

# GVCs, digitalisation and services in Africa: What we know and what we would like to know

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Broadband connectivity, data-driven logistics, e-commerce, cloud services, and fintech reduce coordination costs and loosen the ties between production and physical proximity, opening the door to participation in Global Value Chains (GVCs). These technologies expand opportunities both to embed services into goods exports and to export services directly.

This policy brief reviews the evidence on the extent and pattern of Africa's participation in supply chain networks. Research gaps—data, Methodological, and Conceptual Obstacles—that prevent African countries from breaking into high-skilled, tradable service exports are identified. The paper concludes by proposing three research areas: understanding services-led integration; exploring the mechanisms of change; building the data foundations.



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## ► Introduction

Participation in global value chains (GVCs) has become a defining feature of contemporary trade, enabling countries to specialise in discrete tasks rather than entire industries. For developing economies, GVCs promise access to technology, managerial know-how, and export markets. Yet Africa's integration remains limited and mainly upstream: many economies export primary commodities or resource-based goods with modest domestic value addition. Manufacturing-led development, which characterised several Asian success stories, has proven difficult to replicate in Africa due to premature deindustrialisation, labour-saving technical change, and increasingly uncertain geopolitics that complicate "made in the world" production (Rodrik, 2016; Cadot *et al.*, 2016).

Digital transformation could alter this trajectory. Broadband connectivity, data-driven logistics, e-commerce, cloud services, and fintech reduce coordination costs and loosen the ties between production and physical proximity. These technologies expand opportunities both to embed services into goods exports and to export services directly. For Africa, where traditional manufacturing footholds are uneven, digitalisation may open additional paths for specialisation—particularly in tradable services that rely more on skills and connectivity than on heavy infrastructure. However, opportunities are heterogeneous and contingent on local capabilities, regulatory quality, and the depth of regional markets.

Figure 1 summarises the channels through which digitalisation affects manufacturing and services sectors, as discussed in the empirical literature. On the left-hand side, digital technologies (DIGITECH)—including automation, robotics, and advanced connectivity—lower production and transport costs. Robotisation, by reducing the importance of economies of scale, may foster reshoring in advanced economies and erode Africa's comparative advantage in labour-intensive goods. On the right-hand side, policies for Services trade and regulations for trade data affect the reduction in trade costs across goods and services, especially for digitally deliverable services, and these effects

are magnified in countries with open and predictable digital-trade regulations (Belluci *et al.*, 2025).<sup>1</sup>

This policy brief takes stock of what we know about Africa's engagement with GVCs, with particular attention to the roles of digitalisation and services. We synthesise evidence from multi-regional input-output databases (e.g., WIOD, EORA) and firm-level sources (e.g., WBES), as well as the emerging literature on infrastructure, institutions, and digital policy. We then identify key research gaps and outline a forward-looking agenda for academic and policy work.

