

DIGITAL TRANSFORMATION OF SMEs IN GEORGIA: BARRIERS, OPPORTUNITIES AND ECONOMIC EFFECTS IN THE CONTEXT OF EVOLVING ECONOMIC POLICY

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Abstract

Digital transformation has become a central condition for SME productivity, resilience and participation in data-intensive markets. This article analyses the digital transformation of small and medium-sized enterprises in Georgia in the context of evolving economic policy. It develops a policy-capability interpretation of the Georgian case and argues that the main constraint is not only access to technology, but also the ability of firms to convert digital tools into routines, market access and productivity gains. The study combines secondary statistical evidence, policy document analysis and international benchmarking. It shows that Georgia has strengthened SME support, digital public services and innovation policy, while small firms remain weak users of ERP, CRM, AI, e-commerce and sophisticated websites. The paper proposes a sequenced roadmap that links diagnostic support, digital finance, sector-specific skills, cybersecurity, regional inclusion and outcome-based monitoring. It concludes that digital policy can generate economic effects only when it is aligned with firm-level absorptive capacity and measurable business outcomes.

Key words: *digital transformation, economic policy, Georgia, policy-capability gap, SMEs.*

JEL Classification: *L26, M13, M15, O33, O38.*

I. INTRODUCTION AND RESEARCH CONTRIBUTION

Digital transformation has become a strategic issue for small and medium-sized enterprises (SMEs), not merely a technical upgrade. For SMEs, digital transformation includes the integration of digital tools into customer relations, accounting, inventory management, supply chains, sales channels, internal communication and strategic decision-making. This distinguishes it from simple digitisation, such as converting paper information into electronic form, and from narrow digitalisation, such as using social media for communication. The more demanding stage is business-model transformation, where digital technologies change how firms create, deliver and capture value.

The issue is particularly important in small open economies. SMEs often have fewer financial resources, weaker managerial capacity and limited access to external markets, yet they are expected to innovate, internationalise and absorb shocks. Digital tools may reduce transaction costs, improve customer visibility, facilitate online sales and connect firms with public services or export channels. These benefits, however, are not automatic. A firm may buy software without redesigning work routines; it may create a website without integrating payments or logistics; and it may attend training without having finance to implement what it has learnt.

Georgia is a useful case because economic policy has gradually moved from general business-environment reforms towards more targeted support for entrepreneurship, innovation, export growth, digital public services and inclusive development. The SME Development Strategy of Georgia 2021-2025 explicitly links SME policy with productivity, competitiveness, innovation, access to finance, women's entrepreneurship, green development and electronic communications. This creates an opportunity to analyse digital transformation as part of economic policy evolution rather than as a separate technology agenda.

The research problem is that Georgia has developed a visible policy framework for SME support and digital transformation, while digital adoption among firms remains uneven. The gap is especially clear between small, medium-sized and large firms in the use of enterprise resource planning (ERP), customer relationship management (CRM), artificial intelligence (AI), Internet of Things (IoT), fast broadband and e-commerce. This paper therefore asks four research questions: What barriers constrain SME digital transformation in Georgia? What opportunities and economic effects can digitalisation generate? How does policy evolution shape these outcomes? What policy sequence would move SMEs from basic digital access to measurable productivity and

market effects?

The paper makes three contributions. First, it introduces the concept of a policy-capability gap: the distance between the availability of digital-support instruments and the ability of SMEs to use those instruments for operational change. Second, it interprets Georgian SME digitalisation through an adoption ladder, moving from connectivity to market-facing digitalisation, operational integration and data-driven transformation. Third, it translates the evidence into a sequenced policy roadmap, avoiding generic recommendations by linking specific Georgian gaps with concrete instruments and measurable outcomes.

II. THEORETICAL BACKGROUND AND CONCEPTUAL LENS

Digital transformation research emphasises that technology adoption is only one element of organisational change. Bharadwaj et al. (2013) conceptualise digital business strategy as the fusion of business strategy and information technology strategy, while Vial (2019) defines digital transformation as a process through which digital technologies trigger strategic responses and structural change. Verhoef et al. (2021) distinguish digitisation, digitalisation and digital transformation, a distinction that is particularly relevant for SMEs because many firms remain at the first or second stage.

