor to improve the quality of logistics training at universities to keep up with modern trends.

In order for the Logistics industry at universities to develop strongly and keep up with the times, raising awareness of digital transformation for leaders and lecturers is extremely important. Therefore, schools need to organize seminars and discussions inviting leading experts on digital transformation, 4.0 technology and smart logistics to the school so that they can share with leaders and lecturers their vision, the latest trends, and success stories in applying digital transformation to the supply chain. Experts present core technologies, clearly introduce AI, Blockchain, IoT, Big Data, automation, robots and how they are integrated in modern logistics to help school leaders and

lecturers visualize both the outstanding benefits (cost optimization, efficiency improvement, customer experience improvement) and the challenges that need to be overcome (investment costs, process changes, human resource training). At the same time, creating opportunities for the leadership team and teachers to visit logistics enterprises that have successfully applied digital transformation helps them clearly see the investment efficiency and importance of digital transformation, thereby strengthening their determination to incorporate digital transformation into training programs for teaching. The school encourages and supports the leadership team and teachers to participate in the process of building the school's overall digital transformation strategy. On that basis, they will plan step by step for integrating digital transformation into the curriculum, developing the teaching staff, and investing in facilities to improve the quality of training in the Logistics industry.

3.2. Develop modern logistics training programs and curricula suitable for Vietnam's logistics practices.

Currently, advanced and modern programs and curricula that are suitable for international standards and Vietnamese logistics practices are still limited. Therefore, it is necessary to research and refer to training programs from successful countries in the logistics field, which will help teachers update and standardize training programs in Vietnam. Annually, universities need to update, supplement, and improve the content, methods, and assessment methods in training programs in a modern direction, suitable for Vietnam's reality. In the teaching process, it is necessary to combine theoretical teaching with practice so that students have the opportunity to be exposed to the real working environment through field trips and internships at large logistics enterprises, successful in the digitalization process. Schools need to build an online platform (E-platform) in Logistics training to provide students with learning and teaching materials, support E-learning, and connect training institutions and recruiting enterprises. Schools and businesses need to cooperate to establish research centers, thereby developing and applying technological solutions in logistics, contributing to improving the quality of training in this industry. Schools need to train according to the apprenticeship model, which will help students not only learn theory but also have the opportunity to practice in real business environments, thereby developing working skills and improving their readiness for the labor market. In particular, to improve students' digital transformation capacity, universities need to integrate new technologies such as artificial intelligence (AI), Internet of Things (IoT), blockchain and big data into logistics teaching content. This helps learners get acquainted with and apply digital technology in real logistics processes. During the training process, it is necessary to design specialized courses on digital transformation in logistics to provide students with knowledge and skills in technology management, data analysis and process automation. Schools need to upgrade laboratories and technology equipment, build a digital learning environment to facilitate learners to practice and research digital solutions in logistics.

3.3. Improve the qualifications of the teaching staff

Teachers are the ones who directly impart knowledge and skills to students, so their understanding of digital transformation is extremely necessary. Therefore, the School needs to organize in-depth training courses on digital transformation for the teaching staff. Training content needs to focus on core technologies in logistics 4.0 such as AI, Blockchain, IoT, Big Data, automation, robots... to improve the qualifications of the teaching staff. At the same time, create conditions and support teachers to carry out scientific research topics and application projects related to digital transformation in the

supply chain. The School needs to promote cooperation between teachers and logistics enterprises so that they have the opportunity to participate in digital transformation projects, update practical knowledge, on the basis of which teachers will bring knowledge and practical experience into lectures to help students understand more deeply about theoretical issues. The School organizes guidance and support for teachers to integrate knowledge of digital transformation into existing subjects or develop new subjects specializing in digital transformation logistics; Build forums, strong research groups, and working groups for them to exchange and share experiences and documents on digital transformation, thereby improving the qualifications of the teaching staff.

