# Цифровой скачок: оценка структурной трансформации Вьетнама и ловушки «средних технологий» на этапе ускорения 2026 года

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**КЛЮЧЕВЫЕ СЛОВА**

Вьетнам, цифровая экономика, экономическое развитие, ловушка средних технологий, цифровая трансформация, искусственный интеллект, цифровой суверенитет, киберустойчивость

**АННОТАЦИЯ**

В статье исследуется трансформационный экономический переход Вьетнама, обусловленный ускоренным ростом инновационной цифровой экономики накануне этапа ускорения. Анализируется, как сочетание высокого уровня доверия граждан к технологиям искусственного интеллекта и активной национальной нормативно-правовой базы способствовало превращению Вьетнама из страны с базовым уровнем внедрения цифровых технологий в региональный технологический центр. На основе официальных статистических данных показано, что доля цифровой экономики в валовом внутреннем продукте устойчиво растёт, а её вклад в обеспечение макроэкономической стабильности и в национальную экономику в целом приобретает всё более выраженный и устойчивый структурный характер. Отмечается, что ядро цифровой экономики и цифровизируемые отрасли демонстрируют согласованную динамику развития. Особое внимание уделяется структуре этого роста: ведущей роли сферы услуг и высокотехнологичной промышленности, а также сохраняющемуся отставанию сельского хозяйства и провинций с низким уровнем цифровизации. Вместе с тем исследование выявляет значительные системные барьеры: сохраняющиеся последствия «ловушки средних технологий», региональное неравенство во внедрении цифровых технологий, острую нехватку квалифицированных кадров и нарастающие киберугрозы. В работе также оценивается разрыв в сфере искусственного интеллекта в Юго-Восточной Азии и положение вьетнамской экосистемы технологических стартапов. Таким образом, в заключение исследования говорится, что долгосрочное экономическое процветание Вьетнама зависит от его способности создавать синергию между цифровым суверенитетом и региональной совместимостью, развивать собственные инновации и интеллектуальную собственность, а также поощрять предприятия к формированию культуры гибкости и киберустойчивости для поддержания импульса к прогрессу.

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## Introduction

In the period following the pandemic, Vietnam has become one of the most resilient and dynamic economies globally, reaching an annualised GDP growth of over 8% by the end of the year 2025[1]. The economy has set an ambitious target of achieving 10% growth by 2026 together with maintaining inflation

*1 Vietnam Economic Performance in 2025: GDP, FDI, and Trade. URL: https://www.vietnam-briefing.com/news/vietnam-economy-gdp-fdi-and-trade-2025.html/ (accessed : 30.1.2026)*

rate at 4.5%[2]. Vietnam has established itself as a key player in the ASEAN bloc by becoming a strong regional leader for their digital strategy and fostering a critical link within the global semiconductor and AI supply chains[3]. Vietnam is experiencing a "golden age" of growth due to undergoing a "triple transition" of: having a demographic dividend with young people who are tech-savvy; maintaining strong macroeconomic stability; and moving aggressively towards green and digital industrialisation.

The rapid development of digitalisation throughout the public sector, including the introduction of non-cash payments, e-commerce and national coverage for the use of big data platforms has signified a dramatic change in the world. Furthermore, there has been tremendous growth in the use of digital payments and cross-border commerce on a national scale, due in part to the ingenuity of Tiki's national logistics system as well as the large, well-established regional (Singapore-Malaysia) ecommerce brands such as Shopee and Lazada providing a reliable means of facilitating these transactions[4]. Not only are the these entities creating a fluid consumer marketplace that will support a digital economy based on high levels of transactional efficiency and transparency, but they also provide a "virtual circulation system" that supplies fuel to grow today's global commerce.

The effects of digital transformation in Vietnam are no longer confined to primary urban centres such as Ho Chi Minh City and Hanoi but are diffusing rapidly into less populated and historically underserved provinces, reinforcing the inclusivity of the country's growth trajectory. Central to this diffusion has been the state's deployment of digital public infrastructure, most notably the VNeID digital identification system, which has extended to geographically remote citizens a range of administrative services that would otherwise have remained effectively inaccessible. By lowering the transaction costs associated with verifying identity, accessing public services, such systems constitute an enabling layer upon which wider economic participation can be constructed. Digitalisation in this sense operates not merely as a technological upgrade but as a mechanism for reducing the spatial and institutional frictions that have long constrained the integration of peripheral regions into the national economy, and it represents an early instance of the «spillover» dynamic examined in greater detail in the sections that follow.

These spillovers carry significant distributional and productivity implications. By narrowing disparities in access to markets, information, and capital, the expansion of the digital economy helps to level the competitive landscape for small and medium-sized enterprises, which have historically been disadvantaged by their distance from urban centres and their limited access to formal institutions. Improved access to digitally mediated services likewise contributes to broader gains in welfare and quality of life across the population. The high rate of digital adoption observed across provinces is therefore significant not only as an indicator of technological diffusion but as evidence of a deliberate reorientation of Vietnam's economic model. Whether this momentum can be sustained, however, depends on the extent to which the accompanying gains in inclusivity are translated into durable, broad-based productivity improvements rather than remaining concentrated in a few high-technology localities, a tension that the subsequent analysis of regional divergence and the middle-tech trap brings into sharper focus.

**Literature Review**

The scope of the academic research on Vietnam's digital transformation has changed from general development to precise research on its effect on the economy and the regulation system [13, 7, 4]. According to Mohammadreza et al. (2024), big data analytics and the Internet of Things (IoT) currently lead adoption and investment trends across Vietnamese supply chains, whereas technologies like blockchain and autonomous vehicles are anticipated to have the least impact over the next decade [9]. Dang Thi Viet Duc and her colleagues

*2 The government aims for a 10% GDP growth rate in 2026. URL: https://vnexpress.net/chinh-phu-dat-muc-tieu-gdp-nam-2026-tang-10-4951585.html (accessed: 1.2.2026)*

*3 Why Vietanm is a hotspot for semiconductor industry investment. URL: https://www.sourceofasia.com/why-vietnam-is-a-hotspot-for-semiconductor-industry-investments/ (accessed : 1.2.2026)*

*4 Digital economy: The driving force for Vietnam's growth in the new era. URL: https://vccinews.vn/news/62804/kinh-te-so-dong-luc-tang-truong-cua-viet-nam-trong-ky-nguyen-moi.html (accessed: 3.2.2026)*

conducted a panel analysis of the two-sided nature of this growth. This analysis shows a digital economy «spillover» effect, and that the growth of the core digital economy depends on the capital investments and high productivity in the ICT sector. This research indicates that Vietnam must have many different policies to support the digital economy in order to achieve the national objective of creating a digitalized economy [2].

