



Original Article

Human Resource Development for Digital Transformation in Vietnam: A Need for Reconceptualizing Digital Skills and Competence

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Received 07 September 2022

Revised 27 September 2022; Accepted 27 September 2022

Abstract: Digital transformation (DT) has recently been a key national agenda of many countries, including Vietnam. A significant driver for the change is the government's digital-ready legislation and sustainable human resource (HR) development. A digitally competent workforce is essential to the transformation as it determines the level of digital adoption and ensures the functioning of digital tools and processes in various fields. However, the extent to which the HR development of digital competence is emphasized in Vietnam's policy documents remains unanswered. This paper presents findings based on the document analysis of the Prime Minister's Decision 146 (2022) on enhancing DT awareness and skills of Vietnamese human resources (HRs). Our findings reveal that the Policy was developed based on three core beliefs: raising awareness is a prerequisite, universalizing digital skills is the key to an inclusive digital society, and HR development is imperative to foster DT progress. Despite possessing some strengths, the Policy fails to provide a thorough conceptualization of digital competence, which potentially causes difficulties and inconsistencies during policy implementation. When digital skills are mentioned, they are mostly associated with the basic ability to use digital tools, participate in the digital process, or utilize digital data for decision making. Thus, this paper calls for a reconceptualization of digital skills and competence that are potentially more effective for DT in different contexts. Such a reconceptualization is expected to promote clarity and consistency in DT policymaking and implementation at various levels of governance in Vietnam.

Keywords: Digital transformation, digital skills, digital competence, human resource development, human resource management, policy analysis.

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<https://doi.org/10.25073/2588-1116/vnupam.4415>

1. Introduction

The digital era started as early as the 1940s when the first computer was made. However, it was not until the 1990s, when the first smartphone was introduced, that people across the globe experienced a remarkable change in various aspects of their lives due to technological growth [1]. Being “more than just a technological shift” [2, p. 1], DT has profoundly impacted organizational business models, operational processes and end-users’ experiences. More broadly speaking, the global network of economic and social activities based on information and communications technologies (ICT) has become a promising key for many countries, including Vietnam, to rise above their economic status.

According to a recent Google-commissioned research conducted by Dynata, Vietnam has the capacity to be the fastest-growing and the second leading country in the Southeast Asian region in the next decade. However, whether the country can realize its full potential and capacity depends on the government’s digital-ready legislation and the development of HR capital which is the key driver for change. Digital-ready legislation refers to a set of policies or laws that facilitate digitally compatible and efficient administration via technological use [3]. Digital-ready legislation is powerful for Vietnamese DT because it significantly impacts key “actors and mechanisms” involved in the process [4, p. 148].

2. Literature Review

Existing literature demonstrates various understanding of terms associated with the DT process, skills and competence. Understanding those definitions is crucial for investigating potential HR development issues and solutions for more effective DT.

2.1. DT-Related Terms

DT is defined as a process of using data, software, digital devices and computer

technology to create systemic changes in various sectors, including business and government [5, 6]. Emerging in the 2010s, DT has been depicted as “a key driver of sweeping change in the world around us” [7, p. 3]. Despite its pervasiveness, there has been a shortage of shared understanding about terms associated with DT. Without explicit definitions and clear rationales for use, these terms are no more than catchwords, potentially resulting in more disruption than innovation [5, 8].

DT is the most evolving stage, preceded by digitization and digitalization [9, 10]. The digital world has undergone three phases of digitization, digitalization and DT, in which the first two phases are necessarily systematized to boost the prevalence of the latter one [10]. *Digitization* refers to a documentation process of converting information from analogue into digital formats without changing “value creation activities” [10, p. 891]. For example, a company may choose to store customers’ data on computers instead of on paper forms; however, such a process does not interfere with previous procedures in dealing with customers. Unlike digitization, *digitalization* involves a change in existing processes and tasks, such as interaction or management, to transform the operation within an organization [10]. While digitalization goes beyond digitization, its scope is not as broad as DT, which means remarkable changes [9], such as those in business logic or in HRs’ core competence development, which affect organizations as a whole [10].

