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UNIVERSAL EDUCATION DEVELOPMENT TO ENHANCE THE QUALITY OF HUMAN RESOURCES IN THE CONTEXT OF DIGITAL TRANSFORMATION AND INDUSTRIAL REVOLUTION 4.0

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Abstract:
Digital economy is becoming an economic development trend associated with technology with great potential for the world economy as well as Vietnam. Digital transformation is the human process of directing economic and financial activities carried out on the basis of information and communication technology (ICT). The digital economy will take telecommunications technology as the foundation in the network system of production, distribution, exchange and consumption of goods and services. To do that, there needs to be digital human resources created by universities. That is, universities must train high-quality human resources capable of operating digital technologies. Universities need to put modern information technology applications into teaching activities. Universities need to change governance models and methods, promote the application of digital technology to teach students in fields of finance, banking, health, education, and agriculture. industry, tourism, environment, smart city. This article aims to analyze the objective necessity of training high-quality human resources to operate and operate in the digital economy environment. The study uses a combination of qualitative and quantitative research methods to analyze, evaluate, and model conditions and current status of human resources. In particular, qualitative research uses in-depth interviews with experts including leaders, managers at universities, and business managers to identify the basic requirements that Universities need to equip learners. The aim is to explore aspects of the impact of the industrial revolution 4.0 on the human resource training process to respond to businesses in the context of digital transformation. Next, quantitative studies were carried out to analyze and evaluate the relationship between the training process and labor supply for enterprises in order to adapt to the context of digital transformation. The article also proposes solutions to innovate training activities to create high human resources, adapting to the trend of digital transformation.

Key words: Digital transformation, digital economy, digital education, industrial revolution 4.0, high-quality human resources, digital enterprise.

JEL classification: M53, M12, R23, I23, G34.

1. OVERVIEW OF DIGITAL HUMAN RESOURCES TRAINING

High-quality human resources are considered a vital factor to maintain the development of each country. For universities, training is a key and key activity in order to create products that are quality human resources for society. In order to meet the demand for high-quality human resource training for society in the current context, universities must innovate in teaching content and methods to improve the quality of training products. With the emergence of the Industrial Revolution 4.0 has led to one of the three main pillars of society identified as Digital, the trend of replacing machines for humans. Therefore, traditional business forms will no longer be suitable, people will find new business forms through social networks, through communication channels. Businesses that want to survive must take advantage of a new technology platform - digital technology to create high added value. To operate this technology platform, businesses need to meet the demand for high-quality human resources. That human resource must have the core value obtained from the training process, not only meet the professional qualifications but also have the skills, the ability to adapt to changes and the development of technology. Therefore, it has set requirements and requirements for learners to be able to continuously and quickly adapt in terms of knowledge, skills and degree of autonomy and self-responsibility to society. In the past, the number

one priority of education and training was to equip learners with knowledge, the dominant teaching method, helping learners to remember a lot of knowledge. But now information storage media are ready to provide timely sources of information to people. Therefore, the number one priority of learners is not knowledge retention but the ability to creatively approach and apply learned knowledge to create new knowledge. Viotti (2002) questions the relevance of the concept of "educational innovation system" in developing countries, where "learning" seems to be more important than "innovation" in developed countries. . This also means that the concept of "learning" always takes place at the heart of the "national innovation system" (Lunvall, 1992). Edquist (1997) also pointed out that "learning" is one of the important features of the "National Innovation System" approach to create high-quality human resources, adapting to new development trends. In another study by Geisler & Rubenstein (1989) also showed that the coordination between universities and enterprises includes different levels. It is to develop a technical enterprise and provide high-quality human resources capable of well operating digital technology platforms. Mitive (2009) also clearly analyzes the link between research institutions at universities and businesses and emphasizes the decisive role as well as the values that businesses bring to research activities. . Therefore, in order to improve learners' career adaptability, applied research centers should be established at universities (Robert M. Colton, 2016). At the same time, it is necessary to incorporate the development principles of manufacturing industries into Robert Barker universities (2016).