AI and automation are being quickly integrated into the national economy, creating an enormous challenge to «Institutional Readiness» [16, 22]. According to Huan Tuong Vo et al. (2025), an enterprise's successful execution of digital change and innovation in Vietnam is significantly determined by its organizational readiness across strategic clarity, capabilities, collaboration, and culture [23]. Bui and Nguyen (2023) also find out that there is a need to create standards and regulations for the integration of AI; therefore, finding an appropriate balance between adhering to this type of regulatory regime and the «new realities» found in a rapidly changing digital economy is necessary [1]. In order to deal with, e.g., data sovereignty, algorithm accountability, or digital ethics, Vietnam requires significant changes in legal system [21, 19].

The literature reveals clear struggles for the Vietnamese private sector at the microeconomic level [17, 10]. Research by Nguyen Dinh Chuc and Dao Tung Anh (2023) identifies the implementation gap where many businesses are having difficulty using technology [11]. According to Binh Tan Mai (2024), Vietnamese SMEs face critical digital transformation challenges such as limited capital, poor managerial competencies, and inadequate infrastructure, resulting in a low success rate of only about 10% [8]. Nguyen Thi Vu Ha (2020) further provides that firms cannot choose to develop digital initiatives, but must do so in order to survive [5]. If a business does not use data-driven insights to understand customers or predict production requirements, it will eventually be eliminated by more agile competitors. Ultimately, the literature implies that the transition of Vietnamese economy will depend on whether SMEs in Vietnam can overcome barriers to create new, data-driven business models that increase productivity at a national level [24, 3].

Overall, available research shows Vietnam at a moment of important change; between moving from basic digitalization to advanced economies based on digital technologies with the goal of moving into new jobs and creating a stronger economy [20, 15, 25]. Research on economic spillovers from new digital activities indicates there is much spillover from technology creating an increase in GDP on a larger scale. However, more information available suggests that as large as these digital spillovers have been, they are being greatly impacted by older and outdated laws and policies on data ownership at a micro level affecting economic growth and prosperity going forward for individuals, industries, communities, and regions. The research indicates moving forward into the future economy, digital technology adoption has transformed from having a competitive edge to a requirement of being able to exist at all.

**Main part**

Over the 2021–2025 period, digital transformation emerged as the principal structural pillar of Vietnam's National Digital Transformation Strategy, displacing earlier, more fragmented development models in which the digital sphere had occupied a peripheral rather than a constitutive role in the national economy. This reorientation gathered decisive momentum with the issuance of Resolution No. 57-NQ/TW, which furnishes a formal institutional framework for the «breakthrough» thinking that now governs the state's approach to science, technology, innovation, and digitalisation. The significance of the Resolution lies less in any single provision than in its codification of digital development as a strategic national priority: it elevates digital transformation from a sectoral initiative to an organising principle of economic policy, thereby signalling to both public administrators and private actors that the digitalisation agenda enjoys sustained political commitment at the highest level[5].

By positioning the digital economy as the leading structural component of national strategy, this framework has also fostered a stronger alignment between previously disparate phases of economic development and has promoted the integration of technology at the grassroots level. Two consequences follow.

*5 Press release on the share of value added by the digital economy in GDP and GRDP for the period 2021-2025. URL: https://www.nso.gov.vn/tin-tuc-thong-ke/2026/01/thong-cao-bao-chi-ty-trong-gia-tri-tang-them-cua-kinh-te-so-trong-gdp-grdp-giai-doan-2021-2025/ (accessed: 10.2.2026)*

First, digital technology is being formalised as a core function of government across all sectors, embedding it within the routine operation of the state rather than treating it as an adjunct to conventional administration. Second, regulatory and procedural support is being deliberately aligned with the needs of enterprises and citizens, reducing the institutional friction that has historically slowed adoption and accelerating the rate at which Vietnamese businesses and society can realise the latent potential of the digital economy. Taken together, these developments mark a transition from ad hoc digitalisation towards a coordinated, state-led model of structural transformation.

As indicated by Empirical Indicators, there has been a transformational change in how Vietnamese display psychological behaviors towards technology (specifically; Artificial Intelligence). Vietnam is now rated as the least (AI) proactive country and the most trusting country within Southeast Asia[6]. Additionally, Vietnamese citizens are viewed as having one of the most open online attitudes towards Artificial Intelligence. The most recent data suggests approximately 78% of people in Vietnam reported using AI at least once over the prior three-month period and that approximately 33% of individuals are currently integrating Artificial Intelligence into their daily lives[7]. This trend provides substantial opportunities for data driven economies that lower the barriers to entry for consumers adopting more advanced technologies such as; Financial Technology (Fintech), Personalized E-commerce and Predictive Public Services.

The Vietnamese economy has transitioned from a new industry into a significant contributor toward the overall health of the nation regarding macroeconomic stability as seen through the years 2021-2025 with respect to digital economy indicators (Figure 1).

