TRADE FACILITATION REPORT

Driving African Trade through Digitalisation

DECEMBER 2024

Foreword

All governments strive to reap maximum benefits from their trading opportunities. Recognising trade facilitation as a critical element for improving the trading environment, the Trade Facilitation Report addresses the priorities, lessons, risks and opportunities associated with trade facilitation in Africa. It seeks to outline ideas, opportunities, principles and priorities that should guide governmental actions and continental reforms. The primary message is clear: investing in trade facilitation yields substantial long-term benefits in growth for both the private sector and consumers, and advances in digital technology mean that this area is now particularly fertile to drive gains. This document presents evidence of these benefits and lessons learned from various interventions across Africa, particularly from the impact of digitalisation in reducing the time and cost of trade for countries. It also highlights the disparities in policy frameworks and digital infrastructure, which, if effectively addressed, will further stimulate opportunities for intra-African trade. Lastly, it examines the risks and opportunities that the future will bring in the digital arena.

While trade facilitation is beneficial, countries must be alive to the global shifts that impact their trade potential. Governments must therefore sustain efforts in trade facilitation through a range of global opportunities and risks. The report identifies six global shifts critical to Africa's economic fortunes: the establishment of the African Continental Free Trade Area (AfCFTA) as a catalyst for the growth of intra-African trade; the growing centrality of standards in global trade; the proliferation of climate change related trade measures; the need for enhanced resilience and inclusion in trade; the emergence of new technologies for trade; and new approaches to financing physical connectivity in trade facilitation. In relation to these developments, the Trade Facilitation Report provides insights on four questions:

- How do these global shifts affect trends in Africa's trade, and how can trade facilitation become more resilient?
- What is the evidence on the role of trade facilitation in reducing the time and cost of trade and in generating trade growth?
- What have we learned from our experiences in implementing digitalisation interventions across Africa?
- What should be the priorities in the next phase of digitalisation for enhanced trade?

At TradeMark Africa (TMA), we are optimistic about the opportunities for African trade. However, to harness these, there is a need for continuous reflection on the principles, partnerships and priorities that are essential to drive further progress. In answer to the final question, the report outlines three suggestions for all stakeholders in using digitalisation to enhance trade facilitation: leveraging AI and Distributed Ledger Technology; driving continental regulatory harmonisation and payment interoperability; and supporting the competitiveness and digital transformation of small and medium-sized enterprises (SMEs).

Acknowledgments

The Trade Facilitation Report is the inaugural knowledge report by TMA. ODI Global contributed immensely using its experience and collaborative spirit to shape the ideas. Many thanks to Dirk Willem te Velde, Yohannes Ayele, Maximiliano Mendez-Parra and Linda Calabrese.

Insights from research pieces were provided by Lola Ekugo (TMA Board member and Director, SWIT – Odu'a Investment Company Nigeria), Professor Alwyn Hoffman of North-West University (South Africa), Dr. Simon Mevel of United Nations Economic Commission for Africa (Ethiopia), Bruce Byiers from the European Centre for Development Policy Management (ECDPM, Belgium), Dr. Dirk Willem te Velde of ODI Global (London, UK), Floriana Borino of the International Trade Centre (ITC, Switzerland), David Smason from Cargo Seer (USA) and Jens Lund Nielsen from IOTA Foundation (Germany). Many thanks to this team for their insightful contributions and commitment to trade facilitation in Africa.

This flagship represents the culmination of a shared commitment to furthering trade expansion in Africa through trade facilitation. Sincere thanks to everyone who played a role in bringing the flagship idea to fruition. Your efforts have been instrumental in its success.

Executive Summary

1

AFRICAN TRADE IS IN AN OPTIMISTIC PLACE

Trade costs are falling, and the AfCFTA represents a step-change in political commitment across the continent. Between 2010 and 2021, comprehensive trade costs decreased by 7.3%, with non-tariff costs declining by 2.1%. This reflects the reduced time and cost of trade, as a result of both trade policy advances, and trade facilitation.

2

AFRICA IS EXPERIENCING EXCITING GROWTH IN DIGITALLY DELIVERED SERVICES.

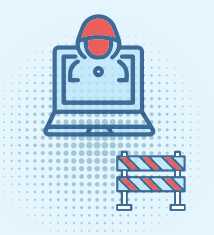
Africa's exports of digitally delivered services reached $36.7 billion in 2023, more than a fourfold increase from $9.2 billion in 2005, compared to slightly over a twofold increase in goods exports over the same period. Proactive adoption of digital technologies is expected to double Africa’s global share of digital exports.

3

DIGITAL INTERVENTIONS HAVE HAD A SIGNIFICANT POSITIVE IMPACT ON REDUCING THE COST AND TIME OF TRADE.

Some Governments on the continent are seizing the initiative, in collaboration with international partners. TMA’s collaborations with Governments in East Africa have catalysed a 29% increase in monthly trade transactions and a 15% rise in average transaction value, through electronic Single Windows, Integrated Customs Management Systems and Regional Electronic Cargo Tracking.

4



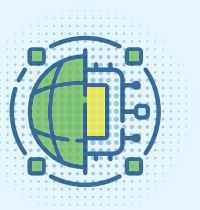
HOWEVER, AFRICA'S DIGITAL TRANSFORMATION FACES CHALLENGES.

These include limited internet access, and regulatory fragmentation especially around intra-regional payment systems. New risks are emerging around data governance and sovereignty, and cybercrime. To mitigate against these risks, the principles on ethical digital transformation, as set out by the African Union Digital Transformation Strategy should be adhered to.

5

THE FUTURE IS BRIGHT, BUT NEW APPROACHES ARE REQUIRED.

Futureproofing digital trade will depend on grasping the possibilities that new technologies offer, not least from Artificial Intelligence and Distributed Ledger Technologies. Several new initiatives offer promise, including TMA’s collaboration with IOTA on a Trade Logistics Information Pipeline (TLIP) to remove the problem of falsifiability in trade documentation.



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CHAPTER 01

Trends in Trade and Trade Facilitation in Africa

This chapter provides an overview of the trends in African trade, and the global context within which African trade expansion efforts sit. It looks at the prospects for intra-African trade, highlighting the potential created by the growth in African digital trade.

It examines why trade facilitation matters, outlining a continental overview of progress, including the relative better performance of countries where integrated trade facilitation interventions have been introduced.

1.1.
Trends in global trade and implications for Africa

› **Global trade is growing more slowly, and its sectoral composition is changing.** Besides the 2021 recovery from the Covid-19 downturn, annual trade growth has not exceeded its 25-year average since 2017.[1] At the same time, the energy transition and emergence of new technology are changing the composition of what is traded – globally, the value of semiconductor exports is now larger than oil exports[2].

› **Protectionism is on the rise...** Trade growth during the 1990s and 2000s occurred in parallel with a decrease in tariff and non-tariff barriers motivated by policy reform. However, over the last decade trade restricting measures have increased – not only from traditional import restrictions, but also through a growing use of subsidies and other stimuli[3]. Climate-related trade measures are becoming more prominent, now comprising around a fifth of those laid at the World Trade Organisation (WTO).

› **...while onshoring, nearshoring and friendshoring is changing geopolitical trade relationships.** Global value chain activity is reversing, with the share of foreign value added in exports declining (a measure of backward integration into value chains). In the EU, this has led for example to an increase in intra-EU trade[4]. Investment patterns reflect this too, with increasing investment flows globally amongst allies[5]. While a move to disengage or decouple from rivals is being seen, there is also rivalry in access to natural resources, such as those for the energy transition.

› **Standards and regulations are trending towards greater harmonisation, sustainability and adaptation to digital transformation.** In technical fields such as digital technology, standards play a critical role to promote transformation by driving compatibility, interoperability, and the uptake of new digital technologies. This alignment is seen both at a bilateral[6] and multilateral level[7].

› **These trends have significant implications for Africa, which the AfCFTA positions it well to adapt to.** The historical characterisation of its trade as commodity exports in sectors like minerals and agriculture, balanced by imports of finished goods, is changing rapidly. Raw materials exports continue to play a significant role, with mineral fuels and low-processed minerals accounting for over half of total extra-African exports (making the continent a primary supplier of raw materials in global value chains[8]).

[2] WTO, Information Note on Trade in Intermediate Goods: Africa, 2023. https://www.wto.org/english/res_e/statis_e/miwi_e/info_note_atig_e.pdf

[3] M Ayhan Kose and Alen Mulabdic, Global trade has nearly flatlined. Populism is taking a toll on growth, 2024. https://blogs.worldbank.org/en/voices/global-trade-has-nearly-flatlined-populism-taking-toll-growth

[4] Geoff Colvin, Fortune Magazine. Semiconductors are the new oil, 2023. https://fortune.com/2024/08/17/semiconductors-stocks-industry-manufacturing-news/

[5] Freund, Caroline Freund, Aaditya Mattoo, Alen., Mulabdic, and Michele Ruta, US-China decoupling: Rhetoric and reality. 2023. https://cepr.org/voxeu/columns/us-china-decoupling-rhetoric-and-reality

[6] Vanessa Gunnella and Lucia Quaglietti, The economic implications of rising protectionism: a euro area and global perspective'. 2019. https://www.ecb.europa.eu/press/economic-bulletin/articles/2019/html/ecb.ebart201903_01~e589a502e5.en.html

However, there is a notable rise in exports of intermediate goods[9]. Its trade trajectory will also increasingly be shaped by the potential of the African Continental Free Trade Area (AfCFTA) to boost intra-African trade, as well as export diversification to new markets in the rest of the world.