## ► 1. The State of the Art

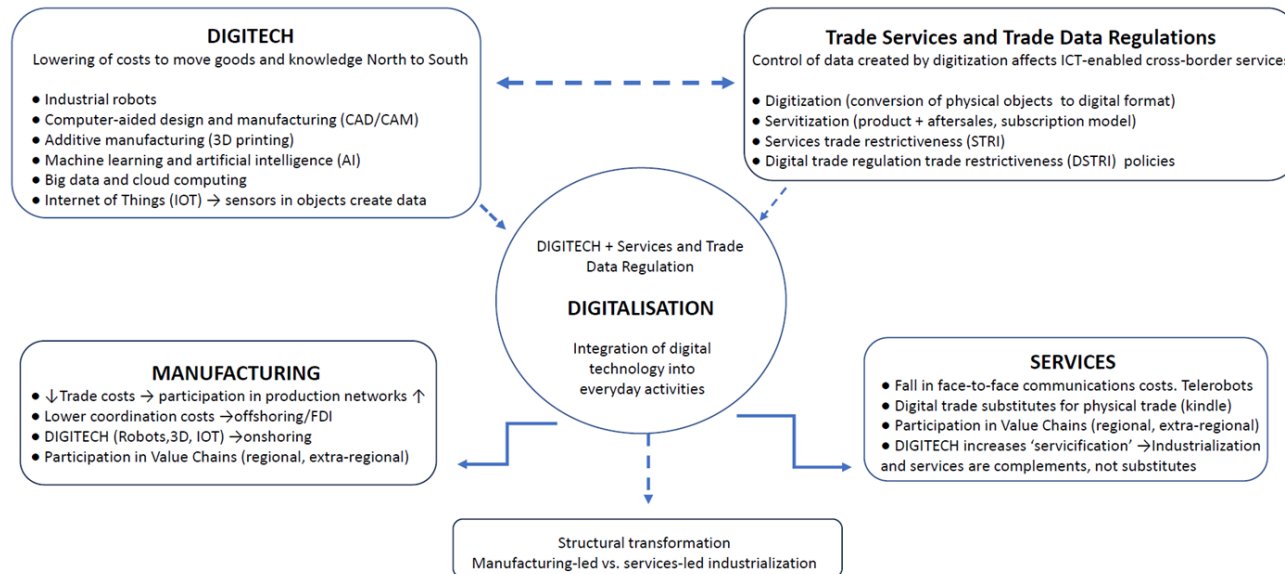
### 1.1 Patterns of GVC participation

Over the last quarter-century, Africa's participation in GVCs has increased in absolute terms but remains comparatively shallow. Figure 2 decomposes gross exports into foreign and domestic value added, showing that Africa's exports embody relatively little foreign value added—low backward participation—while a comparatively large share of its gross exports is re-exported by partners—high forward participation (Borin *et al.*, 2021; Foster-McGregor *et al.*, 2013). In other words, Africa is typically upstream in global production, supplying primary or low-processed inputs that are transformed elsewhere.

This upstream orientation is closely linked to continued reliance on resource-based exports. Numerous studies document how such specialisation constrains domestic learning and limits the diffusion of foreign technology and managerial practices into local production systems, thereby slowing movement along the "smile curve" (Osakwe & Santos-Paulino, 2018). Recent research also connects limited GVC depth to weak spillovers and innovation: Eissa & Zaki (2023) find that shallow participation inhibits knowledge diffusion and upgrading.

1. Notably, few—if any—African countries are included in the empirical samples examined in Belluci *et al.* (2025), underscoring the need for region-specific evidence.

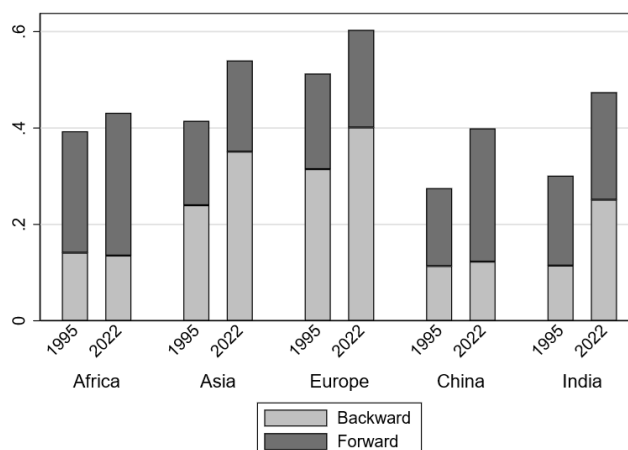
**Figure 1:** Digitalization in Manufacturing and Services



A trade flow is part of a value chain if it crosses at least two borders before reaching the final consumer.

**Source:** Authors.

**Figure 2:** Decomposition of GVC participation, 1995 and 2022



Classification of regions follows the UN. China and India are excluded from Asia. Backward and Forward measures as defined by Borin and Mancini (2023).

**Source:** Authors' calculations from Eora Database.

Recent work also highlights the role of infrastructure in enabling deeper integration. Amankwah-Amoah *et al.* (2023) show that investments in transport, energy, and telecommunications are strongly correlated with both forward and backward GVC participation. The role of services as enablers of goods exports has likewise gained prominence: logistics, ICT, and finance are increasingly recognised as essential for competitiveness, yet these linkages remain underexplored relative to goods and with evidence largely limited to developed countries (e.g., Crozet & Milet, 2017; Ariu *et al.*, 2020).

