DIGITALISATION AND LABOUR STANDARDS IN FREE TRADE AGREEMENTS: THE CURRENT LANDSCAPE AND RECOMMENDATIONS FOR VIETNAM

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Abstract:

Digital transformation in the labour sector encompasses the integration of digital technologies into every facet of work and employment services. By automating routine tasks, streamlining operational processes and enabling real-time, data-driven workforce management, digital transformation delivers measurable gains in efficiency, cost reduction and organizational agility. This process also gives rise to several significant risks, including the pervasive collection and processing of employee data, which can lead to privacy infringements, increased surveillance and potential data breaches, alongside the emergence of novel employment models such as platform work, gig assignments and remote arrangements, which may exacerbate job insecurity and displace traditional roles; moreover, the rapid pace of technological change creates an urgent need for continuous upskilling in digital competencies. Within the expanding digital economy, labour-related digital transformation serves primarily as an enabling mechanism for more effective implementation of the labour provisions found in modern free-trade agreements (FTAs). However, the digital transformation index cannot, in itself, constitute a labour standard. The mere deployment of technology does not guarantee respect for fundamental worker rights (fair remuneration, safe working conditions or adequate social protection). A review of selected new-generation FTAs reveals significant lacunae: the absence of binding legal frameworks for digital technical standards; a lack of detailed personal-data protection rules specifically tailored to workers; insufficient regulation of platform-based and remote work modalities; and no clear commitments to vocational reskilling or digital-skills training. To address these shortcomings and harness the full potential of digital transformation, this paper offers recommendations that the Government of Vietnam can adopt to close the regulatory gaps in existing FTAs and promote a more equitable, resilient, and future-ready labour market in the digital age.

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1. Introduction

Digital transformation is the process by which digital technologies are applied to all facets of business and everyday life in order to alter operational modalities, enhance efficiency and generate new value. Digital transformation shall not be construed merely as the digitization of documents and workflows, but rather as a comprehensive reconfiguration of the manner in which an organization, enterprise or individual operates, manages and develops. The principal undertaking of digital transformation consists in the deployment of emerging technologies, such as artificial intelligence ("AI"), big data ("Big Data"), the Internet of Things ("IoT"), blockchain ("Blockchain"), cloud computing ("Cloud Computing") and other analogous technologies, to automate processes, minimize human intervention, increase productivity and reduce the incidence of human error (Siebel 2019). Through the process of digital transformation, service providers are enabled to gain deeper insights into their clients and to furnish services tailored to individual preferences. Furthermore, digital transformation shall possess the capacity to alter existing business models and to engender novel ones, harnessing data and technology to accelerate the development of products and services while achieving cost efficiencies.

Digital transformation in the labour sector is the process of applying digital technologies to activities and services related to labour, employment and social welfare, with the objective of enhancing efficiency, reducing costs, and improving the experience of both employees and employers. Digital technology applications in the labour sector, developed in recent years, can address virtually all the needs of both employers and employees. Examples include: online employment portals (Intech 2025), digital systems for workforce management and monitoring (Workday 2025), (SAP 2025), AI-driven recruitment applications (Hirevue 2025), online platforms for training and skills enhancement (EdX 2025), the digitization of social insurance and unemployment insurance procedures (BaohiemxahoiVietnam 2025), blockchain-based systems for managing employment contracts (Department of E-commerce and Digital Economy 2025), automation of payroll and benefits administration; gig-economy job-matching platforms, gig economy job – matching platforms, the use of IoT and data analytics in occupational safety management (Mandl 2025).

Digital transformation confers substantial benefits on both employers and employees; however, it may also give rise to challenges that require management and support from the State. First, in the labour sector, digital transformation can result in job losses and exacerbate labour-market inequalities in certain industries, as workers may lack the capacity to adapt to new technologies (Mandl 2025). Digital transformation may give rise to precarious working conditions and undermine employment security. For instance, platform-based work often lacks stability and does not afford basic social protections such as health or unemployment insurance. In such an environment, workers

may be subject to exploitation or required to perform under unsafe conditions, since the management algorithms employed by service providers are not necessarily calibrated to safeguard worker interests. Furthermore, the use of AI to manage and monitor employees can heighten the risk of personal-data breaches and lead to excessive extraction of labour. Digital transformation technologies may be supplied by third-party technology providers or developed in-house by employers, and shall require formal validation by the competent State authorities. The efficacy of such validation processes shall depend upon the level of infrastructural development in the host State, as well as the applicable legal framework and policy regimes of each jurisdiction.

