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Improving the Quality of Undergraduate Training in Business Administration to Adapt to the Industrial Revolution 4.0 in Vietnam

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Abstract:

Industrial revolution 4.0 has taken place dramatically, leading to many new business fields appearing, affecting the way of working and skill requirements in the labor market. Accordingly, the demand for human resources in the field of business administration has also increased in both quantity and quality to meet the development needs of the economy. Not out of that trend, higher education must also innovate to adapt to IR 4.0. The competition in the field of undergraduate training in business administration is rapidly increasing, as many universities open majors to attract students to apply to the university. In order to maintain their position in the field of training, universities need to improve the quality of training to meet the requirements of employers as well as equip learners with the necessary skills to be able to start up their own businesses after graduation. The article is based on both secondary and primary data on the opportunities and challenges that IR 4.0 brings to all sectors of the national economy and the requirements to improve the quality of undergraduate training in business administration to meet the requirements of the increasingly volatile job market.

Keywords: *Improve, undergraduate training/higher education, industrial revolution 4.0 (IR 4.0), business administration (BA)*

1. Introduction

IR 4.0 - the era of integration and explosive technology, has significant impacts on changing the field of labor and employment on a large scale. This is due to the fact that countries all over the world are seeing the improvement and application of technology in the workplace of different industries at a faster and faster rate than ever before. Along with the transformation of the entire production, management and administration system, IR 4.0 brings both opportunities and challenges in the field of employment with direct and indirect impact on industries in the economy including the need for human resources in the field of BA to meet the human resource needs of enterprises in the digital business environment (ILO, 2018). For universities in Vietnam, this is both an opportunity (facilitating the expansion of training) but also a great challenge (competition among universities to attract candidates' enrollment inside and outside the country). The admission reputation of universities will depend heavily on the commitment to training quality recognized by employers and other parties in the society. This article, based on primary and secondary data, will propose several implications for stakeholders to improve the quality of undergraduate training in BA specialty to meet the requirements of IR 4.0 in the new situation.

2. Methodology

The research is based on both primary and secondary data. Secondary data was taken from articles and scientific studies related to the impact of IR 4.0 on changing ways and skill requirements in all areas of the economy, as well as the demands placed on them. For universities providing BA programs, it is necessary to innovate and update training program content and teaching methods as well as management approaches to meet the human resource needs with the increasing requirements of the digital economy. Primary data was collected through the author's observations during working at the National Economics University and discussions with colleagues at other universities, as well as interviews with some managers in Vietnamese enterprises which have a need to use human resources in the field of BA for the development of enterprises in the context of technology 4.0. Based on these data, the author has synthesized and analyzed to point out the concerned issues about IR 4.0 related to higher education and the necessity to improve the quality of undergraduate training in BA field to adapt to the environmental changes to ensure learning progress in line with the social commitment to the output standards through stakeholders' responsibilities are seen as important solutions.

3. Research Results

3.1. *IR 4.0 Changes the Way of Working and Requires Higher Skills in All Fields of the Economy*

The world is witnessing the IR 4.0. Cutting-edge technologies in various fields are applied: internet of things, internet of services and virtual reality cyber systems must be established to integrate existing complex systems and require various information and communication technologies (ICT), simulation technologies, modeling, big data, cloud computing, sensors, smart energy (HyoungSeok Kang et al., 2016).

IR 4.0 marks a different era because of its great influence, which will affect all industries, fields and the entire economy in the world. IR 4.0 is disrupting most of the traditional manufacturing platforms in every country and creating massive change in a non-linear way at an unprecedented rate. The smart factory control system makes it possible to visualize the entire production chain, even making decisions autonomously (iontech.vn, 2021). In the context of 4.0, businesses are actively digital transformation to innovate their business and operation models from changing the way of management and leadership as well as converting production methods from traditional to modern one with application IT into management and production process comprehensively to achieve the best benefits. This promotes a strong increase in productivity but also entails risks because automation replaces manual labor in the economy, robots replace humans in many fields, millions of workers in the world could fall into unemployment if they couldn't adapt quickly to change.