2.2. HR Development of Digital Skills and Competence

Despite the pervasiveness of digital-ready legislation, organizations are facing numerous challenges in upgrading HRs’ digital skills adequately to meet DT demands [11]. Successful DT depends not only on technological support but also on building and sustaining a strong workforce who are capable of upskilling, innovating and collaborating within and beyond organizations [11, 12]. However, the growth of technology so far has seen more investment in

setting up the infrastructure, preparing the ICT professionals and ensuring access to technology. A digitally competent workforce helps strengthen other components or pillars of a digital economy [13]. Enterprises and organizations need to balance the development of both workforce competence and intelligent technologies. Besides accumulating physical assets, organizations need to strategically mobilize and develop HRs' digital skills and competence [10].

Digital skills and digital competence are slightly different in meanings. Digital competence is an evolving concept rooted in the "economical competition in which the new technologies are regarded as an opportunity and a solution" [14, p. 1]. Digital competence is interchangeably referred to in common literature as digital skills, digital literacy, online skills, e-skills, or ICT skills [15]. However, while other terms are narrowly associated with some areas of digital technology, digital competence is an encompassing term that refers to a full range of skills, including "social and emotional aspects for using and understanding digital device" [14, p. 2]. As OECD (2005) [16, p. 4] emphasized, a competence "is more than just knowledge and skills," and each competence must

- contribute to valued outcomes for societies and individuals;
- help individuals meet important demands in a wide variety of contexts; and
- be important not just for specialists but for all individuals.

To support individuals' personal growth and professional fulfilment, Olesika et al. (2021) [15] suggest viewing digital competence as transversal behaviors, such as creativity, analytical thinking or collaboration, which are transferable across contexts. Transversal competence is not limited to technical or professional skills, so they "can be applied on a

long-term basis", are "less prone to be affected by technological changes", and "can be used within a wide range of functions, activities and contexts" [17, p. 1556].

Across the globe, international organizations and industries have chosen to create their framework by adapting the existing one. One example is the Digital Competence Framework, which was first published in 2013 for European citizens by the European Commission. This framework has been updated twice, in 2017 (version 2.1) and 2022 (version 2.2), and adapted for many uses, e.g., as tools for self-assessment and certification, as references for a global framework of reference on digital literacy skills for Sustainable Development Goals indicator 4.4.2 by UNESCO Institute for Statistics, Digital Skills Global Framework by World Bank, and digital frameworks for various countries, industries and organizations. However, existing literature has not gone beyond a proposal of a competence framework and was not backed up with empirical evidence [18].

2.3. Vietnam's Digital-Ready Legislation and HR Development Issues

Aligning with DT international trend, Vietnam has ordained multiple policies and strategic plans to boost the process at the national and local levels for the past nearly a decade [6]. The government's directive in 2017 to promote the Fourth Industrial Revolution (also known as Industry 4.0) has paved the way for various initiatives such as developing infrastructure, encouraging investment and mobilizing [19]. Table 1 illustrates that DT is not a stand-alone process but one that is linked across disciplines and sectors. Vietnam's digital-ready legislations are manifested mainly by six components which are smart cities, cybersecurity, taxation, internet infrastructure, HR and R&D, innovation and digital ecosystem [20].

Table 1. Vietnam's Digital-Ready Legislation.