SME-focused studies further emphasise that digital transformation depends on dynamic capabilities, customer-value creation and digital innovation ecosystems. Matarazzo et al. (2021) show the relevance of dynamic capabilities for SME customer value creation, while Warner and Waeger (2019) frame digital transformation as an ongoing process of strategic renewal. Nambisan et al. (2017) also show that digital innovation changes the boundaries of innovation management. The OECD (2021) similarly notes that SMEs need policy support to benefit from digitalisation while managing adoption barriers and risks.

The technology-organisation-environment (TOE) framework (Tornatzky and Fleischer, 1990) provides a useful structure for analysing digital adoption. The technological dimension concerns the availability, cost and complexity of digital tools; the organisational dimension concerns skills, leadership, finance, routines and absorptive capacity; and the environmental dimension concerns competition, regulation, infrastructure, public services and support institutions. The TOE lens is suitable for this article because SME digital transformation depends simultaneously on firm-level capability and the policy ecosystem.

Dynamic-capabilities theory adds a second perspective. Teece (2007) argues that firms need the ability to sense opportunities, seize them and reconfigure resources. In the digital context, SMEs must identify useful technologies, invest in them, train employees and redesign processes. A weak digital capability therefore means more than the absence of equipment; it means weak routines for learning, experimentation and adaptation. Absorptive capacity is equally important: firms must be able to recognise external knowledge, assimilate it and apply it commercially (Cohen and Levinthal, 1990).

A mechanism-based interpretation is also required because the relationship between digital adoption and economic performance is not linear. The same technology may produce different results depending on routines, sector, managerial attention and complementary assets. For example, a CRM system may improve customer retention in a tourism firm, but it may remain underused in a micro-retailer if employees continue to record sales manually. ERP may improve inventory control in a manufacturing or food-processing enterprise, but only if accounting, procurement and sales functions exchange data consistently. This means that digital adoption must be analysed through the mechanisms that transform software into economic outcomes.

This paper combines these perspectives into a policy-capability lens. Digital transformation is treated as the outcome of interaction between technology access, organisational capability and policy conditions. The central proposition is that policy can raise digital adoption only when support instruments are aligned with the capability level of firms. In practical terms, a digital voucher is ineffective if the firm cannot diagnose its needs; training has limited impact if it is not connected with finance; and e-commerce support remains weak if payments, logistics, consumer protection and cybersecurity are ignored.

To operationalise this lens, the policy-capability gap can be decomposed into five dimensions: diagnostic capability, investment capability, implementation capability, learning capability and market-conversion capability. Diagnostic capability refers to the ability of an SME to identify which digital problem should be solved first. Investment capability concerns the financial and administrative capacity to purchase appropriate tools. Implementation capability refers to the internal ability to redesign routines, train employees and integrate software into daily work. Learning capability captures whether firms evaluate adoption results and adjust practices after implementation. Market-conversion capability reflects the ability to translate digital tools into sales, exports, reputation, procurement access or stronger supplier relations. This decomposition is important because it prevents the article from treating digital transformation as a single binary variable. It also helps

specify where policy should intervene: some firms need connectivity, others need managerial advice, while more advanced firms need integration, cybersecurity and data analytics.

III. METHODOLOGY AND DATA TRIANGULATION

The study adopts a qualitative-descriptive case-study methodology based on secondary data analysis and policy document review. This design is appropriate because the objective is not to estimate a causal effect through firm-level econometrics, but to examine how digital adoption indicators, policy priorities and theoretical mechanisms interact in the Georgian SME context. The method is deliberately analytical rather than purely descriptive: each empirical pattern is interpreted through the policy-capability lens developed above.

The evidence base is triangulated across four types of sources. Official statistics from Geostat establish the economic role of enterprises by size. Policy documents from the Ministry of Economy and Sustainable Development of Georgia identify the direction of policy evolution and the responsible institutions. OECD and World Bank sources provide international policy assessment and digital-government context. ISET Policy Institute's 2025 research note supplies firm-size and EU-benchmark indicators on Georgian SME digitalisation. Academic literature supplies the conceptual vocabulary for distinguishing adoption, capability and transformation.

The analysis proceeds in four steps. First, it identifies the economic importance of SMEs in Georgia. Second, it examines digital adoption gaps by firm size and against EU benchmarks. Third, it classifies barriers according to technological, organisational and environmental mechanisms. Fourth, it derives policy implications by asking which instruments would close the gap between digital access and economic impact. This sequence is designed to reduce the risk of a generic policy discussion and to connect recommendations with evidence.

