Developing The Private Economy in Association with High-Quality Human Resource Training in Vietnam in the Context of Digital Transformation

[1]Nguyen Thi Hai Yen, [2]Phan Thi Thu Hoai, [3]Le Na, [4]Ngo Van Chung, [5]Nguyen Thi Thu Ha

[1]College of Economics, Vinh University, Vietnam; Email: nthyen@vinhuni.edu.vn

[2]Marketing Department, Thuongmai University, Hanoi, Vietnam

[3]University of Economics Ho Chi Minh City, Vietnam

[4]Faculty of Economics and Business Administration, Nghe An University, Vietnam; Email: chungnv@nau.edu.vn

[5]Graduate Academy of Social Sciences, Hanoi, Vietnam; Email: hantt.gass@vass.gov.vn

Corresponding author: Nguyen Thi Thu Ha.

Email: hantt.gass@vass.gov.vn

HOW TO CITE:

Nguyen Thi Hai Yen, Phan Thi Thu Hoai, Le Na, Ngo Van Chung, Nguyen Thi Thu Ha (2026). Developing The Private Economy in Association with High-Quality Human Resource Training in Vietnam in the Context of Digital Transformation. International Journal of Special Education, 41(10s), 868-888

COPYRIGHT STATEMENT:

Copyright: © 2026 Authors.

Open access publication underthe terms and conditions of the Creative CommonsAttribution (CC BY) license (http://creativecommons.org/licenses/by/4.0/).

ABSTRACT:

This article analyzes the relationship between private economic development and high-quality human resource training in Vietnam in the context of digital transformation, based on descriptive data for the 2015-2024 period and recent policy orientations, especially Resolution No. 68-NQ/TW on private economic development and Resolution No. 57-NQ/TW on breakthroughs in science, technology, innovation and national digital transformation. The analysis shows that the private economic sector has expanded substantially in quantitative terms and has become an important force in job creation, GDP contribution and the mobilization of social resources. However, growth capacity based on innovation, modern governance and digital technology remains constrained by small scale, a limited degree of formalization, uneven technology absorption and shortages of skilled labor. During the same period, the share of trained workers holding degrees or certificates increased but remained low relative to the requirements of the digital economy, whereas Internet use and the broader social digital infrastructure expanded much more rapidly. The mismatch between the pace of digitalization and the pace of skills upgrading may widen the productivity gap between firms with learning and innovation capabilities and firms that only adopt superficial digital tools. The article proposes a linkage framework among policy, enterprises, training institutions and digital platforms, and recommends solution groups related to skills forecasting, sector-based training orders, credit and tax incentives for enterprise-based training, digital transformation in vocational education, development of the reskilling market and measurement systems linking training outcomes to enterprise productivity.

Keywords: Private economy; high-quality human resources; digital transformation; reskilling; small and medium-sized enterprises; labor productivity.

1. Introduction

In the process of renewing Vietnam's growth model, the private economic sector is no longer viewed merely as a supplementary component of the economy. It has become a pillar capable of mobilizing social resources, creating employment, promoting competition and spreading entrepreneurial spirit. The new policy approach places the private economy in the position of the most important driving force of the national economy, while emphasizing the need for rapid, sustainable, effective and high-quality development. This changes the focus of discussion: the issue is not only how to increase the number of enterprises, but how private enterprises can upgrade their governance capacity, technological capability, innovation capacity and human resource quality in order to participate more deeply in domestic, regional and global value chains.

The context of digital transformation makes this requirement more urgent. Digital transformation is not simply the application of software, the movement of records to an online environment or the addition of sales channels through digital platforms. At the enterprise level, digital transformation is a process of redesigning business models, governance processes, supply chains, customer relationships and data-based decision-making methods. Therefore, the benefits of digital transformation can be realized only when enterprises possess sufficient technology absorptive capacity: data literacy, standardized processes, change management, information security protection and the ability to design a continuously learning organization. These capabilities are not created automatically by investments in equipment; they primarily originate from the quality of people within enterprises.

In practice, Vietnam's private economic sector has a very broad structure, ranging from household businesses, micro-enterprises and small and medium-sized enterprises to large private corporations. This diversity generates market dynamism, but it also requires a more sophisticated human resource training policy. A uniform training program for all enterprises is usually difficult to implement effectively, because the needs of household businesses transitioning into formal enterprises differ from those of manufacturing firms participating in supply chains; the needs of digital service enterprises differ from those of firms in construction, logistics, high-tech agriculture or supporting industries. Therefore, the development of high-quality human resources for the private economy should be approached by value chain, by job position and by the digital maturity level of enterprises.

During the ten years from 2015 to 2024, the Vietnamese economy witnessed three notable movements. First, the business environment and entrepreneurial spirit expanded, as shown by the increase in newly established enterprises from fewer than 100 thousand per year to approximately 150-160 thousand per year in recent years. Second, the technically and professionally qualified labor force improved, but the pace of increase remained slow; the proportion of workers holding degrees or certificates was still not commensurate with the requirements of the digital economy. Third, the diffusion of the Internet and digital platforms in society accelerated, enabling enterprises to access customers, data, digital payments and digital services, while also revealing skill gaps across labor groups and enterprise groups.

From a research perspective, an important gap lies in the fact that many analyses of the private economy focus on business institutions, access to capital, land, markets and administrative procedures, whereas many studies of human resource training concentrate mainly on the education system, vocational education or the labor market in general. The connection between these two domains - that is, the mechanism through which the development needs of private enterprises are transformed into training orders, training is converted into production and business capacity, and such capacity is translated into productivity, innovation and competitiveness - has not been

systematically analyzed in the context of digital transformation.

This article therefore raises three main research questions. First, what trends do the data for the 2015-2024 period reveal in private economic development, human resource training and digital transformation in Vietnam? Second, why has high-quality human resource training become a key condition for the private economic sector to shift from scale-based growth to productivity- and innovation-based growth? Third, what policy mechanisms and linkage models are needed so that training is truly connected to the needs of private enterprises in the digital economy? Answering these questions has both theoretical and practical significance because it moves the discussion from general slogans about "high-quality human resources" to measurable and implementable components.

2. Theoretical Background and Literature Review

2.1. The private economy and the logic of productivity-based development

In development economics, the private sector is regarded as the main space for entrepreneurship, competition, the allocation of resources according to market signals and the accumulation of enterprise capabilities. When market institutions improve, private enterprises have incentives to seek profit opportunities through product innovation, process improvement, market expansion and more efficient use of capital. However, the contribution of the private sector is not automatically transformed into sustainable development if enterprises mainly compete by low costs, exploit unskilled labor or take advantage of regulatory gaps. As the economy moves closer to the upper-middle-income threshold, productivity and innovation become decisive variables.

Private sectors in emerging economies often face the paradox of scale. The number of firms may increase rapidly, but most remain small, lack long-term capital, lack governance systems, find it difficult to invest in research and development, and have limited technology absorption capacity. In that context, private economic growth may be broad in quantity but thin in quality. Newly established firms generate market energy; however, the share of firms that survive, scale up, upgrade technology and participate in new value chains is a more important indicator of the private sector's long-term health.

Enterprise productivity depends not only on machinery, capital and technology but also on organizational capability. A firm may purchase management software, deploy e-commerce or use artificial intelligence tools; however, if data processes are not standardized, personnel do not understand operational logic and leaders do not possess change management capabilities, digital investment can easily become a cost rather than a source of value. Human resource quality therefore plays the role of a "converter" between technology and productivity. This is the critical point when private economic development is placed in the context of digital transformation.

