



Training Vietnam's tourism human resources towards industry 4.0

Nguyen Thi An^{1*}, Trinh Thi Ha Trang¹

¹Faculty of Tourism, Khanh Hoa University

*Corresponding author: Nguyen Thi An (email: nguyenthian@ukh.edu.vn)

Received: 27/9/2024

Revised: 24/10/2024

Accepted: 15/11/2024

Keywords: the fourth industrial revolution, training, tourism human resources, Vietnam

Từ khóa: cách mạng công nghiệp 4.0, đào tạo, nguồn nhân lực du lịch, Việt Nam

ABSTRACT

The article addresses the topic of training human resources for Vietnam's tourism industry in the context of Industry 4.0. It discusses the current demands and proposes training orientations for Vietnam's tourism human resources to adapt to this revolution.

TÓM TẮT

Bài viết trình bày về vấn đề đào tạo nguồn nhân lực du lịch Việt Nam thời cách mạng 4.0 (CMCN 4.0), thảo luận các định hướng đào tạo nguồn nhân lực du lịch hiện nay để đáp ứng CMCN 4.0.

1. INTRODUCTION

The Fourth Industrial Revolution (4IR) has recently developed strongly around the world, affecting every profession and field of social life. With this major turning point, people are freed from manual labor and hold the roles of management and creativity in the development process. Besides changes in industries, tourism is also significantly impacted by the Fourth Industrial Revolution. As a general economic sector, tourism not only brings direct revenue from service areas such as hotels, tours, and attractions, but also generates income, and makes a significant contribution to the development of other related industries such as transportation, catering, entertainment, and

commerce. The 4IR has brought about breakthroughs in technology and artificial intelligence that have extensively impacted all activities in the tourism industry. To adapt to the 4IR, the tourism industry needs to undergo innovative changes in order to effectively seize opportunities for sustainable tourism development while ensuring economic, cultural and social development and environmental protection. Therefore, promoting tourism development during the era of the 4IR is of great significance for national and local economic development. With the importance of the tourism industry, training high-quality human resources to meet this revolution has become an urgent issue.

2. RESEARCH METHODS

This article was conducted by qualitative method, information is collected from relevant documents.

3. RESULTS AND DISCUSSION

3.1 What is the 4IR?

According to Klaus Schwab, this can be simply understood as follows: “The first industrial revolution used water and steam power to mechanize production. The second revolution occurred through the application of electricity for mass production. The third revolution utilized electronics and information technology to automate production. Now, the 4IR has been emerging from the third revolution, combining technologies together, blurring the boundaries between physical, digital, and biological realms” [1]. The Industrial Revolution is a period that marks a significant turning point for people throughout society, thanks to the application of new technological achievements in life, thereby changing the overall picture of society.

Building on Klaus Schwab’s definition, the 4IR will take place in 3 main areas including Biotechnology, Digital, and Physics. The core elements of Digital in the 4IR will be: Artificial Intelligence (AI), the Internet of Things (IoT), and Big Data [1]. In the field of biotechnology, the 4IR focuses on research to make breakthroughs in agriculture, fisheries, medicine, food processing, environmental protection, renewable energy, chemistry, and materials. In the field of Physics, there is a focus on new-generation robots, 3D printers, self-driving cars, new materials (graphene, skyrmions...), and nanotechnology.

Thus, the 4IR is a revolution in intelligent manufacturing based on breakthrough

achievements in the fields of artificial intelligence, virtual reality, mobile networks, the internet of things, cloud computing, automatic machinery... with the foundation of digital technology breakthroughs. This is an unprecedented revolution in human history, and it will happen rapidly, combining technology in the fields of physics, digitalization, and biology, creating completely new capabilities that will deeply impact the political, social, and economic systems of the world.

It cannot be denied that the 4IR brought many opportunities for humanity to change the economy, but it also carries numerous unpredictable risks. Never in history have we faced so many opportunities and risks at the same time. So, in the tourism industry, how will the 4IR impact human resources in Vietnam?