Analytical credibility is strengthened through three procedures. First, source triangulation is used: no single report is treated as sufficient evidence for the argument. Second, indicators are interpreted in relation to an adoption ladder rather than as isolated percentages. Third, the article avoids causal overclaiming: it does not argue that digital adoption automatically increases productivity, but identifies the mechanisms through which productivity effects may occur when complementary capabilities are present. This is important for higher-standard academic writing because it makes the boundaries of inference explicit.

The case-study design is therefore bounded in two ways. Empirically, the paper focuses on business-sector SMEs rather than the whole private economy, because the available indicators by firm size refer primarily to enterprises captured in official and policy datasets. Analytically, the article focuses on the transformation of business capability, not on the performance of the Georgian ICT sector as a separate industry. This distinction matters: a country may have a growing technology sector while most small firms in tourism, trade, agriculture or local services still use only basic digital tools. The unit of analysis is consequently the SME as a user and organiser of digital technologies. The purpose is to explain how policy can help ordinary firms move from isolated digital use to integrated organisational change. It also clarifies why policy transfer must be adapted to local SME routines.

Table 1. Evidence base and analytical role

Source group	Main evidence used	Analytical role
Geostat enterprise statistics	Turnover, production value and employment by enterprise size, 2024	Establishes the macroeconomic relevance of SMEs
SME strategy and progress reports	Policy priorities, targets, agencies, implementation progress	Shows the evolution of SME policy from regulatory reform to capability building
ISET and Eurostat-based indicators	ERP, CRM, AI, IoT, broadband, websites, online sales and EU gaps	Identifies the adoption ladder and firm-size asymmetries
OECD and World Bank materials	SME digitalisation policies, GovTech foundations and policy recommendations	Benchmarks Georgia and frames policy governance challenges
Academic literature	TOE, dynamic capabilities, absorptive capacity and digital transformation concepts	Provides theory for interpreting mechanisms rather than listing barriers

Source: Author's synthesis.

IV. ECONOMIC POLICY EVOLUTION AND THE GEORGIAN SME CONTEXT

Georgia's economic policy has historically emphasised private-sector development, simplified administrative procedures and a favourable business environment. Over time, however, the policy agenda has moved towards more targeted support for SMEs, innovation, export readiness, skills development, digital infrastructure and inclusive growth. The SME Development Strategy 2021-2025 is important in this regard because it aligns with the European Small Business Act and defines measurable targets for SME value added, employment and productivity.

The 2024 progress report states that the strategy aims to create a favourable environment for SMEs, enhance competitiveness and innovation capacity, support income growth and job creation and contribute to inclusive and sustainable economic growth. It also sets target indicators for 2025: a 20 per cent increase in SME value added, a 10 per cent increase in SME employment and a 20 per cent increase in SME productivity compared with the 2019 baseline. These targets imply that policy success should be assessed not only by the number of activities implemented, but by economic outcomes.

Digital transformation appears in the strategy through several channels. Priority 5 concerns electronic communications, information technologies, innovation, research and development. Other priorities are also digitally relevant: access to finance, export growth, women's entrepreneurship, entrepreneurial culture and institutional strengthening. The 2024 report identifies multiple implementing actors, including Enterprise Georgia, the Georgian Innovation and Technology Agency (GITA), the Digital Governance Agency, Open Net and other public institutions. This breadth creates policy capacity, but it also increases the risk of fragmentation if diagnostics, finance, training and monitoring are not coordinated.

Georgia has also made progress in digital public services. World Bank materials note digital-government foundations such as online tax filing, electronic procurement, digital signatures, business registration, government cloud infrastructure and data exchange systems. For SMEs, these services can reduce administrative burdens and improve access to the state. Nevertheless, GovTech progress does not automatically produce enterprise digital transformation. A firm may use online tax services while still lacking digital inventory management, customer analytics, cybersecurity practices or integrated online sales.

The policy context therefore contains a tension. On one side, Georgia is assessed positively in regional SME digitalisation policy. OECD/EBRD (2023) identifies Georgia as a strong performer in SME digitalisation policy among Eastern Partner countries and recommends continued coordination between Enterprise Georgia and GITA, stronger SME-manager digital skills and certified advisory networks. On the other side, firm-level digital adoption remains uneven, especially among small enterprises. This tension is the empirical basis for the policy-capability gap examined in this paper.