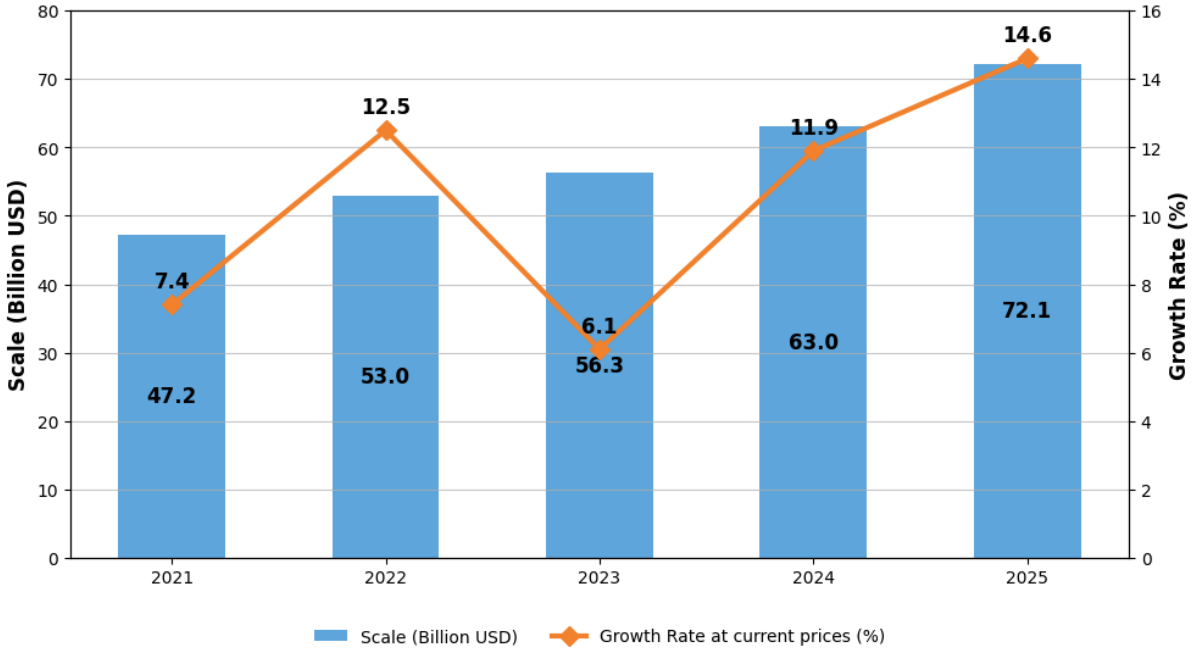


**Figure 1** – Scale and Growth Rate of Digital Economy Value Added (2021-2025)

*Source: Press release on the share of value added by the digital economy in GDP and GRDP for the period 2021-2025. URL: https://www.nso.gov.vn/tin-tuc-thong-ke/2026/01/thong-cao-bao-chi-ty-trong-gia-tri-tang-them-cua-kinh-te-so-trong-gdp-grdp-giai-doan-2021-2025/*

The expanding footprint of the digital economy within the macroeconomic landscape underscores a structural pivot toward technology-driven growth. Between 2021 and 2025, the digital economy's share of Gross Domestic Product (GDP) advanced from 12.87% to 14.02%, culminating in an estimated value added

*6 Vietnam's digital economy is expected to experience a strong breakthrough in 2025. URL: https://baotintuc.vn/kinh-te/kinh-te-so-viet-nam-but-pha-manh-trong-nam-2025-20251125131315577.htm (accessed: 12.2.2026)*

*7 Vietnam Consumer AI market 2025: 78% of online population have engaged with AI, one-third turn it into a daily habit. URL: https://www.decisionlab.co/blog/vietnam-consumer-ai-market-2025-78-of-online-population-have-engaged-with-ai-one-third-turn-it-into-a-daily-habit (accessed: 15.2.2026)*

of approximately $72.1 billio, a remarkable 1.64-fold increase relative to 2020 benchmarks. This expansion reflects more than just a cyclical upswing; it signifies a deeper integration of digital assets across the broader economy. To understand the mechanics of this growth, the total value added must be disaggregated into its two primary pillars: the «core» digital economy and the «digitalized» sectors. The core ICT sector served as the primary growth engine, driving an estimated 8.42% of the overall GDP share increase, while the traditional industries undergoing digital transformation, the digitalized sectors, contributed the remaining 5.6%, demonstrating that productivity gains are permeating far beyond tech-centric firms.

The velocity of this digital transition becomes particularly evident when evaluating the shifting momentum of annual growth rates over the five-year period. In 2021, the digital economy posted a modest average growth rate of 7.2%, reflecting initial post-pandemic adjustments and early-stage infrastructure investments. However, by 2025, systemic adoption and compounding network effects accelerated this momentum significantly, driving the average growth rate to 18.4% at current prices. This stark acceleration highlights a compounding growth trajectory, where early structural investments matured into high-yield economic inputs. As the digital economy outpaces traditional sector growth, it establishes a new baseline for macroeconomic resilience, suggesting that future GDP expansion will be increasingly contingent on the velocity of digital integration and technological capital deepening.

According to the sector breakdown above, the service sector is driving digital growth at 7.22%, which is higher than all other sectors put together. The industrial and construction sectors have contributed successfully to good results as well, by integrating smart manufacturing practices and digital supply chain management as innovative methods of production and delivery. The total value-added contribution from the agriculture, forestry and fishing sectors is only 0.13%, and represents a very significant `digital divide` between these sectors and the other two, which demonstrates a great area for AgTech intervention for 2026-2030. All of these numbers represent distinctive changes in growth; by 2025, in addition to increasing size, the digital economy will also have a more established structural contribution to the national economy, creating a strong foundation for continued growth towards its target of expanding businesses to the next level.

The digital economy is set to play an increasingly prominent role in driving the economic divergence among regions and creating a clear «growth gap» among provinces in Vietnam by the year 2025. According to data, 34 of Vietnam's provinces and centrally-administered cities have seen digital contributions become meaningful contributors to the gross regional domestic product (GRDP) (Figure 2).