3.2 Impacts of the 4IR on education and training

The 4IR brings about inevitable changes in most fields, including Education. The concepts of virtual classrooms, virtual teachers, and virtual devices have become an inevitable development trend in educational training. This reality opens up great opportunities and challenges for educational institutions. Education 4.0 is an educational system created to meet the market needs in the era of Industry 4.0, also known as the 4IR. Outstanding achievements in the fields of the Internet, social networks, big data, mobile, artificial intelligence, and robotics... will create tremendous changes in all economic and social activities, greatly altering the lives of people. Education is one of the fields that will be impacted faster than others, as education itself will also create new versions of the next industrial revolutions. Accordingly, training and

scientific research activities from universities will face new requirements for reform and competition. Because the “dizzying” changes of the 4IR require education to provide learners with fundamental skills and knowledge as well as creative thinking, the ability to adapt to ever-changing challenges and work requirements in order to avoid the risk of being laid off.

Industry 4.0 requires people with the ability to think, be creative, innovate, have skills in analyzing and synthesizing information, and be able to work independently and make decisions based on analyzing evidence and data. These are also the skills that Vietnamese students are currently lacking the most. To address this issue, education 4.0 will be one of the effective solutions that education in general and higher education in particular need to implement. And education of tourism human resources is also affected by the above factors.

3.3 Impacts of the 4IR on employment, particularly in the tourism industry

The 4IR will have strong impacts on all aspects of life, economy, society, government, businesses, organizations, individuals, security... For the economy, there are changes in growth, employment, and the nature of work. For the government, it is about the impacts on direction and administration in the digital age, and the interaction between the authorities and citizens. For businesses, it is about consumer expectations, product data/information, innovative cooperation and new operating models, services and business models. For society, there is injustice between communities, and disadvantage for the middle class. For individuals, it is about relationships between people, ethical issues, and personal information management.

Within the framework of the article, we are only concerned with the issue of employment, particularly in the tourism industry. Erik Brynjolfsson and Andrew McAfee have pointed out that this revolution could create even greater injustice, especially posing a risk of disrupting the labor market. As automation replaces humans throughout the economy, labor will be surplus, exacerbating the gap between profit and capital, profit and labor [2]. On the other hand, overall, more secure and higher-paying jobs are likely to increase after technology gradually replaces humans. This also creates an increase in the job market and a growing differentiation into two groups: low-skilled/low-paid group and high-skilled/high-paid group. This scenario will contribute to increasing social conflicts. Accordingly, the 4IR will bring about significant changes in labor supply and demand in the tourism industry. Economists and scientists have warned that in the 4IR, the tourism labor market will face serious challenges in terms of labor supply and demand as well as labor structure. In an economy with a high level of automation and innovation, tourism workers must quickly adapt to changes in science and technology or else they will be redundant and unemployed. Thus, Industry 4.0 will cause the labor market to have changes in labor structure, resource structure, labor qualification structure and different labor skill requirements. In particular, workers need to have greater adaptability to meet new jobs and avoid being laid off. On the other hand, our country has abundant human and labor resources, resulting in low labor costs. However, thanks to technology, companies can collaborate and implement tasks that previously only large companies could do, mainly focusing

on applying technology to new business models to create differentiated competitiveness, so this advantage will gradually disappear. The unemployment rate is likely to increase if practical needs cannot be met. But Industry 4.0 also brings positive aspects: making an important contribution to improving labor productivity and supporting employees at work. The time when all data was stored in records and paperwork is long gone. With the development of technology, there are now numerous software programs available to support hotel business operations such as hotel management software or Booking Engine software. Hotel management software is a tool to support the management of all hotel information from customers, and services to the status of room types. Through the control process, the hotel can plan its future business activities. Traditional furniture is also gradually being replaced by flexible and smart furniture to maximize space utilization. The 4IR contributes to creating many new jobs, and developing new economic models and new markets. Technology will change production methods, leading to the need for a change in workforce to implement those production methods. There are jobs that disappear but there are also new jobs that require adaptation to meet new requirements.

Thus, jobs requiring higher qualifications and higher income may increase after technology gradually replaces humans; automation replaces humans in the entire economy in general and tourism in particular, the workforce will have an excess of low and medium-skilled labor; hyper-automation and hyper-connectivity can enhance the productivity of existing jobs or create demand for entirely new jobs.