V. EMPIRICAL CONTEXT: SME IMPORTANCE AND DIGITAL ADOPTION GAPS

The economic importance of SMEs in Georgia is clear from recent enterprise statistics. In 2024, business-sector turnover reached 228.5 billion GEL and production value reached 90.5 billion GEL. Small and medium-sized businesses generated 32.3 per cent of turnover and 53.2 per cent of production value. They accounted for 60.6 per cent of persons employed in the business sector. These figures indicate that SMEs are not peripheral firms: they are central to employment, production and regional economic activity.

Table 2. SME contribution to Georgia's business sector, 2024

Indicator	Large businesses	Medium-sized businesses	Small businesses	Medium-sized and small
Turnover share (%)	67.7	15.8	16.5	32.3
Production value share (%)	46.8	25.5	27.7	53.2
Employment share (%)	39.4	20.3	40.3	60.6

Source: Author's compilation based on Geostat (2025).

The digital-adoption picture is less balanced. ISET Policy Institute's 2025 research note, based on Geostat and Eurostat indicators, shows clear differences by firm size. In 2024, only 6.1 per cent of small firms used ERP systems, 3.0 per cent used CRM systems and 1.8 per cent used AI technologies. Medium-sized firms performed considerably better, while large firms were far ahead across the main indicators. This asymmetry matters because it suggests that the firms with the greatest employment weight are often those with the weakest advanced digital capabilities.

Table 3. Selected digital adoption indicators by firm size in Georgia, 2024

Indicator	Small firms	Medium firms	Large firms
ERP system use (%)	6.1	36.7	68.0
CRM system use (%)	3.0	20.5	40.8
AI technology use (%)	1.8	7.9	19.6
IoT use (%)	10.5	38.2	57.0
Fast broadband access (%)	49.4	73.0	>85.0

Source: Author's compilation based on ISET Policy Institute (2025).

International comparison sharpens the argument. Georgian SMEs lag behind EU SMEs not only in advanced systems, but also in foundational and market-facing indicators. The largest gap is visible in websites with sophisticated features, where the difference reaches 71 percentage points. Online sales and cross-border online sales are also weak. These gaps indicate that Georgian SMEs are not simply behind in high-end technologies such as AI; many are still at the stage of building reliable digital market interfaces.

Table 4. Georgian and EU SME digitalisation gaps, 2024

Indicator	Georgian SMEs (%)	EU SMEs (%)	Gap (percentage points)
Fast broadband ≥ 30 Mbps	50	89	39
Websites with sophisticated features	7	78	71
ERP systems	7	42	35
Social media use	30	56	26
AI technology use	2	13	11
Online sales	3	20	17
Cross-border online sales	1	9	8

Source: Author's compilation based on ISET Policy Institute (2025), using Geostat and Eurostat data.

The indicators can be read as an adoption ladder. Broadband access is the entry point. Websites, social media and online sales represent market-facing digitalisation. ERP and CRM indicate operational integration. AI and IoT indicate data-driven transformation. The evidence suggests that many Georgian SMEs remain concentrated at the lower levels of this ladder. This does not mean that firms are technologically passive; rather, their digital activity often remains fragmented and insufficiently connected with productivity-enhancing processes.

The adoption ladder also clarifies why a uniform policy package is insufficient. Micro and small enterprises may require basic diagnostic support and affordable tools, while medium-sized enterprises may need integration, cybersecurity and export-oriented digital systems. Firms already using e-commerce may benefit from logistics, data analytics and cross-border payment support, whereas firms with no website may first need a credible digital market interface. The policy question is therefore not whether SMEs are digital or non-digital, but where they are located on the ladder and what intervention would help them move to the next economically meaningful stage.

The adoption gaps should also be read through sectoral heterogeneity. A tourism SME may obtain immediate benefits from online booking, dynamic pricing, multilingual communication and reputation-management platforms. A small manufacturing or food-processing firm may need ERP, traceability, inventory control and supplier coordination before online sales become meaningful. A professional-service firm may benefit from cloud collaboration, digital contracts, customer databases and secure document management. For retail and local services, the initial challenge may be the integration of point-of-sale systems, social-media marketing, delivery logistics and digital payments. This sectoral reading is important for policy design because the same indicator can have different economic meanings across sectors. A website is a sales channel for one firm, a credibility signal for another and almost irrelevant for a third if it is not connected with payments, logistics or customer analytics.