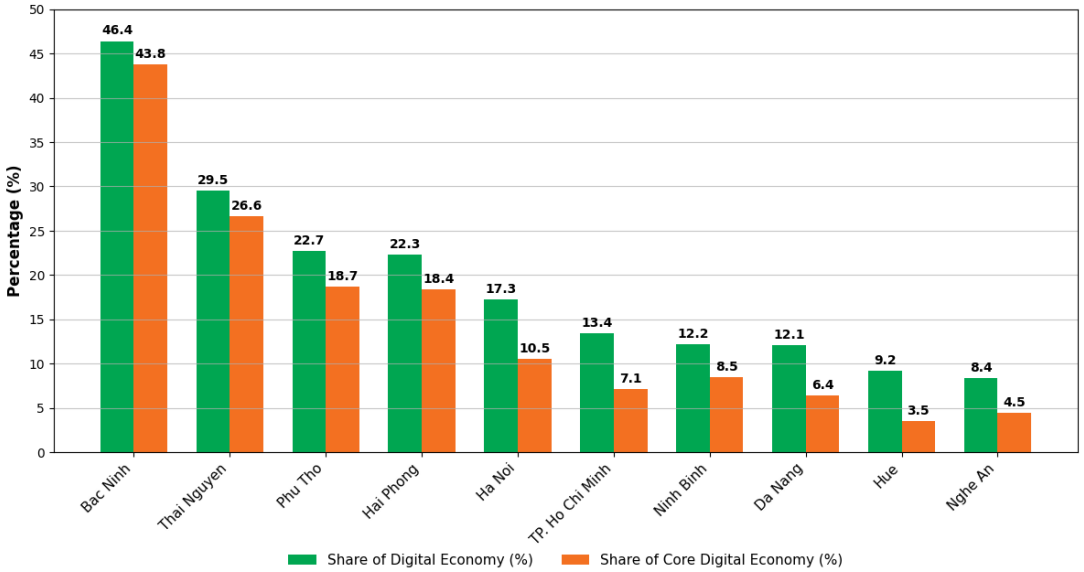


**Figure 2** – Top 10 Localities with Highest Share of Digital Economy Value Added in GRDP

*Source: Press release on the share of value added by the digital economy in GDP and GRDP for the period 2021-2025. URL: https://www.nso.gov.vn/tin-tuc-thong-ke/2026/01/thong-cao-bao-chi-ty-trong-gia-tri-tang-them-cua-kinh-te-so-trong-gdp-grdp-giai-doan-2021-2025/*

The geographical distribution of Vietnam's digital economy reveals a stark divergence in subnational performance, driven heavily by localized industrial specialization and foreign direct investment (FDI) inflows. Of the country's provinces and centrally administered cities, a distinct tier of four provinces has significantly outpaced the rest of the nation, with digital contributions comfortably exceeding the 20% Gross Regional Domestic Product (GRDP) threshold. Leading this cohort is Bắc Ninh at an extraordinary 46.4%, followed by Thái Nguyên at 29.53%, Phú Thọ at 22.71%, and the municipality of Hải Phòng at 22.28%. The primary catalyst behind these high-performing regions is a robust concentration of high-technology manufacturing and electronics assembly, often anchored by multinational corporations. This hardware-centric industrial profile stands in sharp contrast to a large cluster of 26 provinces that remain anchored in traditional sectors, exhibiting relatively stagnant digital contributions that hover between a modest 6% and 10% of their respective GRDPs.

Intriguingly, Vietnam's two primary economic powerhouses, Hanoi and Ho Chi Minh City, display a more tempered digital-to-GRDP ratio, reporting contributions of 17.34% and 13.43% respectively. Rather than indicating a lag in technological adoption, these figures reflect a structural transition away from capital-intensive hardware production and toward high-value digital services, software development, and intensive digital consumption. This subnational variance ultimately underlines a complex macroeconomic reality: higher levels of industrial maturity and specialized manufacturing ecosystems are heavily correlated with advanced digital infrastructure and a localized capacity to absorb FDI. Consequently, while the manufacturing hubs leverage global supply chains to inflate their digital value-added shares via hardware exports, the urban centers are quietly laying the groundwork for a mature, service-oriented digital ecosystem, reshaping how technology is integrated into the country's broader socio-economic framework.

Vietnam's digital economy has successfully transitioned from a fast-growing but still emergent sector into one of the principal pillars of the national macroeconomy, generating significant and rising value added. This trajectory rests on two complementary foundations. On the demand side, an exceptionally high degree of public trust in new technologies, most notably artificial intelligence, has accelerated uptake across households and enterprises and broadened the base for digitally mediated economic activity. On the supply and governance side, a mature institutional framework has channelled this enthusiasm into sustained investment and a coherent policy direction. It is the interaction of these factors, rather than either in isolation, that accounts for the increasingly structural and self-reinforcing character of digital growth in Vietnam.

Beneath this favourable aggregate picture, however, the statistical evidence reveals a bifurcated economy. At one pole stand the high-technology manufacturing and service provinces, which have advanced furthest towards comprehensive digital integration and capture the largest share of digital value added. At the other stand the agriculture-dependent, lower-digitalisation provinces, whose participation in the digital economy remains comparatively marginal. The width of this gap, evident in the stark contrast between the digital contribution of industry and services and the negligible share of the agricultural sector, indicates that the benefits of transformation are, as yet, unevenly distributed across both sectors and regions. Addressing this asymmetry is therefore the decisive policy task of the acceleration phase: unless the productivity gains realised in leading localities are extended to lagging ones, Vietnam risks consolidating a two-speed digital economy rather than achieving the broad-based, inclusive transformation to which its strategy aspires.

**AI Investment**

Although the digital economy is expanding quickly, analysis on a broad basis shows that there is currently a large «AI gap» in Southeast Asia (SEA). The region has become one of the world's primary destinations for cloud services and investment in data centres, but currently represents less than 2% of total global cumulative venture capital investment in AI start-ups. This share represents an imbalance compared to SEA's share of global GDP-approximately 4%-indicating that although the infrastructure necessary for producing indigenous AI innovation continues to grow, creating indigenous AI innovation is still at least one step behind. Of the countries in SEA, Singapore has the largest number of active AI companies and many were established on the basis of being global firsts (Figure 3).