Theories of human capital emphasize that education, training and skill accumulation increase individual productivity, thereby raising income and contributing to growth. In the digital economy, however, human capital is not limited to formal qualifications. It includes lifelong learning capacity, the ability to coordinate between humans and machines, data thinking, the ability to solve complex problems, workplace innovation capability and professional ethics in the digital environment. For private enterprises, especially small and medium-sized enterprises, this type of human capital can be formed only when training is designed close to actual work and when mechanisms encourage enterprises to invest in people.

2.2. High-quality human resources in the digital economy

The concept of high-quality human resources should be understood dynamically.

In the period of industrialization based on low-cost labor, high-quality human resources were often equated with professional and technical qualifications or formal degrees. In the period of digital transformation, this concept must be expanded to include the capacity to create value in a volatile environment. A worker with a formal degree but without the ability to use data, adapt to digital processes or relearn may quickly become obsolete. Conversely, a worker without a high-level degree but with solid occupational skills, industrial discipline, the ability to use digital tools and a spirit of continuous learning can create significant value for an enterprise.

High-quality human resources therefore contain at least five components. The first is core professional competence, including occupational knowledge, technical skills and sectoral understanding. The second is digital competence, including the use of digital tools, data, information security and the ability to work on platforms. The third is management and work-organization competence, including planning, coordination, performance measurement and process improvement. The fourth is innovation competence, reflected in the ability to identify problems, test solutions, learn from data and improve products and services. The fifth is ethical and social responsibility competence, which is particularly important when enterprises use customer data, artificial intelligence and digital platforms.

Training high-quality human resources cannot rely solely on the formal education system. Across the working life cycle, skills must be updated many times. Many job positions in private enterprises are changing faster than traditional training cycles. This requires a hybrid training model: foundational education in schools, vocational training according to skill standards, enterprise-based training, modular online training, micro-credentials and mechanisms for recognizing accumulated skills. This model helps shorten the gap between learning and working, while enabling workers to change occupations when technology changes.

In private enterprises, training is often viewed as a short-term cost rather than a long-term investment. The reason is that enterprises fear trained workers will leave, while small enterprises find it difficult to allocate budgets and time for training. This creates a market failure: society as a whole needs more highly skilled labor, but each individual firm invests below the optimal level. Public policy should therefore design co-financing mechanisms, tax incentives, training credit, sectoral skills funds and shared training platforms to reduce transaction costs for enterprises, especially small and medium-sized enterprises.

2.3. Digital transformation and changing skills demand in the private sector

Digital transformation changes skills demand in three directions. First, it increases demand for direct technological skills such as programming, data analytics, information security, system administration, user experience design and digital platform operations. Second, it increases demand for general digital skills across all occupations: accountants using software and data, sales staff managing omnichannel customers, workers operating sensor-enabled equipment, logistics staff tracking orders in real time and administrative staff processing electronic records. Third, it increases demand for higher-level soft skills such as critical thinking, problem solving, communication in digital environments and change management.

For the private economy, the effects of digital transformation are uneven. Some large enterprises are able to invest in ERP and CRM systems, data platforms, production automation and innovation units. Meanwhile, many small enterprises remain at the level of using social networks, e-commerce platforms, e-invoices or basic accounting software. This difference derives not only from investment capital but also from the skills of business owners and middle managers. If enterprise leaders do not understand digital strategy, technology purchases may be fragmented, fail to integrate into the business model and lead to

resource waste.

A noteworthy point is that digital transformation can both open opportunities and create exclusionary pressure. Digital platforms help small enterprises access broader markets, promote products at lower cost and participate in new supply networks. At the same time, they raise competitive standards in terms of speed, data quality, information transparency, traceability, payment, customer service and security. Enterprises that lack digital skills may fall behind even if they previously survived in traditional markets. Digital human resource training is therefore not an add-on to digital transformation policy; it is a condition for digital transformation to become an inclusive process rather than one serving only firms that already possess advantages.

International research also shows that the relationship among skills, technology and productivity is not linear. Technology increases productivity only when combined with organizational change, process redesign and skill upgrading. Without complementary skills, automation may replace some simple jobs but fail to create enough new high-quality jobs. In the Vietnamese context, the challenge is to shift from an advantage based on abundant labor to an advantage based on skills, while ensuring opportunities for skill upgrading for a large labor force working in the private and informal sectors.

3. Research Methodology and Data Sources

This article uses a qualitative research approach combined with descriptive analysis of secondary data. Qualitatively, it synthesizes theories of human capital, enterprise dynamic capabilities, digital transformation and private-sector development policy in order to build the analytical framework. The focus is not on testing an econometric model, but on identifying trends, analyzing causal logic and proposing an implementable policy model. This approach is consistent with the objective of a policy-oriented academic article, especially when microdata on enterprise-based training in the private sector remain fragmented and insufficiently standardized.

With respect to data, the article uses official and semi-official sources with high reliability: policy documents of the Party and the Government; statistics from the General Statistics Office/Statistics Office on GDP growth, enterprise registration, labor and employment; World Bank World Development Indicators on Internet use; the ICT White Book issued by sectoral authorities; and thematic reports related to the digital economy and labor market. The descriptive quantitative analysis covers the 2015-2024 period, a sufficiently long horizon to observe trends before and after Covid-19 and to capture the post-2020 acceleration of digital transformation.

Some indicators in the article are standardized for presentation. The number of newly established enterprises is calculated in thousand enterprises per year; the share of trained workers holding degrees or certificates is presented as an end-year percentage or as the most recently published figure; and the share of individuals using the Internet is taken from World Bank/ITU indicators. These indicators do not reflect the entire quality of human resources or the entire quality of private-sector development, but they are meaningful proxies for describing the mismatch among enterprise expansion, skill upgrading and social digitalization. In interpretation, the article avoids overstating conclusions from descriptive correlations and emphasizes the need for additional microdata in future studies.

In terms of analytical method, the article combines four operations: trend analysis, policy comparison, skills-gap analysis and solution-framework development. Trend analysis identifies developments in the 2015-2024 period. Policy comparison clarifies the intersection between private economic development and digital transformation in current resolutions and decisions. Skills-gap analysis identifies bottlenecks preventing private enterprises from upgrading

productivity. The solution framework is developed according to four principles: an accountable actor, a policy instrument, a coordination mechanism and a measurable performance indicator.

4. The Data Picture, 2015-2024

4.1. Economic growth and enterprise formation dynamics

Table 1 presents four indicators used to describe the development context: GDP growth, the number of newly established enterprises, the share of trained workers holding degrees/certificates and the share of the population using the Internet. The 2015-2019 period shows stable high economic growth and a rapid increase in newly established enterprises, reflecting an improved business environment and entrepreneurial spirit. The 2020-2021 period was heavily affected by Covid-19, as reflected in low GDP growth and a decline in new enterprise formation. The 2022-2024 period witnessed economic recovery and the return of a wave of enterprise formation, but also saw pressure on many small enterprises to exit the market because of capital costs, market demand, supply-chain volatility and digital transformation requirements.