Trade in services has shown consistent growth and less volatility over the past decade[11], including through the covid-19 period. However, annual average African services exports growth over the period was 4.3%, compared to 5.2% for global growth; with imports growing by an average of 2.5%, half the rate of global growth.

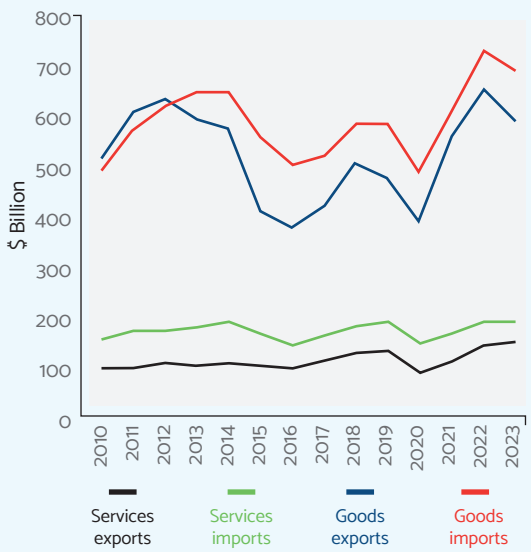
ANNUAL AVERAGE SERVICES EXPORT GROWTH 2012-2023

4.3%
Africa services Exports

5.2%
Global services Exports

› **African goods trade has experienced moderate growth yet lagged behind global trends.** Between 2013 and 2021, goods export levels remained consistently below 2013 figures, highlighting challenges in maintaining trade growth amidst global uncertainties. As a result, Africa's share of global goods exports declined from 3.4% in 2012 to around 2.5% by 2023[10].

Figure 1
AFRICAN TRADE IN GOODS AND SERVICES 2010 - 2023 ($ BILLION)



Source: UNCTAD database

[9] WTO, Information Note on Trade in Intermediate Goods: Africa, 2023. https://www.wto.org/english/res_e/statis_e/miwi_e/info_note_atig_e.pdf

[10] Calculation from World Integrated Trade Solution (WITS)

[11] UNCTAD, Trade in Services, 2022. Pp 72. https://unctad.org/system/files/official-document/aldcafrica2022_Ch2_en.pdf ITS)

Intra-African trade

Year-on-year growth at

7.2%

Value of Intra-African trade as at 2023

$192 Billion

Despite the tumultuous global landscape, intra-African trade remained resilient, standing as a beacon of hope for sustainable development in Africa. It grew at 7.2% year-on-year, reaching $192 billion, which accounted for 15% of total African trade in 2023, up from 13.6% a year ago. This resilience was a testament to the continued push to implement the AfCFTA, backed by AfCFTA-enabling initiatives, such as Afreximbank's Intra-African Trade Fair (IATF), the Pan-African Payments and Settlement System (PAPSS), and Intra-Champ Initiative. The Intra-Champ Initiative supports African businesses in executing projects and pursuing intra-African investments in industrial infrastructure. These initiatives are not just fostering trade but also nurturing a sense of optimism for the future of African trade and development.

› **Intra-African trade has grown slowly but steadily, with significant potential in a variety of sectors.** Over the last decade, the overall share of intra-African exports as a proportion of total exports from the continent has increased slowly, to 15% (NB counting only formal trade)[12]. There has been an increase in the share of chemicals, machinery, and transport equipment compared to extra-regional trade[13]. These trends appear associated with specific regional value chains, and while limited, are tangible and relevant for policymakers. The strong performance of manufactured goods also points to increased complexity in value chains, which the AfCFTA's efforts to build a single market will be particularly relevant for. Economies of scale will be critical to further growth. Manufactured and semi-manufactured goods in the agricultural, automotive and fertiliser sectors show promise[14].

SHARE OF **INTRA-AFRICAN EXPORTS** AS A PROPORTION OF TOTAL EXPORTS STOOD AT

15%

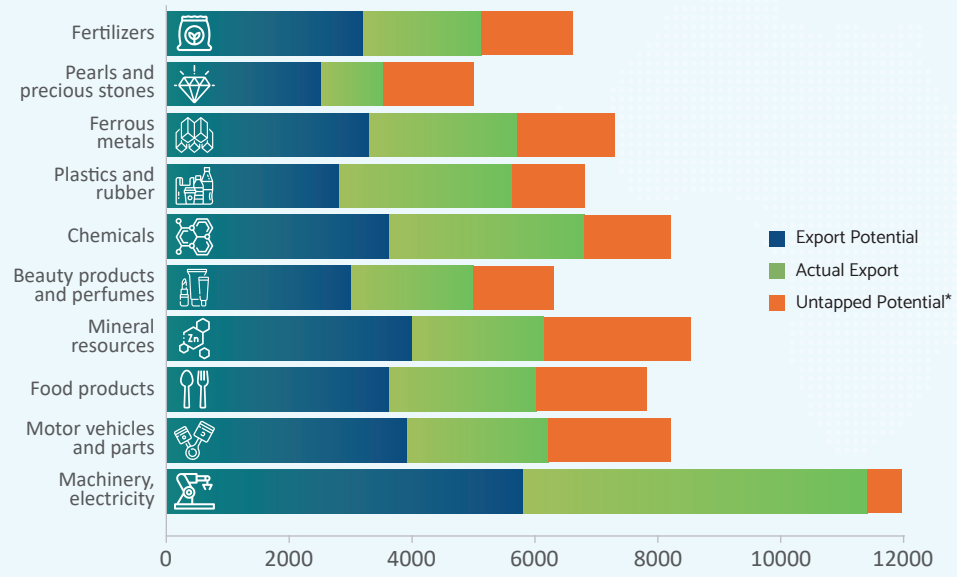
[12] Afriexim Bank. African Trade Report. 2024. Pp2.

[13] ibid

[14] Ibid, pp 74.

Figure 2

MOST POTENTIAL EXPORT GOODS FOR INTRA-AFRICA REGIONAL TRADE

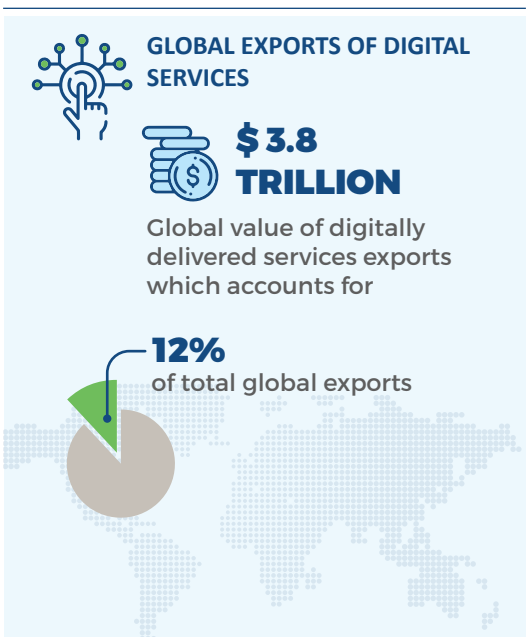


Source: International Trade Centre Export Potential Map

* ITC has developed an export potential methodology which differentiates between export potential and untapped potential. Potential exports refer to the maximum level of goods or services a country could export under optimal conditions, considering supply capacity, market demand, and existing trade relationships. untapped export potential calculates the gap between actual exports and the potential value a country could achieve in specific markets, focusing on trade relationships and market-specific dynamics.

› **The composition of digital trade as a proportion of total trade is steadily rising.** The global value of digitally delivered services exports reached $3.8 trillion in 2022, representing over half of total global services exports, and 12% of total exports. It has seen a remarkable average annual global growth rate of 8.1% between 2005 and 2022[15].

› **Although Africa's share of global digitally delivered services exports remains small…**This accounted for just 0.8% of global digital exports in 2023. However, this presents a clear opportunity for expansion, especially as the AfCFTA's Digital Trade Platform (DTP) facilitates digital inclusion and supports harmonised regulations across the continent. There is considerable potential for sectors like fintech and e-commerce, with Africa poised to increase its market access and integration into the global, technology-driven trade economy.



[15] WTO, Digital Trade for Development, 2023. Pp 10. https://www.wto.org/english/res_e/booksp_e/dtd2023_e.pdf

›...digital trade growth in Africa is particularly dynamic. Africa's exports of digitally delivered services reached $36.7 billion in 2023, a fourfold increase from $9.2 billion in 2005. The annual growth rate of digitally delivered services exports since 2005 was 7.9%, outpacing the 4.7% average growth of goods exports[16].