In the context of states actively concluding free trade agreements (FTAs) to promote commerce, labour standards form a core commitment of new-generation FTAs. These agreements, on the one hand, affirm each Member's sovereign right to enact and enforce domestic labour legislation, and, on the other hand, require Members not to invoke labour standards in a manner that unduly restricts free and fair international trade. Accordingly, might digital transformation be recognized as a new labour standard, given the rapid and far-reaching digitalisation of labour activities today? And should new-generation FTAs include supplementary provisions to ensure that such standards do not impede free and fair trade and investment?

However, digital transformation in the labour sector does not, by its nature, constitute a labour standard. Digital transformation shall reflect the extent to which organisations deploy digital technologies across their operations. It shall serve as a metric of an organisation's advancement in integrating technology into its workflows, thereby enhancing operational efficiency and productivity. Although digital technologies may assist in improving working conditions, they shall not supplant fundamental labour standards concerning remuneration, working hours, or social benefits. Such standards must be established and observed irrespective of the extent of an organisation's digital transformation. For example, an enterprise may employ technology to automate production processes and workforce management; however, if it fails to ensure compliance with statutory wage requirements and safe working conditions, it shall not satisfy basic labour standards despite having implemented digital transformation. Accordingly, digital transformation in the labour sector serves as evidence of an organisation's technological modernization and progress, but it does not constitute a labour standard and cannot replace the legal provisions necessary to protect workers' rights and health.

The article is structured in three main parts. Part I outlines the current landscape of digital transformation and its relationship with labour standards in free trade agreements (FTAs), with particular reference to those FTAs to which Vietnam has signed or acceded. The author identifies three principal issues that remain unaddressed by existing FTA frameworks-personal data protection, digital-based employment models, and advanced skills training. Part II systematically sets out Vietnam's policies, objectives, and regulatory provisions governing digital transformation in the labour sector. Part III analyzes the prevailing state of digital transformation in Vietnam and advances a series

of recommendations to vigorously promote digital transformation so as to strengthen Vietnam's capacity to implement its FTAs.

2. The current landscape of digital transformation in labour sector in Free Trade Agreement

2.1 Digital technical standards: Can they institute a Labour Standard?

Digital technical standards comprise the rules, guidelines, or technical specifications intended to ensure that the technologies developed are interoperable, operate effectively in concert, and possess the capacity for scalability as required (Bergsen et al. 2022). Digital technical standards establish a digital ecosystem in which products and services may operate seamlessly and be readily expanded. Historically, the development of technical standards was a narrow discipline, requiring deep expertise in technology and traditionally restricted to engineers and technical specialists. However, with the rapid evolution of digital technologies and their profound societal impact, digital technical standards have grown in importance and now command the attention of States.

The concept of "standardizing technical specifications" for regulatory purposes is being pursued in many jurisdictions. In the telecommunications sector, China proposed the standardization of an alternative Internet architecture, known as "New IP" (New Internet Protocol), at the International Telecommunication Union (ITU) in 2019. China's New IP model constitutes an initiative to establish a centralized Internet architecture that enables governments to exercise enhanced control over network operations. China has continued to advance these proposals through subsidiary submissions at international bodies such as the International Telecommunication Union (ITU). China has not confined its standardization efforts to Internet protocols but has also sought to codify technical standards for critical technologies such as artificial intelligence ("AI"), the Internet of Things ("IoT"), facial-recognition systems, and quantum computing. These technologies have the potential to exert profound impacts on human rights, particularly through applications of surveillance and social control.

