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Digital Enclave or Digital Diffusion? Composition, Linkages and the Productivity Puzzle of Vietnam's Digital Economy

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Abstract
Vietnam has set some of the most ambitious digital economy targets in the developing world: a digital economy equal to at least 30% of GDP by 2030 and 50% by 2045. Yet the official statistics tell a more sobering story than the headline rhetoric. According to the National Statistics Office, the digital economy's share of GDP rose only from 12.66% in 2020 to about 14.02% in 2025, while ministerial estimates circulating in the same period placed it above 18%. This paper argues that the gap between ambition and measured performance cannot be understood through the size of the digital economy alone. Drawing on the economics of general purpose technologies, input-output linkage theory and the literature on foreign direct investment spillovers, we develop a Composition-Linkage-Capability (CLC) framework that separates three questions usually collapsed into one: what the digital economy consists of, how strongly it is connected to the rest of the domestic economy, and whether domestic firms possess the complementary capabilities needed to turn digital adoption into productivity. Applying the framework to official and secondary evidence for 2020-2025, we show that roughly 60% of Vietnam's measured digital value added sits in core ICT sectors dominated by foreign-invested electronics assembly, that forward linkages from the core sector have stayed below unity, and that import leakages exceed domestic value-added spillovers. The result is a dual structure in which a large, export-oriented digital enclave coexists with thin diffusion into domestic enterprises. We introduce the concept of retained digital value added as a complement to the headline share indicator, derive five testable propositions, outline identification strategies for future empirical work, and discuss policy implications. The central message is that the relevant target for an emerging economy is not the size of its digital economy but the share of digital value that is created, retained and diffused domestically.

Keywords: Digital Economy, Measurement, Productivity Paradox, Input-Output Linkages, Foreign Direct Investment, Vietnam

JEL Classification: O33; O47; F23; L86; O53

1. Introduction

Few policy objectives have spread as quickly across emerging economies as the promise of the digital economy. National strategies from Jakarta to Nairobi now treat digitalisation as a shortcut to higher productivity, a way of escaping the middle-income trap and a means of integrating smaller firms into global markets. Vietnam has gone further than most. Its Politburo Resolution 57-NQ/TW of December 2024 elevated science, technology, innovation and digital transformation to the status of a "decisive breakthrough", and the accompanying targets call for the digital economy to reach at least 30% of GDP by 2030 and 50% by 2045. These are among the most ambitious quantitative commitments of their kind anywhere.

The measured trajectory is more modest. Since 2023, the National Statistics Office (NSO) has compiled the share of digital economy value added in GDP as an official indicator, following the 2021 amendment to the Law on Statistics. On this basis, the digital economy accounted for 12.66% of GDP in 2020 and approximately 14.02% in 2025, equivalent to a little over USD 72 billion. In current US dollar terms, digital value added grew by about 10.5% a year over the period, which is respectable, but the share itself rose by little more than one percentage point in five years. During the same period, estimates published by the then Ministry of Information and Communications placed the share at 16.5% for 2023 and 18.3% for 2024. Two parts of the same government were therefore describing the same economy with figures that differed by four percentage points of GDP.

This discrepancy is not merely a statistical curiosity. It reflects a deeper conceptual problem that runs through the international literature on the digital economy: the tendency to treat the size of the digital economy as a sufficient statistic for its developmental contribution. A digital economy share can rise because domestic firms are adopting digital technologies and becoming more productive, because foreign multinationals are assembling more smartphones and semiconductors in export processing zones, or because consumers are spending more through cross-border platforms whose value is captured abroad. These three processes have very different implications for productivity, wages and long-run growth, yet they enter the headline indicator in much the same way.

Vietnam offers an unusually clear setting in which to examine this problem. The country is one of the world's ten largest electronics exporters. In 2025, exports of computers, electronic products and components exceeded USD 107 billion for the first time, and the broader electronics group earned about USD 165 billion, almost all of it generated by foreign-invested enterprises. These activities are classified as part of the core digital economy because they involve the manufacture of ICT goods. At the same time, survey evidence and input-output analyses by NSO researchers point to weak forward linkages from the core digital sector, a value-added-to-output ratio persistently below the national average, and import spillovers that exceed spillovers to domestic income. The digital economy, in other words, may be growing in size faster than it is growing in depth.

The aim of this paper is to make that distinction analytically precise. We ask three questions. How should the digital economy of an FDI-intensive emerging economy be conceptualised so that its size is not confused with its developmental contribution? What does the available evidence for Vietnam reveal about the composition, linkages and capability base of its digital economy? And what kinds of indicators, empirical designs and policies follow from a more differentiated view?

To answer these questions, we develop a Composition-Linkage-Capability (CLC) framework. The framework builds on three bodies of work that are rarely brought together. The first is the economics of general purpose technologies, which emphasises that digital technologies raise productivity only when combined with complementary investments in organisation, skills and intangible capital (Bresnahan & Trajtenberg, 1995; Brynjolfsson & Hitt, 2000; Brynjolfsson *et al*., 2021) [11, 13, 14]. The second is input-output and linkage theory in the tradition of Hirschman (1958) [28] and Rasmussen (1956) [44], which provides tools for asking whether a leading sector pulls the rest of the economy along with it. The third is the literature on FDI spillovers and global value chains, which shows that the productivity benefits of foreign investment depend heavily on the depth of supplier relationships with domestic firms (Javorcik, 2004; Baldwin, 2016) [32, 7].

The paper makes four contributions. Conceptually, it separates the size of the digital economy from its developmental quality and proposes a typology of four digital economy regimes: enclave-led, platform-intermediated, diffusion-led and lagging. Empirically, it assembles the most recent official and secondary evidence on Vietnam's digital economy into a coherent profile, showing how composition, linkages and regional concentration interact. Methodologically, it introduces retained digital value added (RDVA) as a complementary indicator and sets out identification strategies that could test the framework with firm-level and regional data. On the policy side, it argues that targets expressed as shares of GDP create incentives to expand measured digital activity rather than to deepen domestic capability, and it suggests how targets could be reformulated.

The paper is analytical rather than econometric. We do not estimate new causal effects; instead, we use published official statistics, input-output findings reported by NSO researchers and industry data to build and illustrate the framework, and we derive propositions that future empirical work can test. This choice is deliberate. In a field where definitions remain unsettled and official series are short, a clear conceptual structure is a precondition for credible estimation rather than an alternative to it.

The remainder of the paper is organised as follows. Section 2 reviews how the digital economy is defined and measured and documents the divergent estimates for Vietnam. Section 3 synthesises the theoretical and empirical literature on digital technology, productivity and development. Section 4 presents a stylised profile of Vietnam's digital economy. Section 5 develops the CLC framework, the RDVA indicator and five propositions. Section 6 discusses empirical strategies, Section 7 draws out policy implications, and Section 8 concludes.