3.4 Demands for tourism human resources in Vietnam

In the context of the 4IR, the State has proposed guidelines and policies on tourism development and human resources. The quantity and quality of human resources in the tourism industry are constantly being consolidated and enhanced. However, an actual situation is that the number of workers in the tourism industry is "high but not strong". One of the fundamental reasons is that tourism human resources have not been trained properly. As a result, high-quality tourism human resources are still insufficient compared to the actual development needs of the industry. According to the General Department of Tourism: "Currently, there are over 1.3 million tourism workers in the country, accounting for about 2.5% of the total national workforce; of which only 42% are trained in tourism, 38% are trained from other industries and about 20% have not received formal training but only received on-the-job training" [3] ... According to statistics from the Department of Training (Ministry of Culture, Sports and Tourism), there are currently 192 institutions nationwide involved in teaching related to this field. On average, the education system produces about 20,000 tourism students each year [4]. However, that workforce still fails to meet actual needs, leading to a surplus of labor a shortage of quality human resources.

The need for high-quality human resources in Vietnam has been a challenging issue in recent times; faced with the impacts of the 4IR, this need has become a more "long-term thirst", originating from the inevitable needs of both public and private sectors such as accommodation facilities, travel agencies, state

management agencies in charge of tourism and other types of tourism. As work needs change, along with the increasingly strong application of science, technology, and computerization in the working process, the possibility of labor surplus will become more and more common, while the need for high - quality human resources will continue to increase.

3.5 Current training orientations for Vietnamese tourism human resources to meet Industry 4.0

First, management agencies need to: (1) Complete institutions related to human resource development management in the tourism industry. In addition to using state budget capital, it is also necessary to promote socialization and develop policies to attract domestic and international investment in the field of tourism education and training, and develop tourism human resources to adapt to the 4IR; (2) Develop the Planning for human resources development in the tourism industry oriented to 2030. In particular, it is necessary to organize a survey to evaluate the actual situation of tourism vocational training, review conditions for ensuring the quality of training, from infrastructure, training equipment, teaching staff to the training program; forecast labor supply and demand for the tourism industry in the coming years, in order to have a basis to expand training scale, invest in corresponding infrastructure for Industry 4.0, develop teaching staff, and design appropriate training programs; (3) Regularly organize roundtable conferences among the Department of Culture, Sports and Tourism, businesses and training institutions to discuss human resources in the tourism industry; promptly address any difficulties in the industry's human resources work in the 4IR, thereby

enhancing the practical effectiveness of the connection among the Department of Culture, Sports and Tourism, training facilities and tourism businesses; (4) Invest in training and fostering tourism knowledge for officials of State management agencies in charge of tourism and local historical site management boards. In addition, open more postgraduate tourism training codes linked to countries with experience in training tourism human resources in the 4IR, to train a team of highly skilled instructors, with the aim of forming a strong and sustainable workforce; (5) Promulgate regulations and apply unified outlines and lectures according to the Vietnam Tourism Occupational Skills Standards (VTOS) and the national vocational skills standards for tourism human resource training institutions in Vietnam.

Second, tourism human resource training institutions, during the Fourth Industrial Revolution, they need to make significant changes in training activities if they do not want to be expelled. In particular, according to the author, training institutions must have the following synchronized solutions: (1) Promote the application of achievements of the 4IR in tourism training institution. Facilities for training cannot be equipped like traditional training, requiring training facilities to keep up with trends. Training institutions need to synchronize the provision of practical rooms with management software and the application of smart technology in teaching specialized subjects. To implement this solution, each sub-sector needs to sign agreements with businesses to be allowed to provide them with similar software, helping learners quickly adapt during practical learning, internships and work after graduation; (2) Research and train new job

positions to replace traditional positions that have been taken over by the technology system. The growing trend is that customers will purchase tickets, book rooms or order food... all through the electronic system. Robots or technological systems will replace humans in tasks that require more sophisticated training of tourism human resources; (3) Diversify forms and types of training and data encryption to serve learners anytime, anywhere instead of students having to go to lecture halls and libraries to read books like today. It is necessary to apply smart devices into the teaching process as well as student learning activities; (4) Redesign the output standards of the training program to ensure that the training program meets the needs of tourism businesses as they develop toward Industry 4.0. This means that the development of subjects and textbooks must be consistent with the output standards; (5) Cooperate in training with countries having long-term experience in training tourism human resources: When Vietnam officially became a member of the World Trade Organization (WTO), the ASEAN Economic Community, participated in the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CP-TPP) ... it is undeniable that learners have more opportunities in studying and accessing advanced foreign training programs. Therefore, Vietnam's tourism human resource training institutions must change their mindset to focus on improving quality and finding ways to train high-quality human resources to meet social needs. Specifically, training institutions should cooperate in training with a reputable foreign testing organization; invite schools with experience in training human resources around the world to rebuild

training programs, aiming to improve the quality of training during integration; and collaborate with schools to provide foreign language training to learners; (6) Expand links with businesses: It is crucial to have close links with businesses to provide students with a practical learning environment. Because no matter how modern training facilities and equipment are invested in, they cannot keep up with businesses, especially in an era where technology is changing more and more rapidly. When training institutions expand their training programs associated with businesses, they will enhance practical training for learners, as learning always goes hand in hand with practice, thereby improving the quality of tourism human resources.