However, not all perspectives on the "standardization of technical specifications" have secured the support of legislators. China's proposal has prompted States such as the United States, the European Union and the United Kingdom to adopt heightened vigilance regarding the prospect that standards-development organizations (SDOs) may be leveraged as instruments for institutionalizing "digital authoritarianism" at a technical level. The New IP proposal, which envisages a centralized Internet architecture enhancing governmental control, has raised significant geopolitical concerns among other States and has led to greater caution in digital-standardization negotiations (Bergsen et al. 2022). Such developments run counter to the open and decentralized Internet paradigm endorsed by the United States, the European Union, and the United Kingdom. China's New IP proposal has given rise to concerns that the Internet could be fragmented into discrete networks, thereby undermining the openness and global interoperability of the existing Internet architecture. Moreover, this scenario implicates

human-rights and Internet-freedom issues, insofar as New IP may afford governments enhanced capabilities to censor and control network communications.

Digital technical standards in the context of cross-border data exchange denote the codified regulations, technical specifications and guiding principles designed to ensure interoperability and operational efficiency in international data transactions and exchanges. Such standards are typically developed through multilateral cooperation to foster seamless connectivity while safeguarding data privacy, security and intellectual-property rights. An example is the Digital Standards Initiative ("DSI"), launched by the International Chamber of Commerce ("ICC") with the aim of establishing a harmonised global digital-trade ecosystem that promotes sustainable and inclusive growth. Headquartered in Singapore, the DSI is governed by an International Steering Council comprising representatives from the ICC, Enterprise Singapore, the Asian Development Bank, the World Trade Organization and the World Customs Organization. By prioritizing cost reduction, accelerated transaction speeds and strengthened supply-chain security, the Initiative seeks to elevate the quality and interoperability of data exchanges across global supply networks (ICC 2025).

In the WTO's traditional trade framework, Technical Barriers to Trade (TBT) provisions-primarily applicable to goods-serve to ensure that products meet safety, environmental and consumer-protection requirements. Nevertheless, if technical regulations or standards are applied arbitrarily or inconsistently across jurisdictions, they may function as non-tariff barriers and impede international trade. The WTO TBT Agreement is expressly designed to prevent Members from using technical regulations as disguised trade restrictions. It encourages Members to base their regulations on relevant international standards and to recognise one another's conformity-assessment procedures, thereby promoting regulatory coherence and facilitating trade.

Within the scope of free-trade agreements, Parties frequently negotiate a dedicated TBT chapter to safeguard against unnecessary technical impediments to trade. For instance, Chapter 7 of the EU–Japan Economic Partnership Agreement aims to minimise technical barriers to trade in goods by ensuring that technical regulations, standards and conformity-assessment procedures do not introduce unwarranted obstacles. Under this chapter, the Parties undertake to apply good regulatory practices, defer to international standards where available, and deepen cooperation in the development and refinement of technical regulations to maintain interoperability. Provisions on transparency in standards development and conformity assessment-including opportunities for stakeholder participation and public commen-further facilitate trade in goods. The agreement also underscores bilateral cooperation to harmonise standards and to launch trade-enabling initiatives, thereby securing effective and equitable market access for both Parties.

Digital technical standards have emerged as a key focus in international trade negotiations, yet existing free-trade agreements generally do not contain detailed legal frameworks for their governance. For example, Chapter 7 of the EU–Japan Economic Partnership Agreement addresses technical barriers to trade in goods-covering technical

regulations, standards and conformity-assessment procedures-but does not set out specific provisions for digital technical standards. That chapter is principally concerned with minimising technical barriers, promoting the use of international standards and harmonising technical regulations in traditional goods trade, leaving digital dimensions without tailored provisions for standardisation or oversight.

This gap underscores the need to update trade agreements in order to keep pace with the rapid evolution of the digital economy and the demands of digital commerce. As the Pacific Economic Cooperation Council (PECC) has observed, inconsistencies in terminology and approaches to digital provisions across different agreements can lead to non-uniform application and enforcement challenges. Divergent interpretations and implementation practices regarding digital standards risk complicating agreement execution and undermining consistent compliance among the Parties (Lovelock 2025).