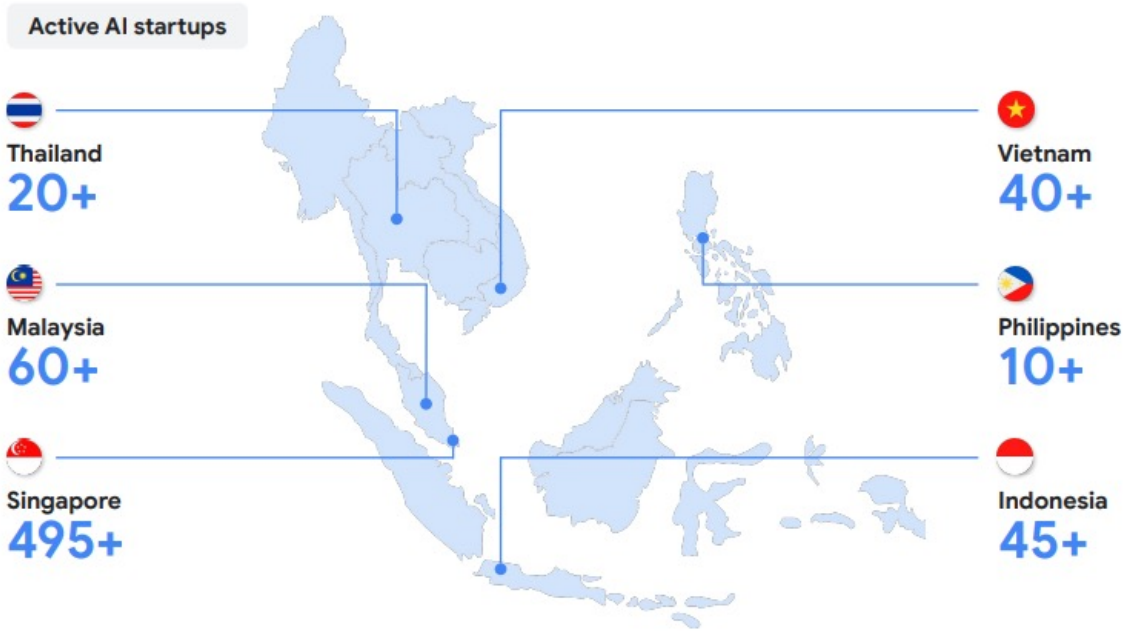


**Figure 3** – AI is a bright spot for SEA investors
*Source: e-Conomy - From Digital Decade to Al Reality: Accelerating the future in ASEAN. URL:https://www.temasek.com.sg/content/dam/temasek-corporate/news-and-views/resources/reports/e-conomy-sea-2025-report.pdf*

The artificial intelligence (AI) ecosystem in Vietnam is undergoing a crucial developmental phase, characterized by robust entrepreneurial activity and a rapidly growing footprint of over 40 active AI startups. From a regional perspective, Vietnam is structurally positioned to compete directly with Southeast Asian peers like Indonesia and Malaysia, which host more than 45 and 60 AI startups respectively. However, when evaluating the ecosystem through the lens of startup density, measuring the concentration of AI enterprises relative to the size of the digital economy or tech labor pool, Vietnam outperforms these larger competitors. This density brings Vietnam closer to the compact, highly concentrated startup profiles seen in Thailand and the Philippines. This geographic and operational clustering indicates a highly active, localized talent pool that is rapidly absorbing AI frameworks, providing a solid foundation for the country to establish a competitive tech cluster within ASEAN.

Crucially, the nature of AI adoption within this ecosystem is shifting from superficial integration to core product architecture. Rather than treating AI merely as an operationally efficient feature to augment existing software, Vietnamese entrepreneurs are increasingly leveraging it as the foundational backbone of their business models. This differentiation is fundamentally reshaping inbound capital flows, altering both the volume and the strategic direction of venture capital and private equity investments. The overriding macroeconomic challenge for Vietnam now transitions from early-stage ecosystem cultivation to scaling and value capture. To fully maximize the economic returns of this technology, policy and private capital must focus on elevating these 40-plus startups into formidable regional competitors, accelerating AI-driven GDP growth, and converting the country's high domestic «AI trust surplus» into proprietary, high-value technological assets.

The empirical landscape mapping out regional AI governance highlights a fundamental shift from theoretical, exploratory frameworks to concrete legislative architectures tailored to national strategic priorities. As detailed in Table 1, the period between 2020 and 2026 illustrates an uneven, fragmented institutional evolution across Southeast Asia, where states are balancing domestic digital sovereignty with cross-border interoperability. While Singapore continues to pioneer boundary-pushing initiatives at the global frontier—such as its testing toolkits and the 2026 Model Governance Framework for Agentic AI—the rest of the ASEAN bloc is catching up by establishing localized compliance guidelines. This regulatory

fragmentation, while creating complex compliance paths for multi-market technology deployment, offers an agile laboratory for emerging economies to bypass rigid Western paradigms and draft flexible guidelines that explicitly incentivize domestic AI scaling alongside ethical risk mitigation.

**Table 1** – The fragmentation of AI governance across the region today presents an opportunity to shape its future

| Country | 2020-2024 | 2025-2026 |
|---|---|---|
| ASEAN | The ASEAN Guide on AI Governance and Ethics is released, focusing on fostering the interoperability of AI frameworks and serving as a starting guide for common standards | A supplementary expanded guide for generative AI is released |
| Singapore | AI Verify, the world's first AI governance testing toolkit | Unveiled the Model AI Governance Framework for Agentic AI (MGF) at the World Economic Forum 2026 |
| Vietnam | Issued National Strategy on R&D and Application of AI. | Digital Technology Industry Law takes effect, covering core principles for AI provision and use. |
| Indonesia | Launched National AI Strategy (Stranas KA) 2020-2045. | A Presidential Regulation is being drafted with cross-sectoral AI ethics guidelines and the National AI roadmap is being drafted |
| Thailand | The National AI Action Plan 2022-2030 is approved | The National AI Committee is formed and AI Principles are being drafted by ETDA |
| Philippines | The National AI Strategy Roadmap 2.0 is launched | The National AI Strategy for the Philippines receives presidential approval |
| Brunei | the AI Governance and Ethics Working Group is established by the Authority for Info-communications Technology Industry | The Guide on AI Governance and Ethics is released for voluntary compliance |

*Source: e-Conomy - From Digital Decade to Al Reality: Accelerating the future in ASEAN. URL: https://www.temasek.com.sg/content/dam/temasek-corporate/news-and-views/resources/reports/e-conomy-sea-2025-report.pdf*

Within this regional matrix, Vietnam's transition from the initial 2021 National Strategy on R&D and Application of AI to the implementation of the Digital Technology Industry Law marks a critical institutional milestone. By codifying core principles for AI provision and utilization into formal statutory law, Hanoi has moved faster than neighbors like Indonesia or Thailand, which are still locked into drafting presidential regulations and preliminary principles. This legislative institutionalization reduces market uncertainties for tech-driven capital investments and anchors regulatory accountability directly into macroeconomic policy. For Vietnam, this legal maturation represents an attempt to convert its high levels of public trust in AI into a structural competitive advantage, utilizing national law to foster a secure, reliable ecosystem capable of attracting premium, high-value foreign direct investment in deep-tech sectors.