2. Conceptualising and measuring the digital economy

2.1 From definitions to tiers

There is still no single accepted definition of the digital economy. Early usage in the 1990s referred broadly to the economic activity enabled by the internet, and the term has since been stretched to cover everything from semiconductor fabrication to ride-hailing and algorithmic management. Goldfarb and Tucker (2019) [24] take an economist's approach: digital technology matters because it reduces five types of cost (search, replication, transportation, tracking and verification), and the digital economy can be understood as the set of activities reshaped by these reductions. This definition is analytically powerful, but it is difficult to operationalise in national accounts because cost reductions do not correspond neatly to industries.

Statistical agencies have therefore favoured definitions built from industry and product classifications. The most influential scheme in development research is the three-tier structure proposed by Bukht and Heeks (2017) [15]. At its centre is the core digital sector, comprising hardware manufacturing, software and IT consulting, information services and telecommunications. Around it lies a narrow digital economy that adds digital services and platform activities. The outer tier, the broad or "digitalised" economy, includes the use of digital technologies across agriculture, manufacturing, finance, trade and public services. The US Bureau of Economic Analysis adopted a related approach in its satellite account, defining the digital economy as digital-enabling infrastructure, e-commerce and priced digital services (Barefoot *et al*., 2018) [8]. The OECD's work for the G20 Digital Economy Task Force recommended a similar layered structure and stressed that the broadest layer is conceptually the most important but statistically the hardest to measure (OECD, 2020) [39]. The IMF (2018) [30] reached a comparable conclusion, noting that a narrow definition based on ICT industries typically yields modest digital

shares of GDP, whereas broad definitions that include digitally enabled activity can produce figures several times higher. Varian (2010) [54] had earlier observed that the defining feature of the digital economy is not a particular industry but the fact that transactions are increasingly mediated by computers, which makes them observable, verifiable and contractible in new ways. This insight explains why the broad tier matters economically even when it is hard to count.

Two features of these frameworks deserve emphasis because they shape how the Vietnamese figures should be read. The first is that ICT manufacturing sits squarely in the core of every tiered definition. A country that hosts large-scale assembly of phones, computers and components will therefore record a large core digital economy almost by construction, regardless of whether the activity involves domestic design, software or data. The second is that the outer tier is typically estimated by applying digital intensity coefficients to non-ICT industries. These coefficients are rarely observed directly; they are inferred from ICT investment, intermediate consumption of ICT goods and services, or enterprise survey responses. Small changes in assumptions can move the estimated share of the outer tier by several percentage points of GDP.

2.2 Persistent measurement problems

Beyond definitions, the literature identifies at least three measurement problems that bias conventional indicators of the digital economy in ways that matter for interpretation.

The first concerns zero-price goods. Search engines, social media, navigation and messaging services are consumed at no monetary cost and are financed through advertising or data. Their contribution to welfare is not captured in GDP, a point made forcefully by Brynjolfsson, Collis and Eggers (2019) [12], who used large-scale choice experiments to estimate consumers' willingness to accept for giving up free digital goods. Ahmad and Schreyer (2016) [3], however, argue that the omission is mostly a welfare issue rather than an output issue, and Syverson (2017) [50] shows that plausible estimates of unmeasured consumer surplus are far too small to explain the slowdown in measured productivity growth in advanced economies. For emerging economies, this debate suggests caution in both directions: free digital services may matter for welfare, but they do not rescue weak measured productivity.

The second problem concerns intangible capital. Software, databases, organisational capital and brand investments are increasingly the main form in which firms invest, yet much of this investment is expensed rather than capitalised. Corrado, Hulten and Sichel (2009) [20] showed that treating such outlays as investment substantially raises measured capital deepening and alters the attribution of growth. Haskel and Westlake (2018) [27] extend the argument: intangible-intensive economies display scalability, spillovers and synergies that make productivity gains highly uneven across firms. If complementary intangibles are under-measured, the early phase of digital adoption will appear unproductive, an issue to which we return in Section 3.

The third problem is cross-border attribution. When a domestic consumer pays for a service supplied by a foreign platform, or when a domestic advertiser buys digital advertising through a foreign intermediary, the transaction may be recorded imperfectly in the balance of payments, and the value added may be booked in another jurisdiction. UNCTAD (2019, 2021) [52, 53] has documented how value creation and value capture in the platform economy are concentrated in a small number of countries and firms. For a country like Vietnam, where much consumer-facing digital activity runs through regional or global platforms, gross transaction value and domestically retained value added can diverge sharply.

2.3 Divergent estimates for Vietnam

Vietnam's statistical treatment of the digital economy has improved quickly. The amended Law on Statistics adopted in 2021 introduced the share of digital economy value added in GDP into the National Statistical Indicator System, and the NSO has compiled and published the indicator since 2023. The NSO distinguishes between the core digital economy, consisting of ICT manufacturing and ICT services, and the digitalisation of other sectors. Its estimates show the share rising from 12.66% in 2020 to 12.87% in 2021 and approximately 14.02% in 2025, with an average of about 13.2% over 2021-2025.

Other figures in public circulation have been higher. The Ministry of Information and Communications estimated the share at 16.5% for 2023 and 18.3% for 2024, and the government set a target of 20.5% for 2025. Industry reports measure something different again: the annual e-Conomy SEA report by Google, Temasek and Bain & Company estimates the gross merchandise value (GMV) of Vietnam's internet economy at about USD 39 billion in 2025, up from about USD 34 billion in 2024. GMV is a gross transaction concept that includes the value of goods sold online, so it is neither a value-added measure nor directly comparable with GDP shares.

Table 1 sets these estimates side by side. The point of the comparison is not to adjudicate which figure is "correct". Each corresponds to a different concept and, in the ministerial case, to a methodology that has not been fully documented in public. The more important observation is that a policy target expressed as a share of GDP is only as meaningful as the measurement concept beneath it. When the same economy can be described as 14% or 18% digital depending on the source, a 30% target becomes difficult to monitor, and the temptation to adopt the most flattering measure is obvious.

Table 1: Competing estimates of Vietnam's digital economy

Source	Measurement concept	Year	Estimate
National Statistics Office (official indicator)	Digital economy value added, % of GDP	2020	12.66%
National Statistics Office	Digital economy value added, % of GDP	2021	12.87%
National Statistics Office	Digital economy value added, % of GDP	2025	≈14.02% (≈USD 72.1 bn)
Ministry of Information and Communications	Digital economy, % of GDP (methodology not fully published)	2023	16.5%
Ministry of Information and Communications	Digital economy, % of GDP (methodology not fully published)	2024	18.3%
Government plan	Target, % of GDP	2025	20.5%
Google, Temasek & Bain (e-Conomy SEA)	Gross merchandise value of internet economy (not value added)	2024 / 2025	USD 34 bn / USD 39 bn
Resolution 57-NQ/TW	Target, % of GDP	2030 / 2045	≥30% / 50%

Source: Compiled by the author(s) from NSO estimates reported by VietNamNet (2026) [56] and VnEconomy (To *et al*., 2026) [51]; VnEconomy (2025) [57]; Google, Temasek and Bain & Company (2025) [25]; Resolution 57-NQ/TW.