Therefore, although States continue to approach the development of digital technical standards with caution, such efforts are indispensable to secure effective international cooperation and to mitigate trade barriers. Digital technical standards furnish a common technical lexicon for States and enterprises in the exchange of information and data, enabling all participants to comprehend and implement procedural and technical requirements without encountering linguistic or interpretive discrepancies. When all States adhere to a uniform set of digital standards, procedural and technical divergences are substantially reduced, thereby lowering the risk of conflict and dispute (Yann et al. 2023). Digital technical standards constitute a foundational framework for enhancing both the security and operational efficiency of digital transactions. By prescribing uniform protocols and specifications, they ensure robust protection against cyber threats and facilitate seamless interoperability across heterogeneous digital platforms (Klaus and Avishalom 2023). Conversely, the absence of clearly articulated digital technical standards may retard the pace of innovation and economic growth. Without such benchmarks, enterprises and regulators face uncertainty in meeting compliance obligations and integrating emergent technologies, thereby elevating transaction costs and constraining market dynamism (Apec 2015).

In summary, digital technical standards are indispensable for establishing and maintaining a global digital ecosystem, ensuring that technologies can interoperate, scale and function seamlessly. In the context of digital transformation within the labour sector, the deployment of new technologies requires that systems be compatible and capable of efficient data exchange. For example, an enterprise's human-resources management (HRM) system may interface directly with government regulatory platforms to submit social-insurance reports without modifying data structures-an interoperability made possible by adherence to common digital technical standards, thereby streamlining workflows between stakeholders. Moreover, digital technical standards help address cybersecurity concerns in labour management, particularly when organisations employ digital tools or artificial-intelligence systems to oversee employees working remotely or through database-driven platforms. However, these standards are not yet harmonised across jurisdictions, and differences in their application undermine the uniformity of

digital transformation in the labour sector. Absent clearly defined standards, HRM systems or technology platforms used by enterprises in one country may prove incompatible when collaborating with international partners, expanding into new labour markets, or managing remote workforces.

Theoretically, digital technical standards facilitate not only the interconnection of labour-management systems on an international scale but also foster a more equitable and transparent working environment. This, in turn, promotes the development of digital labour markets; however, it simultaneously challenges States to establish legal frameworks that protect workers' rights in the digital realm. In practice, the formulation and implementation of digital technical standards depend heavily on intergovernmental negotiations and coordination, with labour remaining a traditional matter of national security and a socially sensitive issue intertwined with each State's political, economic and cultural context. Consequently, integrating digital technical standards into the labour chapters of new-generation free-trade agreements presents significant difficulties. Each jurisdiction possesses unique labour-market characteristics and legal regimes-featuring divergent rules on employee rights, social-welfare entitlements and government intervention-which creates obstacles to harmonising shared digital standards. Nonetheless, in light of the accelerating digitalisation of labour activities, developing digital technical standards for the labour sector is imperative in the near future.

2.2 Some Challenges of Digital Transformation in the Labour Sector under New-Generation FTAs: Regulatory Gaps and Disparities

2.2.1 Protection of Workers' Personal Data

New-generation free-trade agreements typically incorporate data-protection clauses; however, these provisions are often expressed in broad, high-level terms and do not delve into the practical modalities for safeguarding personal data in digital environments. For example, the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP) obliges each Member State to establish a legal framework for the protection of personal information, yet it refrains from prescribing the specific measures required to operationalise and enforce such protections. While this latitude allows States to tailor their regulatory approaches to domestic contexts, it also carries the risk of producing uneven standards of personal-data protection across jurisdictions (Lovelock 2025). The CPTPP's personal-data protection provisions authorize Member States to impose restrictions on cross-border data flows for legitimate public-policy objectives, yet they do not provide detailed guidance on the specific measures or procedures to be adopted Consequently, States may develop divergent interpretations and enforcement approaches, thereby complicating compliance for businesses and heightening the risk of data-security breaches.