VI. BARRIERS: FROM GENERIC OBSTACLES TO GEORGIA-SPECIFIC MECHANISMS

The first barrier is financial, but the mechanism is more specific than a simple lack of money. Digital transformation requires recurring expenditure on software subscriptions, cloud services, hardware, cybersecurity, digital marketing, training and process redesign. For small firms, these investments compete with immediate operating costs. Even where grants or co-financing exist, SMEs may lack the administrative capacity to apply or the confidence to choose suitable technologies. The result is underinvestment in tools with delayed productivity effects.

The second barrier is capability rather than literacy alone. Many SMEs can use basic digital communication tools, but digital transformation requires applied business skills: e-commerce management, digital accounting, inventory systems, customer data management, search visibility, cybersecurity and data-informed decision-making. The gap is therefore managerial and organisational, not only technical. Owner-managers need to understand how a digital tool changes routines, responsibilities and performance indicators.

The third barrier is regional inequality. SMEs outside Tbilisi and other larger urban centres may face weaker broadband quality, fewer advisory services, thinner technology-provider markets and lower exposure to digital business models. Regional digital inclusion is therefore an economic-development issue. If digital programmes are concentrated in stronger urban ecosystems, they may reinforce rather than reduce territorial disparities.

The fourth barrier is weak digital project management inside firms. SMEs rarely have specialised IT departments. Technology decisions are often made by owners or accountants under time and budget constraints. This creates the risk of partial adoption: software is purchased or installed, but employees continue using old routines. For digital investment to become productive, firms need diagnostics, implementation plans, staff training, maintenance routines and post-adoption evaluation.

The fifth barrier is institutional fragmentation. SME digitalisation involves multiple actors: Enterprise Georgia, GITA, digital governance institutions, chambers of commerce, donor-funded projects, banks, training providers and private technology firms. Fragmentation can produce duplicated services, inconsistent eligibility rules and weak information flow. From a policy-capability perspective, the problem is not the absence of support, but the difficulty for SMEs to navigate support and convert it into coherent transformation.

A sixth barrier is weak demand articulation. SMEs often do not invest in digital tools because they cannot clearly estimate the return on investment. This is rational when markets are uncertain and digital benefits are delayed. Public policy can address this by linking digital adoption with concrete business opportunities, such as procurement access, tourism platforms, export promotion, online marketplaces and financial products that recognise digital transaction records.

Finally, cybersecurity and data governance are becoming more important as firms expand online sales and customer data management. Small firms may underestimate risks related to payment fraud, weak passwords, data loss or insecure devices. Cybersecurity should therefore be treated as a basic component of SME digitalisation, not as an advanced issue relevant only to large enterprises.

Another cross-cutting barrier is the absence of trusted digital intermediation. Many small firms do not have enough information to compare software suppliers, assess cybersecurity risks, interpret contract conditions or avoid unsuitable subscriptions. This can create a conservative bias: managers postpone digital investment not because they reject innovation, but because the risk of choosing the wrong tool is high. Certified advisory networks, public-private digital clinics and standardised diagnostic checklists could reduce this uncertainty. Such instruments would also protect SMEs from superficial digitalisation, where firms pay for websites or software that do not improve processes or generate customers. Trust-building is therefore part of digital policy, especially in markets where technology providers, banks, consultants and public programmes operate with limited coordination.

VII. OPPORTUNITIES AND ECONOMIC EFFECTS

Digital transformation offers Georgian SMEs several opportunities, but the mechanisms must be specified. Productivity gains may arise from faster accounting, reduced manual errors, better stock control, online booking, automated customer communication and cloud-based collaboration. These gains are most likely when tools are embedded into daily routines rather than used as parallel systems.

Market expansion is another important channel. E-commerce, digital payments, online reviews, search visibility and social media marketing can allow SMEs to reach customers beyond local markets. This is relevant for tourism, hospitality, retail, agribusiness, creative industries, food products and professional services. For export-oriented firms, digital tools can support market intelligence, documentation, communication with foreign

partners and participation in value chains.

Digitalisation can also improve resilience. The pandemic showed that firms with online sales channels, digital customer communication and remote-working capacity were better able to maintain activity during restrictions. In Georgia, this lesson is relevant beyond health shocks: digital channels can help firms manage seasonal tourism fluctuations, supply disruptions, regional market limitations and changing consumer behaviour.

The inclusion effect is also significant. Digital tools can support women entrepreneurs, young entrepreneurs and rural firms when training is linked with finance, mentoring and market access. Training alone is insufficient. Inclusion requires the ability to translate learning into sales, accounting discipline, customer acquisition, productivity or access to formal finance.