However, the divergence between Vietnam's robust legal formalization and ASEAN's broader reliance on voluntary, non-binding compliance guides introduces substantial regional frictions. While the updated ASEAN supplementary guide for generative AI targets macro-level alignment and framework interoperability, the reality remains a patchwork of national regulatory silos. For Vietnamese AI enterprises aiming to scale regionally, navigating these distinct jurisdictional standards on data sovereignty, algorithmic accountability, and cross-border data transfers presents a costly barrier to entry. To fully exploit the opportunities embedded in this regional fragmentation, Vietnam's regulatory apparatus must actively harmonize its domestic enforcement mechanisms with the broader ASEAN Guide on AI Governance and Ethics, ensuring that

the country's legal sovereignty does not inadvertently isolate its home-grown tech startups from the wider Southeast Asian digital marketplace.

**Opportunities and Challenges for Vietnam**

The major opportunity for Vietnam in achieving digital breakthroughs comes from the distinct synergy between its youthful demographic profile and the fast pace of international economic integration [12]. The demographic dividend provides the technology native base upon which Vietnam's aggressive pursuit of global trade partnerships can be built, resulting in the opportunity for Vietnam to achieve rapid scaling of technology. The National Digital Transformation Strategy plays an important role in this endeavor by providing a high-level roadmap for aligning the energy of the private sector and public policy to ensure that growth is not only rapid but also strategically aligned from now until 2030[8].

The e-commerce sector has evolved from its retail base and become the leading creator of new and innovative ways for businesses to modernize their enterprises. E-Commerce platforms provide domestic suppliers with a connection to global customers, resulting in the «digital maturity» of many small and medium-sized businesses[9]. Small and medium-sized businesses use their digital storefronts not only to sell goods and services but also as a way to create operational efficiencies, improve supply chain logistics and use data-driven management techniques that were previously only available to large companies.

The system is no longer simply watching the evolution of digital law but has become an active participant and driving force behind this evolution as well. The evolution of our domestic legal landscape creates a series of legislative foundation and incentives that create an environment where companies will feel confident in their ability to innovate digitally[10]. The accompanying legislation reduces the amount of friction typically involved with the entry into the marketplace by providing legislative support for local businesses.

Adapting to environmental changes is Vietnam's significant obstacle. The country's economic structure reflects its history, including how education has influenced its capabilities[11]. For example, for the Vietnamese higher education system is the lack of foundational and ICT infrastructure, alongside limited institutional funding, which hinders universities from effectively adopting digital and disruptive technologies [18]. While there have been a number of reforms to improve technical skill sets, there remains a gap between the skills that accumulated over decades, the specialized, agile skill sets needed in today's digital economy. Integrating these new technologies goes beyond hardware, it requires rethinking how the workforce views and uses change within an ever-changing economy. Another major digital transformation challenge for Vietnam is that state-owned enterprises and manufacturing SMEs lag significantly behind at the beginner stage due to outdated technologies, weak digital skills, and cultural barriers [14].

There are entrenched barriers due to the cultural resistance and policies that accompany how business operates [6]. Many domestic companies hold fast to existing techniques and see the use of digital as a big gamble; that is, digital transformation is seen as a substantial risk rather than as releasing increased operational capacity, productivity, innovation, and increased opportunities for expanded customer service. This form of inertia (ex: unwillingness to take on the risk associated with new technology or to give up existing; but, non-effective, techniques) serves as a subsequent impediment to most countries' economy and, therefore, to the global economy. If businesses do not create an organisational culture of digital «willingness», they will miss out on productivity advantages that their more nimble competitors realise.

*8 Digital Transformation in Vietnam: Key Insights for Companies in 2026. URL: https://saigontechnology.com/blog/digital-transformation-in-vietnam/#:~:text=the%20Vietnamese%20market.-,Government%20Priorities,digital%20inclusion%20and%20literacy%20programs (accessed: 20.2.2026)*

*9 Digital economic development: Opportunities and challenges in the new era. URL: https://hanoimoi.vn/phat-trien-kinh-te-so-co-hoi-va-thach-thuc-trong-ky-nguyen-moi-724132.html (accessed : 20.2.2026)*

*10 This opens up many new development opportunities for the digital economy and the digital asset market. URL: https://baochinhphu.vn/mo-ra-nhieu-co-hoi-phat-trien-moi-cho-kinh-te-so-va-thi-truong-tai-san-so-102260126154436908.htm (accessed: 21.2.2026)*

*11 Challenges and opportunities in Việt Nam's digital transformation process. URL: https://vietnamnews.vn/opinion/1687242/challenges-and-opportunities-in-viet-nam-s-digital-transformation-process.html (accessed : 21.2.2026)*

Moreover, one of the main systemic barriers Vietnam is currently facing is the widening "Senior Talent Gap" that has developed as the complexity of cybersecurity threats continues to escalate. As of now, Vietnam is thought to have around 300 AI experts, and at the same time, it has a labour shortage of between 150,000 and 200,000 ICT personnel each year for positions like AI, big data, and cybersecurity[12]. Adding to that talent deficit is an increasingly unstable threat landscape — it is estimated that by 2025, Vietnam will be attacked by over 550,000 cyber-attacks, with small to medium-sized enterprises at particular risk because of limited budgets and a lack of mature cybersecurity frameworks[13]. The result of being unable to effectively address this high-level skill gap and strengthen the nation's cyber-resilience could undercut the ability to create «breakthrough» growth due to the loss of technical debt, as well as the enormous economic costs associated with data breaches and intellectual property theft.