Relative to other trade agreements, the CPTPP and EVFTA set forth comparatively high-level obligations on personal-data protection, offering only general commitments to safeguard personal information and consumer data. By contrast, the USMCA , DEPA , SADEA include more granular provisions: they require that data-protection measures be

commensurate with the risks identified and encourage reference to international instruments such as the APEC Privacy Framework and the OECD Privacy Guidelines. The lack of specificity in personal-data provisions within agreements like the CPTPP and EVFTA may give rise to divergent interpretative approaches among Member States and impair uniform compliance in the protection of personal data.

The APEC Privacy Framework, adopted under the auspices of the Asia-Pacific Economic Cooperation (APEC), advances a flexible, outcomes-oriented model for privacy protection across its Member Economies. It is designed to facilitate the free flow of information while safeguarding personal data, by encouraging a risk-based approach and voluntary adherence to nine core principles-such as collection limitation, use limitation, security safeguards, and accountability-without erecting unnecessary barriers to cross-border data transfers. Additionally, the OECD Guidelines on the Protection of Privacy and Transborder Flows of Personal Data, promulgated by the Organisation for Economic Co-operation and Development (OECD), serve as a foundational international standard. These Guidelines set forth high-level principles-including purpose specification, data quality, openness, individual participation and enforcement mechanisms-and urge Member States to implement legal and regulatory frameworks that uphold these norms. Together, the APEC Framework and OECD Guidelines provide complementary blueprints for reconciling data-driven innovation with robust privacy safeguards on a global scale.

2.2.2 Training and Enhancement of Digital Competencies for Workers

Digital skills are defined as the body of knowledge, competencies and attitudes necessary to operate digital technologies proficiently in both personal and professional contexts. These competencies extend beyond fundamental computer literacy to include Internet usage, cloud computing, information-security practices and application of software within contemporary digital environments. As specialised proficiencies, digital skills typically require formalised training programmes delivered under the guidance of qualified technical experts.

New-generation free-trade agreements currently do not contain specific commitments to support the training and enhancement of digital competencies for the labour force. Instruments such as the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP) and the EU–Vietnam Free Trade Agreement (EVFTA) predominantly address foundational labour rights-freedom of association, the elimination of forced labour and the protection of workers' interests-yet they omit targeted provisions for upskilling workers in digital technologies.

Within the CPTPP, labour commitments are largely confined to respecting established international labour standards, without prescribing concrete measures to facilitate digital-skills training. Likewise, its chapters on data protection and e-commerce focus on safeguarding personal information and ensuring the free flow of data, but remain silent on programmes to equip workers to adapt to rapid technological change. The EVFTA likewise enshrines obligations to uphold labour rights and internationally

recognised standards, yet contains no dedicated clauses for digital-skills development. This lacuna in new-generation FTAs leaves a preparatory gap: without clear obligations to foster digital competencies, the workforce may be ill-prepared to meet the demands of an increasingly digitalised economy.

The absence of explicit commitments to digital-skills training may give rise to substantial challenges as workers confront the rapid pace of technological change and emergent labour-market requirements. Member States may find it difficult to ensure that their workforces possess the requisite competencies to participate in, and remain competitive within, an increasingly globalised and digitised economy.

2.2.3 Digital Transformation and Employment Challenges

Digital transformation and automation stand to displace numerous traditional occupations—particularly in manufacturing, customer service and retail. As the United Nations Conference on Trade and Development (UNCTAD) has observed, the digitalisation of commerce yields efficiency gains and cost reductions, yet simultaneously precipitates job losses in labour-intensive industries with tasks amenable to automation. While new-generation free-trade agreements such as the CPTPP and EVFTA prioritise the facilitation of e-commerce and the liberalisation of cross-border data flows, they contain no tailored provisions to safeguard workers adversely affected by these technological shifts. The Pacific Economic Cooperation Council (PECC) further notes that, despite including data-protection and digital-trade facilitation measures, these agreements do not mandate support mechanisms, such as reskilling programmes or career-transition assistance, for individuals displaced by automation and digitalisation.