Table 1. Selected indicators of economic, enterprise, training and digitalization development, 2015-2024

Year	GDP growth (%)	Newly established enterprises (thousand)	Workers with degrees/certificates (%)	Individuals using the Internet (%)
2015	6.68	94.75	20.2	45.0
2016	6.21	110.1	21.4	53.0
2017	6.81	126.86	21.6	58.1
2018	7.08	131.28	22.0	69.8
2019	7.02	138.14	22.8	68.7
2020	2.91	134.94	24.1	70.3
2021	2.58	116.84	26.1	73.2
2022	8.02	148.53	26.4	78.6
2023	5.05	159.29	27.2	78.8
2024	7.09	157.24	28.6	84.2

Source: Compiled from the General Statistics Office/Statistics Office, the Ministry of Planning and Investment, World Bank/ITU and relevant policy publications. Some indicators are rounded for descriptive analysis.

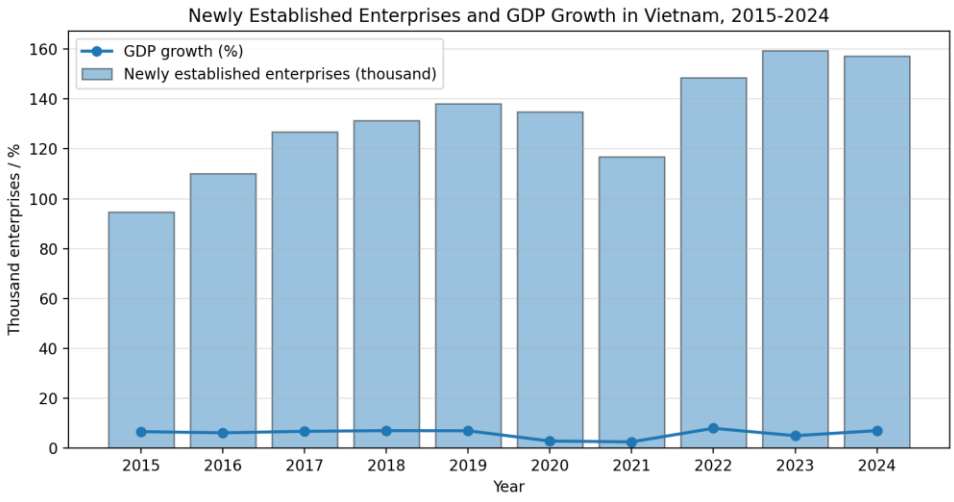

Figure 1. Newly established enterprises and GDP growth in Vietnam, 2015-2024

The data above suggest several observations. First, high GDP growth does not automatically ensure a corresponding annual increase in newly established enterprises. In 2024, GDP growth recovered strongly, but the number of newly established enterprises declined slightly compared with 2023, indicating that the enterprise sector continued to face post-pandemic pressure and volatile business costs. Second, the number of newly established enterprises increased significantly over the long term, but the quality of new enterprises remains a concern. If newly created firms are concentrated mainly in low-entry-barrier sectors, small in scale, weak in technology investment and lacking managerial human resources, their contribution to long-term productivity will be limited.

Third, the Covid-19 shock revealed uneven resilience in the private enterprise sector. Enterprises capable of shifting sales channels, organizing remote work, using digital platforms and restructuring supply chains recovered faster. Conversely, enterprises lacking digital capability, dependent on traditional channels and without reserve capital were more vulnerable. This reinforces the argument that digital transformation and human resource training are not distant long-term policies; they are crisis-resilience capabilities.

Fourth, new policy goals create higher expectations for the private sector. When objectives aim toward millions of active enterprises and higher contributions to GDP, public revenue and employment, the core issue is how to increase the share of enterprises that can scale up, formalize, innovate and participate in value chains. This requires upgrading human resource quality at three levels: business owners and leadership teams; middle managers and technical specialists; and workers directly operating production and service processes.

4.2. Human resource training and digital diffusion: two different speeds

Figure 2 shows that the share of the population using the Internet increased much faster than the share of workers holding degrees or certificates. This is an important policy finding. Social digitalization can occur quickly because of telecommunications infrastructure, mobile devices, platform services and market competition. However, the digitalization of labor capability is a slower process, requiring structured training, skill standards, learning motivation and opportunities for application at work. If these two speeds diverge substantially, the economy will have many Internet users but will lack workers capable of creating high value added in the digital environment.

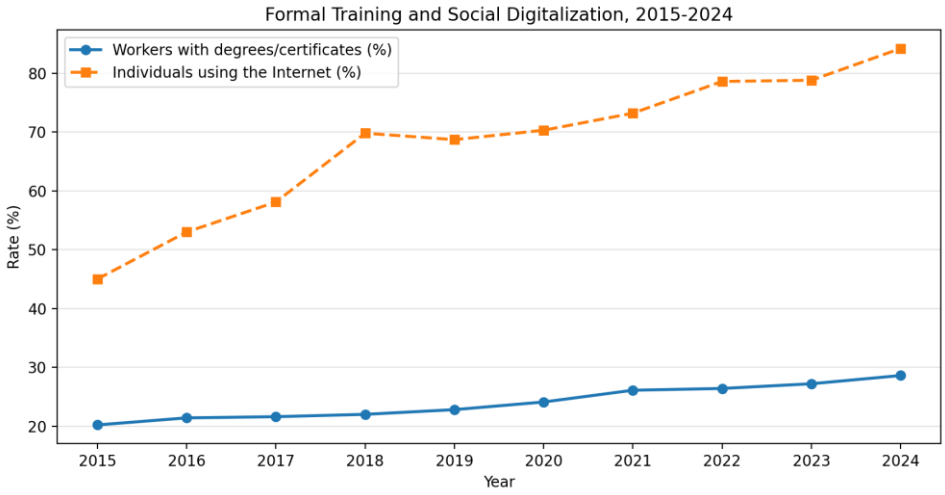

Figure 2. Growth of certified training and Internet use, 2015-2024

The gap between Internet use and digital competence is particularly significant for

private enterprises. Many small enterprises can quickly create social media pages, join e-commerce platforms or use accounting software. However, to move from "digital presence" to "digital operation", enterprises need personnel who understand customer data analytics, marketing performance measurement, inventory optimization, information security, cash-flow management and the design of interconnected processes. These skills require targeted training and cannot be formed merely through the use of smart devices.

The share of workers holding degrees or certificates increased during 2015-2024, but the pace of increase has not been sufficient to meet the requirements of the digital economy. In qualitative terms, degrees and certificates do not fully reflect actual competence if training programs have not updated technology, lack enterprise-based practice or remain heavily theoretical in assessment. Many enterprises report that they must retrain employees after recruitment, especially in skills for modern production environments, data skills, occupational foreign languages, industrial discipline and improvement thinking.

This mismatch creates a paradox: the faster society digitalizes, the greater the training demand becomes; yet if the training system reacts slowly, enterprises must manage the gap themselves at high cost. Large enterprises can absorb this cost through internal training departments, human resource development budgets and cooperation with universities. For small and medium-sized enterprises, training costs often exceed short-term capacity. Without supportive mechanisms, digital transformation may therefore deepen the gap between large enterprises and small enterprises.

A practical way to view the issue is to classify enterprise digital capability into four levels. Level one is the use of basic digital tools: email, e-invoices, office software and social networks. Level two is process digitalization: accounting, sales, inventory, human resources and customer care. Level three is data integration: customer data, operational data, supply-chain data and real-time management reporting. Level four is business-model innovation based on data, artificial intelligence, automation and platforms. Each level requires a different training program; a single generic "digital transformation" course cannot be used for all levels.