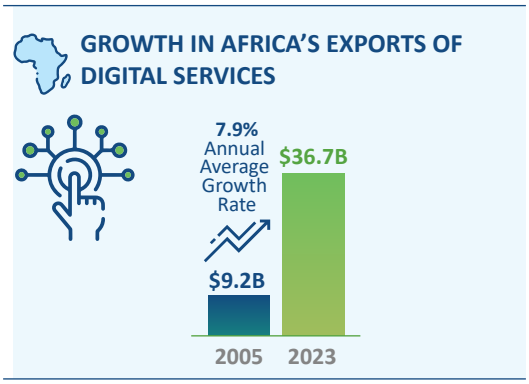
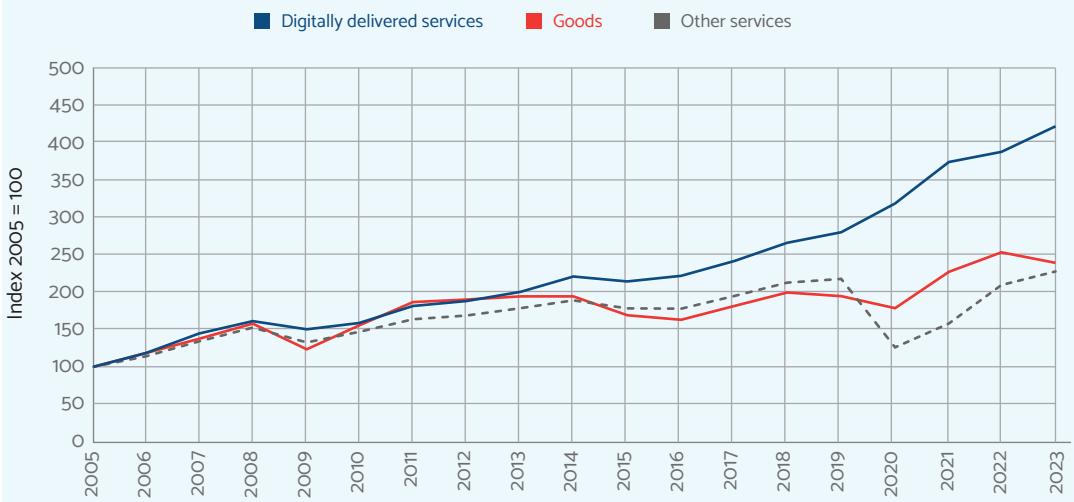


Figure 3

GROWTH IN AFRICAN EXPORTS OF DIGITALLY DELIVERED SERVICES SINCE 2016



Source: WTO (2024)

While goods trade declined during the pandemic, exports of digitally delivered services continued to grow, showcasing the resilience and expanding role of the digital economy. Digital services are though highly concentrated, with three countries (Ghana, Morocco and South Africa) accounting for more than half in 2022[17].

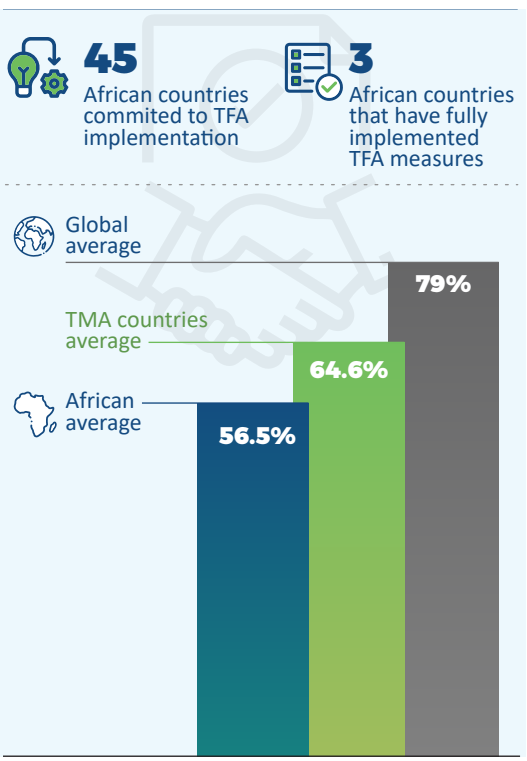
[16] **WTO-WB, Turning Digital Trade into a Catalyst for Development 2024. Pp4** https://www.wto.org/english/thewto_e/minist_e/mc13_e/policy_note_digital_trade_africa_e.pdf

[17] **Ibid**

1.2
Trade Facilitation has made concrete inroads into challenges

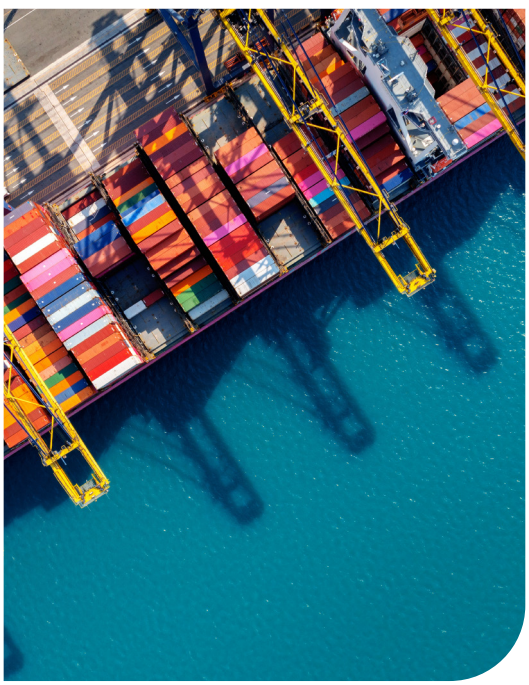
› Reducing trade costs and streamlining processes are crucial to unleashing Africa's full trade potential. Africa faces logistical and regulatory challenges that hinder its economic integration and competitiveness, where the potential for economic growth through improved trade is significant. High costs, inefficient border procedures, complex documentation requirements, and the lack of harmonisation between countries create major business obstacles. These barriers diminish the competitiveness of African products and limit the expansion of intra-regional trade and Africa's integration into global value chains.

› Africa has made progress in implementing TFA measures, although this is uneven across regions. 45 African countries have committed to implementation, with a completion rate of just over half, well below the global average of 79%. Just three countries have fully implemented the TFA, while nine have reached over 80%. Overall, implementation performance is higher in countries where TMA has been operating to support trade facilitation. Considering that TFA measures tracking began in 2018, TMA countries are on an average of 64.6% while the African average is 56.5%.[18]



[18] Data on progress in trade facilitation implementation is reported in the WTO Trade Facilitation Agreement (TFA) database, reflecting implementation rates for the period 2018–2024. Since TMA began its work in 2010, predating the WTO TFA's adoption, these implementation rates align with the period during which TMA has been actively supporting countries.

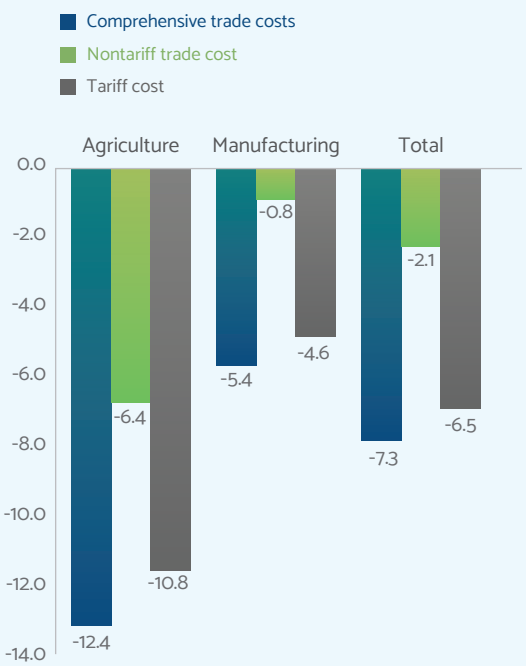
› **When these efforts take place in an integrated way, results accrue.** When regressing trade on a range of variables such as trade facilitation, the coefficients are positive and statistically significant at 1% across multiple models. Specifically, a 1% increase in trade facilitation leads to a 0.07% rise in exports and a 0.09% increase in imports of goods and services[19]. Furthermore, doubling trade facilitation is associated with a 2% reduction in comprehensive trade costs and a 3.6% reduction in non-tariff trade costs. This suggests that it plays a substantial role in lowering barriers to trade, with an even more pronounced impact on non-tariff trade costs mainly related to trade facilitation.



› **While trade costs in Africa have remained high in the last decade compared to other regions, there has been a noticeable improvement in recent years.** Between 2010 and 2021, comprehensive trade costs across Africa decreased by 7.3%, with non-tariff costs declining by 2.1%. This is particularly evident in the agriculture sector, where comprehensive trade costs fell by 12.4% and non-tariff costs by 6.4%.[20]

Figure 4

CHANGE IN TRADE COSTS IN AFRICA BETWEEN 2010 AND 2021 (%)



Source: ESCAP-World Bank trade cost database.