IR 4.0 will eliminate common jobs and increase the need for higher human resources' quality including being capable of researching, creating, mastering machines and performing tasks that require complex thinking that robots or artificial intelligence can't do it. The World Economic Forum (2016) began to focus on the need to prepare the workforce for IR 4.0. In the Future of Jobs Report (2015), the most valuable employee's competencies are problem solving, teamwork, people management, critical thinking, negotiation, quality control, service-oriented, judgment and decision-making, proactive and creative at work. The report also predicted the ten most important competencies that employees need in 2020 in order: complex problem solving, critical thinking, creativity, management, teamwork, intelligence, emotional, judgment and decision making, service orientation, negotiation, and cognitive flexibility. But in the Future of Jobs Report (2020), emphasizing that by 2025, critical thinking and complex problem solving are still the top competencies, but self-management capabilities such as proactive learning, mobility, stress relief and flexibility are new requirements emerging from 2020.

Future skills debates in the 21st century led to different skill categories emphasizing the importance of critical thinking, entrepreneurship, creativity, problem-solving skills and indispensable ICT skills. According to the ILO (2018), possessing the right skills to strengthen the capacity to adapt to the needs of the labor market and promote technological innovation is extremely important. Training, skill diversification, retraining, lifelong learning plays an important role both on and off the job. Education and training systems must be prepared to develop skills for future. Especially, there is a need for coordination among policy makers, enterprises and training service providers to ensure sufficient supply and demand in the labor market.

Furthermore, ICT and automation will interfere with the content to be learned including learning to 'own' and 'control' the machines, and the fact that machines will eliminate the need to memorize everything, eliminate the need to practice certain thinking skills, makes people become completely dependent on machines and even lose control of what they create (Victor van Rij, 2015).

Higher education in Vietnam is also gradually innovating to adapt to IR 4.0. The Government places the number two priority on education among eight digital transformation fields (Prime Minister, 2020). The digital transformation has supported the innovation of higher education in the direction of reducing lectures, transferring knowledge to developing learners' capacity, increasing self-study ability, creating learning opportunities anytime, anywhere, and personalizing learning; contributing to the creation of a learning society and lifelong learning. The explosion of technology platforms IoT, Big Data, AI, SMAC (social network - mobile - big data analysis - cloud computing) is forming the digital education infrastructure. Accordingly, several smart education models are being developed on the basis of IT application; effectively support the personalization of learning to make accessing the huge knowledge store on the network quickly and easily; helps to interact among families, universities, lecturers and students almost instantaneously. Up to now, Vietnamese higher education institutions more or less approach online training beside offline training and digitization of higher education step by step. Depending on the level of ICT application in training, the level of investment in e-learning materials and training purposes, the implementation of e-learning training in each university is different. In early 2020, when the Covid-19 pandemic began to appear, many universities were forced to close, making teaching and learning on online platforms popular. Currently, 100% of universities apply online teaching beside offline training to quickly adapt to the environment and become more and more familiar to both learners and lecturers. The digitization of higher education is also reflected in the online enrollment process of all universities; the flexible application of the enrollment model through technology not only helps universities save costs but also increases opportunities for interacting and providing quick information for candidates and their parents, helping universities adapt more quickly to the environmental changes (Kim Ngan, 2021).

However, the digitization of higher education also poses requirements for information security and investment in ICT infrastructure as well as managerial and teaching staff resources to adapt to the new digitalization needs to ensure the provision of relevant, competitive and confidential training program.

3.2. *The Demand for Human Resources in the Field of BA Has Increased Remarkably*

Accessing to the digital economy, the demand for human resources in BA also rises due to many emerging businesses and the development of global supply chains to exploit the competitive advantages of different countries over

the world. That opens up job opportunities as the digital revolution has the potential to shift employees to customer-centric jobs in the service sector (ILO, 2018).

