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THE APPLICATION OF INFORMATION TECHNOLOGY TO HUMAN RESOURCE DEVELOPMENT FOR CULTURE AND ART IN THE FOURTH INDUSTRIAL REVOLUTION

Context for the Fourth Industrial Revolution

Definition

The Fourth Industrial Revolution (Industry 4.0 or Digital Revolution) has been taking place since 2000 and focusing on automation and data connection thanks to the application of Internet of Things (IoT), artificial intelligence (AI), virtual reality (VR), augmented reality (AR), social media, cloud computing, Social, Mobile Analytics and Cloud (SMAC) to convert the real world into the virtual world. Industry 4.0 concentrates on three major aspects: digital technology, physics and biotechnology.

According to Professor Klaus Schwab – Chairman of the World Economic Forum, Industry 4.0 can be defined as a term referring to automation, data exchanges, smart production and technology. This Industry is defined as “a term for technologies and virtual institutions including internet of things and internet of services (Schwab, 2017).

Industry 4.0 has been taking place in some developed countries like the US, Europe and a part of Asia (Japan and South Korea). Apart from its advantages, Industry 4.0 has posed many threats and required governments and organizations to adapt for changes (Schwab 2017, 2018, Ross 2017, Gilchrist 2016).

The opportunities and challenges of Industry 4.0

The connection between individuals and communities in the globe is going to offer chance for collaboration for the majority of people, resulting in more demands of products and services. This is believed to help expand worldwide markets, boost economic production and growth. As communication fee reduces, global supply chains have become more efficient and markets have expanded in the meantime. Industry 4.0 has also created many fresh and reasonable products and services to meet the demand of different clients, and other activities (trade, payment, music and movies) can be done online.

Unfortunately, Industry 4.0 has posed a myriad of challenges like social inequality and the potential collapse of labour markets. In the modern society, knowledge plays

a bigger role than capital in the production process. Also technology can be deeply and widely integrated into social communication. More than 30% of world population have so far used social media platforms such as Facebook and Twitter to connect and share information. In such an ideal world, these platforms are the agent for intercultural knowledge and global networks. But, they might potentially popularize unrealistic expectations and extremist ideas. Internet of things creates some challenges in relation to information security and safety. For instance, a greater use of Internet of things can violate personal life, web security and human-related issues when people have access to wireless products and self-flying equipment.

Foreign countries and Vietnam's strategies in the Fourth Industrial Revolution

USA: The US desires to be “a manufacturing magnet” and creates high quality products, so this country has invested many resources into the emerging industries, industries and universities. Strikingly, it has considered modern technology as a vital factor and applied it to traditional fields.

Germany: the German government has established an Industry 4.0 team including an executive board (state members, companies, trading representatives, experts and scientists) which is strongly supported by the Scientific Advisory Board and Secretariat. It is considered as a critical factor ensuring the application of Industry 4.0 to every single field. The German government has also applied Industry 4.0 to several aspects: standardization, open standards, complex system management, broad band infrastructure for industries, safety and security ensuring the success of Industry 4.0, job organization and management in the digital industry, specialized training for Industry 4.0 and human resource efficiency. In order to solve the shortage of qualified human resources, the government has loosen its immigration policies by providing more annual quotas for those who come from outside Europe, particularly Information technology experts.

China: by 2015, the Chinese government had ignited an industrial strategy called “Made in China 2025” with the purpose of turning China into a giant technology maker in the next 10 years by focusing on robots, sensors and artificial intelligence. Besides, this country has offered taxes and finance incentives to encourage more foreign investors to invest into China's spearhead industries.

Thailand: being renowned as a new model economy, the Thai government aims to turn its country into “4.0 Thailand” so as to improve national competitive advantages, more equality through information and digital services, human resources development, revolutionizing the government for transparency and efficiency. To attain the goal, the state has created a 20-billion-bath fund and imposed proper policies and measures to support new businesses and creative centres since 2016.

Vietnam: the Vietnamese state has expressed its strong ambitions to revolutionize the country in the face of the Fourth Industrial Revolution (Industry 4.0). The government stated that Vietnam has been developing high-tech fields, paying special attention to education, developing humans and wishing to receive more assistance from the developed countries.