[19] To show that there is not pre-existing higher trade facilitation implementation rates in favour of TMA countries, we looked at the 2018 data. In 2018, the average implementation rate for TMA countries was 26.17%, compared to 33.7% for non-TMA African countries. By 2024, TMA countries had made significant progress, with an average implementation rate of 64.6%, surpassing the African average of 56.5%. This improvement suggests that TMA-supported countries have advanced more rapidly, possibly benefiting from TMA's interventions. Additionally, trade costs were reduced faster in TMA countries between 2010 and 2021, achieving a 10% reduction compared to a 6% reduction in other countries. Together, these findings indicate that the implementation of trade facilitation measures is faster in TMA countries, with a more pronounced impact on reducing trade costs. While this does not establish causation, the data provide a strong initial basis for further analysis.

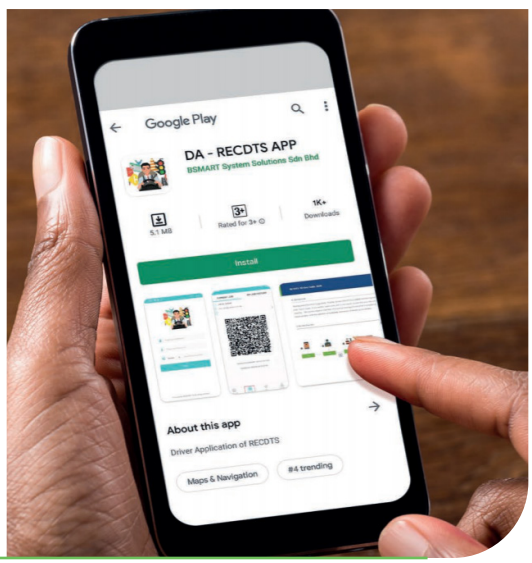
[20] Trade cost data sourced from ESCAP-World Bank Trade Cost Database. The comprehensive trade cost measure captures a broad range of trade-related costs, extending beyond international transport and tariffs. It includes direct and indirect costs arising from differences in languages, currencies, and complex import or export procedures. Non-tariff trade costs encompass all extra costs associated with trading goods other than tariffs

› There are many factors behind the successful implementation of TF measures, and external support can positively impact this. Several decades of experience supporting trade policy development suggests the importance integrated approaches that include private sector and government in a single strategy for export growth. Success requires a functioning trade facilitation committee, building national implementation capacities and mainstreaming of trade facilitation reforms in national strategy[21].

Countries in which TMA is active have experienced more substantial reductions in trade costs compared to other countries, reflecting Government commitment. Between 2010 and 2021, average comprehensive trade costs decreased by 13%, while non-tariff costs dropped by 13.5%[22]. This outpaces the 7.6% and 7.3% decline observed elsewhere. This reflects the power of political commitment at national and international level, collaboration between Government and the private sector, and effective technical solutions.

1.3
Setting the Stage for Digital Transformation

› The African continent stands at a pivotal moment in its digital journey. With a rapidly growing population exceeding 1.4 billion, a vibrant entrepreneurial spirit, and a mobile phone penetration of 63% as of 2023[23] and as high as 100% in some regions[24], Africa is poised for a digital revolution. Digital trade offers a potent opportunity to unlock economic growth, foster innovation, and improve livelihoods. Africa's increased adoption of digital technologies is expected to drive an expansion of digital services exports by $74 billion from the current $33 billion and hence to double Africa's global share of digital exports[25].



[21] UNCTAD, Trade Facilitation and Development, 2016. Pp 23. https://unctad.org/system/files/official-document/dtltlb2016d1_en.pdf

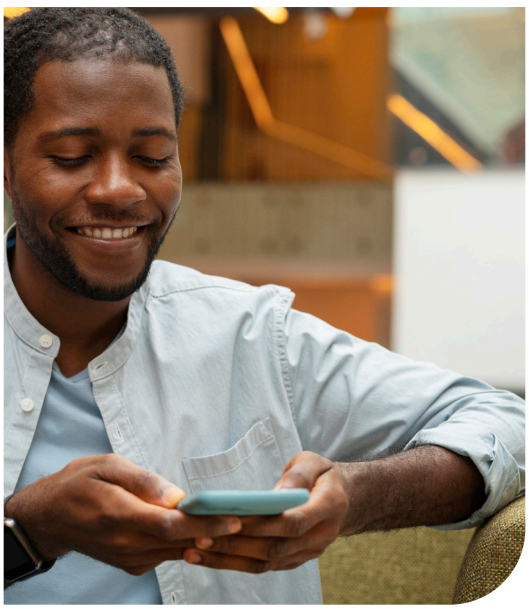
[22] The comprehensive trade costs measure includes all expenses in international trade, such as transport costs, tariffs, and indirect costs like language, currency differences, and procedural complexities. Non-tariff trade costs cover costs unrelated to tariffs, focusing on regulatory compliance, border controls, and procedural requirements affecting trade ease and efficiency. These costs are estimated using Novy's (2013) method, a micro-founded, theoretically consistent approach based on the gravity equation.

[23] ITU, More than Three-Quarters of the World Own a Mobile Phone, 2023. https://www.itu.int/itu-d/reports/statistics/2023/10/10/ff23-mobile-phone-ownership/

[24] Kabui Mwangi, Business Daily. EAC Achieves 100% Mobile Penetration, 2024. https://www.businessdailyafrica.com/bd/economy/eac-achieves-100pc-mobile-penetration-beats-africa--4674810

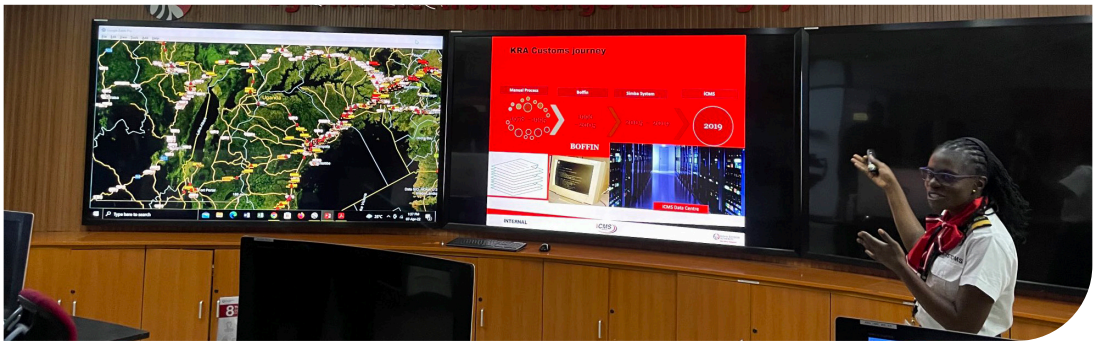
[25] Joint WB-WTO Policy Note, Turning Digital Trade into a catalyst for Development, 2023. https://www.wto.org/english/thewto_e/minist_e/mc13_e/policy_note_digital_trade_africa_e.pdf

› **The growth of e-commerce is revolutionising how Africans buy and sell goods.** Digital tools can simplify customs procedures, expedite the movement of goods, and reduce transaction costs. E-commerce is expected to expand market access, especially for micro, small, and medium-sized enterprises (MSMEs). E-commerce platforms allow businesses, regardless of size or location, to reach a wider customer base in domestic and international markets. Digital trade can help African businesses integrate more easily into global value chains by facilitating access to information, resources, and potential partners. At the other end of the scale, it can be particularly transformative for businesses in remote or underserved areas.



› **There is particular potential for MSMEs in developing intuitive e-commerce platforms that are coupled with secure digital cross-border payment solutions.** This empowers businesses to access new markets online, while facilitating seamless cross-border transactions for consumers and B2B. **The rapid rise of mobile money in Africa provides an ideal enabler for this** – mobile money adoption and active use have continued to grow in the continent, with registered mobile money accounts growing to 1.75 billion in 2023, a 12% year-on-year increase[26]. Leveraging this mobile money infrastructure can significantly accelerate the adoption of ecommerce platforms.