**Conclusion**

By 2026, digitalization will have changed from being an addition to the economy's growth engine to the main driver of economic growth in Vietnam. Core and digitalized sectors of the economy have continued a successful integration that has created a strong foundation for the economy with a marked increase in the confidence of citizens of Vietnam in new technologies such as AI. There are however some large regional and sectoral differences in the economy as a result of this maturing digital economy.

As the requirement to move into the «Breakthrough Action» phase of the economy, where focus had been previously on fast growth, the primary focus now needs to be on ensuring that productivity increases experienced by high-tech industrial centers are reflected in the entire economy and that these productivity increases are also transferred to the very large agricultural and rural areas of the Vietnam economy that account for a very small percent of the Vietnamese GDP.

In order to overcome the «Middle-Tech Trap,» Vietnam needs to change its course and put enough effort into developing domestic innovation, as well as creating their own intellectual property. Foreign direct investment has provided initial capital through hardware and assembly. However, for Vietnam to prosper long-term, must focus on own ability to create higher levels of value (deep tech) in respect to using technology, as well as high-level software services. Strengthen the connection between universities and industry together is critical to minimizing the gap of quality senior talent.

Additionally, the government should establish ASEAN standards for the regulatory framework in order to facilitate an unhindered flow of data across borders. This means developing laws that protect a country's interests while fostering co-operation to enable AI innovation. Establishing regulatory is critical to allowing companies to experiment with new operating models and overcome the resistance of traditional firms to adopt new technologies or processes.

In conclusion, the long-term sustainability of Vietnam's digital economy cannot be assessed in isolation from the country's commitment to green energy; the two agendas are, in practice, inseparable. The infrastructure required to meet the computational demands of artificial intelligence, above all the rapid expansion of data centres, is highly energy-intensive, and its growth threatens to outpace the capacity of existing utility systems unless accompanied by a parallel transformation in sustainable energy management. A digital acceleration premised on carbon-intensive power would not only undermine national environmental commitments but would also expose the technology sector to rising input costs and regulatory risk, thereby compromising the very competitiveness it seeks to build. Aligning the digital and green transitions is therefore not a peripheral concern but a precondition for durable, high-quality growth in the acceleration phase.

Against this backdrop, several priorities emerge for policy. First, the state should provide targeted incentives for private-sector investment in renewable energy dedicated to technology infrastructure, ensuring that the expansion of computational capacity is matched by a commensurate expansion of clean generation.

*12 Vietnam eyes new approach to high-quality AI workforce training. URL: https://en.vietnamplus.vn/vietnam-eyes-new-approach-to-high-quality-ai-workforce-training-post325259.vnp (accessed: 24.2.2026)*

*13 Over 500,000 cyberattacks are expected to target Vietnamese organizations and businesses in 2025. URL: https://vietbao.vn/en/hon-500-ngan-cuoc-tan-cong-mang-vao-to-chuc-doanh-nghiep-viet-nam-trong-nam-2025-579159.html (accessed: 24.2.2026)*

Second, comprehensive cybersecurity requirements should be instituted to safeguard the growing stock of national digital assets, whose value, and exposure, rises in step with digitalisation itself. Third, and most fundamentally, the technical, cultural, and environmental gaps identified throughout this study must be bridged in a coordinated manner rather than addressed in isolation. Only by integrating these dimensions can Vietnam convert its present momentum into a digital transformation that delivers a high-income, innovation-driven future—one that is, in the fullest sense, both inclusive and resilient.

## СПИСОК ЛИТЕРАТУРЫ

1. Bui T. H., Nguyen V. P. (2023). The Impact of Artificial Intelligence and Digital Economy on Vietnam's Legal System. International Journal for the Semiotics of Law, 36, 969–989. https://doi.org/10.1007/s11196-022-09927-0

2. Dang T. V. D., Tran T. D., Dan, H. L., Bui X. P. (2024). Measuring the digital economy in Vietnam. Telecommunications Policy, 48(3), 102683. https://doi.org/10.1016/j.telpol.2023.102683

3. Dey P. K., Chowdhury S., Abadie, A. Vann Yaroson, E., Sarkar, S. (2024). Artificial intelligence-driven supply chain resilience in Vietnamese manufacturing small- and medium-sized enterprises. International Journal of Production Research, 62(15), 5417–5456. https://doi.org/10.1080/00207543.2023.2179859.

4. Ha L. V., Dang Q. H. (2023). The Factors Affecting Digital Transformation in Vietnam Logistics Enterprises. Electronics, 12(8), 1825. https://doi.org/10.3390/electronics12081825

5. Ha N. T. V. (2020). The Development of the Digital Economy in Vietnam. VNU Journal of Economics and Business, 36(5E). https://js.vnu.edu.vn/EAB/article/view/4462

6. Le N. T. D. (2025). Digital transformation in small and medium-sized enterprises: Challenges and solutions. Finance Magazine. https://kinhtevadubao.vn/chuyen-doi-so-trong-doanh-nghiep-nho-va-vua-thach-thuc-va-giai-phap-31333.html.

7. Le T. T. A., Le Q. T., Do T. T. T., Chan T. T., Mai X. D., Vo X. V. (2025). The Evolution of Economics and Law in Vietnam. Asian Journal of Law and Economics, 16(1), 131–153. https://doi.org/10.1515/ajle-2025-0048

8. Mai B. T., Nguyen P. V., Ton U. N. H., Ahmed Z. U. Government policy, IT capabilities, digital transformation, and innovativeness in Post-Covid context: case of Vietnamese SMEs // International Journal of Organizational Analysis. — 2024. — Vol. 32, no. 2. — P. 333–356. — URL: https://doi.org/10.1108/IJOA-11-2022-3480

9. Mohammadreza A., Kok S. K., Hopkins J., Frederico G. F., Nguyen H., Alonso A. D. The changing landscape of digital transformation in supply chains: impacts of industry 4.0 in Vietnam // The International Journal of Logistics Management. — 2024. — Vol. 35, no. 4. — P. 1040–1072. https://doi.org/10.1108/IJLM-11-2022-0442