Components	Policies	Key Points
Internet Infrastructure	<ul style="list-style-type: none"> Decision No. 74/2006/QD-TTg: Decision No. 868/QD-TTg: issued in 2015, revised in 2018 	<ul style="list-style-type: none"> First universal service program, developing broadband infrastructure nationwide Provision of public telecommunications services until 2020
HR and R&D	<ul style="list-style-type: none"> Directive 16/CT-TTg being issued in 2017 MOST scheme on developing the Digitalized Knowledge System in 2019 	<ul style="list-style-type: none"> Enhancing HR as fundamental to implementing Industry 4.0 Comprehensive deployment of building HR
Innovation and the Digital Ecosystem	<ul style="list-style-type: none"> Decree No. 95/2014/ND-CP Resolution No. 1&2/2019/ND-CP Decision No. 1072/2018/QDT Tg) Resolution No.1&2/2019/NQ-CP 	<ul style="list-style-type: none"> State-owned enterprises being required to invest 3-10% of total revenue for R&D activities Improving the country's business environment and national competitiveness Establishing a national e-government committee Promoting Vietnam's Industry 4.0 policies and actions
Smart Cities	<ul style="list-style-type: none"> Decision No. 950/QDT Tg being issued in 2018 	<ul style="list-style-type: none"> Vietnam joining the ASEAN Smart Cities Network in 2018 Approving the Sustainable smart city development plan for 2018-2025 and direction until 2030
Cybersecurity	<ul style="list-style-type: none"> Law no. 86/2015/QH13 on Information Security Law no. 24/2018/QH14 on Cybersecurity Decision No. 05/2017/QD-TTg 	<ul style="list-style-type: none"> Domestic and foreign firms that collect, exploit, analyze or process personal information and/or data of users in Vietnam being required to establish a branch or a representative office in Vietnam. Ensuring cybersecurity through emergency response plans
Taxation	<ul style="list-style-type: none"> Official Dispatch 848/BTC-TCT being issued in 2017 	<ul style="list-style-type: none"> Applying tax to digital transactions

Note. Adapted from Vietnam's Future Digital Economy – Towards 2030 and 2045 by Cameron et al., 2019, p22-25 [20]

Among various factors, issues with Vietnam's legal regulations and critical needs for HR development are two critical issues that hinder the progress of DT [20]. Despite improvement in Internet infrastructure, the ICT skills in the Vietnamese population are poor at multiple levels [21]. Digitalizing the public administration has been 50% completed, but only 15% of the cases were resolved via the facility [22]. The DT of Vietnam's economy and society also needs its users to have basic digital skills and knowledge. Vietnam introduced the

digital literacy certification in 2014 with Circular 03/2014/TT-BTTTT, with six modules at the basic level and nine modules at the advanced level. However, the outreach and usefulness of this certificate are questionable as the documents are aged, and little information can be found on a more updated version.

In a review of the digital skills framework adopted in 47 countries, Vietnam enterprises accept three other certificates from international organizations, such as the Microsoft or the International Computer Driver's License [13].

Nevertheless, it is ambiguous the extent to which offices and enterprises adopt these certification processes in recruitment and in HR development or how different enterprises ensure a match between the competence and levels of these certificates and the needs at the workplace. Henceforth, this study will dig deep into the representations of HR development in Vietnam's legal regulations to explore HR issues and solutions for increased DT effectiveness.

3. Methodology

This study explores how HRs' digital skills and competence are described in Vietnam's policy documents. Overall, this study seeks to answer the following questions:

- What are the rationales and strategies behind DT policies?
- How are HRs' digital skills and competence represented in the policies?

Within the scope of the study, we focused on a single case of key national policy documents that guide the implementation of DT across all levels of governance. We selected Prime Minister's Decision 146/QĐ-TTg on 28/01/2022 on Approving the Project "Increasing Awareness, Disseminating Skills and Developing Human Resources for National Digital Transformation to 2025, Orientation to 2030" (also referred to as *Decision 146* or the *Policy* throughout this paper) as this is the most recently issued policy document at the national level. We also analyzed supplementary policy documents that informed Decision 146 to dig deeper into the rationales behind it. The Policy was first translated into English and then imported into NVivo 12 for data analysis. The analysis involved data extraction, categorization and synthesis, which means moving from concrete description to more abstract inference of the data [23].

This study adopts a *policy analysis* approach which means "a process of considering, comparing and evaluating the objectives, content and effects of a policy to make policy recommendations" [24], section 6).

Accordingly, policy analysis is a crucial step that informs the progress of various activities within a policy cycle, from identifying policy problems to formulating, implementing and assessing policies. This study is based on the *interpretive approach* to policy analysis, which means "examining the framing and representation of problems and how policies reflect the social construction of 'problems'" [25, p. 1032]. The problem with the DT policies was the urgent need to improve the digital system in various economic and social aspects of Vietnam. This study also adopts the *policy assessment approach* [26], in which the Policy is viewed from different perspectives, for example, those related to the conceptualization of digital skills and competence. Our policy recommendations are based on recognizing the Policy's strengths and weaknesses.