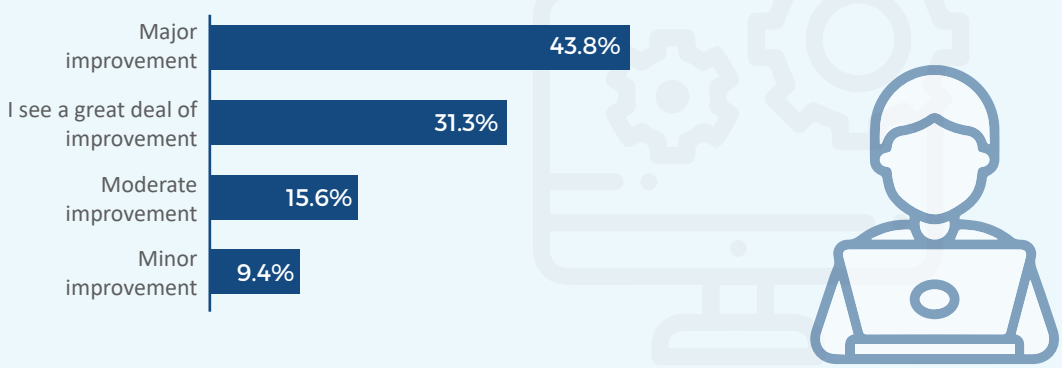
[26] GSMA (2024)



› **Digitisation also benefits the state.** Evidence from East Africa is reassuring on the role of technology in enhancing revenue collections, showing that systems like automated declarations and real-time tracking increase revenue. They also enhance transparency, reduce corruption, and streamline processes, closing loopholes for tax evasion. For example, TMA supported the Kenya Revenue Authority to establish an integrated Customs Management System (iCMS) that directly enabled the institution to increase customs revenue and other taxes on international trade and transactions collection by 17.9% from 2018 to 2023.

› **Finally, digital transformation enhances the interface between the state and the private sector.** For example, TMA supported the Kenya Plant Health Inspectorate Services (KEPHIS) to implement the roll-out of electronic phytosanitary certificates (e-phyto) in 2023. Every user found that it had improved convenience, and 75% of all users saw at least a great deal of improvement. 96% found the system easy to navigate and locate necessary information.

NEW vs OLD SYSTEM CONVENIENCE COMPARISON



Source: Analysis of primary data collected from users/ beneficiaries

CHAPTER 02

Pathways for Digital Trade

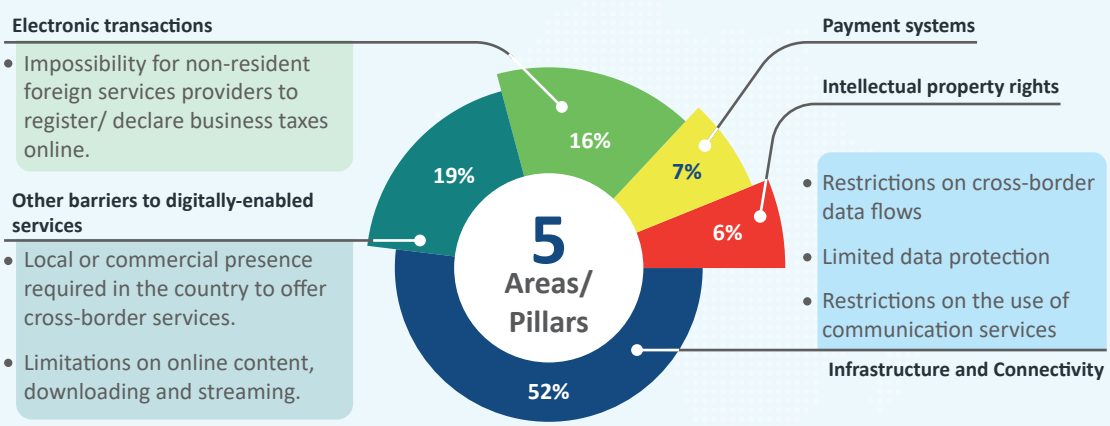
This report's spotlight is on interventions in digital trade. This chapter outlines five areas necessary to address if digital trade is to grow.

2.1
Policy and Regulatory frameworks

› **Regulatory landscape fragmentation is a challenge to driving adoption and growth in digital solutions across Africa.** Inconsistent regulatory frameworks between African countries create barriers to seamless digital transactions and trade. By aligning procedures, standards, and regulations, countries can simplify trade, reduce costs, and ensure consistent enforcement. A comprehensive framework requires legal recognition of online transactions, data governance policies balancing free flow with privacy and security, and strong intellectual property protection. Furthermore, promoting fair competition in the digital marketplace by addressing anti-competitive practices and fostering interoperability is essential. Policies must also prioritise inclusive development by addressing the digital divide, promoting digital literacy, and supporting digital infrastructure development. Ensuring the safety and ethical use of emerging technologies like Artificial Intelligence (AI) and Distributed Ledger Technology (DLT) is vital, mitigating risks while promoting security standards and consumer protection. However, challenges remain. The rise of digital protectionism can hinder growth and innovation. Rapid technological advancements necessitate adaptable policies to avoid stifling innovation while protecting consumers.

› **Digital trade in Africa continues to face significant policy hurdles, particularly in the realm of infrastructure and connectivity.** Inconsistent regulatory frameworks between African countries create barriers to seamless digital transactions and trade. Restrictions on cross-border data flows are a major impediment, which can hinder businesses operating across borders and prevent the free flow of information necessary for a thriving digital economy. Inadequate data protection policies deter consumers from engaging in digital transactions

MAIN RESTRICTIONS TO DIGITAL SERVICES TRADE IN AFRICA (2021)



Source: ECA and OECD

due to concerns about privacy and security. This lack of trust can significantly limit the growth of e-commerce and other digital services. Restrictions on the use of communication services, such as limitations on internet access or censorship, can also stifle innovation and prevent citizens from fully participating in the digital world.

› **Addressing these challenges requires comprehensive policy reforms that prioritise open data flows, robust data protection frameworks, and unrestricted access to communication tools.** By fostering a more conducive policy environment, African nations can unlock the transformative potential of digital trade and drive economic growth. Establishing clear and consistent frameworks for data governance will be key, to ensure data security and privacy while facilitating the free flow of non-sensitive data across borders. The AU is already taking steps in this direction through its Agenda 2063, which emphasises data protection and privacy for Africa's digital transformation.

› **This is also where the AfCFTA's ambitious goal of establishing a Digital Single Market (DSM) becomes critical.** The first step was the adoption of the Digital Trade Protocol (DTP) in February 2024, which aims for a unifying regulatory framework for Africa's digital economy, designed to harmonise digital trade regulations, foster cross-border data flows, enhance cybersecurity measures, and promote digital inclusion. The expected benefits are significant in terms of GDP and investment, increased intra-African trade, job creation, and the expansion of sectors like e-commerce and fintech.

The DTP's provisions cover

- Market access and treatment of digital products
- Facilitating digital trade
- Data governance
- Business and consumer trust
- Digital trade inclusion
- Emerging technologies and innovation; Institutional arrangements
- Transparency
- Technical assistance and capacity building.

The digital trade environment that this can facilitate, would be characterised by streamlined digital trade procedures such as e-customs, paperless trade, and digital certificates to significantly reduce transaction costs and expedite cross-border trade. Ultimately, the DSM can create a larger, more integrated market for African businesses, fostering innovation, competition, and economic growth.

2.2
Cross-border payments

› The demand for efficient cross-border payments is undeniable. With remittances to sub-Saharan Africa reaching $53 billion and a thriving MSME sector relying heavily on cross-border trade, the need for accessible and affordable payment solutions is paramount[27]. The fractured landscape encompassing mobile money, bank transfers, and even informal channels, underscores the need for a unified and efficient system. Levels of interoperability and financial inclusion in payment systems remain low across the continent, with limited coordination between RECs and duplication of various systems. Enhancing interoperability will require the harmonisation of existing national and REC legislation, including on data protection, e-commerce and cybersecurity regulation.

INTERNATIONAL MONEY TRANSFER

$ 53 BILLION
Remittances to sub-Saharan Africa

The Pan-African Payment and Settlement System (PAPSS) has emerged as a continental solution and in East Africa, the East African Payments System (EAPS) has been developed. By facilitating seamless transactions in local currencies, PAPSS has the potential to slash costs and boost intra-African trade significantly. This not only benefits businesses and individuals but also empowers governments with greater financial oversight. Designed as a real-time gross settlement (RTGS) system, EAPS facilitates high-value transfers of money or securities between different banks in the region.

However, these systems in their current form are out of reach for MSMEs and informal cross-border traders, who do not have access to bank accounts, and rely on mobile money transfers and cash-based revenues, they often lack access to loans that would allow them to upgrade their activity[28]. This limits take-up, as well as poverty impact. For example, sending $200 from Tanzania to its neighbours can cost up to 30% of the principle, far exceeding the global average of 6.25 and still way far from the 3% global target by 2030.[29]

[27] World Bank, Remittances slowed in 2023, Expected to Grow in 2024, 2023. https://www.worldbank.org/en/news/press-release/2024/06/26/remittances-slowed-in-2023-expected-to-grow-faster-in-2024

[28] Domingo, Arnold and Apiko, ECDPM. 2023. https://ecdpm.org/application/files/1616/9657/9822/Interoperability-digital-payment-systems-Lessons-from-East-African-Community-ECDPM-Discussion-Paper-357-2023.pdf

[29] Kieran Murphy, IMF, How Training can Speed Cross Border payments and cut costs. 2024. https://www.imf.org/en/Blogs/Articles/2024/01/03/how-training-and-advice-can-speed-cross-border-payments-and-cut-costs

The solution is suggested by the proliferation of mobile money accounts. Sub-Saharan Africa has over 620 million registered mobile money accounts, many of which are used for cross-border transactions[30]. TMA, Financial Sector Deepening Africa (FSDA) and the Bill & Melinda Gates Foundation (BMGF) are collaborating with the EAC Secretariat and central banks across the region to make retail cross-border payments faster, cheaper, and more transparent. This collaborative effort focuses on three key areas: harmonising regional regulations, building interoperable national and regional payment platforms, and establishing a framework for ongoing research and development. By fostering collaboration and innovation, partners aim to create a robust, efficient, and adaptable cross-border payment ecosystem that unlocks the region's economic potential.