Many rules and regulations, mechanisms and policies have been issued with regards to the Fourth Industrial Revolution 4.0 and Information Technology:

- Resolution No 36/NQ-TW on 1/July/2014 by the Politburo on developing and applying Information Technology to meet the demand of sustainable development and international integration;
- Resolution No 26/2015/NQ-CP on 15/April/2015 by the Government on the Action Plan in line with Resolution No 36/NQ-TW;
- Resolution No 16A/NQ-CP on 14/October/2015 by the Government on digital Government;
- Resolution No 1819/QĐ-TTg on 16/October/2015 by Prime Minister on implementation of Information Technology in Governmental institutions during 2016-2020;
- Resolution No 16/CT-TTg on 4/May/2017 by Prime Minister on boosting resources for Industry 4.0.

The application of information technology to human resource development for culture and art for Industry 4.0

Policy

To follow the Vietnamese government's policies, the Ministry of Culture, Sports and Tourism has devised a plan and recommended products, which are consistent with Industry 4.0 and the Strategy for Cultural Industry until 2020, vision 2030. The Ministry will update and take advantage of new technologies. Within its confine, the Ministry will build up infrastructure and apply high technology, automation, material technology to create motion pictures, arts, performance arts, library, tourism and sports. The Ministry plans to create more cultural products thanks to the application of GIS, virtual reality, storage and big data connection.

However, to turn the above-mentioned plans into reality, the Ministry of Culture, Sports and Tourism needs to take heed of education and training of human resource. Humans are considered not only products, but also owners of the social environment. Under the pressures of Industry 4.0 training those work in the fields of art and culture should be taken into account. Industry 4.0 is by nature different from previous industries; therefore, Vietnam needs to be well-prepared and adapts sufficiently to it. By nature, three previous industries focused on mass production, thus experts and special-

ized technicians were much needed to meet the demand of society. Once Industry 4.0 came into being, human resources like those who are one single field experts and repetitive workers are no longer suitable for the society. People of the Industry 4.0 Age should be those who are able to synthesize knowledge and create new values. As a result, those people will protect their jobs in the face of artificial intelligence and robots.

Current training

Training those who could work as culture and art experts in Vietnam started from 1990 with two main methods. First, some Vietnamese people were sent overseas, upon returning they became lecturers and officials, playing a vital role in Vietnam. Training was done in Vietnam as well thanks to the help of Union of Soviet Socialist Republics (USSR) and other communist Eastern countries. Since the fall of USSR and Eastern communist countries, training has been conducted mostly in Vietnam. Those who were sent overseas for training just consisted of the small proportion. Even though Vietnam has attempted to develop culture and art workers, teachers, lecturers; but, these people have not been sufficient in terms of quantity and quality. Many of them have not had good working skills and a few of them have achieved their master degrees. Training culture and art talents requires highly qualified and reliable teachers. Moreover, teachers need to be experienced, professional and influential to train students. However, the state budget allocated for training has been cut, so institutions cannot hire top-notch domestic and international experts for training.

With regards to training programmes, there has been one single programme for all students, no specialized program has been designed for talented people. Documents, textbooks, reference books and monographs have not been cared properly, especially the use of information technology to training has not been invested.

There are some similarities and differences in training between art and other disciplines. The number of students in each class is not too many. Students are divided into different classes and these people have more chance to practise. Even though tuition fee has increased, art training institutions have come across difficulties. With current budget, it is quite tough to maintain art training institutions and even it would be tougher to get training to its zenith. In comparison with other overseas institutions, average tuition fee fluctuates from 13,500 USD to 37,500 USD annually, while tuition fee in Vietnam is roughly 1,000 USD per year. In general, art training institutions in Vietnam particularly in remote areas have been insufficient to match with increasing demands of young talents.

In addition, concrete mechanisms and policies would be much essential for experts, lecturers and researchers who have engaged in training, educating and devel-

oping young talents in terms of art and culture in Vietnam. But, these have been some flaws in training content, methods which are outdated and inconsistent with other countries and the Industry 4.0.