4. Findings

This section presents findings in response to the key research questions regarding the rationales and strategies behind Decision 146, followed by the Policy's representation of HRs' digital skills and competence.

4.1. Policy Rationales and Strategies

The rationales and strategies of Decision 146 are both explicitly and implicitly stated in the document. First, the rationale of the Policy is not explicitly mentioned, but its intentions can be traced back to previous policies that inform the Policy (henceforth called the *informing policies*). It is indicated that Decision 146 is a strategic response to the Vietnam Communist Party's political ambition of enhancing the country's status regarding the level of active participation in Industry 4.0. As stated in the document, Decision 146 was established at the proposal of the Minister of Information and Communications in pursuance of some informing policies, including the 2006 Law on Information Technology and the 2019 Resolution No. 52-NQ/TW (i.e., Resolution 52)

on Vietnam's active participation in Industry 4.0). Besides national policies of digital technology, Decision 146 was also built based on laws on government organization, especially the 2021 Government's Resolution No. 50/NQ-CP on implementing the Resolution of the 13th National Party Congress.

Although Decision 146 does not mention rationales or specific problems that it aims to solve, further analysis of its informing policies, specifically Resolution 52 (section I), reveals the low-level participation of Vietnam in Industry 4.0 due to the following issues:

- The structure and quality of HRs have not met the requirements;
- Science-technology and innovation are not the driving forces for socio-economic development;
- The new national innovation system has just been formed and has not been synchronized or effective;
- The process of national DT is still slow and lacks initiative due to limited infrastructure for DT;
- Many enterprises are still passive, and the capacity to access, apply and develop modern technology is still low;
- The digital economy is small in scale;
- Fighting crime and ensuring network security still have many challenges.

The issue of digital competence was not mentioned but could be understood as the underlying reason for the above three issues. Resolution 52 explains that the shortcomings mentioned above are related to the limited DT awareness, ability, inertia in state management, and lack of innovative thinking and coordination between the central and local agencies. Due to such problems, Decision 146 was established to resolve the problems related to people's awareness, ability and attitude related to DT.

Overall, the Policy was found to be developed on three key beliefs: i) Raising awareness is a prerequisite; ii) Universalization of digital skills is the key; and (iii) HR

development is the key to sustainable DT. Such beliefs have guided the subsequent predetermined tasks and implementing solutions.

4.1.1. Raising awareness

Raising awareness is considered an indispensable set of tasks as "awareness plays a decisive role in DT" (Decision 146, section 1). The task is expected to catalyze deep awareness of DT among leaders at various levels. All Vietnamese people are expected to be provided with information about the Communist Party's guidelines and policies on DT. This emphasis on people's awareness can be found to be closely related to the identified "subjective cause" that was identified in Resolution 52 as the main cause for the country's lack of active participation in Industry 4.0:

Awareness of Industry 4.0 in the political system and the whole society is still limited, inadequate, and inconsistent. The (research) ability to analyze and forecast strategies on science and technology development trends affecting the country's socio-economic life is still limited. There has been a lack of innovation while full of inertia in the institutionalization process to meet the requirements of Industry 4.0.

(section I)

Resolution 52 describes a lack of knowledge and understanding of Industry 4.0 (which is closely associated with DT) in both the political system and the whole society. Such a shortage is linked with weak research capacity, innovative ideas and passive attitudes of those involved.