Geography of linkages matters as well. Figure 3 compares regional and extra-regional participation, highlighting that intra-African production networks remain thin and regional hubs underdeveloped. Much of the continent's participation occurs through extra-regional partners—historically Europe and increasingly Asia—rather than within African regional economic communities. In contrast, Asia has deepened dense intra-regional webs (“Factory Asia”), while Europe entered the period already highly integrated. Building “Made-in-Africa” supply chains is a central aspiration of the African Continental Free Trade Area (AfCFTA),

but realising it will require progress on trade facilitation, standards, and connectivity (UNCTAD, 2021; Melo & Solleder, 2025).

## 1.2 Determinants: Infrastructure, institutions, market size, and export composition

Multiple constraints shape Africa's GVC position. First, infrastructure gaps in transport, energy, and telecommunications elevate trade costs and fragment markets. Empirically, infrastructure improvements are strongly correlated with both forward and backward participation (Amankwah-Amoah *et al.*, 2023). Second, regulatory and institutional frictions—burdensome procedures, weak contract enforcement, and policy uncertainty—discourage the investments and coordination needed for cross-border production (Magbondé, 2023; Abreha & Gebregziabher, 2023). Third, limited market size reduces economies of scale and the incentive for multinationals to establish regional production platforms; by contrast, large markets such as China and India combine high backward shares with deepening vertical integration, illustrating the role of scale.

Export structure also matters. Enclave-type extractive sectors often generate limited domestic linkages, while diversified manufacturing and knowledge-intensive services create richer backward and forward connections. Evidence from firm-level sources suggests that participation is associated with higher innovation propensity and productivity, although results vary by sector and country (Ndubuisi *et al.*, 2023). Foreign direct investment (FDI) can catalyse upgrading but does not automatically strengthen local supplier linkages; outcomes hinge on absorptive capacity and policy design (Hoekman and Sanfilippo, 2022).

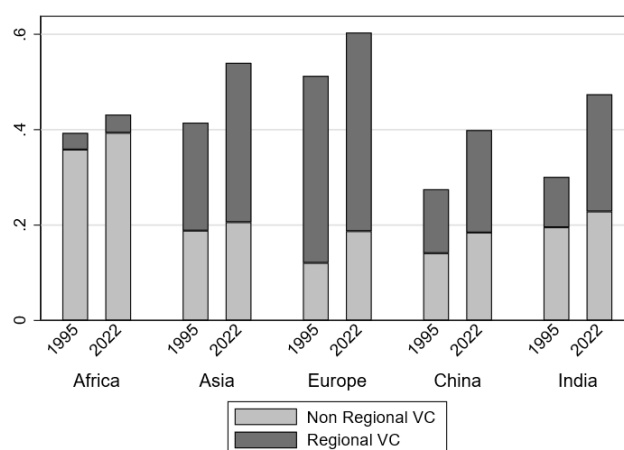
### 1.3 Services as enablers and as independent export domains

Services are pervasive within GVCs. Logistics, transport, ICT, finance, design, engineering, and professional services are embedded throughout production stages and often account for a substantial share of value added in goods exports (World Bank, 2020). In Africa, however, services' direct participation has historically been modest, and many services remain domestically oriented. Even so, the picture is evolving. The share of services in Africa's

gross exports has remained broadly stable, whereas it has increased sharply in Asia and Europe. Digitally deliverable services—ICT, business and professional services, and certain financial-intermediation activities—have become increasingly tradable. The literature documents the rising role of these services in competitiveness and export performance (Ariu & Ogliari, 2023; Ariu, 2025).

Digitalisation is the key mechanism behind this shift. Lower coordination costs, cloud computing, online marketplaces, and digital payments reduce barriers to cross-border delivery. Baldwin and Forslid (2023) argue that “globotics” make many services tradable, potentially enabling services-led development, while Mayer (2018, 2021) emphasises complementarities between digitalisation and manufacturing. At the same time, restrictive data policies can inhibit digitally delivered services (Ferracane & van der Marel, 2021). The degree to which African firms can harness these opportunities depends on connectivity, skills, and governance (Comini *et al.*, 2021).

**Figure 3:** Regional vs. non-regional participation, 1995 and 2022



Classification of regions follows the UN. China and India are excluded from Asia. Regional means value chains trade inside the same region. Non-regional means value chain trade outside the region.