The economic effects can be divided into direct, indirect and dynamic effects. Direct effects include lower administrative costs, faster transactions and more accurate inventories. Indirect effects arise when digital tools improve access to suppliers, customers, finance, procurement and export channels. Dynamic effects are longer-term and relate to learning, innovation and business-model change. This distinction is important because firms may initially experience higher costs and organisational disruption, while productivity gains appear later. Policy must therefore support the implementation and learning period, not only the purchase of technology.

The economic effects should therefore be evaluated through intermediate indicators, not only final productivity measures. For many SMEs, the first measurable effect of digitalisation may be shorter response time, fewer inventory errors, a higher share of electronic invoices, more repeat customers, increased website traffic, lower search costs or improved visibility in public procurement. These indicators do not by themselves prove productivity growth, but they show whether the mechanism is moving in the expected direction. A policy framework that measures only the number of trained firms or the value of grants cannot distinguish between symbolic adoption and genuine transformation. By contrast, intermediate indicators allow policymakers to detect where the chain breaks: diagnosis, finance, implementation, staff use, customer conversion or post-adoption learning.

Table 5. Economic transmission channels of SME digital transformation

Transmission channel	Firm-level mechanism	Policy-relevant indicator
Efficiency	Automation of accounting, stock control, booking or customer communication	Time saved, error reduction, cost per transaction
Market access	Use of websites, online sales, digital payments and platform visibility	Online sales share, new customers, export leads
Resilience	Alternative sales and communication channels during shocks	Continuity of sales, remote-work readiness, supplier diversification
Innovation	Use of data, customer feedback and digital collaboration to improve products or services	New products, process improvements, customer retention
Inclusion	Digital tools linked to women, youth and regional entrepreneurship programmes	Regional participation, women-owned supported firms, post-training outcomes

Source: Author's synthesis.

VIII. DISCUSSION: A POLICY-CAPABILITY ROADMAP

The evidence suggests that Georgia's SME digital transformation challenge is not only technological. It is a transition problem: firms must move from basic access to operational integration and then to strategic transformation. A policy roadmap should therefore be sequenced. The first stage is diagnostic: firms should identify their digital maturity, operational bottlenecks and priority use cases. The second stage is enabling: access to broadband, basic cybersecurity, digital public services and applied training should be ensured. The third stage is implementation: finance, mentoring and vendor support should help firms adopt suitable tools. The fourth stage is scaling: firms that demonstrate results should be supported in e-commerce, export readiness, data analytics and innovation. The fifth stage is monitoring: policy should measure outcomes, not only activities.

Table 6. Sequenced policy roadmap for SME digital transformation in Georgia

Stage	Policy instrument	Targeted capability	Outcome indicator
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Stage	Policy instrument	Targeted capability	Outcome indicator
1. Diagnose	Digital maturity audit and sectoral needs assessment	Ability to identify relevant technologies	Digital plan prepared; priority use cases selected
2. Enable	Broadband access, basic cybersecurity guidance, practical training	Minimum readiness for safe digital operation	Connectivity, security practices and staff skills improved
3. Implement	Digital vouchers, co-financing, certified consultants and vendor mentoring	Adoption of ERP, CRM, e-commerce, accounting or cloud tools	Operational tool used in daily routines
4. Scale	E-commerce onboarding, export digital support, data analytics and innovation grants	Market expansion and data-driven decisions	Online sales, export leads, customer retention or productivity improved
5. Learn	Outcome scorecard and feedback into programme design	Policy learning and adaptive governance	Support redesigned based on firm-level results

Source: Author's synthesis based on the findings of this paper.

Table 7. Suggested digital transformation scorecard for Georgian SMEs

Scorecard domain	Illustrative indicators	Purpose
Inputs and readiness	Broadband access, diagnostic completed, finance received, staff trained	Shows whether firms have minimum conditions for adoption
Adoption and use	ERP, CRM, e-commerce, cloud, cybersecurity practices, online payment use	Distinguishes real use from attendance at training
Operational outcomes	Processing time, error reduction, stock accuracy, customer response time	Captures productivity and efficiency mechanisms
Market outcomes	Online sales share, new customers, export enquiries, platform participation	Measures whether digital tools expand demand
Inclusion and governance	Regional distribution, women-owned firms, youth enterprises, follow-up rates	Checks whether policy reduces or reproduces digital inequality

Source: Author's synthesis.