In Vietnam today, about 80% of businesses operate in the field of commerce, in which the Sales and Marketing departments are continuously focused because they directly bring sales and benefits to companies when participating in the global supply chain. Therefore, the demand for recruiting and selecting human resources for these departments is very large. According to TopCV's recruitment market report at the end of 2020, nearly 42% of businesses said they faced a shortage of personnel in 2020. The group of companies with a size of 300- 500 employees have deficiency rate up to 54.8%. BA is the second sector in the Top 10 with the highest rate of staff shortage (Figure 1).

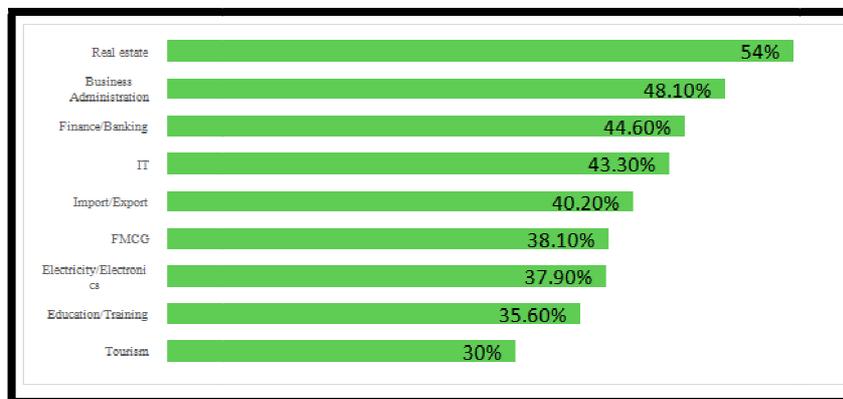


Figure 1: Ten Sectors with the Highest Rate of Staff Shortage
Source: Lai Thi Hue (2021)

Moreover, the three most-recruited job positions in 2020 are sales, marketing, and IT staff, which continue to be in-demand positions in 2021. In particular, 64.3% of surveyed enterprises are in need of recruiting sales staff (Figure 2).



Figure 2: Top Job Positions Expected to Recruit the Most in 2021
Source: Lai Thi Hue (2021)

Because job opportunities are still open, many candidates tend to enroll in this major. According to the statistics of the Ministry of Education and Training in the last 3 years, Business Administration is the field that ranks highest in terms of the number of applicants' applications each year (accounting for over 10% of the applications). With the number of full-time graduates in the academic year 2019-2020 of 227,600 (excluding Security and Defense), this field annually provides the labor market with a large number of bachelor's degrees. Besides, after graduation, students can start up their own businesses to create jobs for themselves and others if they have passion and ideas, so many students want to apply for this field instead of choosing to study technical and natural sciences which are more difficult to study (Thong Nhat, 2021). Due to the large number of enrollments as well as graduates in recent years, the BA specialty is ranked in the Top 11 fields with the highest unemployment risk today (Thao Nhi, 2021).

Paradoxically, the BA field annually provides the labor market with a relatively large number of graduates, but businesses still have a shortage of personnel, not recruiting enough demand. According to TopCV 2021's recruitment market report, when surveying the causes of personnel shortages from an enterprise perspective, TopCV said that more than half of the employers (55.2%) surveyed said that: the number of candidate profiles is not enough to meet recruitment needs, which is the biggest reason why their businesses are short of human resources; next is due to lack of technical skills, soft skills and experience from candidates. Thus, what businesses need is the quality, not just the number of bachelors, so the number of graduates majoring in BA is high, but the number of graduated ones who are rejected by

enterprises is not small, the unemployment rate of this industry is also relatively high. Several bachelors find it difficult to find the right career path for themselves if their ability does not meet the requirements of employers (Lai Thi Hue, 2021).

3.3. The Gap between Enterprise's Requirements and Graduated Student's Skills Exists

The demand for human resources in the field of BA has increased, brings both opportunities and challenges to higher education institutions. To ensure that students meet the requirements of employers or start up their own businesses, it is necessary to recognize the expectations of employers about the knowledge and skills that need to be equipped for learners to build suitable training programs and choose the right training approach.