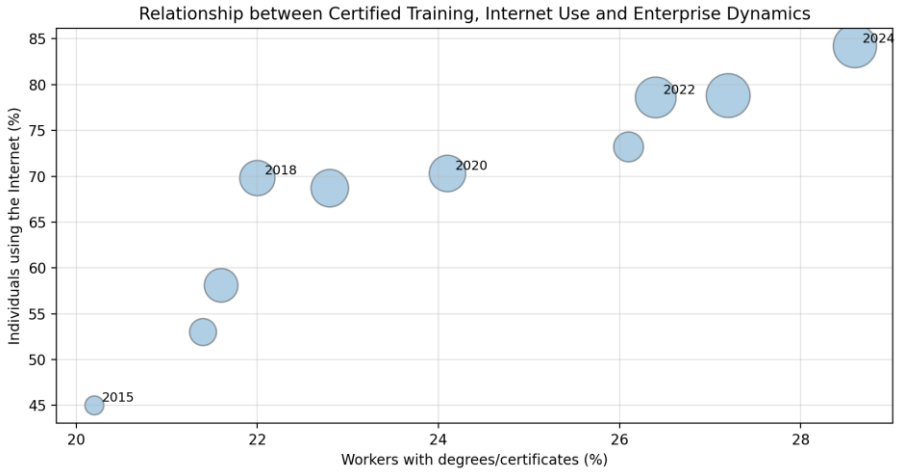

Figure 3. Descriptive relationship among training, Internet use and enterprise formation

4.3. Current role and policy targets for the private economy

Resolution No. 68-NQ/TW identifies the private economy as one of the most important drivers of the economy and provides several noteworthy parameters: the private economic sector currently includes more than 940 thousand enterprises and more than 5 million active household businesses, contributes around 50% of GDP, more than 30% of total

state budget revenue and employs around 82% of the total labor force. The Resolution also sets the target of 2 million active enterprises by 2030, contributing around 55-58% of GDP and providing employment for approximately 84-85% of the total labor force. These figures indicate that the requirement for private economic development does not relate only to already registered enterprises, but also includes the transformation, upgrading and formalization of household businesses.

Table 2. Selected policy parameters on the role and development targets of the private economy

Content	Parameter/orientation	Implications for human resource training
Current scale	More than 940 thousand enterprises; more than 5 million active household businesses	Shows a broad but dispersed base; training policy must cover both enterprises and household businesses
Economic contribution	Around 50% of GDP; more than 30% of total state budget revenue	Requires a shift from quantitative growth to productivity and value-added growth
Employment	Employs around 82% of the total labor force	Training in the private sector directly affects the quality of social employment
2030 targets	2 million active enterprises; 55-58% of GDP; 84-85% of employment	Requires large-scale upgrading of governance, technology and human resources
Technological capacity	Oriented toward being among the leading groups in ASEAN/Asia	Requires mechanisms for digital, data and innovation skills training for SMEs

An important emphasis of Resolution No. 68 is that the private economy is placed in direct connection with science and technology, innovation, digital transformation and green transition. This framing implies that private enterprises cannot develop merely by expanding capital, labor and production space. They need to build endogenous capabilities to absorb technology, innovate products, govern data, standardize processes and meet sustainable development requirements. All these capabilities ultimately depend on the quality of people.

Resolution No. 57-NQ/TW adds a broader layer of orientation by defining science and technology, innovation and digital transformation as strategic breakthroughs. For the private sector, this opens opportunities to access digital infrastructure, data, technology platforms, regulatory sandboxes and innovation support programs. Yet it also raises the question of policy absorption capacity. If enterprises do not have personnel who understand policy, can prepare innovation projects, manage finance, protect intellectual property and implement technology, many incentives may reach only a small group of firms that already possess initial capabilities.

Thus, high-quality human resource training for the private economy is not only an education policy. It is also enterprise development policy, productivity policy, innovation policy and labor welfare policy. When workers upgrade their skills, enterprises become more innovative; when enterprises innovate more, the labor market generates higher-quality jobs; and when jobs are of higher quality, workers' motivation to learn

increases. Policy needs to activate this positive spiral rather than allowing enterprises and training institutions to operate separately.

5. In-depth Analysis

5.1. The private economic sector: broad development but a need to shift toward depth

The increase in the number of enterprises over the past decade reflects an important achievement in business-environment reform. However, broad-based growth has limits if it is not accompanied by deep growth. Many Vietnamese private enterprises remain small or micro in scale, depend on the experience of business owners, lack professional governance systems and invest little in research and development. Family-based or intuitive governance may be suitable during the start-up stage, but it becomes a barrier when enterprises seek to expand, standardize, raise capital, adopt technology and participate in supply chains with high requirements.

At the market level, the private sector is often dynamic in services, trade, construction, medium-scale manufacturing and processing, and emerging fields such as digital technology, logistics, education and private healthcare. However, linkages between domestic private enterprises and FDI enterprises or state-owned enterprises remain limited. One important reason is the gap in standards, processes, quality management and personnel capability. When domestic enterprises do not have teams capable of meeting technical standards, traceability requirements, risk management, ESG reporting or international communication, opportunities to participate in value chains are narrowed even when market demand exists.

The development quality of the private economy should therefore be assessed by criteria such as the share of enterprises that scale up after three to five years, the share of enterprises with innovation activities, training investment as a proportion of revenue, labor productivity, the share of skilled labor, the level of process digitalization and the ability to participate in value chains. If policy tracks only the number of newly established enterprises, it can easily lean toward market-entry promotion without sufficient attention to survival, growth and capability upgrading.

In the context of digital transformation, private enterprises can exploit their flexibility. Because they have fewer administrative layers, many small enterprises can test technology quickly, change sales channels rapidly and adjust products based on market feedback. However, flexibility becomes an advantage only when supported by learning capability. If enterprises lack data-analysis personnel, process management and a culture of improvement, flexibility can turn into short-term reaction without strategy. Therefore, management training for business owners and middle managers is a lever with considerable impact.

Another issue is the formalization of household businesses. More than 5 million household businesses represent a very large resource for the private economy. However, transforming a household business into an enterprise is not merely a change in legal form. It requires accounting, tax, labor, contract management, quality standards and credit-access capabilities. Without suitable training programs, formalization may be perceived as increasing compliance costs rather than expanding growth opportunities. Training policy for this group should be simple, practical, modular and linked to specific benefits such as access to credit, digital sales, e-invoices, traceability and cash-flow management.

5.2. The training bottleneck: not only a shortage of technical labor but a shortage of a skills ecosystem

When enterprises say they lack high-quality human resources, they often do not mean only a shortage of university graduates or IT engineers. They mean a shortage of people who can perform work in the specific conditions of the enterprise: understand processes, have discipline, possess digital skills,

communicate with customers and suppliers, learn new technologies and take responsibility for results. The gap between credentials and implementation capability is the central issue in human resource training for the private sector.

The training system has expanded in scale, but linkages with enterprises remain uneven. In many sectors, training programs are updated more slowly than technologies and new business models. Enterprise internships are sometimes formalistic, lack clear output standards and lack a joint assessment mechanism between schools and enterprises. Small enterprises rarely participate in curriculum development because they lack time, representative channels and clear direct benefits. This creates a loop: training institutions lack market information, graduates require retraining, enterprises hesitate to invest in training because they fear losing workers, and workers lack motivation to relearn because they do not see a career pathway.