This roadmap differs from a generic recommendation to “support digitalisation”. It argues that policy instruments must be sequenced and capability-sensitive. Grants should not precede diagnosis; training should not be separated from finance; e-commerce support should not be disconnected from logistics, payments and consumer protection; and digital adoption should not be reported only through the number of trained entrepreneurs. The relevant question is whether firms improve sales, productivity, export readiness, resilience or formalisation after support.

A practical roadmap should also include exit and escalation rules. Firms that complete basic digital diagnostics but do not implement recommendations may require mentoring rather than another training session. Firms that implement e-commerce but fail to generate sales may need market-access support, logistics advice or digital marketing assistance. Firms already using ERP or CRM may need cybersecurity audits, data-governance routines and integration with accounting, inventory or export procedures. This escalation logic would make public support more adaptive and would reduce the risk of treating all SMEs as if they faced the same constraints. It would also help agencies allocate scarce resources: low-maturity firms would receive standardised entry-level support, while high-potential firms would receive more intensive advisory and integration assistance linked to clear performance milestones.

The scorecard logic is important because many SME programmes stop at output indicators. Output indicators are useful for administrative accountability, but they are insufficient for policy learning. A higher-quality monitoring system should trace whether support changes firm routines and market performance. This requires a modest baseline and follow-up design. Before support, firms should report their current tools, sales channels, digital skills and main bottlenecks. After support, they should report whether the tool is actually used, whether employees were trained and whether any operational or market indicator improved.

Such monitoring would also help distinguish between three types of failure. The first is access failure, where a firm cannot obtain finance, connectivity or advice. The second is implementation failure, where a tool is adopted but not integrated into routines. The third is impact failure, where the tool is used but does not improve productivity, sales or resilience. These failures require different policy responses. Access failure requires infrastructure and finance; implementation failure requires mentoring and managerial support; impact failure

requires better targeting, sectoral differentiation and market-access measures.

A second implication concerns sectoral differentiation. A guesthouse, a small retailer, an agribusiness firm, a food-processing enterprise and a professional-service provider require different digital tools. Sectoral digital playbooks could translate general policy into practical packages: booking and reputation tools for tourism; traceability and inventory systems for agribusiness; online catalogues and payments for retail; quality documentation and customer management for exporters. This would make support more credible for SMEs because recommendations would match operational realities.

For tourism SMEs, the main digital priority may be integrated booking, online reputation management, dynamic pricing and multilingual customer communication. For agribusiness and food-processing firms, the priority may be traceability, inventory management, supplier coordination and compliance documentation. For retailers, the bottleneck may lie in digital payments, delivery logistics and customer segmentation. For professional services, cloud collaboration, cybersecurity and digital contracting may be more relevant. A high-quality policy design should recognise these sectoral differences rather than offering the same training module to all enterprises.

A third implication concerns governance. Enterprise Georgia, GITA, the Digital Governance Agency, banks, chambers and donor programmes should operate through a shared diagnostic and monitoring framework. A single information window would reduce search costs for SMEs, but coordination should go beyond information. Institutions should share data on supported firms, follow outcomes over time and identify which instruments produce the strongest productivity or market effects. This would transform SME digital policy from activity-based reporting into evidence-based learning.

Outcome evaluation is especially important. A stronger monitoring system would collect baseline information before support is provided, including current digital tools, sales channels, employment, productivity proxies, export activity, online sales share and cybersecurity practices. Follow-up data after six and twelve months would show whether supported firms actually changed routines or simply received training. Where feasible, programmes could compare supported firms with similar non-supported firms, not to make perfect causal claims, but to improve policy learning. This would make the policy framework closer to the evidence standards expected in higher-ranking journals and stronger public-policy evaluation.

Digital vouchers and grants could also be linked to implementation milestones. For example, a firm receiving support for CRM should show that customer data are recorded and used; a firm supported for e-commerce should demonstrate functioning payments, delivery arrangements and basic consumer-protection information; a firm supported for cybersecurity should document backups, password practices and staff awareness. Such milestones would not overburden SMEs if designed simply, but they would reduce the risk that public resources finance symbolic or unused technologies.