Digital transformation exerts a profound influence on labour migration and the free movement of workers-particularly specialists and high-skilled personnel in digital fields. Professionals and digitally skilled workers increasingly migrate to jurisdictions offering superior working environments, enhanced career opportunities and effective talent-attraction policies. According to a Boston Consulting Group study, Australia and London have emerged as the most attractive destinations for foreign workers, owing to their robust economies, openness to international talent and high living standards. Migrant workers anticipate that overseas employers will facilitate their transition by providing supportive organisational cultures and clear pathways for professional development. Moreover, the COVID-19 pandemic has reshaped international labour mobility through the expansion of remote work and the proliferation of online platforms. The utilisation of digital tools for collaboration and teleworking has created new opportunities for international workers, reducing their reliance on physical relocation. As a result, digital transformation not only redefines the geography of labour markets but also challenges traditional notions of cross-border employment and workforce integration.

However, existing free-trade agreements do not prescribe specific measures to protect workers or to facilitate career transitions for those displaced by digitalisation, nor do they address the regulatory framework for remote work arrangements. For instance,

Chapter 13 (Trade and Sustainable Development) of the EVFTA touches upon labour and environmental matters but remains centred on upholding fundamental labour-rights and human-rights standards in trade; it contains no provisions for reskilling or redeployment assistance for workers rendered redundant by digital transformation, nor does it extend labour-standard requirements to teleworking. This lacuna highlights the pressing need for new-generation FTAs to integrate targeted safeguards and support mechanisms, ensuring that digitalisation does not exacerbate economic disparities or leave segments of the workforce stranded.

3. The Current State of Digital Transformation in the Labour Sector and Proposals for Vietnam

3.1 Regulatory Framework and Policy Measures Governing Digital Transformation in Vietnam's Labour Sector

At the national level, Vietnam has promulgated a range of resolutions, laws and decisions to foster digital transformation in the labour sector, including:

- Politburo Resolution No. 52-NQ/TW (27 September 2019) on proactively participating in the Fourth Industrial Revolution (Industry 4.0), which identifies the development of high-quality human resources as one of eight key strategic tasks and policies for engaging with new technologies.
- Politburo Resolution No. 23-NQ/TW (22 March 2018) on orientations for national industrial policy through 2030 (vision to 2045), which designates information-technology and electronics industries as "primary development pathways" and calls for the development of skilled human resources to meet the requirements of industrialisation, modernisation and Industry 4.0.
- Politburo Resolution No. 36-NQ/TW (1 July 2014), which mandates that the application and development of information technology be linked to the cultivation of high-level IT human resources. It sets targets for building an internationally certified IT workforce capable of meeting domestic demand and supplying expertise regionally and globally. The Resolution further directs priority investment in IT training programmes and calls for new incentive policies-such as competitive remuneration, allowances, and awards-to attract and retain IT civil servants, inventors and innovators.
- Law on Network Information Security (2015), which establishes as one of four principal State policies the expansion of training and infrastructure development for network-security personnel, in order to safeguard political stability, socio-economic development, national defense and public order.
- Prime Ministerial Decision No. 99/QĐ-TTg (14 January 2014) approving the "Project on Training and Developing Human Resources in Information Security through 2020" ("Project 99"), and its successor, Decision No. 21/QĐ-TTg (6 January 2021), which extends the initiative through 2025.

- Prime Ministerial Decision No. 392/QĐ-TTg (27 March 2015) approving the "Targeted Programme for the Development of the Information-Technology Industry to 2020, with Vision to 2025." This Decision identifies human-resource development as a priority, mandating enhanced capacity and quality of IT training institutions, stronger linkages between academia and industry, support for short-course upskilling in management and technical disciplines, and the formulation and adoption of national IT-skills standards.

- Government Resolution No. 26/NQ-CP (15 April 2015) promulgates the Government's Action Programme to implement Politburo Resolution No. 36-NQ/TW (1 July 2014) on promoting the application and development of information technology to meet sustainable development and international integration objectives. The Resolution prescribes a series of tasks, including: Developing an internationally accredited information-technology workforce; Intensifying research, adoption, domestic mastery and creative innovation of emerging technologies; Designing incentive and remuneration policies, such as competitive salary scales, special allowances and awards, to attract and retain IT personnel in State agencies, and to reward inventors and innovators.