3. Theoretical foundations: digital technology, productivity and development

3.1 General purpose technologies and complementarities

The starting point for most economic analysis of digital technology is the concept of a general purpose technology (GPT). Bresnahan and Trajtenberg (1995) [11] defined GPTs by three properties: pervasiveness across sectors, continuous technical improvement, and "innovational complementarities" that raise the returns to innovation in downstream applications. Electricity and the steam engine are the canonical historical examples; information and communication technology is widely regarded as the GPT of the late twentieth and early twenty-first centuries.

The GPT perspective has an important implication that is often lost in policy discussion. Because the value of a GPT depends on complementary inventions and investments in user sectors, its productivity effects are neither automatic nor immediate. Brynjolfsson and Hitt (2000) [13] synthesised firm-level evidence showing that returns to computer investment were concentrated among firms that simultaneously reorganised work, decentralised decision-making and invested in training. Bresnahan, Brynjolfsson and Hitt (2002) [10] found that IT investment, workplace reorganisation and demand for skilled labour moved together as a cluster of complements. Bloom, Sadun and Van Reenen (2012) [9] showed that US multinationals operating in Europe obtained higher productivity from the same IT investments than European firms, and traced the difference to people-management practices. The lesson for emerging economies is direct: buying or importing digital technology is the easy part, while building the organisational capabilities that make it productive is the hard part.

3.2 The productivity paradox and the J-curve

Robert Solow's (1987) [48] remark that computers could be seen everywhere except in the productivity statistics captured a puzzle that has resurfaced with each wave of digital technology. In the United States, the puzzle appeared to be resolved in the late 1990s, when ICT production and ICT use together drove a productivity resurgence (Jorgenson *et al*., 2008) [33]. It returned after the mid-2000s, as measured productivity growth slowed despite smartphones, cloud computing and the platform economy (Gordon, 2016) [26].

Brynjolfsson, Rock and Syverson (2021) [14] offer a theoretical reconciliation in the form of the productivity J-curve. When a new GPT arrives, firms must invest heavily in unmeasured intangible complements such as new processes, data infrastructure and worker training. Because these investments are not counted as output, measured productivity initially falls or stagnates; it rises later, once the intangible stock begins to yield returns. The J-curve implies that early-stage adoption can coincide with weak measured productivity, and that the depth of the trough depends on how much complementary investment is required.

The J-curve has a less comfortable reading for emerging economies. In an advanced economy, the trough is followed by a recovery because domestic firms eventually accumulate the necessary intangibles. In an economy where the most digitally intensive activities are carried out by foreign affiliates that import their intangibles from headquarters, domestic firms may never undertake the investment that produces the upward arm of the J. The curve then flattens into an "L": measured digital activity rises, but domestic productivity does not follow.

3.3 Diffusion gaps within and across countries

A second strand of literature focuses on diffusion rather than invention. Comin and Mestieri (2018) [17] assembled historical data on the adoption of more than two dozen technologies across 139 countries and found that, while the lag with which technologies arrive in poorer countries has shortened dramatically, the intensity with which they are used once adopted has diverged. Technologies now "arrive everywhere", but they penetrate unevenly, and the gap in usage intensity accounts for a substantial share of cross-country income divergence.

Within countries, the OECD's research on productivity dispersion shows a similar pattern at the firm level. Andrews, Criscuolo and Gal (2016) [5] documented that productivity growth at the global frontier remained robust during the 2000s even as the gap between frontier firms and laggards widened, and they attributed part of this divergence to the increasing importance of tacit knowledge, network effects and intangible assets that are hard for laggards to replicate. Cusolito and Maloney (2018) [21] emphasise that in developing economies, the binding constraint on technology diffusion is frequently firm capability, especially managerial quality, rather than access to the technology itself. Digital adoption is therefore better described as a ladder than as a switch: basic connectivity is followed by digitalised transactions, then by digitised processes, and finally by data-driven decision-making. Most small firms in emerging economies stand on the lower rungs.

3.4 Platforms, scale and market power

Digital markets have structural features that distinguish

them from conventional markets. Rochet and Tirole (2003) [45] formalised two-sided markets in which a platform must attract two groups of users whose participation generates cross-side network effects. Such markets tend towards concentration, because the value of a platform to each user rises with the number of other users. Shapiro and Varian (1999) [47] and Parker, Van Alstyne and Choudary (2016) [41] describe how these dynamics, combined with near-zero marginal costs of replication, produce winner-take-most outcomes.

The macroeconomic consequences have been documented mainly for advanced economies. De Loecker, Eeckhout and Unger (2020) [23] estimate a sharp rise in average markups among US firms since 1980, driven by the upper tail of the distribution. Autor *et al*. (2020) [6] link the decline in the labour share to the rise of "superstar firms" that capture large market shares with relatively few workers, a pattern most pronounced in industries with rapid technological change. For emerging economies that are primarily users of foreign platforms, these dynamics carry an additional dimension: the rents from scale and data may accrue to firms headquartered elsewhere. UNCTAD (2019) [52] characterises this as a problem of value capture, in which developing countries supply users, data and content while the value of the platform is realised abroad.

3.5 Evidence from developing economies

The developing-country evidence on digital technology is more encouraging than the macro productivity debate might suggest, but it is also more specific. Hjort and Poulsen (2019) [29] exploit the staggered arrival of submarine internet cables in Africa and find that fast internet increased employment, particularly in skilled occupations, with no evidence of job losses among less educated workers. Jack and Suri (2014) [31] show that M-Pesa, Kenya's mobile money system, reduced the costs of risk sharing, allowing households to smooth consumption after shocks, and Suri and Jack (2016) [49] estimate that access to mobile money lifted around 2% of Kenyan households out of poverty. In Europe, Czernich *et al*. (2011) [22] found that broadband diffusion raised per capita growth across OECD countries, while Akerman, Gaarder and Mogstad (2015) [4] showed that broadband adoption in Norway complemented skilled labour and substituted for unskilled labour in performing routine tasks.

Meta-analytic reviews reach a similar conclusion for firms. Cardona, Kretschmer and Strobel (2013) [16] surveyed a large body of firm- and industry-level studies and found that the output elasticity of ICT capital is positive and significant in most firm- and industry-level estimates, but that the size of the effect varies widely with the period, country and presence of complementary assets. The World Bank's (2016) [58] World Development Report on digital dividends drew the policy conclusion that the benefits of digital technologies had fallen short of expectations in many developing countries, not because of a lack of connectivity, but because of "analog complements": regulation that allows competition, skills that allow workers to use technology, and institutions that are accountable.