10. Ngo M. P. (2022). Opportunities and Challenges of Digital Transformation in Vietnam's Tourism Industry. International Journal of Economics, Business and Management Research, 6(12), 18–29. https://doi.org/10.51505/IJEBMR.2022.61202

11. Nguyen D. C., Dao T. A. (2023). Digital Transformation in Vietnam: Policies, Results and Recommendations. Journal of Southeast Asian Economies, 40(1), 127–144. https://www.jstor.org/stable/27211227

12. Nguyen D. P., Vo X. V., Nguyen P. N., La N. G., Pham Q. T. (2025). The international and domestic context affecting the development of the digital economy: Opportunities and challenges for Vietnam. Journal of Economic Studies, 12(04), 1–12. https://vjol.info.vn/index.php/due/article/view/125140/102803

13. Nguyen H. P., Dinh L. H. G. (2025). Vietnam's economic growth in the age of digital transformation: Opportunities and challenges. Journal of Regional and International Competitiveness, 6(3), 4–15. https://doi.org/ 10.52957/2782-1927-2025-6-3-4-15

14. Nguyen T., Dang L. T. T. Evaluating digital transformation preparedness among Vietnamese enterprises // HCMCOUJS – Economics and Business Administration. — 2025. — Vol. 15, no. 3. — P. 21–43. — URL: https://journalofscience.ou.edu.vn/index.php/econ-en/article/view/3349/2249

15. Nguyen T.H. (2022). Technology, ICT, Digital Transformation in Vietnam in the Integration Era—And FDI Effects for Digital Technology and ICT Sector. In: Goyal, V., Gupta, M., Mirjalili, S., Trivedi, A. (eds) Proceedings of International Conference on Communication and Artificial Intelligence. Lecture Notes in Networks and Systems, vol 435. Springer, Singapore. https://doi.org/10.1007/978-981-19-0976-4_49

16. Pham Q. H., Vu K. P. (2024). Structural dimensions and measurement of readiness for Industry 5.0 implementation: A fresher insight from SMEs in developing country. In Modern Technologies and Tools

Supporting the Development of Industry 5.0 (1st ed., pp. 32–45). CRC Press. https://www.taylorfrancis.com/chapters/edit/10.1201/9781003489269-3/structural-dimensions-measurement-readiness-industry-5-0-implementation-pham-quang-huy-ma-vu-kien-phuc.

17. Phan T. H. H. (2023). Vietnam's Digital Economy: In a Good Position to Spur the Digital Economy but Challenges Ahead. In The ASEAN Digital Economy (1st ed., p. 13). https://doi.org/10.4324/9781003308751-7

18. Pitt B., Huynh T. Q., Gregson J., Seal T., Tran H. H., Nguyen H. T., Bui T. N. T., Nguyen, H. M. (2022). Readiness of Digital Transformation in Vietnamese Universities. British Council. URL: https://oro.open.ac.uk/85033/

19. Tran H. T., Dang B. H., Nguyen M. T. T., Pham Q. T. T., Nguyen P. V. (2025). Artificial intelligence ethics in authoritarian Vietnam: governance, trust, and societal tensions. Policy Design and Practice, 8(4), 427–441. https://doi.org/10.1080/25741292.2025.2529625

20. Tran M.A. Foundations for Digital Transformation: The Case of Vietnam // Proceedings of the International Conference on Emerging Challenges: Business Transformation and Circular Economy (ICECH 2021). — Atlantis Press, 2021. — P. 61–72. — (Advances in Economics, Business and Management Research, Vol. 197). https://doi.org/10.2991/aebmr.k.211119.007

21. Tran N. D., Hoang H. H. (2025). Developing fair data value sharing models to enhance personal data sovereignty in electronic commerce in Vietnam. International Journal of Research in Commerce and Management Studies, 7(3), 56–70. https://doi.org/10.38193/IJRCMS.2025.7305

22. Trung P. N. (2024). The state's role of digital economy and economic innovation in Vietnam. Journal of Business Management and Economic Development, 2(03), 1413–1439. https://doi.org/10.59653/jbmed.v2i03.1105

23. Vo H. T., Nguyen P. V., Nguyen S. N. T., Vrontis D., Bianco R. Unlocking digital transformation in Industry 4.0: exploring organizational readiness, innovation and firm performance in Vietnam // European Journal of Innovation Management. — 2025. — Vol. 28, no. 5. — P. 1943–1964. https://doi.org/10.1108/EJIM-03-2024-0273

24. Walsh J., Nguyen, T. Q., & Hoang, T. (2023). Digital transformation in Vietnamese SMEs: managerial implications. Journal of Internet and Digital Economics, 3(1-2), 18–32.

25. Walsh J. (2024), 'Digitalising Public Services in Supporting Economic Development: The Case of Viet Nam' in Chen, L. and F. Kimura (eds.) Empowering Online Public Service in Asia: The Digital Frontier. Jakarta: ERIA, pp.149-174.

# The Digital Leapfrog: Assessing Vietnam's Structural Transformation and the 'Middle-Tech' Trap in the 2026 Acceleration Phase

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**ABSTRACT**

The paper examines Vietnam's transformative economic transition driven by the accelerated growth of an innovative digital economy on the eve of its acceleration phase. It analyses how the combination of high levels of citizens' trust in artificial-intelligence technologies and a proactive national regulatory framework has facilitated Vietnam's shift from basic digital adoption to a regional technology hub. Drawing on official statistics, the study shows that the digital economy's share of gross domestic product has been growing steadily and that its contribution to the national economy is acquiring an increasingly pronounced structural character. Particular attention is paid to the structure of this growth: the leading role of services and high-tech manufacturing, as well as the persistent lag of agriculture and of provinces with low levels of digitalization. At the same time, the study identifies significant systemic barriers: the lingering effects of the «middle-tech trap», regional inequities in digital adoption, an acute shortage of skilled workers and escalating cyber threats. The paper also assesses the artificial-intelligence gap in Southeast Asia and the position of Vietnam's technology start-up ecosystem. The study concludes that Vietnam's long-term economic prosperity depends on its ability to create synergies between digital sovereignty and regional interoperability, to develop indigenous innovation and intellectual property, and to encourage businesses to foster cultures of agility and cyber resilience in order to maintain the impetus for advancement.