Based on the survey results of 98 enterprises (the survey subjects were the directors of small and medium-sized enterprises, using the 5-level Likert scale), 13 types of skills (both hard and soft skills) have been sorted by level from the most to the least important (Table 1), showing that: communication, behavior and relationship building skills and technology skills are the two most important skills, in which professional knowledge ranks at 10th position. That means flexibility and knowledge of digital transformation, digital technology plays an important role in the context of IR 4.0.

Knowledge/Skills (1: the most important, to 13: the least important)	Enterprise's Requirements	Rank
Professional knowledge	3.48	10
Foreign language skills	3.71	3
Technology/IT skills	3.73	2
Cooperation skills	3.64	5
Skills to adapt to change	3.52	9
Problem solving skills	3.61	6
Negotiation skills	3.67	4
Teamwork skills	3.61	6
Decision making skills	3.19	12
Brainstorming and creative thinking skills	3.58	8
Goal setting and motivation skills	3.42	11
Effective work organization skills	3.60	7
Communication, behavior and relationship building skills	3.94	1

Table 1: Requirements of Enterprises to Graduated Students When Working
Source: Vu ThiUyenEt Al, (2019)

Thus, the views of business owners emphasized that the level of knowledge and skills needed to start up a business is quite high, which was directly linked to the success of graduated students in two ways: (i) to start up a business themselves, or (ii) to find a job that is suitable for their profession and expectation. In fact, BA field is continuously changing, requiring employees to be dynamic and quickly adapt to the volatile environment. Therefore, in addition to the hard and soft skills that are equipped at school, after graduation, they need to actively continue to improve in the working process and consider learning as lifelong.

Moreover, the survey of business owners also mentioned that there was a gap between the level of graduated student's skills and the organization's job requirements (Table 2). That is, after recruitment, the organization also needs to invest a little/a lot in retraining new employees to perform the assigned work effectively.

Skills	Enterprise's Requirements	Student's Skills
Communication and behavioral skills	3.98	3.43
Presentation skills	3.75	3.62
Relationship building skills	3.89	3.67
Teamwork skills	3.78	3.65
Planning and organizing skills	3.91	3.64
Skills of readiness to learn and self-study	3.81	3.73
Brainstorming and creative thinking skills	3.84	3.53
Problem solving skills	3.81	3.69
Leadership skills	3.54	3.12
Adapting to environment skills	4.15	3.86

Table 2: The Gap between the Requirements of Enterprises and the Soft Skills
Accumulated by Graduated Students
Source: Vu ThiUyenEt Al, (2019)

To have better suggestions for assessing the student skills' response to enterprise's requirements after graduation, the author conducted interviews with two managers to find out whether a gap exist and how to overcome as follow:

Question 1: What kind of skills do business managers in the context of IR 4.0 need to have?

Answer: 'The 4.0 economic context is a very different economy than any previous one. The change of technology and customer needs has led to many other changes in business activities such as: selling online, selling digitally instead of just

selling directly; online advertising activities instead of advertising on TV and radio; logistics activities also add a technology element to help customers track the order, contacting the shipper is much more convenient than ever before. That requires business managers to prepare: (i) Quick adaptability skills, ready to change: Business managers need to realize that the market is changing, customers are changing, thereby making changes to the business strategy accordingly. Today's potential customers with Gen Y and Gen Z are going to work and earn income. This customer class is very different from the previous customer classes in terms of industrial accessibility, online shopping needs; (ii) Knowledge of digital transformation, digital technology, according to which the business manager needs to be able to answer the questions: Why do we need digital transformation? How will we convert?, What is the roadmap?, What are the benefits of digital transformation? before actually investing in technology for digital transformation. The digital transformation following the trend, to polish the name will cost much but may not bring any benefits to businesses.'