A skills ecosystem requires the coordination of many actors. The State establishes skill standards, forecasting data and financial mechanisms. Enterprises identify job-position needs, provide practical environments and co-assess results. Training institutions design modular programs, update technology and ensure pedagogical quality. Industry associations serve as intermediaries, aggregate the needs of small enterprises and negotiate training programs by sector clusters. Digital platforms reduce access costs, personalize learning and track skill credentials. If any of these links is missing, training easily returns to a fragmented state.

High-quality human resource training for the private economy also requires segmentation. The first tier is foundational skills training for general and semi-skilled labor: industrial discipline, occupational safety, basic digital skills, communication skills and adaptability. The second tier is specialized vocational skills training for technicians, skilled workers, operational staff and professional employees. The third tier is management training for middle managers: process management, finance, human resources, data, quality and risk. The fourth tier is enterprise leadership training: digital strategy, business models, innovation, growth management and integration into value chains. Each tier requires different methods, duration and financing mechanisms.

A point that must be emphasized is that reskilling and upskilling must become regular activities, not short-term campaigns. In the digital economy, the life cycle of skills is shortening. Software, platforms, processes and market standards change continuously. Private enterprises that seek sustainability need to build organizational learning capacity: periodic skill assessment, training plans by job position, encouragement of internal learning, recognition of certificates, linkage of training to promotion and measurement of post-training effectiveness. Public policy can support this process, but it cannot replace the learning responsibility of enterprises themselves.

5.3. Digital transformation changes the production function of private enterprises

In the traditional production model, enterprises increase output by increasing capital, adding labor, expanding production space or lengthening working time. In the digital model, data, software, algorithms, platform connectivity and automation become new inputs. This changes the production function: with the same amount of labor, enterprises can create higher value if processes are digitalized, data are analyzed and decisions are optimized. However, for this new input to produce effects, enterprises need personnel capable of turning data into decisions. This is the gap between "having data" and "using data".

Private enterprises in trade and services may see the effects of digitalization most rapidly: omnichannel sales, digital advertising, automated customer care, cashless payments, online reviews, inventory management and delivery. However, many enterprises focus only on increasing digital-channel revenue without

sufficient investment in analytical capability. As a result, advertising costs increase, customer data remain fragmented, experiences are inconsistent and profits do not improve correspondingly. Training in this field needs to shift from platform-operation guidance toward the management of digital business performance.

In manufacturing, digital transformation is usually more complex because it is associated with equipment, processes, quality standards, maintenance, automation and supply chains. A supporting-industry enterprise that wants to participate in value chains needs personnel who understand technical drawings, quality management, traceability, production planning, warehouse management, occupational safety and communication with international customers. When digital elements are added, such firms also need operational data, product coding systems, machine connectivity, real-time reporting and industrial cybersecurity. This is an interdisciplinary capability package that traditional training by narrow specialization often cannot fully meet.

In agriculture, the private economy plays a major role in new-style cooperatives, processing enterprises, cold logistics, agricultural trade and market-connection platforms. Digital transformation in agriculture requires skills in traceability, production-area management, weather data, quality standards, e-commerce and digital finance. High-quality human resources here do not necessarily mean software engineers; they may be agricultural technical staff who can use data, manage standards and connect markets. This shows that digital skills training policy must be anchored in sectoral contexts.

An important implication is the distinction between training "about technology" and training "through technology". Training about technology helps learners understand and use digital tools. Training through technology uses digital platforms to expand access, personalize pathways and measure learning outcomes. For private enterprises, these two directions should be combined. For example, a digital accounting program for household businesses can be implemented online, but it must include practical exercises on invoices, cash flows and tax declarations; a data governance program for manufacturing enterprises can combine classroom learning, simulation and improvement projects at the factory.

5.4. The gap between policy and enterprises' absorptive capacity

Vietnam has issued many important policy orientations on private economic development, digital transformation, the digital economy, digital society and human resource training. However, policy effectiveness depends on absorptive capacity at the enterprise level. Absorptive capacity includes the ability to recognize policy opportunities, prepare documentation, mobilize counterpart funding, select technology, organize implementation, measure results and maintain change after support ends. Many small enterprises do not lack demand; they lack the capacity to access support programs. This is why an intermediate policy layer is necessary: industry associations, enterprise support centers, sector clusters, local training institutions and public digital platforms.

A common risk is that training policy is designed around inputs: the number of classes opened, participants enrolled, certificates issued and training sessions conducted. These indicators are necessary but insufficient. If learners cannot apply knowledge at work, enterprises do not improve processes and productivity does not increase, the training program fails to meet its economic development objective. Therefore, measurement must shift toward outputs and impacts: the share of workers placed in jobs matching their skills, the share of enterprises applying digital tools after training, reductions in process errors, productivity increases, increases in digital-channel revenue, and the share of enterprises participating in supply chains or obtaining quality certifications.

The policy gap also lies in insufficient

skills-forecasting data. The labor market changes rapidly, but data on skill needs by sector, locality, enterprise scale and digitalization level are not updated continuously. Many training institutions build programs based on experience, small surveys or irregular feedback. If a large data system on recruitment, job positions, required skills, wages, training outcomes and labor mobility were available, training policy would be more accurate. This field requires collaboration among statistical agencies, labor authorities, recruitment platforms, business associations and training institutions.

Private enterprises must also change their mindset. In many cases, enterprises expect the State and schools to supply ready-made labor that fully meets job requirements. This is unrealistic in the digital economy. Enterprises must become training actors, at least by defining internal skill standards, organizing mentoring, measuring competence and creating a learning environment. Large enterprises can lead through corporate academies, innovation centers or trainee programs. Small enterprises can cooperate in sector clusters to share training costs and experts.

6. A Linkage Model between Training and Private Economic Development

Based on the analysis above, the article proposes an ecosystem model with four groups of actors: the State and policy institutions; private enterprises and industry associations; training institutions and skill-service providers; and digital platforms and labor-market data. The model is based on the assumption that no single actor can solve the problem of high-quality human resources. The State cannot train on behalf of enterprises; enterprises cannot solve all skill needs without standards and finance; training institutions cannot remain updated without market signals; and digital platforms cannot create capability without content and recognition mechanisms.

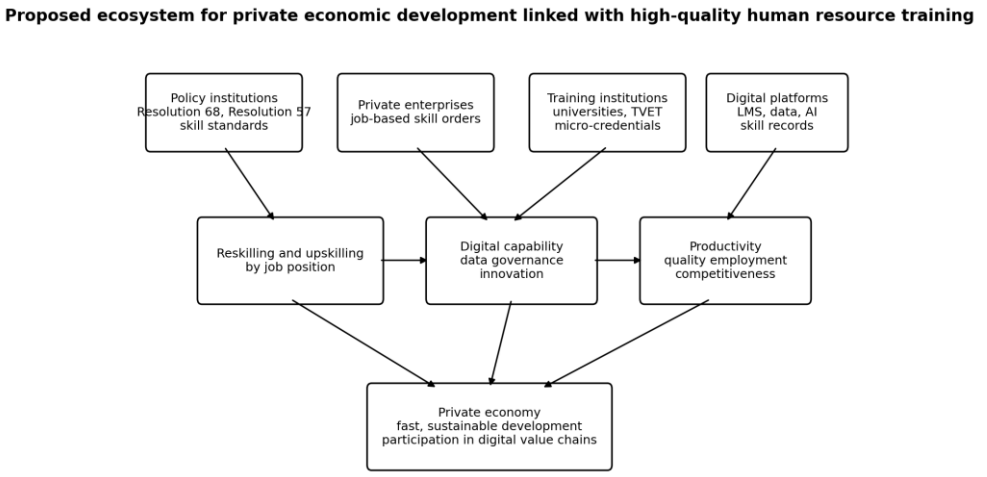

Diagram 1. Ecosystem model for private economic development linked with high-quality human resource training

In this model, the State plays an enabling role through institutions, skill standards, forecasting data and financial instruments. The important point is not that the State directly organizes as many training classes as possible, but that it designs a training market that operates effectively, transparently and accountably. National skill standards need to be updated by sector, with enterprise participation and linkage to the national qualifications framework. Skills-forecasting data should be public at a sufficient level of detail so that schools, enterprises and learners can make informed decisions.