The labour market dimension adds a note of caution. Acemoglu and Restrepo (2018) [1] model technological change as a race between automation, which displaces labour from existing tasks, and the creation of new tasks in which labour has a comparative advantage. Their empirical work on industrial robots in the United States finds negative effects on employment and wages in exposed local labour markets (Acemoglu & Restrepo, 2020) [2]. For emerging economies whose comparative advantage rests on labour-intensive assembly, including electronics assembly, the implication is that digital and automation technologies may erode the very activities that currently dominate the measured digital core.

Three features of this evidence stand out. The strongest effects arise where digital technology lowers a specific transaction cost that was previously binding, such as the cost of sending money or finding information. The effects are mediated by complementary skills. And the units of analysis are domestic households, workers and firms, not the size of a digital sector. The literature thus speaks to diffusion and use, which are precisely the dimensions that headline digital economy shares fail to isolate.

3.6 Linkages, FDI and the enclave problem

The final strand concerns the relationship between leading sectors and the rest of the economy. Hirschman (1958) [28] argued that development proceeds unevenly, through sectors whose backward and forward linkages induce investment elsewhere. Rasmussen (1956) [44] provided the input-output measures, now standard in the literature, for quantifying the "power of dispersion" (backward linkage) and "sensitivity of dispersion" (forward linkage) of a sector (see Miller & Blair, 2009) [35]. A sector with strong backward linkages stimulates demand for domestic inputs; a sector with strong forward linkages supplies inputs that raise productivity in user industries. A digital core with strong forward linkages would be one whose outputs, such as software, data services and connectivity, are widely used by domestic producers.

The FDI literature shows that the spillovers from foreign investment run mainly through backward linkages to local suppliers rather than horizontally to competitors. Javorcik (2004) [32] found, using Lithuanian firm data, that domestic firms supplying multinationals experienced productivity gains, while firms in the same industry as multinationals did not. The general lesson is that FDI raises domestic productivity when foreign affiliates source locally and transfer knowledge to suppliers. Where affiliates import most of their inputs and export most of their output, the host economy contributes mainly labour and land, and the resulting activity resembles an enclave.

Global value chain research adds a further layer. Koopman, Wang and Wei (2014) [34] showed how gross exports can be decomposed into domestic and foreign value added, revealing that headline export figures for assembly-intensive economies greatly overstate domestic value creation. Baldwin (2016) [7] describes how the "second unbundling" allowed developing countries to industrialise by joining supply chains rather than building them, but warns that such industrialisation can be shallow if the knowledge remains with lead firms. Rodrik (2016) [46] documents a broader tendency towards "premature deindustrialisation", in which developing countries reach their peak manufacturing shares at lower income levels than earlier industrialisers. Digital assembly enclaves are a modern instance of this risk: they can generate large export volumes and a high measured digital share without building the capabilities that sustain long-run growth.

3.7 Synthesis and gap

Taken together, these literatures suggest that the developmental contribution of a digital economy depends on three things that a headline share does not reveal: its composition (manufacturing versus services, foreign versus domestic, consumer-facing versus producer-facing), its linkages to the domestic economy, and the capabilities of domestic firms to absorb and use digital technologies. The gap in the existing literature is that these dimensions are usually studied separately. GPT research focuses on firm capability but rarely on FDI structure; the FDI and GVC literatures focus on linkages but seldom on digital services or platforms; and digital economy measurement focuses on size. The framework developed in Section 5 brings the three dimensions together.

4. Vietnam's digital economy: A stylised profile

This section assembles the available evidence for Vietnam into a stylised profile. The data come from four types of source: official NSO estimates of digital economy value added, input-output analyses of the core digital sector reported by NSO and university researchers, customs and trade statistics, and industry estimates of consumer-facing digital activity. Because the official series is short and some figures are reported in summary form, we treat the evidence as descriptive and illustrative. The aim is to identify patterns that the framework in Section 5 must explain, not to establish causal relationships.

4.1 Growth in size, slow growth in share

The NSO estimates that digital economy value added rose from about USD 43.8 billion in 2020 to about USD 72.1 billion in 2025, a 1.64-fold increase. In constant prices, value added grew by about 9.8% a year over 2020-2025, well above GDP growth. Yet the share of GDP rose only from 12.66% to 14.02%. Simple arithmetic shows why. If the share rose by a factor of 14.02/12.66 over five years, the digital economy grew, on average, only about 2.1% a year faster than the economy as a whole in nominal terms. The constant-price growth rate of nearly 10% is impressive in isolation but much less so relative to a nominal economy that was itself expanding rapidly.

The same arithmetic reveals the scale of the challenge implied by the 2030 target. Let s_t denote the digital share of GDP, d the nominal growth rate of digital value added and g the nominal growth rate of GDP. Then:

$$s_T = s_0 \times [(1 + d) / (1 + g)]^T \quad (1)$$

Moving from 14.02% in 2025 to 30% in 2030 requires $(1 + d)/(1 + g) \approx 1.164$, meaning that digital value added must grow about 16.4% a year faster than nominal GDP for five consecutive years. With nominal GDP growth of 10%, this implies nominal digital value added growth of about 28% a year; with nominal GDP growth of 12%, about 30%. Table 2 summarises the comparison. The required differential is roughly eight times the differential achieved in 2020-2025.

Table 2: Growth arithmetic: achieved versus required change in the digital share

Item	2020–2025 (achieved)	2025–2030 (required for 30% target)
Digital share of GDP, start to end	12.66% → 14.02%	14.02% → 30.0%
Ratio of end to start share	1.11	2.14
Annual growth of digital VA relative to nominal GDP, (1+d)/(1+g) − 1	≈2.1%	≈16.4%
Implied nominal growth of digital VA if nominal GDP grows 10% a year	n.a.	≈28.1%
Implied nominal growth of digital VA if nominal GDP grows 12% a year	n.a.	≈30.4%
Digital VA growth, current USD	≈10.5% a year (USD 43.8 bn → 72.1 bn)	n.a.
Digital VA growth, constant prices	≈9.8% a year	n.a.

Source: Author's calculations using Equation (1) and NSO estimates. n.a. = not applicable.

Two interpretations of this gap are possible. One is that the target is simply unrealistic. The other, more relevant to this paper, is that the target can only be met through a structural change in what the digital economy consists of. Expansion of electronics assembly, which already dominates the core, would raise the share but, as the following subsections show, would add relatively little domestic value per unit of output. Diffusion of digital technologies into the large domestic enterprise sector would raise the share more slowly at first but would deliver more durable gains. The choice between these paths is a choice about composition.