Thus, in order to improve the quality of human resources, it is necessary to associate higher education institutions with businesses to create interaction between the two sides. Research by Martin (1997), Martino (1996), Scott (1998) has added benefits that the cooperation process from universities brings to businesses thanks to cost savings, minimizing risks when implementation of research results. Moreover, when universities participate in cooperation with businesses, it also creates opportunities for educational institutions to improve the capacity of lecturers. That helps increase revenue to reinvest in university activities and creates opportunities for students to access practical activities at enterprises. Since then, it helps to improve governance at universities (Association of Technology Managers, 2000), and helps improve innovation and creativity at enterprises (Koschatzky, K.and Stahlecker, 2010). Therefore, human resources are an important advantage for the development of the digital economy in Vietnam. Universities need to strengthen research, with priority given to studies that apply Big Data or cloud computing technologies to university teaching. Universities are now orienting research and transferring research results to businesses (Lee, 2000). Therefore, universities need to direct their teaching and research activities to businesses to better exploit and test research results. Businesses also need to connect and support universities in both resources and "orders" to develop research and creative projects. Currently, in universities and businesses, the increase in cooperation and connection tends to increase because they are both aware of the benefits of cooperation (Mora-Valentin, 2000). The education sector needs to promote the application of information technology in teaching, learning and management, in order to achieve more results in terms of human resource quality and university governance. In the face of the strong demand for digital transformation, universities need to define a pioneering mission in carrying out this task, contributing to shortening the innovation process, improving the quality of education, contributing to actively in the process of national digital transformation.

2. VIEWPOINTS AND ORIENTATIONS FOR DEVELOPMENT OF DIGITAL EDUCATION TO CREATE HUMAN RESOURCES TO OPERATE THE DIGITAL ECONOMY

2.1 Recognizing the need to develop human resources in the digital economy

In the researches of Do Minh Cuong and Nguyen Thi Doan (2001) on "Development of human resources in higher education in Vietnam", it is clear that the output of education must first of all include the product, which is human resources. That human resource needs to have a

personality formed and developed according to educational goals - this is the goal for which the university exists. It can be understood from another perspective, the output of education is understood as the output of the whole education or of the national education system, which is the impact of education contributing to social development. Vietnam has issued Directive No. 52 (52-NQ/TW), specifying a number of guidelines and policies to actively participate in the Fourth Industrial Revolution. The issue of international integration and active participation in the Fourth Industrial Revolution is an indispensable and objective requirement that needs to be implemented. This is a task of strategic importance, both urgent and long-term, for both the political system and the whole society. But at present, the quality of human resources has not yet met the requirements of development. Science - technology and innovation are not really driving forces for socio-economic development. Decision No. 749/QD-TTg of Vietnam approving the "National Digital Transformation Program to 2025, with orientation to 2030". This decision has emphasized that in order to meet the needs of using digital transformation human resources, by 2025, Vietnam needs about 10,000 digital transformation officers. In addition, Vietnam currently has more than 300,000 organizations and enterprises operating, including 109 corporations, economic groups, large enterprises and about 60 banks. With the current level of information technology application, it is estimated that in the next few years, Vietnam will need at least 3,000 experts to ensure digital transformation of information systems at different organizations. For example, banks or economic groups, digital businesses.

Therefore, Vietnam must be determined to renew thoughts and actions, in which education reform is seen as an opportunity for Vietnam to make a breakthrough in implementing the digital transformation revolution. Resolution No. 41- NQ-CP, dated May 26, 2016, of the Government on tax incentives to promote development and application of information technology; Directive No. 6/CT-TTg, dated 45-2017, of the Prime Minister on strengthening capacity to access Industry 4.0. In September 2019, the Politburo continued to issue Resolution No. 52 - NQ/TW and set a target that by 2025, Vietnam's digital economy would reach 20% of GDP and develop a digital business community. Decision No. 749/QD-TTg sets the goal that Vietnam will rise to the top 50 countries in terms of e-government, improving the competitiveness of the economy. Striving to 2025, the digital economy will account for 20% of the total GDP, the proportion of the digital economy in each industry and field will reach at least 10%, by 2030, the digital economy will account for 30% of GDP. The proportion of the digital economy in each industry or field is at least 20%. In 2021, the 13th Party Congress of Vietnam unanimously approved the Resolution of the Congress. To specify: the promotion of research, transfer and application of scientific and technological advances, innovation, especially achievements of the Fourth Industrial Revolution, implementation of national digital transformation, develop the digital economy, improve productivity, quality, efficiency and competitiveness of the economy. Therefore, the heads of agencies, organizations and enterprises are committed to innovating, applying new technologies, and promoting the development of the creative industry. Vietnam has also allowed to accept the trial of products, solutions, services and digital business models when legal regulations have not been fully and clearly issued. The Government of Vietnam also requested relevant ministries and branches to immediately study and propose specific policies and regulations on taxes and fees and submit them to competent authorities for approval to encourage people and businesses to use them, providing digital services. Therefore, every country that wants to develop breakthroughs must arouse the spiritual strength of the nation, carry out "revolutions", "transformation". The outbreak of the digital revolution and the industrial revolution 4.0 will change the future of mankind, and countries will have the opportunity to break through and rise to reach the big goals of growth and sustainable development.