Director of Development Center - IT Division, Saigon - Hanoi Commercial Joint Stock Bank (SHB), 10/2021

'In the context of the 4.0 economy, there are many changes, so managers need to have the following skills: (i) Time management skills: In the 4.0 era, all tasks are arranged and divided in scientific timetable. To perform the work in accordance with schedule, the manager needs to learn how to manage time effectively, not only cover and ensure the work to be done as planned, but also need to monitor and urge groups and individuals to fulfill tasks on time; (ii) Skills in assigning and managing assigned tasks play a significant role. It is very important to properly divide work and manage tasks to perform effectively. During the time of working from home due to being not possible to meet face-to-face, urging employees is limited as well as the problem that employees working from home are easily distracted, lose focus, work separately, show signs of sluggishness, the working rhythm is slower. These arising problems require managers to have skills in managing assigned tasks, motivating and supporting employees to complete the work as planned; (iii) Understanding the OKR (Objectives & Key Results) system: OKR is very popular and plays an increasingly important role in the 4.0 era. Understanding the OKR system helps managers make accurate decisions, in addition, can empower employees, increase transparency when measuring progress toward achieving goals. Understanding and applying OKRs helps departments focus on the important and essential goals of the business, allowing managers to maximize their ability at work and achieve outstanding results; (iv) Understanding of IT applications: an important skill is to be proficient in using IT software to serve online work, especially when working from home; (v) Knowledge of digital transformation is required: previously manual, document-dependent tasks are now digitized. For example, all previous procedures, regulations, forms, and contracts were presented in hard-copy form, requiring signatures and imprint; now digitized, uploaded to the online system, these are approved through digital and online signatures.'

Head of Quality Assurance Department, Assurance Division, FPT Information System Co., Ltd. (FIS), 10/2021

Question 2: After recruiting new personnel in the field of BA, what skills does the company need to train and equip so that they can catch up with the job? How long is the retraining period?

Answer: 'University graduates only have the most basic equipment for the industry, so they need to train before performing tasks. Depending on the future business orientation as well as the actual current business strategy of the enterprise, specific training in expertise and skills will be provided. However, for a new graduate, we need to immediately add the following categories of knowledge and skills: General knowledge of businesses and industries, knowledge of digital transformation, digital economy, digital ecology; teamwork skills, presentation skills, planning skills, time management, foreign language skills.'

Director of Development Center - IT Division, Saigon - Hanoi Commercial Joint Stock Bank (SHB), 10/2021

'Usually, it is necessary to equip the following courses to meet the job requirements: (i) Course using the quality management system (training time is 1-2 hours) including all the procedures, regulations, forms, records needed to apply for the job. Despite the expertise, each business will have different processes and regulations and use their own forms, so training on how to use this system to look up yourself; (ii) Training on information security regulations (training time is from 1-2 hours): For FPT as a technology company, information security regulations are mandatory. Any employee at any level, any department must be trained in information security regulations; (iii) In addition to expertise, training courses (can range from 1 to several processes, not fixed in specific training time) will depend on the needs of each department. When departments have new employees and management considers that more training is needed, they will send a request to the training department to review, arrange the number of trainees, organize the time and plan the training.'

Head of Quality Assurance Department, Assurance Division, FPT Information System Co., Ltd. (FIS), 10/2021

The results of the survey by questionnaires and in-depth interviews both show that the studies have similarities to whether students need to be equipped with the necessary knowledge/skills in the process of preparing for the start-up phase or applying to organizations in the volatile 4.0 context. Graduates after being recruited still need additional training in both hard and soft skills, the level of re-training will decrease as the level of job satisfaction of new employees increases. These are considered important guidelines for universities that need to improve the quality of undergraduate training in the field of BA if they want to affirm their position in the field of higher education both domestically and internationally.