MOBILE MONEY

620 MILLION

Number of registered mobile money accounts.

2.3 Interoperability

› **Interoperability and interconnectivity are vital for unlocking the full potential of digital trade in Africa.** By fostering collaboration and harmonising digital infrastructure across borders, countries can create a seamless and efficient trade ecosystem. This involves establishing secure channels for exchanging information, such as the EAC Customs Scanner Image Sharing services. In 2024, the Kenyan and Ugandan Revenue Authorities, with support from TMA, Finland and the UK, piloted sharing of scanner images between their respective customs agencies. This enabled officials in different countries to access and share real-time images from cargo scanners, expediting inspections and reducing delays.

› **Integrating national systems into regional digital infrastructure allows for a step-change in coordination.** This is exemplified by regional information sharing frameworks such as the ECOWAS SIGMAT (supported by the World Bank) and the EAC Single Customs Territory Information Sharing Platform (supported by TMA), which provides real-time visibility of cargo movements, enhances coordination and data sharing among stakeholders. This interconnected approach to digital trade not only facilitates smoother cross-border transactions but also fosters economic growth and regional integration.

[30] GSMA's 2023 State of the Industry Report on Mobile Money

2.4
Infrastructure Investment and Innovative Funding Models

› Progress on digital trade relies on investing in the nuts and bolts. Digital infrastructure requires massive investment in Africa's digital backbone. While there is a high level of mobile phone penetration, there is comparatively low level of internet access. Average internet access is only 28.5% while the access level is 12% for those in the bottom 40% of income levels[31]. Similarly, it is estimated that the continent is home to only about 1% of global data centre capacity [32].

DIGITAL INFRASTRUCTURE

Africa is home to only **1%** of global data centre capacity

28.5%
Average internet access

This impedes the development of cloud computing and data-intensive applications necessary for future growth. Reliable electricity supply is also crucial in powering digital infrastructure. Over 640 million Africans still lack access to reliable power[33]. This low connectivity penetration restricts opportunities to fully use digital trade tools and services in trade. Addressing these gaps while optimising what is available is essential for Africa to fully harness the potential of the digital age and drive economic growth and social development.

ACCESS TO ELECTRICITY

640 MILLION
Number of Africans who lack access to reliable power.

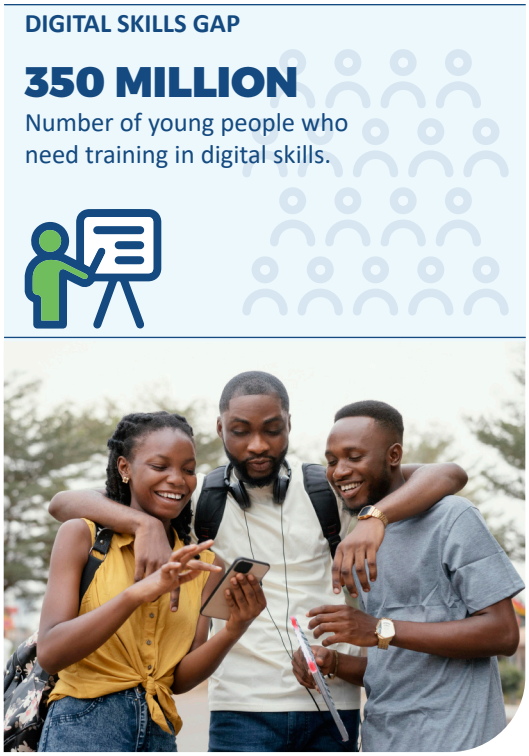
[31] World Bank. 2023. The Size and Distribution of Digital Connectivity Gaps in Sub-Saharan Africa. https://documents1.worldbank.org/curated/en/099241003142325200/pdf/IDU0cb2e42f3050260484d0b8370b84eee303ecf.pdf

[32] International Development Finance Corporation, 2023. Tackling critical need for Data centre infrastructure in Africa. https://www.dfc.gov/investment-story/tackling-critical-need-data-center-infrastructure-across-africa

[33] AfDB. 2023. Light up and Power Africa, A new Deal on Energy for Africa. https://www.afdb.org/en/the-high-5/light-up-and-power-africa-%E2%80%93-a-new-deal-on-energy-for-africa#:~:text=Universal%20Access%20to%20Electricity&text=Over%20640%20million%20Africans%20have,the%20lowest%20in%20the%20world.

› **Correspondingly, a digital skills gap exists,** meaning that around 350 million young people will need training in digital skills[34]. Building capacity through training programs is therefore crucial to equip businesses and individuals with the necessary digital skills for the digital trade ecosystem. This includes training on e-commerce platforms, digital marketing, and cybersecurity, in line with the AU's Digital Transformation Strategy for Africa. While investments have been made in payment infrastructure[35], only 60% of the capacity available is used by customers[36].

› **Diverse funding models for infrastructure and digital interventions are emerging among Development Finance Institutions (DFIs) and commercial banks.** We are witnessing a positive drive from both commercial and public good institutions to support Africa's trade finance, particularly in digitalisation. TMA has launched an investment vehicle, Trade Catalyst Africa (TCA), to collaborate with these institutions. TCA aims to mobilise diverse sources of funding on a large scale to implement innovative financing structures, facilitating the development of trade infrastructure and improving access to trade finance for SMEs. TCA has a project preparation and structuring capability and will act as a concessional investor to derisk projects. Additionally, TCA will leverage TMA's established presence and extensive experience in trade and logistics within the continent, providing further support in trade facilitation.



› **Encouragingly, the financial sector is also taking up the challenge.** Absa Bank recently launched the Trade and Working Capital Product to deepen SMEs digitalisation of trade finance[37]. The AfDB's Africa Digital Finance Facility was launched to enhance the 'uptake and use of digital financial solutions, especially by women, micro, small and medium businesses, by making strategic and catalytic investments in the digital financial services ecosystem throughout Africa'[38].

[34] AfDB. 2019. African Development Bank launches digital tool to help African youth learn to code. https://www.afdb.org/pt/news-and-events/press-releases/african-development-bank-launches-digital-tool-help-african-youth-learn-code-33028

[35] GSMA Africa (2024)

[36] AGSMA, 2024. The Mobile Economy Sub-Saharan Africa 2024. https://www.gsma.com/solutions-and-impact/connectivity-for-good/mobile-economy/wp-content/uploads/2024/11/GSMA_ME_SSA_2024_Web.pdf

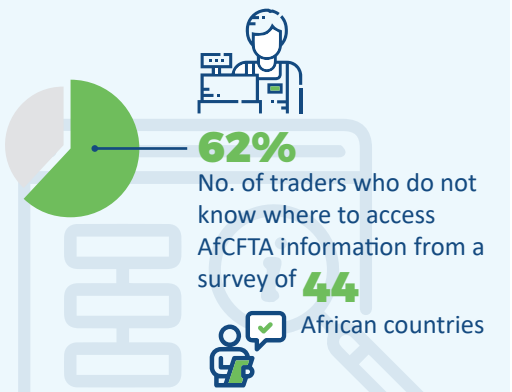
[37] Absa Bank. 2023. A Bridge over troubled Waters- How Digitilisation Will close the African trade Finance Gap, further ESG and Empower SMEs. https://trademarkea-my.sharepoint.com/:w:/r/personal/elijah_munyi_trademarkafrica_com/_layouts/15/Doc.aspx?sourcedoc=%7B030db7e8-636e-4210-9d78-8e4d699b74c6%7D&action=edit&wdPid=3f3f603b

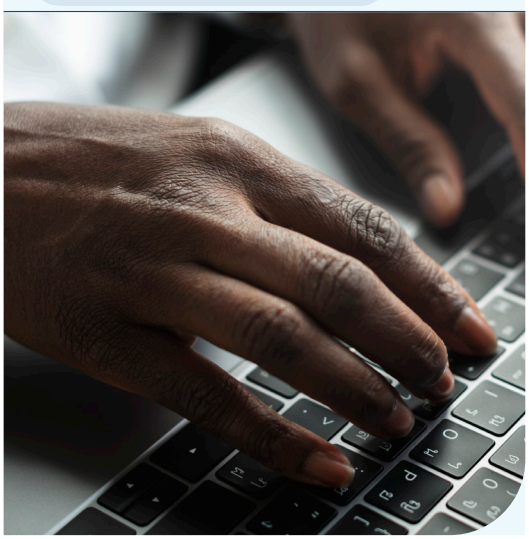
[38] AfDB. 2024. Africa Digital Financial Inclusion Facility. https://www.afdb.org/en/adfi

2.5
Closing the Information Gap

› **African businesses still face significant hurdles in accessing up-to-date information** on trade policies, customs regulations, and market conditions. This lack of transparency can result in costly delays, errors, and missed opportunities, hindering their ability to compete effectively in the global market[39]. 62% of traders in 44 surveyed countries do not know where to access information about the AfCFTA. Digital platforms offer a solution by providing a centralised and readily accessible source of trade information, empowering businesses to navigate complex regulations with ease.