Private enterprises are the actors that identify demand and test the quality of training. Training needs must be expressed in specific competencies, not merely as course names. For

example, instead of requesting "digital transformation training", an enterprise should state clearly that sales staff must be able to manage customer data, classify customer segments, use CRM software, read conversion indicators and comply with data protection regulations. Once needs are described in competencies, training institutions can design appropriate programs and assess results.

Training institutions need to move from the mindset of supplying fixed programs to co-designing with enterprises. This does not mean that schools simply follow short-term demand. They must still ensure knowledge foundations, learning methods and long-term adaptability. However, the applied components should become more flexible, with short modules, real projects, competency-based assessment and recognition of credits or micro-credentials. In vocational education, the share of enterprise-based practice and new-technology simulation should be increased. In higher education, enterprise semesters, digital laboratories, interdisciplinary projects and technology-entrepreneur programs should be expanded.

Digital platforms can reduce training costs, but they should not be understood as a complete substitute for direct training. Their best role is to distribute basic content, track progress, test competence, personalize pathways and store skill records. Content requiring practice, mentoring, case handling or change in management behavior still needs face-to-face learning, coaching and enterprise-based projects. The blended online-offline model is most suitable for small and medium-sized enterprises because it saves cost while ensuring practical application.

A new point in the model is that data are placed at the center. Recruitment data indicate what skills the market needs; training data show what learners have learned; enterprise data show which skills generate productivity; and policy data show which programs are effective. When these four data sources are connected, the skills ecosystem can learn from its own operation. Conversely, if data are fragmented, training policy easily becomes campaign-like and lacks an evidence base for evaluation.

7. Policy Implications and Solutions

7.1. Building a skills forecasting system for the private economy by sector and locality

The first solution is to build a skills forecasting system capable of regular updating. This system should combine enterprise registration data, recruitment data, social insurance data, tax data, enterprise surveys, information from industry associations and training data. The objective is to identify skills demand by sector, locality, enterprise scale and digital maturity level. For example, logistics enterprises in the southern key economic region have different skill needs from agricultural processing enterprises in the Mekong Delta; e-commerce enterprises need different skills from supporting-industry enterprises.

Skills forecasting should not stop at occupational lists. It should go down to the competence level: basic digital skills, data skills, equipment-operation skills, quality-management skills, occupational foreign languages, information-security skills, financial-management skills and innovation skills. When a skills map is available, training institutions can update programs; enterprises can plan recruitment and training; workers can choose appropriate learning pathways; and the State can allocate training budgets according to actual demand.

Organizationally, sectoral skills councils should be established with the participation of management agencies, business associations, leading enterprises, universities, vocational education institutions and technology experts. Such councils should not only advise on curricula but also update skill standards, recognize micro-credentials and assess training quality. International experience shows that sectoral skills councils help reduce the gap between training and enterprise demand, especially in fast-changing sectors.

7.2. Designing enterprise-based training-order mechanisms

The second solution is to move from supply-driven training to order-based training. Private enterprises, especially through industry associations or enterprise clusters, should be supported in identifying training needs by job position. The State may co-finance part of training costs if a program meets criteria: it is ordered by enterprises, has clear output standards, includes a commitment to provide practice, has post-training evaluation and contains data for tracking outcomes. This approach helps avoid campaign-style classes that do not address real needs.

For small and medium-sized enterprises, individual training orders are often difficult because of small scale. Therefore, cluster-based ordering models should be developed. For example, a cluster of mechanical manufacturing enterprises may jointly order training in quality management, technical drawing reading, CNC operation, warehouse management and occupational safety. A cluster of household businesses transitioning into enterprises may order training in digital accounting, tax, e-invoices, cash-flow management and online sales. When demand is aggregated, average cost decreases and programs have enough scale to be designed with better quality.

The training-order mechanism also requires transparent accountability. Enterprises must provide practice positions, expert feedback and evaluation data. Training institutions must commit to output standards and adjust content according to feedback. Learners must complete application tasks. The State or support funds should disburse according to results, not only according to attendance. This approach creates incentives for all parties to pursue substantive impacts.

7.3. Applying tax incentives, credit and skills funds for enterprise-based training

The third solution is to create financial incentives for enterprises to invest in training. In the private sector, especially among small and medium-sized enterprises, training budgets are often cut when revenue is difficult. If policy aims to encourage long-term investment in people, mechanisms are needed to reduce cost and share risk. It is possible to consider allowing eligible training expenses to be deducted at a higher preferential rate, supporting training credit, providing skills vouchers for small enterprises and establishing sectoral skills funds jointly contributed by the State and enterprises.

Financial incentives must be accompanied by quality criteria to prevent abuse. Supported expenses should be linked to programs with output standards, qualified providers, learner records and post-training assessment. Enterprises should not receive support merely for organizing general workshops. Priority should be given to training that creates measurable capabilities: operating new technologies, data governance, quality management, information security, green skills, financial management, export skills and participation in supply chains.

Sectoral skills funds can be an important instrument. In industries with large labor demand and rapid technological change, enterprises may contribute a small proportion to the fund, the State may co-finance or provide initial support, and industry associations may manage training programs. Such funds help address enterprises' fear of training workers who may leave: if the whole sector invests together, spillover benefits are shared more broadly. At the same time, sectoral funds can help small enterprises access quality programs that individual firms could hardly purchase on their own.

7.4. Digital transformation in vocational education and continuing training

The fourth solution is to digitally transform the training system itself. If enterprises must undergo digital transformation while training institutions continue to operate in traditional ways, the skills gap will be difficult to narrow. Digital transformation in vocational education and continuing training

should include digital learning repositories, simulation rooms, modern practical equipment, learning management systems, online skills assessment, learners' digital competency records and data connections with enterprises. This is not merely the digitization of lectures; it is the redesign of learning experiences according to competencies.

Micro-credentials should be developed in a controlled manner. In the digital economy, workers cannot return to school for long periods every time technology changes. Short modules in basic data analytics, e-commerce, information security, digital warehouse management, digital marketing, operation of new machinery or digital accounting can help workers update skills quickly. However, micro-credentials need to be standardized to avoid a market flooded with certificates of limited value. Accumulation and recognition mechanisms are needed so that short modules can be combined into occupational certificates or formal training credits.

Online training should be designed for adult learners. Workers in private enterprises often lack time, have uneven educational backgrounds and need knowledge that can be applied immediately. Lessons should therefore be short, include practical situations, be linked to job-based tasks, provide quick feedback and offer support from mentors. A blended model combining digital platforms with enterprise-based learning groups can be more effective than fully online learning.

7.5. Developing business owners and middle managers

One often overlooked point is training for business owners and middle managers. For small and medium-sized enterprises, decisions on digital transformation, training investment, process standardization and participation in value chains depend heavily on the business owner. If owners do not change their governance mindset, employees will find it difficult to apply new knowledge even after training. Therefore, human resource development policy for the private economy must include an enterprise-leadership training component.