In other words, globalization and global integration have had tremendous effects on social life and art demands among Vietnamese people given the fact that there are greater demands in quality and style and genres. This stage is deemed challenging and tough for those who work in culture and art training in Vietnam, thereby meeting a strong demand of the society and global integration.

- Solutions: One of the primary solutions is that training models should pay greater attention to modern information technology to ensure a big and quality number of art creators or to put it another way these people have capacity to mix and create new values. Furthermore, digital platforms should be carefully studied and applied by art training institutions in Vietnam, thus creating an information technology system.

- + Social media: communication between individuals and institutions used to one way direction with no interaction. Once social media come into being, some applications like Skype, Face time, Twitter, Facebook, What Sapp, Snap chat and Instagram have been frequently used, interaction among people has been trendy.

Vietnamese art and culture training institutions might come up with various technologies to build up and boost interactive environment between students and other stakeholders. This is a reliable and strong channel to provide information and host feedback and comments from people. Additionally, this can be a communication platform to advertise training centres' brand. Lecturers and students might share information and knowledge quickly, leading to an effective, objective and fair learning environment.

- + Mobility technology: thanks to having access to Mobility technology in art and culture training centres, individuals like lecturers, students and other officers can approach services at all times by using computers and mobile tools like tablets and smartphones. The application of Information Technology in art and culture training will boost lecturers' productivity and improve quality teaching and bolster new creative ways of learning among students.

- + Analytics Technology: Training centres in Vietnam can build up a database storage to keep data for management, traing and teaching. For instance, a databse can store information about lectures, visiting scholars, alumni, studying tools and other stakeholders.

- + Computing cloud: From the suppliers' perspectives, computing cloud is an encrypted environment. The application of computing cloud can be feasible in culture and art training in Vietnam. Taking advantage of this technology will support training institutions in turning traditional methods into online or Elearning methods. There are some benefits of E-learning such as long-distance dispersal, time-saving training,

expenditure-saving training, resource share and efficient result. Art and Culture students can have access to flexible methods of learning and academic activities, so making art and working with national and international experts might trigger professionalism.

The improvement of culture and art human resource plays an important role in the context of globalization. Art and Culture Training centres in Vietnam have had a key role in seeking and nurturing these people. Consequently, improving training quality, modernizing training systems, promoting national identity, studying international cultures, learning advanced education methods, applying information technology to train quality staff in terms of profession and physical health to serve national industrialization and modernization in the integration era, so culture is regarded not only goal, but also trigger for economic and societal development.

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The application of Information Technology to Human Resource Development for culture and art in the Fourth Industrial Revolution

Summary: Industry 4.0 has been taking place so feverishly in the US, Europe and part of Asia like Japan and South Korea. Apart from its advantages, Industry 4.0 has posed many threats and required governments and organizations to adapt to changes. Under the pressures of Industry 4.0, Human Resource Development for culture and art should be taken into consideration and those who are able to create new values are much needed. As these people are able to create, connect, they are not afraid of being replaced by robots and artificial intelligence.

Keywords: Information Technology, Human Resource, Industrial revolution

Wykorzystanie technologii informacyjnych w rozwoju zasobów ludzkich w obszarze kultury i sztuki w dobie Czwartej Rewolucji Przemysłowej

Streszczenie: Przemysł 4.0 rozwija się intensywnie w USA, Europie oraz w niektórych krajach Azji, takich jak Japonia czy Korea Południowa. Oprócz swoich zalet, Przemysł 4.0 niesie ze sobą wiele zagrożeń i wymaga od rządów i organizacji dostosowania się do zmian. W związku z rozwojem Przemysłu 4.0 należy wziąć pod uwagę rozwój zasobów ludzkich w obszarze kultury i sztuki, gdzie potrzebni są ludzie tworzący nowe wartości. Ponieważ ludzie ci są w stanie tworzyć oraz współpracować w tej działalności nie należy obawiać się zagrożenia, iż zostaną zastąpieni przez roboty czy sztuczną inteligencję.

Słowa kluczowe: technologie informacyjne, zasoby ludzkie, rewolucja przemysłowa