**Source:** Authors' calculations from Eora Database.

## 1.4 Evidence bases and measurement approaches

Two complementary data traditions underpin this literature. Multi-regional input–output (MRIO) databases such as WIOD and EORA enable cross-country comparisons of backward and forward participation over time, though with substantial sectoral aggregation and, for Africa, frequent estimation or interpolation (Lenzen *et al.*, 2013). Firm-level sources such as the World Bank Enterprise Surveys (WBES) capture microeconomic behaviour—use of imported inputs, export status, innovation, constraints—but are sparser in coverage and rarely identify related-party (intra-firm) transactions. Combining MRIO and firm-level evidence yields the most informative picture but still leaves substantial data gaps for many African economies.

Taken together, these strands of research reveal a continent that is globally connected yet peripherally integrated: participation has increased but remains dominated by upstream, resource-based activities, with limited domestic value addition. Digitalisation and services have begun to open new possibilities, but the depth and sustainability of this transformation are still uncertain.

## ► 2. Key Research Gaps

### 2.1 An overwhelming focus on goods—with an underexplored services frontier

A striking feature of the literature on African integration in GVCs is how heavily it is skewed toward goods sectors—manufacturing, extractives, agriculture. This choice is understandable: data are more available, input–output tables are more developed for goods sectors, and established methods are already tailored to tracing manufacturing linkages. Yet this emphasis comes at a cost: it leaves the services dimension underexplored (Anderson *et al.*, 2018) and under-theorized (Ghani & O'Donnell, 2016; Baldwin & Forslid, 2023; Mayer, 2020). We often treat services as a residual or enabler for manufacturing, rather than as a domain of trade and value capture in its own right.

This gap is problematic for several reasons. First, services such as finance, ICT, professional and business services are increasingly important drivers of economic growth and competitiveness in Africa. They not only enable goods exports (through logistics, accounting, communications) but also have the potential to become stand-alone export sectors. Second, many modern services are digitally tradable—meaning that the supplier and client need not co-locate—lowering the barriers that geography and infrastructure create. If we do not sufficiently probe how these services sectors evolve, we risk missing a central engine of transformation in many African economies.

### 2.2 Evidence of emerging service integration—Ghana as a case study

Although the literature is thin, some recent work suggests that change is underway. Ariu (2025) documents a dramatic surge in Ghana's exports of business services (the skill-intensive subset of service trade). From around USD 300 million annually during 2000–2014, Ghana's business services exports reportedly soared to about USD 5 billion per year during 2015–2022, a nearly sixteen-fold increase, an exceptional performance by any comparison, especially across Africa. Ariu documents that this boom seems to derive primarily from supply-side capacity improvements—e.g. new firms, multinationals entering Ghana, ICT and institutional environment improvements—rather than from shifts in external demand. Interestingly, Ghana did not contemporaneously adopt substantial service trade liberalisation in that period, which suggests that internal dynamics (e.g. firm entry, FDI, digital infrastructure) may be primary drivers. This case is powerful: it provides concrete evidence that, under certain conditions, African countries can break into high-skilled, tradable service exports.

However, Ghana remains one of very few documented cases in Africa. The challenge is that such cases are exceptions, not well-mapped patterns. We simply lack enough comparative evidence across countries and time to know whether Ghana's experience is idiosyncratic or indicative of a broader transition.

## 2.3 Possible roots of emerging change

To move forward, research must explore the mechanisms that might underlie service-led GVC integration. While causal evidence is limited, several candidate channels appear promising, notably those related to foreign direct investment (FDI) and multinational entry, taxation, regulation, and the business environment, as well as digitalisation, ICT infrastructure, and tradability.

### 2.3.1 Foreign direct investment (FDI) and multinational entry

FDI in service sectors can serve as a conduit for knowledge transfer, network embedding, and increased demand for complementary local services (legal, accounting, software). Recent work on greenfield FDI in Africa finds that new investment is significantly associated with value chain integration outcomes, especially in services sectors (Agarwal & Shingal, 2025). The idea is that multinationals can act as “anchor buyers” for local suppliers, but the strength of the spillovers depends on policy, absorptive capacity, and the institutional environment.

Yet not all FDI leads to positive domestic outcomes. Hoekman and Sanfilippo (2023) show that the benefits from foreign investment are highly uneven: while large, export-oriented firms tend to gain the most from integration with foreign investors, smaller local suppliers often remain excluded from backward linkages. As a result, the overall impact of FDI on domestic value capture—relative to a situation with limited or no linkages to foreign firms—is ambiguous and depends critically on how inclusive the investment is in engaging domestic firms within production networks.