Programs for business owners should not be excessively theoretical. Content should focus on growth strategy, financial management, human resource management, phased digital transformation, legal risk management, data-system development, product innovation and the governance of a learning culture. Methods should include practical cases, mentoring, enterprise diagnostics and improvement projects. The training outcome should not be merely a certificate, but an action plan that can be implemented in the enterprise.

Middle managers are the link that translates strategy into operations. Many private enterprises fail in transformation because leaders want change but middle managers lack the capacity to organize new work. Middle-management training should focus on planning, task assignment, KPI measurement, data governance, process improvement, employee coaching and conflict resolution. When middle managers are strong, enterprises have better technology absorption and internal training capacity.

7.6. Linking training with productivity, innovation and high-quality employment

The final solution is to build a measurement system that demonstrates how training creates value. If training is reported only by the number of learners, policy will find it difficult to persuade enterprises to invest over the long term. At least four groups of indicators should be measured: input indicators, process indicators, output indicators and impact indicators. Inputs include budgets, courses and learners. Processes include completion rates, satisfaction and practice duration. Outputs include skills acquired, certificates and application projects. Impacts include productivity, product quality, error reduction, revenue growth, wage increases, lower turnover and the ability to participate in value chains.

For the private sector, impact measurement should be flexible according to scale. Small enterprises can measure simple indicators such as digital-channel revenue, customer return rates, accounting errors, order-processing time, inventory and cash flow. Manufacturing enterprises can measure labor productivity, defect rates, machine downtime, on-time delivery and the degree of compliance with customer standards. Service enterprises can measure customer experience, service costs, conversion rates and employee productivity. When indicators are clear, training becomes a manageable investment.

Linking training with high-quality employment is also a social requirement. Digital transformation may eliminate some repetitive jobs, but it can also create new jobs if workers are supported in upgrading their skills. Training policy should prioritize groups vulnerable to automation, workers in small enterprises, female workers, middle-aged workers and workers in the informal sector. The goal is not only to help enterprises compete, but also to ensure that digital transformation is fair and does not leave a large group of workers behind.

Table 3. Solution matrix for private economic development linked with high-quality human resource training

Solution group	Main actors	Implementation instruments	Expected outcomes
Skills forecasting	Statistical and labor agencies, industry associations	Skills maps by sector/locality; recruitment data; enterprise surveys	Training programs aligned with market demand
Training orders	Enterprises, associations, training institutions	Job-position-based orders; co-financing; post-training evaluation	Reduced mismatch between training and labor use
Training finance	State, banks, skills funds	Tax deductions; skills vouchers; training credit; sectoral funds	Increased training investment by SMEs
Digital training	Vocational education institutions, universities, digital platforms	LMS; digital learning resources; micro-credentials; practical simulation	Expanded access to reskilling and upskilling
Enterprise leadership	Business associations, management schools, experts	Enterprise diagnostics; mentoring; improvement projects; corporate academies	Increased technology absorptive capacity and change management
Impact measurement	Management agencies, enterprises, training institutions	Productivity KPIs; post-training data; impact reporting	Training shifted from campaigns to accountable investment

8. Discussion: Implementation Conditions and Policy Risks

The above solutions will be effective only if they are implemented according to a roadmap and supported by coordination capacity. The first risk is policy fragmentation. At present, programs supporting enterprises, vocational training, digital transformation, innovation, start-ups and human resource development may be located in different agencies. Without coordination mechanisms, enterprises will find it difficult to access support and evaluation data will be fragmented. A connected focal point at the national level and flexible implementation mechanisms at the local level are needed, with localities serving as

connectors among enterprises, schools, associations and platforms.

The second risk is formalistic digitalization. Many programs may be measured by the number of online learning accounts, training classes or enterprises receiving advice, while failing to measure actual changes within enterprises. Without output standards and impact evaluation, digital training can become a repository of videos that few learners complete. Learning materials should therefore be designed around real situations, with mentoring, applied assignments and workplace-based skills confirmation.

The third risk is unequal access. Large enterprises and urban enterprises are better able to access policies, experts and training platforms. Small enterprises in localities, household businesses and low-skilled workers may be left behind. If the objective is inclusive private economic development, policy must prioritize more vulnerable groups through cost support, simplified procedures, short courses, mobile training, on-site consulting and accessible information channels.

The fourth risk is a shortage of instructors and practical experts. Training in digital skills, data, modern governance and innovation requires lecturers who not only possess theoretical knowledge but also understand enterprises. A pool of part-time instructors from enterprises, industry experts and digital transformation mentors should be developed. At the same time, lecturers in schools need to update technology and gain practical enterprise experience. If trainers are not retrained, the training system will struggle to produce learners with new skills.

The final risk is a lack of trust between enterprises and training institutions. Enterprises sometimes believe that schools train too far from reality; schools, in turn, may think enterprises only want ready-to-work labor without sharing training responsibility. Cooperation mechanisms should therefore be built around mutual benefits: enterprises participate in program design and recruitment; schools gain practice environments and updated data; learners obtain employment opportunities; and the State achieves productivity objectives. Trust is not created through slogans but through successful cooperation projects with clearly measured results.

9. Roadmap Recommendations

To make the solutions feasible, this article proposes a three-stage roadmap. During 2026-2027, the focus should be on data standardization and model piloting. Ministries, sectors and localities may select several high-demand sectors such as supporting industries, logistics, e-commerce, high-tech agriculture, digital tourism and financial services to build skills maps. At the same time, sectoral skills councils, training funds by enterprise cluster and micro-credential programs for small and medium-sized enterprises should be piloted.

During 2028-2030, the model should be expanded based on pilot results. Once data are available on which programs are effective, which enterprise groups need support and which skills produce the clearest productivity impacts, policies can expand co-financing, tax incentives and digital training platforms. At this stage, human resource training goals should be linked with private economic development targets to 2030: the number of active enterprises, the share of innovative enterprises, GDP contribution, labor productivity and employment quality.

After 2030, the objective should be a mature skills ecosystem in which reskilling and upskilling become normal parts of business life. At that point, the State should gradually move from direct support to the regulation of standards, data and equitable access; enterprises should proactively invest in training; training institutions should compete on quality and updating capacity; and workers should have personal skills accounts and the opportunity for lifelong learning. This is the foundation for Vietnam's private economy to develop not only in scale but also in international competitiveness.

Table 4. Proposed policy roadmap

Period	Focus	Priority instruments	Expected outcomes
2026-2027	Piloting and standardization	Sectoral skills maps; skills councils; pilot training funds; micro-credentials	Baseline data and evaluated pilot models
2028-2030	Scaling based on results	Training co-financing; tax incentives; digital training platforms; cluster-based enterprise orders	Higher share of skilled labor and stronger technology absorption among private enterprises
After 2030	Mature skills ecosystem	Personal skills accounts; reskilling market; continuously updated skill standards	Lifelong learning linked with productivity and high-quality employment

10. Conclusion

Developing the private economy in association with high-quality human resource training is a strategic requirement for Vietnam in the context of digital transformation. Data for 2015-2024 show that the enterprise sector has developed dynamically, the economy has demonstrated resilience, Internet use has increased rapidly and the share of trained workers holding degrees/certificates has gradually improved. However, the very difference between the speed of social digitalization and the speed of labor skill upgrading points to a major challenge: without an appropriate training strategy, digital transformation may create a new productivity gap within the private sector.