4.2 Composition: a core dominated by ICT manufacturing

In 2025, the core digital economy (ICT manufacturing and ICT services) contributed about 8.42% of GDP, or USD 43.3 billion, while the digitalisation of other sectors contributed about 5.6% of GDP, or USD 28.8 billion. The core thus accounted for roughly 60% of total measured digital value added, a share that has remained above 60% throughout the period for which estimates are available. Over 2021-2025 as a whole, the core averaged about 8.13% of GDP and the digitalised economy about 5.05%. E-commerce, often treated as the face of the digital economy in public discussion, accounted for about 11.8% of digital economy value.

This composition is unusual. In most countries for which comparable estimates exist, the digitalisation of non-ICT sectors is larger than the core, reflecting the GPT nature of digital technology. A digital economy in which the core is half as large again as the digitalised remainder indicates that measured digital activity is concentrated in the production of ICT goods rather than in their use.

Trade data confirm the source of this concentration. In 2025, Vietnam's exports of computers, electronic products and components reached about USD 107.7 billion, up 48% on the previous year, and became the first export group to exceed USD 100 billion. Together with phones and components, electronics exports reached about USD 165 billion, more than a third of total merchandise exports of about USD 475 billion. Foreign-invested enterprises accounted for USD 162.5 billion of electronics exports, or about 98%. These figures refer to gross exports rather than value added, and imports of components in the same group were also at record levels. The pattern is consistent with an

assembly-intensive core whose output is large but whose domestic value-added content per dollar of exports is limited.

Table 3: Composition of Vietnam's measured digital economy and related trade indicators, 2025

Indicator	Value	Note
Core digital economy (ICT manufacturing and ICT services)	8.42% of GDP (USD 43.3 bn)	About 60% of digital VA
Digitalisation of other sectors	5.6% of GDP (USD 28.8 bn)	About 40% of digital VA
Core, average 2021–2025	8.13% of GDP	
Digitalised sectors, average 2021–2025	5.05% of GDP	
E-commerce, share of digital economy value	11.8%	
Exports of computers, electronic products and components	≈USD 107.7 bn	+48% year on year
Total electronics exports (incl. phones and components)	≈USD 165 bn	>1/3 of merchandise exports
Of which by foreign-invested enterprises	USD 162.5 bn	≈98%
Digital technology enterprises	≈80,000	58,000 in 2020

Source: NSO estimates reported in VietNamNet (2026) [56] and To *et al*. (2026) [51]; customs and NSO trade data reported in Vietnam Investment Review (2026) [55] and VietNamNet. Trade figures are gross values, not value added.

4.3 Linkages: weak forward pull and high import leakage

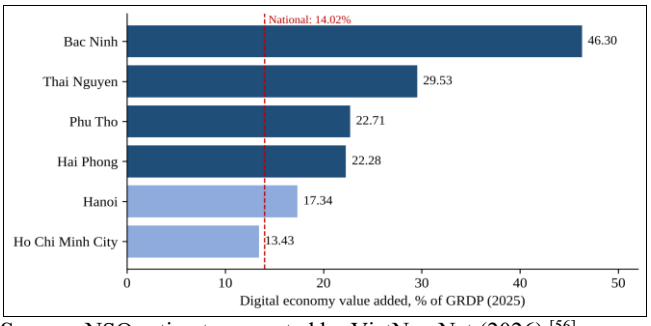
Input-output analysis of the core digital sector for 2012-2025 by To Trung Thanh, Bui Trinh and Nguyen Viet Phong, reported in 2026, provides the most direct evidence on linkages. Three findings are relevant. The ratio of value added to gross output in the core digital economy was consistently below the national average throughout 2012-2025, with only modest improvement after 2019. Backward linkage multipliers were above one in most years, meaning that the core sector draws on inputs from other sectors more than the average sector does, but these linkages were weak and did not improve much. Forward linkages remained below one throughout the period and declined in relative terms, meaning that the outputs of the core digital sector are used as inputs by other domestic sectors less intensively than the average sector's outputs are. Finally, import spillovers consistently exceeded spillovers to domestic value added and income.

In Rasmussen's terminology, the core digital sector therefore has modest power of dispersion and low sensitivity of dispersion. It purchases inputs, many of them imported, and ships its output abroad, but it does not function as a supplier of digital inputs to the rest of the economy. This is the signature of an enclave. It is also consistent with a sector whose growth raises the measured digital share while contributing relatively little to the productivity of domestic user industries.

The low value-added ratio deserves comment because it runs counter to the common perception of digital activity as high value. Assembly of electronic devices is capital- and component-intensive: the value of imported chips, displays and modules is large relative to the value added by assembly and testing. A sector can therefore be technologically sophisticated in its products while being shallow in its domestic value creation. This distinction between the technological content of a product and the domestic content of its production is central to the framework.

4.4 Regional concentration

Provincial estimates for 2025, covering the 34 provinces and centrally run cities that resulted from the 2025 administrative reorganisation, show extreme regional dispersion. Only four localities recorded a digital economy share above 20% of gross regional domestic product: Bac Ninh (46.30%), Thai Nguyen (29.53%), Phu Tho (22.71%) and Hai Phong (22.28%). Hanoi recorded 17.34% and Ho Chi Minh City 13.43%. Fig 1 displays these values.



Source: NSO estimates reported by VietNamNet (2026) [56]

Fig 1: Digital economy share of GRDP in selected provinces and cities, 2025.

The ranking is revealing. The provinces with the highest digital shares are not the country's principal centres of software, digital services, finance or e-commerce. They are the provinces that host the largest electronics manufacturing complexes, notably the Samsung and supplier clusters in the former Bac Ninh, Bac Giang and Thai Nguyen areas. Bac Ninh's share is about 3.4 times that of Ho Chi Minh City, the country's largest economy and its most diversified services hub. If the digital share were a good proxy for digital diffusion, this ranking would imply that Bac Ninh is far more digitally advanced than Ho Chi Minh City, a conclusion that few observers would accept. The more plausible reading is that the provincial share measures the presence of ICT manufacturing rather than the depth of digital use. Hanoi and Ho Chi Minh City lead in the absolute value of digital activity because of their size and diversification, but their shares are diluted by large non-digital service and industrial sectors.

4.5 The consumer and platform layer

The consumer-facing layer of the digital economy tells a different story again. According to the e-Conomy SEA 2025 report, Vietnam's internet economy reached a GMV of about USD 39 billion in 2025, with e-commerce accounting for about two-thirds and expected to exceed USD 25 billion. Total digital payment value was estimated at USD 178 billion, supported by electronic know-your-customer procedures, around 30 million active e-wallets and cross-border compatibility of the VietQR system. The number of digital technology enterprises rose from about 58,000 in 2020 to about 80,000 in 2025.

These figures indicate rapid adoption by consumers and growing participation by small firms. Their developmental meaning depends, however, on where the value is captured. A large share of e-commerce GMV in Vietnam flows

through a small number of regional platforms with foreign ownership, and much of the margin from advertising, fulfilment and payment services may accrue to those platforms. Official commentary has acknowledged that domestic value added in the digital economy remains limited and closely tied to foreign-invested companies and cross-border platforms. GMV also counts the full value of goods sold, most of which is produced in traditional sectors. The consumer layer is therefore best understood as evidence of diffusion on the demand side, which may or may not translate into productivity gains on the supply side.