### 2.3.2 Taxation, regulation, and business environment

Even with capable firms and favourable demand, regulatory regimes and fiscal policies play a decisive role in shaping the competitiveness of service exporters. While complex registration procedures, licensing fees, rigid labour rules, and unpredictable taxation can raise the fixed costs of doing business, well-designed reforms have the potential to do the

opposite: lower entry barriers, attract investment, and stimulate exports.

In Sub-Saharan Africa, evidence suggests that business regulation and institutional quality are strongly correlated with GVC participation, with excessive regulatory burdens constraining participation in both upstream and downstream segments (Hammoude *et al.*, 2023). This highlights the scope for proactive policies. Simplifying procedures, ensuring transparent taxation, and improving contract enforcement can reduce uncertainty for service providers and increase their ability to engage internationally.

Moreover, targeted tax incentives can serve as powerful tools to foster service exports. For example, reduced corporate tax rates for firms that demonstrate export growth, tax credits for digital infrastructure investment, or exemptions for firms providing training and skills development can directly support knowledge-intensive services and act as implicit export subsidies. In addition, fiscal measures that reward firms for adopting internationally recognized data protection and cybersecurity standards could enhance trust and credibility in cross-border transactions.

Such approaches would not only lower costs but also signal policy commitment to service-led growth, thereby encouraging both domestic entrepreneurs and foreign investors. In this way, taxation and regulation should not be seen merely as constraints, but as levers for governments to actively shape the incentives facing firms and to accelerate Africa’s integration into services value chains.

### 2.3.3 Digitalisation, ICT infrastructure, and tradability

Perhaps the most compelling driver is digitalisation. Many service tasks—analytics, consulting, software development, and financial intermediation can be delivered online. As connectivity improves (higher broadband penetration, lower latency, more affordable data), the geography constraint weakens. This creates the potential for new entrants from Africa to supply global markets. Ariu and Ogliari (2023) emphasise the role of digital delivery and intangibility in expanding service trade.



However, digitalisation also creates its own challenges: regulatory harmonisation (cross-border data rules), cybersecurity, digital skills, and last-mile infrastructure can still be major bottlenecks. Thus, the benefits of digital tradability may not be fully realised in many African contexts without complementary policies.

## 2.4 Data, methodological, and conceptual obstacles

Even as theories suggest plausible mechanisms, operationalising them remains difficult due to several gaps. First, disaggregated service data are sparse. Input–output tables and multi-region IO databases that cover African countries (EORA is the only one that does) are extensively manipulated when updated (Lenzen *et al.*, 2013). These tables often aggregate services broadly, making it difficult to isolate finance, ICT, professional services, or business services. Second, firm-level trade data for services are largely missing. Enterprise surveys and customs databases rarely record service exports with sufficient detail to link them to firm productivity, ownership, and network positions. Third, tracing value-added in services poses methodological challenges. Traditional value-added decomposition techniques are better suited to goods and intermediate inputs; applying them to intangible, modular services is far more complex (for instance, due to substitutability between digital and physical trade, see Sheperd (2020)). Fourth, cross-sectoral interactions remain underexplored. We still know little about how services and goods sectors interact in African economies—whether stronger services enable better performance in goods through lower costs, improved financing, or upgraded logistics. Fifth, issues of causality and dynamics persist, as much of the literature is correlational. Establishing causal links—from, say, broadband rollout to increased service exports—remains rare. Finally, questions of heterogeneity and generalizability also arise: even if Ghana’s business services boom is well documented, its drivers may not be replicable across countries with different institutional, linguistic, and geographic contexts. Taken together, these gaps underline that while we have begun to map Africa’s GVC en-

agement, we still lack a full grasp of how services are evolving within that framework.

## ► 3. Proposed key areas for a future research agenda

The evidence reviewed in Section 2 and the gaps highlighted in Section 3 point to the need for a more targeted research agenda. Rather than dispersing effort across too many questions, the focus should be on three areas that appear especially urgent: understanding how African services integrate into global value chains, unpacking the mechanisms driving these changes, and improving the data systems that underpin analysis and policymaking.