Building a schedule that combines school hours and practical work hours at tourism businesses is a very important factor in helping students grasp knowledge and perfect practical working skills. It is necessary to immediately establish specific regulations on grading evaluation of students' practical learning hours in the overall course completion score. It means the training process at school and the practical learning process of students need to be carried out simultaneously, rather than the current practice of students only doing internships at businesses after completing their studies; (7) Improve English teaching and learning methods for students: English is the first important means to help us approach more effectively the 4IR. Therefore, current tourism human resource training institutions need to enhance the input and output of foreign language skills for students studying tourism; (8) Strengthen the teaching staff in tourism in both quantity and quality: Training to improve skills, information

technology, foreign languages, and teaching methods to ensure that lecturers are capable of teaching, self-research, and professional exchange at domestic and foreign forums to meet the requirements of human resource training in the direction of 4.0. In order to have a quality tourism workforce, even the instructors who train them must foster both professional knowledge and skills. Therefore, tourism lecturers need to regularly update their knowledge and improve their qualifications. Training institutions, agencies, and departments need to support lecturers to study abroad; (9) Tourism human resource training institutions need to participate in domestic and international tourism organizations and associations to grasp the trends of tourism development in the region and in the world. This is also one of the foundations for building a tourism human resource training strategy that is suitable for each stage of development, each region and the world; (10) Provide additional training for students in soft skills, new technology application skills, and communication skills as well as cultivate teamwork skills, self-study, and the ability to research, look up documents, and process information in order it become your own knowledge.

Third, tourism businesses need to: (1) Collaborate with training institutions in participating in developing vocational skills standards, training programs and textbooks, and supporting advanced software. Create practicing and internship bases for learners; (2) Allocate an adequate budget for training to enhance the professional capacity of employees to adapt to Industry 4.0, considering it as the responsibility of businesses for the sustainable development of the tourism industry. Large-scale businesses

need to establish their own Training Department in order to maximize the effectiveness of on-site human resource training; (3) Coordinate to open short-term training courses on international tourism professional standards in fields such as: Reception, Housekeeping, Restaurant Service, Food Processing, Hotel Management, Small Accommodation Facilities Operations, Tour operators and Travel agents, Tour guides, Tour explanations, cruise ship service; (4) Build a flexible salary and bonus mechanism to attract, retain and promote high-quality human resources working in businesses; (5) Actively apply advancements of science and technology to business operations to adapt to "smart tourism", while training, equipping operation staff with knowledge and sharing with training institutions.

4. CONCLUSION

Industry 4.0 will bring about significant changes in management and business skills, reducing costs and improving the quality of tourism services; moreover, it will serve as a major driving force to stimulate tourism demands, while pushing a part of office workers, manual workers, and those who are not adaptable to new technology out of the tourism industry. Industry 4.0 is both an opportunity and a challenge for the tourism workforce. Therefore, tourism training institutions - the key to the tourism industry - also need to undergo strong transformations to adapt to the development of technology. Tourism training institutions need to quickly access and incorporate advanced applications of smart technology and artificial intelligence into teaching and practical activities. More than anyone else, workers themselves must change and cultivate themselves to transform qualitatively to adapt to work in this 4IR.

REFERENCES

- [1] Schwab, K. (2018): *The Fourth Industrial Revolution*. World Publishers, Hanoi.
- [2] *What does the Fourth Industrial Revolution mean for our jobs?*
<https://www.weforum.org>, December 2015.
- [3] Ministry of Labor, Invalids and Social Affairs, General Statistics Office. (2015).
- [4] Ministry of Culture, Sports and Tourism. *Vietnam's labor market update newsletter*, No. 6, Quarter II.
Statistics and analysis of tourism human resources.