4.6 Summary of stylised facts

The evidence can be condensed into five stylised facts. The digital economy is growing quickly in absolute terms but only slowly relative to GDP. Its measured core is dominated by foreign-invested ICT manufacturing. The core has weak forward linkages to domestic industries and high import leakage. Measured digital intensity at the provincial level tracks the location of electronics assembly rather than the depth of digital use. And consumer-side adoption is rapid, but value capture in the platform layer is uncertain and partly external. Any framework for understanding Vietnam's digital economy must account for these facts together.

5. The Composition-Linkage-Capability framework

5.1 Three dimensions

The CLC framework decomposes the developmental contribution of a digital economy into three dimensions.

Composition refers to what the measured digital economy consists of. The relevant distinctions are between ICT goods production and ICT services, between the core and the digitalised remainder, and between activities carried out by foreign affiliates and by domestic firms. Composition determines how much of the measured digital economy represents domestic capability rather than location of production.

Linkage refers to how strongly digital activity is connected to the domestic economy. Backward linkages capture the extent to which digital producers source inputs domestically; forward linkages capture the extent to which digital outputs, such as software, cloud services, connectivity and data, are used as inputs by domestic producers. Import leakage and foreign factor income capture the portion of value that leaves the economy. Linkage determines how much of the digital economy's output stimulates domestic activity.

Capability refers to the ability of domestic firms to absorb digital technologies and convert them into productivity. It includes managerial practices, workforce skills, intangible capital, data governance and access to finance for complementary investment. Capability determines whether the use of digital technology raises productivity, in line with the GPT and J-curve literature reviewed above.

The three dimensions interact. A digital core with strong forward linkages raises the returns to domestic capability, because local firms gain access to locally supplied digital inputs and services. Strong domestic capability, in turn, raises the demand for domestic digital inputs and strengthens forward linkages. Composition shapes both: an assembly-intensive core has inherently limited forward linkages, because its outputs are final goods for export rather than intermediate services for domestic use.

5.2 Retained digital value added

To make the framework measurable, we propose retained digital value added (RDVA) as a complement to the headline share. Let VA_j denote value added in industry j, δ_j the digital share of that industry's value added (equal to one for core ICT industries and estimated for others), and φ_j the share of the digital value added in industry j that accrues to foreign-owned factors as profits, royalties and fees paid abroad. Then:

$$RDVA = \Sigma_j \, VA_j \times \delta_j \times (1 - \varphi_j) \quad (2)$$

The headline digital share corresponds to $\Sigma_j \, VA_j\delta_j$ divided by GDP. RDVA adjusts it for the portion of value that is attributable to foreign ownership. A second adjustment captures diffusion. Let ω_j denote the share of industry j's digital value added that arises from the use of digital inputs supplied by domestic producers, derived from the input-output table. A diffusion-weighted indicator is then:

$$DDVA = \Sigma_{j \notin core} \, VA_j \times \delta_j \times \omega_j \quad (3)$$

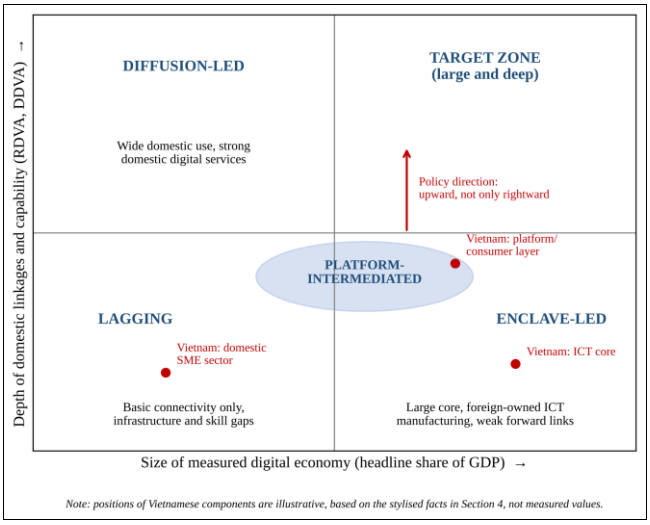
Which measures digital value added in non-core industries that is generated through domestic digital supply chains.

Neither indicator is intended to replace the headline share. The headline share remains useful for international comparison and for tracking the overall scale of digital activity. RDVA and DDVA answer different questions: how much of the digital economy is domestically owned, and how much reflects digital diffusion through domestic linkages. Both can be computed from data that Vietnam already collects or could collect with modest additions: the annual enterprise survey records ownership and ICT use, the input-output tables record intermediate flows, and balance-of-payments data record primary income flows by sector. The OECD's Trade in Value Added database and analytical tables on activities of multinational enterprises offer templates for the ownership adjustment.

A simple illustration shows why the adjustment matters. Suppose, for the sake of argument, that half of core digital value added in Vietnam accrues to foreign-owned factors, and that a quarter of the digitalised remainder does. Applying these illustrative values to the 2025 NSO composition (8.42% and 5.6% of GDP) would yield an ownership-adjusted digital economy of about 8.4% of GDP rather than 14%. The illustrative parameters are not estimates; they are chosen only to show that plausible ownership structures can reduce the developmentally relevant digital economy to well under two-thirds of its headline size. Estimating φ_j properly is one of the empirical tasks the framework sets out.

5.3 A typology of digital economy regimes

Combining the composition and linkage dimensions with capability yields a typology of four regimes, shown in Fig 2. The horizontal axis measures the size of the measured digital economy relative to GDP; the vertical axis measures the depth of domestic linkages and capability, which can be proxied by the ratio of RDVA or DDVA to the headline digital economy.



Source: Author's framework

Fig 2: Digital economy regimes in the Composition-Linkage-Capability framework.

In the enclave-led regime, the measured digital economy is large, but domestic linkages and capability are shallow. Digital activity is concentrated in foreign-invested ICT manufacturing with high import content and weak forward linkages. The headline share overstates the developmental contribution, and regional concentration is high. Vietnam's core sector displays many features of this regime.

In the platform-intermediated regime, consumer adoption is high and the digitalised remainder is growing, but value is captured mainly by foreign platforms. Domestic firms participate as sellers and users rather than as owners of digital infrastructure or data. Productivity effects for domestic firms depend on whether platform participation leads to process upgrading or merely to new sales channels. Vietnam's consumer layer shares features of this regime.

In the diffusion-led regime, the measured digital share may be moderate, but digital technology is widely used by domestic firms, forward linkages from a domestic digital services sector are strong, and complementary capabilities are well developed. This is the regime associated with sustained productivity gains in the GPT literature. Several Northern European economies and, in services, India's IT sector, approximate parts of it, although no country fits the ideal type exactly.