Policy should also recognise potential unintended consequences. Digitalisation may widen gaps if better-prepared firms capture most support. Platform-based sales may create dependency on intermediaries, commissions and algorithmic visibility. Cloud and subscription tools may reduce upfront costs but create recurring expenses that small firms underestimate. Online sales may increase exposure to consumer disputes and data-protection obligations. A rigorous policy agenda should therefore promote digital adoption while also building safeguards: transparent contracts, basic legal awareness, cybersecurity routines and alternatives to excessive platform dependency.

The private sector should also be part of the roadmap. Banks and microfinance institutions can develop products that recognise digital investment as productivity-enhancing rather than as an intangible expense. Fintech firms can use transaction records to support credit assessment. Accounting firms, chambers of commerce and technology providers can help SMEs choose tools that fit their scale. In many cases, the most effective solution is not the most sophisticated technology, but the affordable tool that can be maintained and integrated into routines.

For SME managers, the implication is to treat digitalisation as a sequence of managerial decisions. The first question is not which software is fashionable, but which bottleneck limits performance: slow invoicing, weak inventory control, limited customer reach, poor data security, fragmented communication or low export visibility. The second question is whether employees can use the tool reliably. The third question is how the firm will measure success after adoption. This managerial framing reduces the likelihood of symbolic digitalisation, where a firm purchases a tool but does not change behaviour.

Educational institutions have a complementary role. Universities and vocational institutions can connect entrepreneurship education with digital accounting, online marketing, business analytics, cybersecurity and e-commerce practice. Student consulting projects and digital clinics could support smaller firms while developing applied skills. Such initiatives would help reduce the gap between formal digital training and the everyday needs of SMEs.

Finally, ethical and data-protection considerations should be integrated into SME digitalisation policy. As

firms collect customer data, accept online payments and use third-party platforms, they become more dependent on data security and platform governance. Many SMEs may not have the expertise to evaluate contractual risks, data storage arrangements or privacy obligations. Basic templates, checklists and advisory support would help small firms adopt digital tools responsibly. This matters for competitiveness because customer trust is a precondition for online sales and long-term digital participation.

IX. CONCLUSIONS, IMPLICATIONS AND FUTURE RESEARCH

This paper analysed the digital transformation of SMEs in Georgia in the context of evolving economic policy. The main finding is that Georgia has developed important policy and digital-government foundations, but SME digital transformation remains uneven. Small firms continue to lag behind medium-sized and large firms in advanced digital tools, and Georgian SMEs lag behind EU SMEs in both foundational and market-facing digital indicators.

The study argues that the central challenge is a policy-capability gap. Digital policy is more likely to produce economic effects when it strengthens the ability of SMEs to diagnose needs, invest in appropriate tools, train staff, change routines, manage cybersecurity and measure outcomes. Digital transformation should therefore be treated as a capability-building process rather than as a one-off technology purchase.

The theoretical contribution is to connect SME digitalisation in an emerging small economy with the interaction between TOE conditions, dynamic capabilities and policy design. The Georgian case shows that a country may perform relatively well in digital policy architecture while firms still lag in operational integration. This distinction is important because it shifts attention from the existence of programmes to the capability of enterprises to absorb and use them.

For policymakers, the implication is to design sequenced and measurable interventions: digital maturity diagnostics, practical training, digital vouchers, certified advisory networks, sectoral digital playbooks, cybersecurity support, regional digital clinics and outcome scorecards. For SMEs, the implication is to approach digitalisation strategically by linking each tool to a business process, customer segment, productivity problem or market opportunity. For financial institutions and education providers, the implication is to recognise digital capability as part of SME competitiveness.

The paper has limitations. It relies on secondary data and policy documents and does not include original firm-level survey evidence. It therefore cannot estimate causal effects between digital adoption and productivity, profitability or employment. Future research should use firm-level surveys, interviews and panel data to examine how SMEs evaluate digital investments, why some abandon adoption after initial use and which tools generate measurable economic returns. Sector-specific studies of tourism, retail, agribusiness, manufacturing and professional services would also improve policy precision.

Future research should not ask only whether SMEs use a given technology. It should ask why the tool was adopted, who manages it, which routine changed, whether employees actually use it and whether the firm can observe market or cost effects. These questions would make it possible to distinguish nominal digital adoption from effective digital transformation and to build a stronger evidence base for Georgian SME policy.

Overall, SME digital transformation can become a significant driver of Georgia's sustainable economic development if policy moves from fragmented support to capability-sensitive implementation. The objective should not be merely to increase the number of firms using digital tools, but to ensure that digitalisation changes how SMEs produce, sell, innovate, learn and compete.

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