3.6. Improving the quality of labor

Students are the direct beneficiaries and will be the future workforce, so it is necessary to equip them with digital thinking and skills right from school. Schools/Faculties need to organize seminars, invite experts and speakers from logistics enterprises to share about the importance of digital transformation and its practical applications. Schools need to integrate digital transformation into the teaching program, ensure that subjects have digital transformation-related content, and encourage students to learn and apply new technologies. Organize competitions and hackathons on logistics digital transformation, creating a playground for students to develop ideas and solve practical problems using digital technology. Encourage students to participate in internships and training at successful digital transformation enterprises to help them directly contact the working environment applying digital technology so that they can accumulate experience. The school/Faculty builds clubs and research groups on digital transformation to create an environment for students with the same passion to learn more deeply and carry out small projects. At the same time, providing diverse learning materials and resources ensures that students can easily access documents, online courses, and simulation software on digital transformation. During the training process, the school focuses on improving students' foreign language and IT skills. At the same time, equipping them with new technologies and the ability to apply international trade laws and practices so that students can access advanced working environments with businesses, especially international working environments. The school invests in facilities, equipment, and builds simulation rooms to practice logistics activities to help students gain a deeper understanding of professional knowledge and skills so that students are more confident in practical activities at businesses. Students will shorten the gap between learning and practice.

3.4. Strengthen the connection between schools and foreign training organizations and logistics enterprises to improve training quality.

To improve training quality, schools need to cooperate with foreign countries, this is an advanced training form that many schools are applying. This form of training cooperation is not only for the university education system but also for the postgraduate education system. Schools need to increase the organization of exchange and learning experiences for the teaching staff, especially in countries with developed logistics systems. Thereby, the teaching staff and scientists are trained and updated with new knowledge, gradually forming and developing leading logistics scientists in Vietnam. Strengthening training cooperation helps schools improve training quality, at the same time accessing advanced training programs recognized internationally, from which schools learn to adjust and perfect the training programs that still have many shortcomings as at present.

In addition, universities need to strengthen links and cooperation with logistics enterprises and associations to build a solid knowledge foundation, ensuring that learners have sufficient professional knowledge and practical experience. In addition to training professional knowledge, schools need to focus on training in digital technology and digital applications in logistics. The school's association with logistics enterprises is extremely important in training and developing logistics human resources, creating conditions for students to visit, practice, experiment, etc. During the association process, schools can invite good experts from enterprises to participate in teaching some subjects in the training program, career orientation in the digital environment, promote cooperation in training and scientific research related to digital transformation for students. The training association between enterprises and schools helps to orient the construction of applied training programs suitable to the requirements of enterprises, improve the quality of logistics human resources training, and meet future recruitment needs.

3.5. Applying new achievements in information technology in training and developing logistics human resources

The 4.0 technology revolution with breakthroughs in the field of artificial intelligence, integrating artificial intelligence with the Internet of Things (IoT) and modernization tools is beginning to change the entire perspective of the logistics system and supply chain worldwide, posing many new requirements for logistics human resource training that schools need to consider. It is forecasted that in the coming years, modern, automatic equipment and tools with IoT applications will become popular in the logistics field. The development of information technology and cloud computing technology has strongly impacted the operations of the logistics industry. Activities such as warehouse management, freight forwarding, transportation, data synthesis and analysis have been gradually replaced by automated software systems. The rapid and deep involvement of technology in the logistics industry's chain of operations has reduced the size of enterprises' labor force ... Therefore, in the context of increasing smart factories becoming more and more present, capacity (not capital) will become the core factor of social production. This means that the demand for high-quality human resources will increase day by day, requiring increasingly high training of logistics human resources. Therefore, human resources in the logistics industry also need to have knowledge of logistics science and technology, professional skills, and know how to apply them in work to master the means and operate effectively. Not only helping to manage and enter data quickly and scientifically, the application of information technology is also a favorable condition for exchanging information, buying and selling, paying, and promoting more easily via email, social networking sites... anytime, anywhere without being dependent on space and time.

4. Conclusion

In the context of international economic integration, digital transformation plays an extremely important role in the logistics industry to serve import-export activities and ensure sustainable economic development in the era of industrial revolution 4.0. Currently, many logistics enterprises still consider the application of information technology as one of the biggest challenges, requiring a high-quality human resource team to meet this requirement. Technology can only be effective when operated by excellent hands and minds, so the development of talented human resources needs to be approached correctly and with a long-term strategy. The school plays a core role in training and developing high-quality human resources to serve the industrialization and

modernization of logistics enterprises. Therefore, the school needs to innovate thinking, raise awareness, improve the qualifications of management staff, teachers, innovate training programs, innovate teaching methods and means to improve training quality, create high-quality human resources in the logistics industry to meet the practical needs of today's enterprises.

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