In the lagging regime, both the digital share and domestic capability are low. Digital adoption is limited to basic connectivity, and the main constraints are infrastructure and skills.

The upper-right area of Fig 2 is not a separate regime but a target zone: a digital economy that is both large and deeply embedded, combining the scale of the enclave with the linkages of the diffusion-led regime. The platform-intermediated regime is drawn in the middle of the diagram because it is defined less by size than by the location of value capture.

The typology is not a ranking of countries but a way of characterising the different components of a single economy. Vietnam is best described as a hybrid in which an enclave-led core coexists with a platform-intermediated consumer layer and a large domestic enterprise sector that is still close to the lagging regime in its digital capability. The policy question is how to move the economy upward in Fig 2, not merely rightward.

Table 4: Four digital economy regimes in the CLC framework

Dimension	Enclave-led	Platform-intermediated	Diffusion-led	Lagging
Composition	Core dominated by foreign ICT manufacturing	Consumer-facing services via foreign or regional platforms	Domestic digital services and wide use in non-ICT sectors	Small core, limited use
Linkage	Weak forward linkages, high import leakage	Domestic sellers linked as users, value capture external	Strong forward linkages from domestic digital suppliers	Weak in both directions
Capability	Concentrated in foreign affiliates	Uneven, mostly marketing and sales functions	Broad complementary capabilities	Low
Headline share vs RDVA	Share far above RDVA	Gross activity far above retained value	Share close to RDVA	Both low
Typical productivity outcome	Export growth, limited domestic productivity gains	Consumer welfare gains, uncertain firm-level gains	Sustained productivity growth	Little change
Vietnamese component	ICT manufacturing core	E-commerce, digital payments, ride-hailing	Pockets in software and fintech	Large share of domestic SMEs

Source: Author's framework.

5.4 Propositions

The framework generates five propositions that can be tested with firm-level, regional and input-output data.

Proposition 1 (composition and measured productivity). In economies where ICT manufacturing by foreign affiliates accounts for a large share of the core digital economy, increases in the headline digital share will be weakly associated, or not associated, with growth in domestic labour productivity. The association will be stronger for increases in the digitalised remainder than for increases in the core.

Proposition 2 (forward linkages). Domestic firms in industries that purchase a larger share of their digital inputs from domestic digital suppliers will exhibit larger productivity gains from digital adoption than comparable firms that rely on imported digital inputs, conditional on the level of adoption.

Proposition 3 (capability as a moderator). The productivity return to digital adoption among domestic enterprises will be increasing in measures of managerial quality, workforce skill and intangible investment. Firms with low capability will display a flatter, more prolonged J-curve, and some will show no measurable return within the observation window.

Proposition 4 (enclave spillovers). Proximity to foreign-invested ICT manufacturing will raise the productivity of domestic firms only where those firms are integrated as suppliers. Horizontal proximity without supplier integration will have little or no effect, consistent with the FDI spillover literature.

Proposition 5 (regional divergence). Provinces whose digital share is driven by ICT manufacturing will show weaker co-movement between the digital share and indicators of digital

diffusion, such as enterprise digital adoption rates and the use of online public services, than provinces whose digital share is driven by digital services.

Each proposition is falsifiable. If increases in the core digital share were found to be strongly associated with domestic productivity growth, if domestic supply of digital inputs made no difference to returns, or if capability did not moderate returns, the framework would need to be revised.

6. Implications for measurement and empirical research

6.1 Data foundations

Vietnam has richer data than is often recognised. The NSO's annual enterprise survey covers the universe of registered enterprises and records ownership, employment, revenue, capital and, in several waves, information on ICT use and e-commerce. The provincial Digital Transformation Index (DTI) compiled by the former Ministry of Information and Communications, now under the Ministry of Science and Technology, provides annual measures of digital government, digital economy and digital society by province. The Provincial Competitiveness Index (PCI) survey by the Vietnam Chamber of Commerce and Industry contains firm-level questions on digital adoption and use of online public services. Input-output tables are compiled periodically, and customs data are available at the product and firm level.

The main limitation is not the absence of data but the absence of linkage between datasets, combined with changes in administrative boundaries. The 2025 consolidation of provinces from 63 to 34 means that provincial panels must be harmonised before any analysis of regional change can be conducted. Concordance tables that map former provinces to new ones will be needed, and analyses should report results under both the former and the current boundaries where feasible.

6.2 Identification strategies

Testing the propositions requires designs that can separate the effect of digital adoption from the many factors that jointly determine adoption and productivity. Four designs are particularly promising.

The first exploits staggered infrastructure rollout. Following Hjort and Poulsen (2019) [29], the timing of fibre, 4G and 5G deployment across districts can provide variation in the cost of digital adoption that is plausibly unrelated to contemporaneous firm-level shocks. A staggered difference-in-differences design, using estimators robust to heterogeneous treatment effects, could estimate the effect of improved connectivity on firm productivity and test whether effects differ by ownership, sector and initial capability (Propositions 1 and 3).

The second exploits variation in exposure to domestic digital suppliers. Using input-output coefficients and firm-level purchases, researchers could construct a measure of each industry's reliance on domestically supplied digital services and estimate whether productivity returns to adoption vary with this exposure (Proposition 2). Shift-share instruments based on national growth in domestic digital services, interacted with pre-period industry exposure, could address concerns that exposure itself responds to productivity.

The third adapts the backward-linkage spillover design of Javorcik (2004) [32] to the digital economy. Using enterprise survey data on the location and ownership of ICT manufacturers, together with input-output coefficients, one can construct measures of horizontal, backward and forward exposure to foreign ICT producers for each domestic firm and test whether only supplier integration is associated with productivity gains (Proposition 4).

The fourth is regional. Using harmonised provincial panels, researchers could decompose changes in the digital share into contributions from ICT manufacturing, ICT services and digitalised sectors, and test whether these components differ in their association with DTI sub-indices and with enterprise adoption rates (Proposition 5).

6.3 Threats to inference

Several threats require attention. Reverse causality is pervasive: more productive firms adopt digital technology earlier, so naive cross-sectional associations will overstate effects. Measurement error in adoption variables, which often rely on binary survey questions, will attenuate estimates. The J-curve implies that short panels may find negative or zero effects even where long-run effects are positive, so results should be interpreted in light of the time since adoption. Finally, cross-sectional or short-panel analyses based on survey data can establish relationships but rarely causal effects; where designs do not support causal interpretation, results should be reported as associations.

A further caution concerns the choice of outcome. Revenue-based productivity measures conflate efficiency with market power and price effects. Because digital platforms can raise markups as well as efficiency, studies should, where possible, estimate production functions with firm-level price deflators or report results for both revenue and quantity-based measures.