This article argues that high-quality human resources are not only an input for private economic development but also a condition for enterprises to shift from quantity-based growth to productivity-based growth, innovation and capacity to participate in value chains. Training in the digital economy must go beyond the traditional degree-based model, combining foundational education, vocational skills, digital skills, enterprise-based training, micro-credentials and lifelong learning. In particular, attention should be paid to training business owners and middle managers, because this is the layer that determines technology absorption and change management capacity.

In policy terms, the article proposes an ecosystem model comprising the State, private enterprises, training institutions and digital platforms. The model emphasizes skills-forecasting data, enterprise-based training orders, financial mechanisms that encourage enterprise-based training, digital transformation of the training system and impact measurement through productivity. This approach helps transform training from a general support activity into a targeted, accountable and measurable instrument for private economic development.

In the coming period, as Vietnam seeks to enhance the role of the private economy, promote science and technology, foster innovation and advance national digital transformation, the human resource issue will determine the quality of implementation. A strong private economy cannot rely only on a larger number of enterprises; it requires entrepreneurs, managers, engineers, technicians and workers who are capable of learning, creating and mastering technology. This is the foundation for the private economy to become a pioneering force in rapid, sustainable and inclusive growth.

References

Acemoglu, D., & Restrepo, P. (2018). *Artificial intelligence, automation, and work* (NBER Working Paper No. 24196). National Bureau of Economic Research. https://doi.org/10.3386/w24196

Autor, D. (2015). Why are there still so many jobs? The history and future of workplace automation. *Journal of Economic Perspectives, 29*(3), 3–30. https://doi.org/10.1257/jep.29.3.3

Barney, J. (1991). Firm resources and sustained competitive advantage. *Journal of Management, 17*(1), 99–120. https://doi.org/10.1177/014920639101700108

Becker, G. S. (1993). *Human capital: A theoretical and empirical analysis, with special reference to education* (3rd ed.). University of Chicago Press.

Bharadwaj, A., El Sawy, O. A., Pavlou, P. A., & Venkatraman, N. (2013). Digital business strategy: Toward a next generation of insights. *MIS Quarterly, 37*(2), 471–482.

Brynjolfsson, E., & McAfee, A. (2014). *The second machine age: Work, progress, and prosperity in a time of brilliant technologies.* W. W. Norton & Company.

Cohen, W. M., & Levinthal, D. A. (1990). Absorptive capacity: A new perspective on learning and innovation. *Administrative Science Quarterly, 35*(1), 128–152. https://doi.org/10.2307/2393553

General Statistics Office. (2024). *White book on Vietnamese enterprises 2024.* Statistical Publishing House.

General Statistics Office. (2025a). *Statistical yearbook of Viet Nam 2024.* Statistical Publishing House.

General Statistics Office. (2025b, January). *Press release on the labor and employment situation in the fourth quarter and in 2024.* https://www.gso.gov.vn/du-lieu-va-so-lieu-thong-ke/2025/01/thong-cao-bao-chi-ve-tinh-hinh-lao-dong-viec-lam-quy-iv-va-nam-2024/

General Statistics Office. (2024, December). *Report on the socio-economic situation in the fourth quarter and in 2024.* https://www.gso.gov.vn/

International Labour Organization. (2021). *Labour and social trends in Viet Nam 2021, outlook to 2030.* ILO.

International Labour Organization. (2024). *Global employment trends for youth 2024: Decent work, brighter futures.* ILO. https://www.ilo.org/publications/major-publications/global-employment-trends-youth-2024

Ministry of Labour, Invalids and Social Affairs. (2015–2024). *Vietnam labour market update bulletin.* Ministry of Labour, Invalids and Social Affairs.

Ministry of Planning and Investment. (2015–2024). *Annual report on Vietnamese enterprises.* Statistical Publishing House.

National Assembly of Vietnam. (2014). *Law on vocational education No. 74/2014/QH13.*

National Assembly of Vietnam. (2017). *Law on support for small and medium-sized enterprises No. 04/2017/QH14.*

National Assembly of Vietnam. (2019). *Law on education No. 43/2019/QH14.*

National Assembly of Vietnam. (2020). *Law on enterprises No. 59/2020/QH14.*

Nelson, R. R., & Phelps, E. S. (1966). Investment in humans, technological diffusion, and economic growth. *The American Economic Review, 56*(1/2), 69–75.

OECD. (2016). *Skills for a digital world.* OECD Publishing. https://doi.org/10.1787/5jlwz83z3wnw-en

OECD. (2024). *OECD digital economy outlook 2024.* OECD Publishing.

Politburo. (2024). *Resolution No. 57-NQ/TW dated December 22, 2024 on breakthroughs in science, technology, innovation and national digital transformation.* https://xaydungchinhsach.chinhphu.vn/toan-van-nghi-quyet-ve-dot-pha-phat-trien-khoa-hoc-cong-nghe-doi-moi-sang-tao-va-chuyen-doi-so-quoc-gia-119241224095932962.htm

Politburo. (2025). *Resolution No. 68-NQ/TW dated May 4, 2025 on private economic development.* https://baochinhphu.vn/toan-van-nghi-quyet-so-68-nq-tw-ve-phat-trien-kinh-te-tu-nhan-102250505122337909.htm

Prime Minister of Vietnam. (2020). *Decision No. 749/QD-TTg dated June 3, 2020 approving the National Digital Transformation Program to 2025, with orientation to 2030.* https://chinhphu.vn/default.aspx?docid=200163&pageid=27160

Prime Minister of Vietnam. (2021). *Decision No. 2239/QD-TTg dated December 30, 2021 approving the*

Vocational Education Development Strategy for 2021–2030, with a vision to 2045. https://chinhphu.vn/?docid=204883&pageid=27160&tagid=6&type=1

Prime Minister of Vietnam. (2022). *Decision No. 411/QD-TTg dated March 31, 2022 approving the National Strategy for Digital Economy and Digital Society Development to 2025, with orientation to 2030.* https://chinhphu.vn/?docid=205555&pageid=27160&tagid=6&type=1

Schultz, T. W. (1961). Investment in human capital. *The American Economic Review, 51*(1), 1–17.

Teece, D. J., Pisano, G., & Shuen, A. (1997). Dynamic capabilities and strategic management. *Strategic Management Journal, 18*(7), 509–533. https://doi.org/10.1002/(SICI)1097-0266(199708)18:7<509::AID-SMJ882>3.0.CO;2-Z

Verhoef, P. C., et al. (2021). Digital transformation: A multidisciplinary reflection and research agenda. *Journal of Business Research, 122*, 889–901. https://doi.org/10.1016/j.jbusres.2019.09.022

Vial, G. (2019). Understanding digital transformation: A review and a research agenda. *The Journal of Strategic Information Systems, 28*(2), 118–144. https://doi.org/10.1016/j.jsis.2019.01.003

World Bank. (2026a). *Individuals using the Internet (% of population) – Viet Nam.* World Development Indicators. https://data.worldbank.org/indicator/IT.NET.USER.ZS?locations=VN

World Bank. (2026b). *World development indicators.* https://data.worldbank.org/

World Bank & Ministry of Planning and Investment of Vietnam. (2016). *Vietnam 2035: Toward prosperity, creativity, equity, and democracy.* World Bank.

World Economic Forum. (2025). *The future of jobs report 2025.* World Economic Forum.