2.2. The role of digital transformation in the development of higher education

In the context of the strong development of the 4.0 science and technology revolution, physical labor has given way to intellectual labor. Therefore, the comparative advantage based on the quantity of labor and cheap labor is no longer relevant, countries with high quality human

resources will rise to occupy the dominant position. Education plays a very important role, not only helping to create a person but also contributing to social renewal through activities and thoughts. Education and training has the mission of raising people's intellectual level, developing human resources, fostering talents, making an important contribution to the development of the country, building the culture and people of Vietnam. In 2020, Vietnam has witnessed developments that can be said to be unprecedented in the history of the modern world. Many social activities have been delayed locally, nationally and globally due to the Covid-19 pandemic. The COVID-19 pandemic, which has lasted for more than a year, has created pressure on universities to change. In 2020, Vietnam has 110/240 higher education institutions implementing online training. Originally, online training was initially considered as a temporary solution, but until now, online training has become the trend of the times. Therefore, the COVID-19 pandemic has created an opportunity to accelerate digital transformation in education. Currently, in many universities, teachers maintain parallel teaching: creating assignments, creating learning materials in class, and implementing instructions in class.

2.3. Identify the right training area to meet the human resource needs in line with the context of digital transformation

The emergence of smart manufacturing in association with the Fourth Industrial Revolution has demonstrated its pioneering role in changing production with the application of digital technologies to production activities. The creation of a smart production system that enhances productivity and is able to make decisions in complex production conditions has saved labor and energy, creating high added value for society. . Currently, up to 50% of jobs in developed countries will be replaced by process automation in the next 15 years. This rate is expected to be even higher in developing countries like Vietnam. Today, half of the world's population is connected online, a third is on social media, 53% is via mobile, and covers all ages, races and backgrounds across the planet. Smart manufacturing also creates a competitive advantage of enterprises when the system can produce to order for personalization as well as react faster to the requirements and demanding requirements of the market. school. Strengthening the capacity to approach Industry 4.0, in which the most important is increasing high-quality human resources, is an important factor to promote countries in general and Vietnam in particular to approach Industry 4.0.

3. THE DEVELOPMENT TREND OF THE UNIVERSITY EDUCATION IN THE AGE OF THE INDUSTRIAL REVOLUTION 4.0

Stemming from the practical context, the problem of employment and unemployment is a common phenomenon, because the labor source cannot meet the requirements of society and businesses. The trend of employment in the labor market has changed markedly, with robots gradually replacing ordinary human jobs. Jobs in fields such as labor and production can be replaced by robots. Therefore, the problem for universities is that human resource training orientation must meet the industry requirements of Industry 4.0, access to new technologies and new professions. Currently, in the world, there are many universities around the world that offer short courses or graduate programs in digital economy and digital transformation for businesses at leading universities in the world such as: MIT (USA), Monash (Australia), King's College London (United Kingdom), University of Toulouse 1 (France),... In particular, the training of bachelors in the field of digital economy or digital business is also implemented by many schools. Latrobe University, RMIT University (Australia): training bachelor program in digital business (Bachelor of Digital Business); NORD University (Norway): training bachelor program in digital economy and management (Bachelor of Digital Economy and Organization),...

In the context of the fourth industrial revolution, the most competitive advantage is the advantage of high-quality human resources. Therefore, the building of a strategy for human

development and strong innovation in education to equip knowledge, promote creativity and skills, and a vision for learners in the digital age is inevitable and objective. Therefore, opening a digital economy training major is a necessary issue, meeting the society's requirements for high-quality human resources, digital human resources to participate and operate in the digital economy. National Economics University of Vietnam, or RMIT University Vietnam has conducted bachelor's degree in Digital Business in English. The goal of the schools of geography in Vietnam is towards training high-quality human resources, understanding the basic and modern knowledge of business administration. Such human resources must have fundamental knowledge and skills in applying digital approaches and tools in the management of business organizations; have the English ability to work effectively in a global environment and the context of the industrial revolution 4.0.