A dominant set of tasks to raise people's awareness is producing and broadcasting propaganda programs across multiple media sources. The propaganda ranges from mass media programs (e.g., documentaries, reportages, songs, exchanges, dialogues, and contests) to automatic interaction systems (chatbots) that carry out automatic propaganda. The propaganda is political as it aims at creating "trends about DT" (section III.1.d) across the

whole society. Such programs aim to portray DT as being prevalent in society and that Vietnam does not lag behind in the world. Also, through various forms of summarising and reporting achievements, Vietnam aims to enhance its national status in global DT indexes, including:

- E-government development index (EGDI)
- Information and communication technology development index (IDI)
- Global competitiveness index (GCI)
- Global cyber security index (GCI)
- Global innovation index (GII)

(section III.1.k)

Another strategy typically taken by Vietnamese public employers is using emulation and commendation, which means praising, honouring and rewarding good models and initiatives in the National Digital Transformation Program. All these propaganda programs will be conducted via traditional and modern mass media, from radio, television, portals/websites, and intranets of state agencies and organizations, to the latest ones using intelligence technology.

4.1.2. Universalization of Digital Skills

Universalization of digital skills refers to the Policy intention to make digital knowledge and skills available to all those participating in the national DT. Such a process is considered “the key for equal access to digital services” or an important contributor to an “inclusive digital society” (section 1.2). The universalization of digital skills is expected to be implemented across both public and private sectors. Within the public sector, the government plans to build Massive Open Online Learning Platforms (MOOCs) on digital skills that allow people free access to self-study digital skills. Such mass open e-learning platforms are expected to provide personalized and recognized online training where every citizen can study regardless of who and where they are. Similarly, education institutions are expected to base on the MOOCs’ content and learning materials to train digital

skills to students. State-owned enterprises are expected to organize various training programs on digital skills for public employees at all levels.

The government also plans to integrate digital knowledge and skills into the standards for HR management, particularly for the evaluation and development of public employees. Methods and criteria for measuring Vietnam’s digital skills and digital distance up to international standards are expected to be updated and reported annually. Within the private sector, organizations and businesses are encouraged to participate in the construction of digital data sources following the government’s established MOOCs. Private units are also expected to mobilize various sources to implement various training programs to train and retrain their employees’ digital skills and knowledge of DT.

4.1.3. HR Development

HR development is considered a pivotal means to “effective and sustainable DT in each industry, each field, and each locality” (section 2.1). Decision 146 presents two strategic responses to developing HRs for DT, which are (i) constructing digital networks, programs and models and (ii) organizing training courses. Within the education sector, institutions and schools are expected to update digital knowledge and skills for both teachers specialized in informatics and digital technologies and those in other disciplines. Schools in general education are expected to equip their teachers with STEM/STEAM methods, while those at higher educational levels are expected to increase targeting courses and enrolment for IT-majored students whose training majors are renovated and standardized according to international standards. To catch up with the latest trend, the government plans to develop and promulgate the piloting implementation of the Digital Higher Education model. Higher education institutions will also be evaluated based on a set of criteria measuring their level of DT.

At the societal level, the government plans to deploy an electronic library network that provides open educational resource platforms, such as open textbook programs that allow free access for Vietnamese citizens to learn and save the printing cost. To facilitate the decision-making process, the government plans to select 1,000 officials from state-owned agencies to train their skills in synthesizing and analyzing digital data. The government plans to include the same number of Vietnamese and international experts on digital technologies in a national network that aims to exchange knowledge and promote DT. Notably, the Policy emphasizes the state's key role in linking education and industries by directing higher education institutions to implement "learning from practical work" programs that meet the labour markets (section 3.3).

4.2. HRs' Digital Skills and Competence

One noticeable finding about Decision 146 is that it primarily focuses on the concept of digital skills rather than digital competence. While the term skill appears 51 times in the Policy's document, the term competence is only mentioned twice. When the term competence appears, it refers to the Global Competitiveness Index rather than digital competence. The remarkable low word frequency of the term competence reveals two possibilities: (1) digital competence is a relatively new concept that the policymakers of Decision 146 had not considered, and (2) the concept of digital competence had been considered but found to be irrelevant to the Vietnamese context, at least during the time the Policy was promulgated.