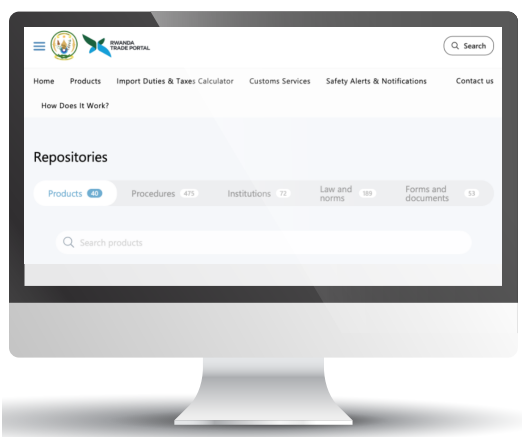
RESTRICTIONS TO DIGITAL SERVICES TRADE IN AFRICA (2021)





› **Many Governments have developed trade information portals** in accordance with the WTO Trade Facilitation Agreement. For example, the Rwanda Trade Information Portal (rwandatrade.rw) supported by TMA has enlisted 40 strategic trade commodities and documented over 470 procedures.

› **The AfCFTA Secretariat is developing a digital platform with comprehensive information** on tariffs, rules of origin, and trade procedures, aiming to streamline trade within the continent. Beyond regulatory information, digital platforms provide access to crucial market intelligence, such as pricing trends, analysis and preferences. Armed with this knowledge, businesses can make informed decisions, optimize their offerings, and enhance their competitiveness.



[39] 2023 survey by the Pan-African Private Sector Trade and Investment Committee (PAFTRAC)

CHAPTER 03

Supporting Digital Trade

This chapter outlines successful approaches to digital trade interventions. It spotlights high-impact project interventions and showcases next generation interventions while outlining emerging risks and ways to handle these, in order to enhance inclusion and sustainability.

The last decade has revealed the success of digital approaches to drive down the cost and time of trade. Many of these have been evaluated as creating significant improvements in trade efficiency across the board. A partnership-driven approach with the private and public sector has driven TMA's digital trade agenda, with over 100 digital projects that have transformed trade systems and procedures. This has led to significant reductions in cargo clearance times and administrative costs, exemplified by the deployment of systems such as Kenya Revenue Authority's integrated customs management systems (ICMS), East Africa's regional electronic cargo tracking systems (RECTS), and Uganda's national electronic single window (UeSW). These innovations have facilitated quicker cargo tracking, reduced document processing costs, improved revenue collection by sealing loopholes, and saved traders millions of dollars while cutting down on bureaucratic red tape.

EFFECTIVE TRADE SYSTEMS AND PROCEDURES

TMA has supported development of approximately **60 TRADE PORTALS** in key government trade agencies

Cargo Tracking by rail reduced cargo clearance time for tagged containers at Nairobi Inland Container Depot from **12 days** in 2018 to **4 DAYS IN 2021**

Simplified procedures through Trade Portals in Kenya, Rwanda, Tanzania and Uganda reduced the administrative cost burden by **$2727** in 2021 compared to costs when the projects started in 2017. **(Ke: $2012 Rw:$ 168 Tz:$ 16 Ug: $531)**

On average the time required to complete trade-related activities has been reduced as a result by two thirds, by **66 HOURS** since the introduction of these digital systems.

This time saving is coupled with an average cost reduction of half per system application process.

Digital interventions have catalysed a **29%** increase in monthly trade transactions and a **15%** rise in average transaction value.

Businesses using these systems have experienced an average monthly increase in trade volume of **$600** translating to an annual increase of over **$7,200** per business.

Support to Revenue Authorities

$26.4 MILLION

Cost savings by traders as a result of **Uganda Electronic Single Window** in 2021 due to **reduced clearance** time and **paperless transactions**

45%

less document processing costs from **$68** to **$37** in 2022 as a result of **automation**

2-3 HOURS

Kenya Revenue Authority: iCMS has reduced clearance time for air freight from an average of **2 days** when the project started to **2-3 hours** as of December 2021.

This growth, ultimately, leads to increased job opportunities, helping to improve community living standards and reduce unemployment. Furthermore, the efficiency and scalability provided by digital technology enables businesses to tap into new markets, enhancing their global competitiveness and attracting foreign investments

3.1

Integrated Customs Management System – Kenya's digital leap in customs

Kenya has embraced digital innovations to tackle the challenges of an ever-growing international supply chain, managing increased cargo volumes, and addressing security threats at its borders. The Kenya Revenue Authority, with support from TMA and the UK, upgraded its customs operations with the introduction of the ICMS. This brings together various customs processes into a single, efficient platform, cutting down the time it takes to clear imports and exports. iCMS offers several practical improvements:

- **Pre-arrival Clearance:** Air and sea cargo information is sent to the system as soon as a ship leaves its last port or a plane takes off, allowing traders to start the clearance process early and get a head start on receiving their goods.
- **Streamlined Permits:** The system is connected with other government agencies, automating the application for necessary permits right within the trade declarations, which cuts out a lot of the usual paperwork and delays.
- **Faster Licensing and Checks:** issuing various licenses and scheduling joint inspections used to hold up the process. They are now completed much quicker.
- **Direct Communication:** Importers and exporters get updates directly via email about their transaction status, including tax details and payment confirmations, helping to keep the whole process transparent and guarding against fraud.

RESULTS

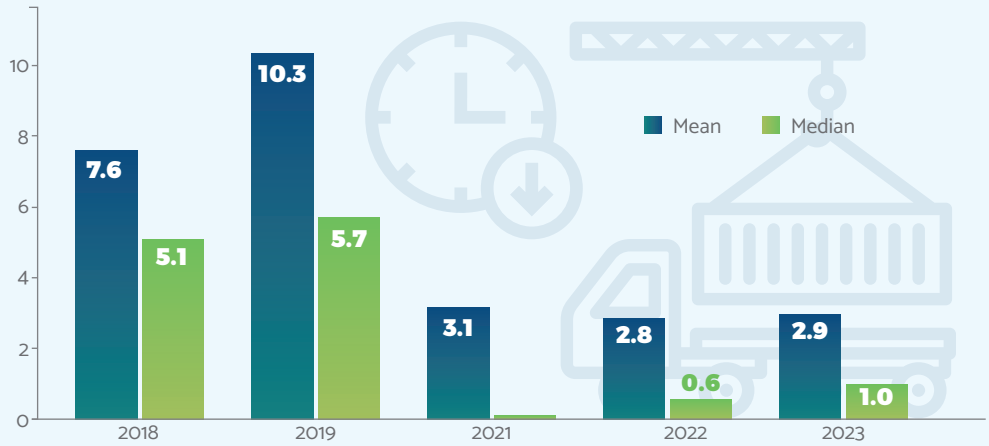
Clearance processes that used to take days now happen in seconds. For example:

The approval of declarations upon payment of taxes, and the approval of manifests upon submission have each reduced from **2 DAYS** to under **30 SECONDS**

The release of Authorised Economic Operators' (AEO) consignments has reduced from **6 HOURS** to under **30 SECONDS**

This leap in efficiency is a major boost for regional businesses relying on Kenya's trade channels, including through the port of Mombasa. Handling about one million TEUs annually and contributing over $70 billion to the economy, the port is a critical gateway to Kenya and its neighbouring countries. An assessment revealed an 18% increase in revenues following the implementation of iCMS, with customs duties up by 11%, and other international trade and transactions increasing by 32%. This is because iCMS enhances accessibility, allowing traders to initiate clearance remotely; and bolsters information exchange with the Asycuda customs system used across the region, which is a big benefit for EAC member states such as Rwanda and Uganda whose exports depend on the Mombasa port.

Figure 5
REDUCTION IN CARGO CLEARANCE TIME AT THE PORT OF MOMBASA



Source: Calculations done using KRA's SIMBA & ICMS Monthly Data, 2018-2023

3.2

Regional Electronic Cargo Tracking System – a step change for East Africa

TRUCK DRIVERS

RECTS has ensured their safety on the roads, deterring the armed robberies that were common, reducing journey times, and creating and faster turnaround times has positively impacted their social lives.