- Government Resolution No. 41/NQ-CP (26 May 2016) on tax-incentive policies to advance the development and application of information technology in Vietnam provides for a fifty-percent reduction in personal-income tax on salaries and wages earned by high-technology professionals employed in the IT sector.

- Prime Ministerial Directive No. 16/CT-TTg (4 May 2017) on strengthening national capacity to engage with the Fourth Industrial Revolution mandates, inter alia:
  - Prioritising the cultivation of human resources in information and communications technology;
  - Implementing comprehensive reforms to education and vocational-training policies, curricula and pedagogical methods, with a focus on science, technology, engineering and mathematics (STEM), foreign-language proficiency and digital-literacy modules in general education;
  - Bolstering institutional autonomy for universities and vocational schools;
  - Piloting specialised training frameworks for targeted industries.
  - The Directive envisions transforming Vietnam's demographic dividend into a strategic asset for deeper integration into international labour markets.

- Prime Ministerial Decision No. 749/QĐ-TTg (3 June 2020) approves the "National Digital Transformation Programme to 2025, with a Vision to 2030" as the principal legal framework guiding Vietnam's digital-economy strategy. It sets forth these core measures:
  - Elevating public and institutional awareness of digital transformation;
  - Establishing enabling regulations and encouraging pilot projects for digital products, services and business models;
  - Developing nationwide digital infrastructure and platforms;

- Ensuring cybersecurity and information-safety standards;
- Deepening international cooperation, research and innovation in the digital sphere.

The National Committee on E-Government, together with ministerial and provincial Steering Committees on E-Government, is tasked with coordinating and overseeing the Programme's implementation. These bodies are further charged with formulating complementary strategies, policies and mechanisms. Finally, Decision No. 749 mandates the creation and annual publication of a Digital Transformation Index-comprising metrics on digital government, digital economy and digital society-to monitor progress and guide iterative policy adjustments.

By setting an ambitious target of achieving a minimum annual labour-productivity growth rate of 8 percent by 2030, Prime Ministerial Decision No. 749/QĐ-TTg (3 June 2020) delineates the following sector-specific digital-transformation tasks for the labour sphere:

1) Human-Resource Preparation
   o Selection and Training of Experts: Identify and train at least 1,000 digital-transformation specialists across key industries, sectors and localities. These experts shall serve as master-trainers, responsible for upskilling personnel within their respective agencies and enterprises, and acting as the driving force for nationwide digital transformation.
   o Executive Leadership Programmes: Implement dedicated courses to train and retrain organisational leaders-both heads of public bodies and corporate executives-in digital-transformation strategy, governance and change management.

2) Digital-Skills Training for Workers
   o Enterprise-Level Upskilling: Develop and deliver training, retraining and continuous professional-development programmes to enhance digital competencies among employees in industrial parks and export-processing zones.
   o Pilot Initiatives: Launch a pilot scheme requiring a minimum of one hour per week of digital-skills instruction in the provinces of Thai Nguyen, Quang Nam and Binh Duong, prior to nationwide expansion.

3) Digital Transformation in Industrial Production
   o Smart Manufacturing: Cultivate digital proficiencies among industrial-sector workers through the deployment of smart factories, intelligent operations and the creation of "smart" products, thereby aligning workforce capabilities with Industry 4.0 paradigms.

These measures underscore the Government's commitment to equipping Vietnam's labour force with the digital-era proficiencies necessary to underpin a modern, knowledge-driven economy.

Vietnam has concurrently advanced its legal and policy architecture for digital transformation in the labour sector. Prime Ministerial Decision No. 146/QĐ-TTg (28

January 2022) approves the national Scheme on "Raising Awareness, Disseminating Skills and Developing Human Resources for Digital Transformation to 2025, with Orientation to 2030." Its principal objectives are to:

- Catalyse a Paradigm Shift in institutional and public understanding of digital transformation;
- Universalize Digital Literacy among all stakeholders engaged in Vietnam's digital transformation agenda;
- Enhance Training Quality and Effectiveness through sector- and locality-specific programmes.

By mandating structured frameworks for awareness-raising, skills dissemination and targeted human-resource development, Decision 146/QĐ-TTg aims to ensure that Vietnam's workforce remains agile and competitive amid the accelerating digitalisation of the global economy.