4. DESIGN MAJOR ACTIVITIES OF DIGITAL UNIVERSITY

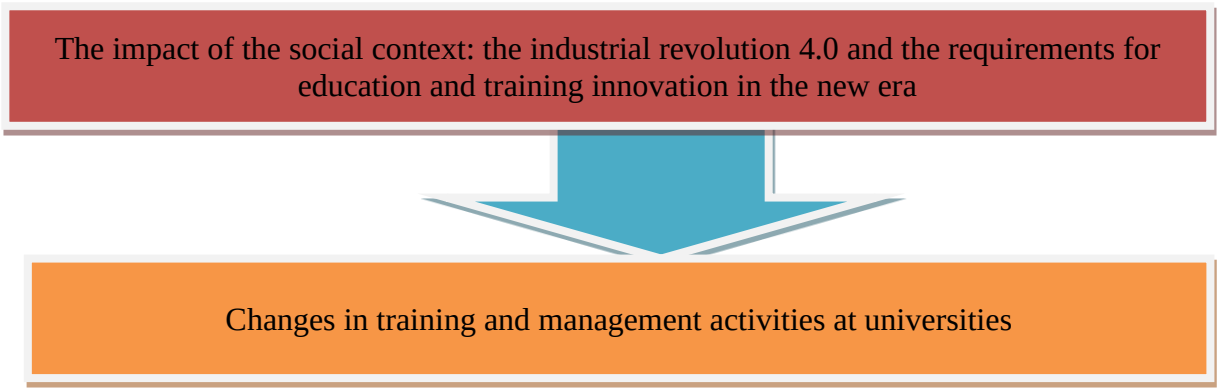

Figure no. 1. Model of approaching change in higher education from the context
Source: Author's proposal

The leapfrog development of Industry 4.0 poses many challenges and generates many new industries. New professions have emerged that have placed a requirement on higher education to produce global citizens with full knowledge, competence and professional skills. That social context requires universities to do a good job of managing admissions and managing graduates. Selection study of a case study at a Vietnamese university. University of Information and Communication Technology is a member of Thai Nguyen University, established under Decision No. 468/QD - TTg dated March 30, 2011 of the Prime Minister. The University of Information and Communication Technology has the function and task of training human resources in Information Technology. This human resource can operate in fields and professions with high professional qualifications, serving the cause of industrialization and modernization of Vietnam and the northern midland and mountainous provinces of Vietnam. . Management activities that need to be focused to effectively train high-quality human resources include: First: Management of admissions is to manage the quality of the admissions and the uniformity of the students' qualifications in the admissions process. If the recruitment management is effective, high-quality candidates will be selected. This is an important factor to ensure the quality of output resources. The enrollment management activities need to determine annual training targets; implementing the school's enrollment project and ensuring compliance with the regulations and regulations on enrollment of the Ministry of Education and Training. It is necessary to determine training targets on the basis of training needs of localities, in accordance with the training capacity of universities. That must be consistent with the planning of human resource development in the digital economy or high-quality human resources of the fields and professions that society is demanding.

Second: Managing the teaching activities of lecturers is the second most important content in training management at the University of Information and Communication Technology. Teaching management is the impact of the management subject on the teaching activities of lecturers in order to accomplish teaching objectives and tasks. These tasks include checking the

implementation of the program, subject content, innovation of teaching methods and means, checking the results of the implementation of the teaching plan; evaluate the capacity and teaching results of lecturers; assess knowledge transfer skills; manage activities of testing and evaluating learners' learning results; manage conditions to ensure teaching activities; plan to build and develop the teaching staff in terms of quality, quantity and structure of the teaching staff. Reforming the training management mechanism is an important content to ensure training quality.

5. DESIGN QUALIFICATIONS OF CAPACITY FRAMEWORK REQUIREMENTS FOR DIGITAL HUMAN RESOURC

To train engineers and bachelors working in the digital economy, learners need to master three blocks of knowledge: Basic knowledge of economics and business administration; basic knowledge of information technology; In-depth knowledge on exploiting and applying information technology to build information systems to support managers in forecasting, planning, administering, managing and making optimal decisions, building plans strategic planning for organizational development. The output standard is specifically designed to meet the following requirements.