4. Conclusion and Recommendation

IR 4.0 is taking place and develop continuously to new heights, we may not understand all the necessary skills, but the benefits that 4.0 technology brings to all sectors is undeniable. Recruitment demand in the field of BA tends to increase, but the requirements for candidates are higher. This is also an opportunity and challenge for universities that provide BA program. If they do not keep up with the requirements of development, universities will quickly lag behind. Therefore, in the coming time, in order to improve the quality of undergraduate training in BA to adapt to IR 4.0, stakeholders need to pay attention to the following aspects:

4.1. Firstly, For University:

- Periodically concentrate on updating and modernizing both offline and online training programs to adapt to the volatile environment. Depending on the vision, objective and strategy, plan to build ICT infrastructure for training activities and digitize university management in order to increase the security and authenticity of the program, increase accessibility to the curriculum quickly, easily and conveniently on any technology device, in order to promote learners' access to the registered training program. Investing in ICT infrastructure requires both time and financial sources, so a roadmap is needed to ensure the right investment. Sanctions for handling information security breaches should be widely communicated to relevant parties to raise the sense of responsibility of individuals when participating in the online learning environment. Along with that process, it is necessary to periodically provide courses for managers and lecturers on updating knowledge/ skills of IT and information security necessary to operate in the digital environment, towards meeting the needs of the program learners in a timely manner, but ensuring the safety and security of the program.
- Always focus on investing in compiling, reviewing and innovating training programs through stakeholder surveys, especially opinions from employers to ensure equipping learners with suitable knowledge, skills, logical thinking and lifelong learning skills to adapt quickly to a changing environment.
- In the training program, in addition to updating the modern professional knowledge and skills in the field, it is necessary to equip learners with soft skills in order to make students creative and proactive, confident, willing to challenge, less dependent, can live with uncertainty, ability to recognize opportunities, decision making skills, negotiation, complex problem solving through: (i) teaching methods in all subjects need to integrate a variety of soft skills to help students practice; (ii) focus on training foreign language and IT skills for students and encourage students to self-study more international certificates to prepare for themselves when they graduate; (iii) increase time for discussion and teamwork in the subjects; (iv) strengthen extracurricular activities and develop student clubs such as English club, young entrepreneurs, future administrators, etc., suitable to the nature of each major in order to create useful playgrounds among students, facilitating the development of soft skills such as creative thinking, problem solving, reflection, creativity... as the foundation for the future working process; (v) encourage students to participate in seminars inside and outside through cooperation programs, student exchange in summers; (vi) increasing the internship period at enterprises from the early years in SMEs, large organizations and MNCs will help students understand more about the practice of different industries, accumulate experiences and make a mark on their resume for application.
- Focus on developing a digital repository of digital data, open learning materials to share with other universities in the country and link to international ones, to meet the needs of self-study and lifelong learning of both lecturers and students.
- Pay attention to the communication strategy to convey information about the university's training program to stakeholders, on the one hand to promote the image of the university in the training field, on the other hand, to collect comments from stakeholders in order to upgrade the training program, build a reasonable output standard, and meet the requirements of employers. Thereby, that would attract learners to the university when job opportunities after graduation are widely open.

4.2. Secondly, for Students in the Field of BA

- Need to be active in the process of learning and cultivating oneself, must have a clear opinion according to the path of future career orientation. Moreover, students must be well aware of the need to participate in scientific research activities organized by the university yearly to develop creative thinking, know how to apply theory to practice, and develop reputation when receiving awards honoring achievements from scientific research. At the same time, students need to know how to plan a reasonable time allocation between the main study and extra lessons (additional certificates of foreign languages, computers, ...), participate in volunteer activities and part-time activities to earn extra income and practical experience.
- Need to understand his personality and recognize his own strengths and weaknesses in order to make an action plan to fill in the gaps, learn how to solve problems through practice or look for a short course on skills training for students organized by the school; actively participate in conversations, discussions at school, and in the community to gain life experience.
- Actively approach to the digital economy by effectively using social networks to collect information to analyze and exploit business data with technology, helping to deeply connect theory with practice. That will help improve professional qualifications and necessary skills in accordance with job requirements.

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