3.2 Implementation of Digital Transformation in the Labour Sector and Recommendations for Vietnam to Achieve Its Digital Transformation Objectives

Human resources underpinning Vietnam's digital transformation have expanded rapidly, especially within the information-technology sector. By 2020, this industry comprised some 1.1 million workers-approximately 2 percent of the national labour force-and achieved productivity levels 2.7 times the country's average. Nevertheless, the distribution of human capital across subsectors remains markedly uneven: 78 percent of personnel are employed in hardware and electronics, while only 19 percent work in software and IT services. Alarmingly, the workforce engaged in digital-content creation has been contracting. From a competency standpoint, IT professionals-particularly software developers-enjoy strong international recognition; yet the quality of training at educational institutions is inconsistent, with many graduates lacking essential soft skills and foreign-language proficiency. Moreover, Vietnam faces acute challenges in attracting and retaining talent in cybersecurity, owing to a persistent skills shortage and limited investment in specialised training programmes. These circumstances have precipitated intense competition among digital-economy enterprises for qualified workers, resulting in elevated turnover rates and posing a risk to the nation's overall competitiveness.

To maximise the benefits of digital transformation under existing free-trade agreements, Vietnam should adopt a comprehensive strategy comprising the following measures:

First, establish a legal framework and digital technical standards

Develop binding legislation and normative instruments that define and govern digital technical standards, ensuring interoperability, scalability and consistent application across sectors.

Second, strengthen data-protection, privacy and cybersecurity regimes

Enhance statutory safeguards for personal data and critical information infrastructure, including detailed requirements for data handling, breach notification and cross-border transfers.

Thirdly, implement digital-skills training programmes. Launch nationwide initiatives, targeted at both incumbent workers and new entrants, to deliver structured, practice-oriented instruction in digital technologies, thereby enabling the workforce to adapt to evolving market demands.

Notwithstanding these proposals, Vietnam must address the digitalisation disparity among CPTPP and EVFTA Members. Jurisdictions such as Singapore and the Republic of Korea have attained advanced levels of digital maturity, whereas others-including Vietnam and Malaysia-continue to face implementation hurdles. This divergence impedes the harmonisation of digital standards and undermines the uniform protection of labour rights in a digitalised trade context. Accordingly, Vietnam's strategy should include capacity-building mechanisms and regulatory-alignment processes to mitigate these asymmetries and ensure coherent application of digital standards across the region.

4. Conclusion

Digital transformation has already wrought and profound effects on the labour sector, enhancing managerial efficiency, bolstering productivity and catalysing enterprise growth within the milieu of contemporary international trade. Nevertheless, this process not only brings opportunities but also engenders novel challenges relating to the protection of workers' rights, the security of personal data and the evolution of traditional work modalities. In the arena of global commerce, labour standards in free-trade agreements addressing digital transformation still reveal substantial lacunae. Although new-generation FTAs such as the CPTPP and EVFTA incorporate labour commitments, they lack granular provisions on personal-data protection, the assurance of fair working conditions in digital environments and the upskilling of workers. This shortfall underscores the necessity for multilateral cooperation in crafting more rigorous legal frameworks and digital technical standards.

The importance of digital transformation extends beyond productivity enhancements to include market expansion and heightened transparency in corporate governance. However, to ensure equity and sustainability, digitalisation must be accompanied by supportive policies that enable workers to adapt to novel work environments, particularly through comprehensive digital-skills training. Accordingly, the author advances several recommendations for Vietnam: the establishment of precise legal frameworks emphasising personal-data protection; the enhancement of digital infrastructure; and targeted upskilling programmes to equip the workforce for evolving labour-market demands in the digital age. Concurrently, international cooperation remains pivotal for Vietnam to capitalise on the benefits of digital transformation and deeper economic integration. To maximise these gains, stakeholders, government bodies and enterprises, to workers themselves, must collaborate closely to forge a sustainable, transparent and equitable labour ecosystem in the digital era.

Conflict of Interest Statement

The author declares no conflicts of interest related to the publication of this research study.

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