5. Discussion and Implications

Overall, Decision 146 possesses both strengths and weaknesses in response to the problem of inactive participation of Vietnam in the DT process. On a positive note, the Policy has placed priorities on skill development activities through the suggestion of various

training, mentoring and other services for skill development. The prioritization of skill development activities is reflected via some key strategic solutions, including digital-ready legislations and financial mechanisms for DT. In terms of legislation, the Policy emphasizes an action plan to "research, develop and promulgate mechanism and policies to support the enhancement of knowledge and skills on DT" (section IV.1). In terms of the financial mechanisms, the Policy aims to mobilize fund allocation from the state budget and from the whole society. The state's central budget is expected to "ensure funding for the implementation of tasks and solutions assigned to ministries and central agencies" within the scope of the National Digital Transformation Program (section 4.3).

On the other hand, the Policy has several weaknesses. First, the Policy has not adequately defined digital skills that can help guide various actors, organizations and individuals to effectively participate in the DT process. The Policy's plan mostly focuses on setting up the facilities, infrastructure and specialists for the DT. However, there is a lack of understanding that DT demands a lifelong learning process for every citizen. As suggested by OECD, "governments should make an effort to identify and conceptualize the required set of skills and competence" [16, p. 14] before making any training and development efforts. Thus, building and sustaining a thorough understanding of the concepts and procedures (or models for DT) by all citizens is essential to the successful DT implementation process in Vietnam.

The Policy only refers to digital skills, which are narrowly viewed as the habits of using digital tools or the ability to perform tasks related to digital technology. In the Policy, digital skills among working people are closely related to the knowledge and skills to use online services when needed, whereas those among professionals are restricted in their ability to synthesize, analyze or utilize digital data for decision making. By doing so, the Policy fails to recognize the emotional and social aspects of the DT process [14]. Also,

the emphasis is on technical aspects of digital capabilities, specifically on digitization or digitalization [9, 10] rather than DT. Without an in-depth conceptualization of digital skills and competence that is relevant to the contemporary Vietnamese context, the Policy may challenge various actors during their attempt to implement effective DT.

Second, some policy ambiguity potentially hinders organizations' and individuals' effective DT implementation. For example, the government plans to update and report methods and criteria for measuring digital skills aligning with international standards. However, it is unclear on what basis the methods and criteria will be created, assessed and utilized, and for which public/private areas. Also, despite the government's stated encouragement, it is uncertain how digital resources and support will be mobilized and how these resources can be accessed. Without this critical information, organizations and businesses would encounter challenges in planning their own resources and training programmes.

There are several measures that may potentially resolve the aforementioned issues. First, we would suggest the government strategically plan their HRs' capacity building based on well-planned scientific research into the conceptualization of digital skills and competence that are relevant to contemporary Vietnamese socio-political contexts. One way forward for the DT policies is to integrate the reconceptualization of DC based on an open view of DC as a transversal competence [15] which means transferable skills, such as creativity or problem solving, that can be applied in different contexts. The reconceptualization of DC is anticipated to improve the consistency and effectiveness of DC policymaking and implementation in Vietnam. The view of DC as a transversal skill would promote flexible adoption and adaptation of digital tools to innovate procedures that fit in with the existing conditions of Vietnamese working and learning contexts. Digital competence should be introduced and absorbed early in life, the skills

set should include both technical and soft skills directly related to the labour's work area, and resources are made accessible throughout a citizen's lifetime.

Furthermore, we would suggest that DT policymakers and implementing agents integrate the whole process approach [11] in systematically planning and executing HR development processes for effective DT across national and local levels. Also, the policymaking process needs to integrate the voices of various stakeholders. To ensure inclusiveness and equity, the government should pay more attention to improving the digital skills and competence of all Vietnamese citizens, especially those in disadvantaged conditions.

6. Conclusion

Overall, the study points out several problems and suggests solutions toward more effective HR development for DT in the Vietnamese context through a case of Decision 146 (2022) on improving DT awareness and skills of Vietnamese HRs. Through such a case, we have provided an insightful understanding of the rationales and strategies behind digital-ready policies. Our findings potentially contribute to effective policy advocacy that improves HR development for the Vietnamese DT process. Our findings are expected to pave the way for future research into enhancing HRs' digital skills and competence at various levels within Vietnamese society. Implications gained from this case of a Vietnamese policy could also be valuable to international contexts where there is a lack of uniformity in the conceptualization of digital competence that is imperative for HR training and development [14, 15].

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