Table 5: Propositions, data sources and identification strategies

Proposition	Main data	Suggested design	Key threat
P1 Composition and productivity	Provincial and industry panels; NSO digital VA by component	Decomposition of share changes; panel models with component-specific terms	Reverse causality, short series
P2 Forward linkages	Input-output tables; enterprise survey	Shift-share exposure to domestic digital supply	Exposure endogenous to productivity
P3 Capability moderation	Enterprise survey; PCI firm survey	Staggered difference-in-differences on connectivity rollout with interaction terms	J-curve timing, binary adoption measures
P4 Enclave spillovers	Enterprise survey with ownership and location; I-O coefficients	Horizontal, backward and forward exposure measures (Javorcik, 2004) [32]	Selection of suppliers
P5 Regional divergence	Harmonised provincial panels; DTI sub-indices	Correlation of share components with diffusion indicators	2025 boundary changes

Source: Author's proposals.

7. Policy implications

7.1 Reformulating targets

The most immediate implication concerns targets. A target expressed solely as the digital share of GDP creates an incentive to expand whatever activities raise the measured

share most quickly. In Vietnam's case, the fastest route is further expansion of foreign-invested electronics assembly, which raises the core share but adds comparatively little domestic value per unit of output and strengthens the enclave structure. This is not an argument against electronics FDI, which brings employment, export earnings and potential learning. It is an argument for complementing the share target with indicators that reward depth.

A practical approach would be a dashboard of three indicators reported alongside the headline share: an ownership-adjusted measure such as RDVA; a diffusion measure such as the share of domestic enterprises using digital technologies beyond basic connectivity, for example cloud services, enterprise software or data analytics; and a linkage measure such as the domestic value-added content of core digital output. The OECD's (2019) [38] Going Digital framework offers a useful template, since it organises indicators around access, use, innovation, jobs, trust and market openness rather than around a single aggregate. Publishing methodology for all official estimates, including those produced by line ministries, would reduce the confusion created by competing figures and strengthen accountability.

7.2 Deepening linkages from the digital core

Vietnam's electronics enclave is an asset that has not yet been fully leveraged. The FDI literature suggests that the most effective channel for spillovers is supplier development. Programmes that match domestic firms with multinational procurement, co-finance quality certification and support process upgrading have a stronger evidence base than horizontal incentives. The OECD's 2025 Economic Survey of Viet Nam similarly stresses the importance of deepening linkages between domestic and foreign firms to capture productivity spillovers. In the digital context, supplier development could extend beyond components to services: testing, embedded software, logistics software and industrial data services are areas where domestic firms might supply foreign ICT manufacturers and, in doing so, build capabilities usable elsewhere in the economy.

The Law on Digital Technology Industry adopted in 2025 and the semiconductor and artificial intelligence initiatives associated with Resolution 57-NQ/TW create an opportunity to embed linkage objectives in incentive design. Incentives tied to domestic value added, local sourcing of services, and training of domestic engineers would align better with the CLC framework than incentives tied to investment volume alone.

7.3 Building complementary capability

The GPT literature implies that the binding constraint on productivity gains from digital technology is often not technology but capability. For the large population of small and medium-sized domestic enterprises, policies that subsidise hardware or software purchases are likely to have limited effect unless they are accompanied by support for management practices, process redesign and training. Evidence from management interventions in developing economies suggests that such support can raise productivity substantially, but it is expensive per firm and must be targeted.

Two design principles follow. Support should be sequenced to match firms' positions on the digital adoption ladder: basic digitalisation of accounting and invoicing for the least advanced firms, process digitisation for intermediate firms, and data-driven management for the most advanced. And support should be evaluated rigorously, using randomised or staggered designs where feasible, so that programmes can be scaled on the basis of evidence rather than enrolment numbers.

7.4 Capturing value in the platform layer

In the platform-intermediated layer, the policy issues are competition, data governance and taxation. Concentrated platform markets can raise commissions and fees for small sellers over time. Competition authorities will need the analytical capacity to assess two-sided markets, including the effects of self-preferencing and exclusive arrangements. Data governance rules can affect whether domestic firms are able to use the data generated by their own transactions; portability and access provisions could strengthen domestic firms' ability to build analytical capability. Taxation of cross-border digital services, which Vietnam has advanced through rules requiring foreign suppliers to register and pay taxes, affects how much of the value generated domestically is retained in public revenue. These measures should be designed to strengthen domestic participation rather than to restrict access to platforms whose services benefit consumers and small firms.

7.5 Regional policy

The regional pattern documented in Section 4 suggests that provincial digital targets based on GRDP shares are particularly misleading. A province that hosts a large electronics plant will exceed national targets regardless of its policies toward local digital adoption, while a province with a vibrant small-business digital ecosystem but no ICT manufacturing will appear to lag. Provincial targets should therefore be based on diffusion indicators, such as enterprise adoption rates and use of online public services, rather than on GRDP shares. The 2025 provincial consolidation provides an opportunity to reset such targets on a consistent basis.

8. Conclusion

This paper has argued that the developmental contribution of a digital economy cannot be read from its size. Using Vietnam as a case, we showed that a measured digital economy of about 14% of GDP conceals a dual structure. Roughly 60% of measured digital value added sits in a core dominated by foreign-invested ICT manufacturing, whose forward linkages to domestic industries are weak and whose import leakage is high. Provincial digital shares track the location of electronics assembly rather than the depth of digital use. Consumer adoption is rapid, but value capture in the platform layer is partly external. At the same time, official and ministerial estimates of the digital share diverge by several percentage points of GDP, and the policy target of 30% by 2030 would require digital value added to outgrow nominal GDP by about 16% a year, roughly eight times the differential achieved in 2020-2025.

To make sense of these facts, we proposed the Composition-Linkage-Capability framework, which separates what the digital economy consists of, how it is connected to the domestic economy, and whether domestic firms can use digital technologies productively. We introduced retained and diffusion-weighted digital value added as complements

to the headline share, developed a typology of four digital economy regimes, and derived five testable propositions together with identification strategies for testing them.

The analysis has limitations. It relies on official estimates that are reported in summary form, on input-output findings presented without full parameter values, and on gross trade data that do not measure value added directly. It does not estimate causal effects. The illustrative ownership adjustment in Section 5 is not an estimate and should not be cited as one. These limitations define the agenda for future research: estimating ownership-adjusted and diffusion-weighted indicators from microdata, testing the propositions with firm-level and regional panels, and comparing Vietnam with other FDI-intensive digital economies such as Malaysia, Thailand and the Philippines.

The broader lesson extends beyond Vietnam. Many emerging economies have adopted digital economy targets expressed as shares of GDP, often borrowing definitions developed for advanced economies with very different production structures. In economies integrated into global value chains through assembly, these definitions can make enclaves look like transformation. The relevant objective for such economies is not a larger digital economy as such, but a digital economy whose value is increasingly created, retained and diffused at home.

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