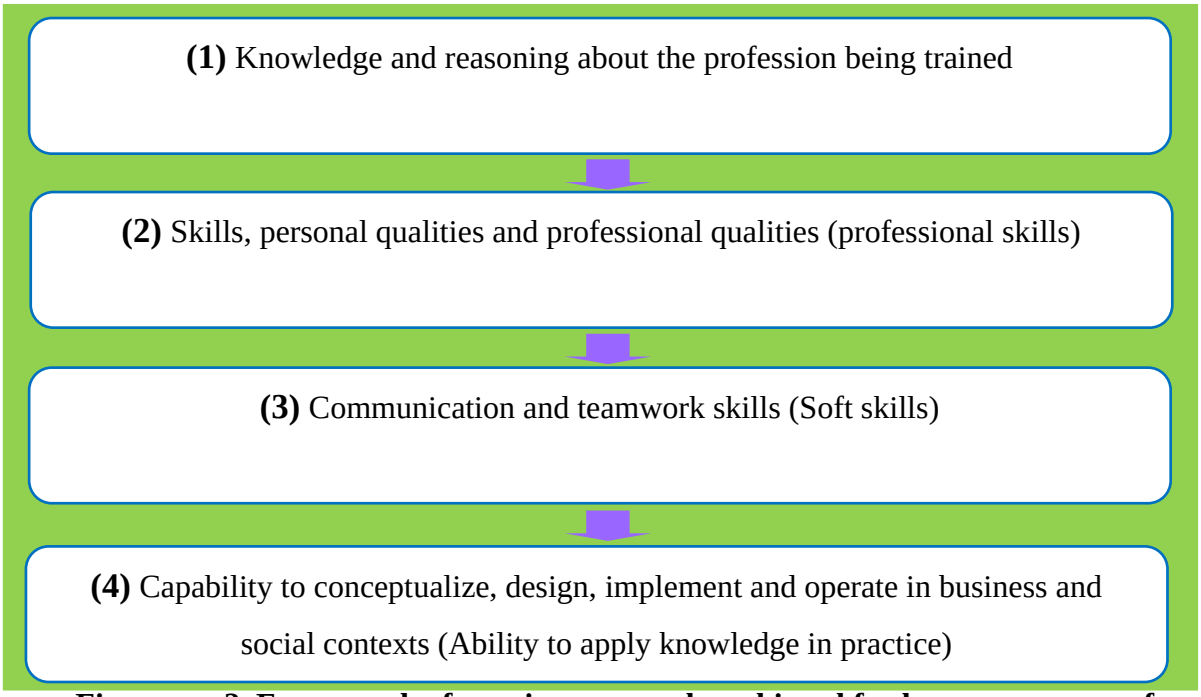

Figure no. 2. Framework of requirements to be achieved for human resources for digital economic development

Source: Author's proposal

Universities need to equip learners with knowledge and form consulting skills in the field of administration and management in enterprises. Equip learners with knowledge to implement investment projects to develop and apply information technology to management and administration; Effectively operate and exploit modern technology systems in business administration and economic management. The university training program also helps to equip learners with independent research thinking, capable of self-study to supplement knowledge, improve professional qualifications, and adapt to changes in the working environment. The training program also contributes to improving political quality; personal and professional ethics; compliance with the law and a spirit of lifelong learning for learners. As follows: Firstly, Equipping general education knowledge, core background knowledge in economics, engineering, management and in-depth knowledge in the field of economic informatics. Second, equipping with in-depth

knowledge on the application of informatics tools in data analysis and economic forecasting; develop informatics applications to support managers in planning, managing and making optimal decisions. Third: Develop skills in applying informatics tools to solve economic, administrative, management, forecasting and statistical operations; skills in planning, decision making, and time and resource management in the organization. Fourth: Help learners develop communication ability, lifelong learning ability, teamwork skills and work in organizations and businesses. O5: Help learners form ideas, design, deploy and operate strategies and solutions in the field of economic management, business administration.

6. CONCLUSIONS

In the context of Industry 4.0, the greatest opportunity for economic development is not obtained from the natural resources. Developing an economy that takes advantage of the technology platform, the digital economy not only creates scale and growth rate for economies, but also changes economies in terms of production methods (sources: resources, infrastructure, ways of operating production and business) and economic structure. The strength of a country will now be measured by the development of high technology, information and human intelligence. Therefore, Vietnamese universities need to develop strategies for human development and strongly innovate education in order to equip learners with knowledge, promote competence, skills and creative visions for learners. In particular, higher education institutions in the economic sector urgently need to renovate training programs, contents and methods to catch up with the development trend of higher education in the world. Training programs at universities need to update professional knowledge faster, in line with the trend of Industry 4.0. Thus, human resources will determine all economic and social development. Therefore, the construction, education and development of high-quality human resources at universities should be given due attention and recognition to keep pace with the development trend of the technological society and the digital economy.

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