### 3.1 Understanding services-led integration

The first priority is to deepen knowledge of services as a domain of GVC participation in its own right. The Ghana case (Ariu, 2025) demonstrates that African economies can develop competitive niches in business services exports, achieving rapid growth even in the absence of sweeping trade liberalisation. Yet Ghana remains an exception across Africa and in the literature. It is unclear whether its boom reflects unique country conditions or whether it is the tip of a broader shift toward services-led integration across Africa.

Future research should therefore move beyond anecdotal evidence to provide systematic assessments of African service sectors and of its success stories that could inspire virtuous circles. This involves identifying which subsectors—finance, ICT, transport, professional services—are most dynamic, how they connect with global networks, and how their expansion interacts with goods exports. Particular attention should be given to the digital tradability of services, which could allow African countries to bypass some of the constraints that have hampered goods-based industrialisation, such as poor physical infrastructure or geographic remoteness. At stake is not only a more accurate picture of current trade but also a clearer sense of the pathways for structural transformation.



### 3.2 Exploring the Mechanisms of Change

The second priority is to unpack the drivers of emerging service integration. Three candidates stand out: FDI, regulatory and fiscal regimes, and digitalisation.

FDI can act as a catalyst for service exports by bringing capital, knowledge, and global networks. But spillovers to local firms are not automatic. Hoekman and Sanfilippo (2022) caution that without adequate absorptive capacity, FDI may benefit only foreign affiliates and large exporters, leaving domestic suppliers marginalised. More research is needed to understand under what conditions FDI stimulates local learning and linkages, and when it simply reinforces dualistic market structures.

Regulatory and tax frameworks also shape incentives. Abreha and Gebregziabher (2023) show that burdensome business regulations can constrain GVC participation in sub-Saharan Africa. This may be particularly acute for services, where intangible assets, intellectual property, and contract enforcement play outsized roles. Comparative work could clarify which types of reforms—simplified registration, tax incentives, data governance regimes—are most effective in enabling service firms to export. Digitalisation arguably represents the most transformative force. By reducing the importance of distance, it creates entirely new opportunities for service exports, from fintech and e-commerce to online consulting and software development. Yet the benefits of digitalisation are uneven: countries differ in broadband penetration, affordability, and regulatory frameworks for cross-border data (see the data infrastructure maturity ladder in Comini *et al.* 2021, Figure 2). Understanding how digital connectivity translates into sustained GVC participation, and how it interacts with skills and institutional quality, is a research frontier with immediate policy relevance.

### 3.3 Building the Data Foundations

None of these research priorities can be pursued without better data. Of the current multi-region input–output databases (OECD TiVA, WIOD), only EORA covers Africa lumping services into broad aggregates. National statistical agencies struggle

to produce updated, disaggregated supply–use tables, while firm-level surveys rarely capture services trade systematically. The result is that much of the debate relies on fragmentary or anecdotal evidence.

A research agenda must therefore include a strong emphasis on improving data infrastructure. This involves expanding the coverage and granularity of African input–output tables, linking customs and enterprise surveys to capture service exports, and experimenting with new data sources such as digital platform records or mobile payment systems. Methodologically, scholars need to adapt value-added decomposition techniques to capture services, which are less tangible and modular than goods. Without these improvements, both academic debates and policy design will remain constrained.

## ► Conclusion

Africa's participation in global value chains has grown but remains predominantly upstream, with limited domestic value capture. The continent's future integration will hinge on whether it can deepen backward linkages, develop regional supply networks, and scale tradable services. Digital technologies offer concrete avenues to reduce coordination costs and expand cross-border delivery, but harnessing them requires complementary investments in infrastructure, institutions, and skills.

The literature to date shows that infrastructure quality, governance, and market size are central correlates of participation. Yet major blind spots persist: standard GVC measures undercount intangibles, services data are sparse, and causal evidence on digital reforms is limited. Advancing knowledge will require a coordinated push on theory and measurement, new data that connect firm behaviour to sectoral positions, and interdisciplinary work that links trade to digital governance and competition policy.

The AfCFTA provides a timely platform for experimentation and evidence. As countries implement protocols on services and digital trade, researchers and policymakers can co-design evaluations that

inform scaling. Collaboration among African universities, statistical agencies, international organisations, and private-sector partners is essential to build the data infrastructure and analytical capacity needed. With such partnerships, Africa can better leverage digitalisation to move from upstream participation to more diversified, resilient, and inclusive value-chain integration.

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