› RECTS, introduced in 2017, has enhanced the monitoring and security of transit cargo on the Northern Corridor from Mombasa through to Bujumbura, particularly for Kenya, Uganda, and Rwanda. This web-based system allows for end-to-end tracking of goods under customs control in these countries, significantly improving security, efficiency and reducing costs. In its early days, the Uganda Revenue Authority reported saving over $1 million in physical escort costs for more than 20,000 consignments as a result. RECTS employs rapid response teams along the Northern Corridor to address any tampering or detours in real time, ensuring the security of goods in transit.

› **Prior to RECTS, the participating countries would operate independent national cargo tracking systems,** which created inefficiencies such as prolonged bond cancellations, and delays at border crossings as cargo trucks had to be disarmed and re-armed. RECTS has addressed these issues, cutting transit time from Mombasa to Kampala from 21 days to just 4-5 days, improving turnaround times for transporters, and boosting cargo security.

› **By reducing cases of dumping, fuel adulteration, and fraudulent diversion of high value goods, the system not only safeguards revenue collection but also promotes the success of rules-based business.** By tackling challenges like misdeclaration of goods, staged robberies, and tax evasion, RECTS has enhanced the reliability of transit trade. More than just a security measure, it combats illegal dumping – a practice that undermines fair competition and skews pricing. By ensuring that goods travel exactly where they are supposed to, RECTS has helped participating countries foster a more transparent, efficient, and competitive market environment. Its expansion into additional countries promises to scale these benefits further, reinforcing regional integration and setting a new standard for compliance and cooperation in international trade.

› **Its expansion into additional countries promises to scale these benefits further,** reinforcing regional integration and setting a new standard for compliance and cooperation in international trade. The system is now being expanded to include DRC as part of the development of the Northern Corridor.

BENEFITS REALIZED BY RECTS

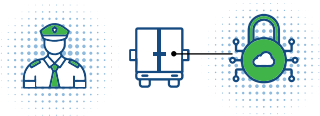
Over
$1 MILLION
In savings in form of physical escort costs for more than **20,000** Consignments

Transit time from Mombasa to Kampala reduced from **21 DAYS** to **4-5 DAYS**

HOW RECTS WORKS

At Departure

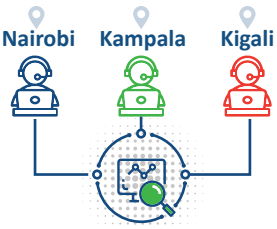
1. The customs officer physically attaches an e-seal and activates it in the system.



2. Customs controlled release points will have smart gates and will scan vehicle details automatically.

In Transit

3. There will be 3 interlinked centralised monitoring centres in



4. In case of transit violations, system alerts will be generated and the Centralised Monitoring Centres for staff to analyse and dispatch to the RRU's for further action.

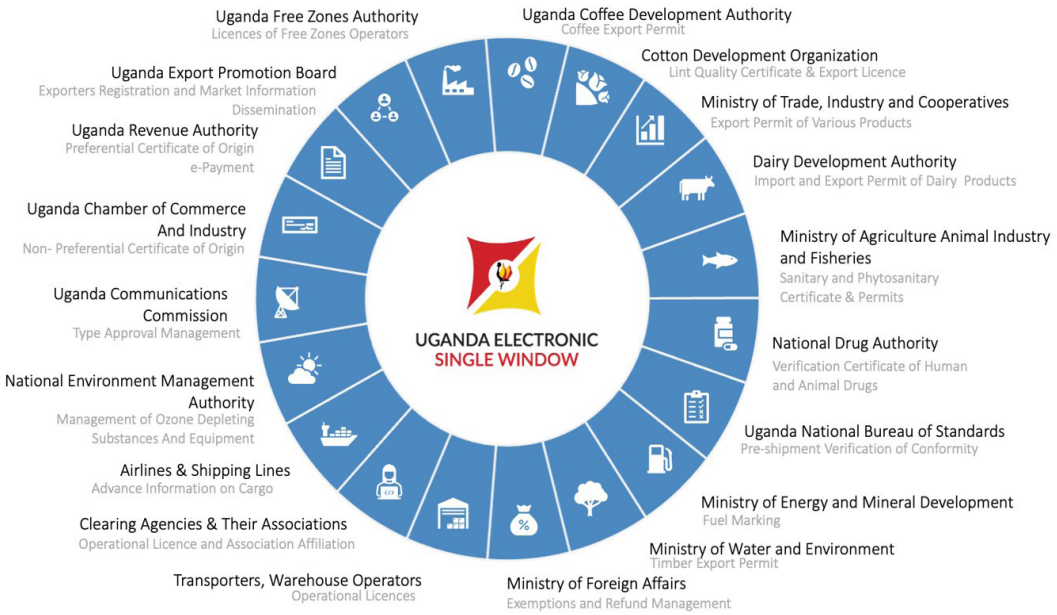
At Destination

5. The RECTS process will terminate when the customs officer deactivates the e-seal from the container or any other authorised means of carriage.

3.3
Uganda Electronic Single Window – Land Linked connectivity

› **Uganda's landlocked location has long presented significant barriers to accessing international markets,** stifling economic growth. That started to change in 2014 with the launch of the UeSW. Previously, exporters trading in Uganda faced overlapping regulatory demands and requirements, and a forest of government agencies to whom they had to physically submit trade documents for clearance, as well as lengthy border delays awaiting customs clearance, all of which inflated the cost and time of trading and reduced their margins. This deterred trade investments and complicated compliance with international trade agreements.

› **In partnership with the Uganda Revenue Authority, UeSW introduced a series of innovations that streamlined trade processes.** First was to develop a one-stop electronic platform where traders could submit all their regulatory documents at a single point, cutting through bureaucratic red tape. Secondly, by integrating government departments and agencies into the UeSW, a seamless flow of information was created between agencies, enhancing regulatory compliance and slashing processing times. Traders no longer had to navigate Kampala traffic to get from one office to another for document approvals.



› UeSW ushered in a host of transformative benefits. The system has streamlined border processes so deepening Uganda's economic integration with its neighbours, and eliminating the frustration traders would face at border crossing points. By improving procedures and documentation handling, it has reduced overall transit times for goods traversing the regional corridors to and from the ports of Kenya and Tanzania, delivering better experiences for businesses. And aligning with international trade facilitation standards has made Uganda a more reliable trade partner and increased its appeal to international investors. These strategic enhancements are perfectly timed, positioning Uganda to capitalise on the opportunities created by the AfCFTA, ensuring it stays competitive, integrated, and at the forefront of a dynamic regional and global trade environment.

Specifically, the system has:

- Reduced the average time for trade clearances from days to hours, achieving a 70% reduction in clearance times at major border points.
- Slashed transaction costs for documentation by 45% (from $68 in 2015 to $37 in 2021), translating to $24 million in cost savings for Ugandan traders in 2021.
- Increased import and export applications users by 141% from about 3 million to over 7 million users on UeSW in June 2022.
- Minimised risks of corruption and increased transparency, leading to higher compliance rates with trade regulations.

CHAPTER 04

The Next Generation

This chapter looks at the opportunities unleashed by new technologies and how customs operations can leverage these. It highlights Artificial Intelligence (AI) and Distributed Ledger Technology (DLT); and a practical application of this in terms of the Trade Logistics Information Pipeline, which is already being installed.

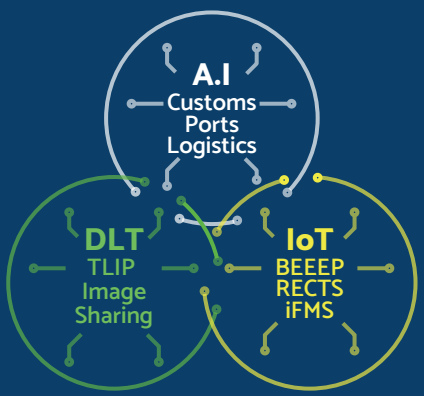
4.1
Artificial Intelligence

› AI represents a pivotal technology in this transformation by revolutionising trade control and enforcement. In an era of rapidly evolving international trade patterns, customs organisations worldwide face unprecedented challenges in balancing trade facilitation with risk management. Their operations are being transformed by the surge in containerised cargo, small parcels and digital commerce, creating new vulnerabilities and complexities in the global supply chain. At its core, AI enables the automation of processes traditionally performed by human beings through sophisticated algorithms, data analysis, and neural networks. While it has become an inseparable part of consumer life, its implementation in complex customs organisations presents unique challenges and opportunities.

› A powerful synergy emerges from the convergence of DLT, smart products, and AI, offering a transformative approach to Africa's digital trade strategies. For example, Cargo Seer AI41 has pioneered the use of non-intrusive inspection of cargo at ports. Advanced X-ray systems powered by AI identify cargo anomalies, while real-time risk assessment improves inspection decisions. Smart seals and sensors enhance cargo security, alerting authorities to unauthorised access and tracking shipments from origin to destination. This data is securely stored and shared on a DLT platform, fostering transparency and trust throughout the trade process. This is being pioneered on the TMA-supported RECTS in East Africa to facilitate cargo tacking and monitoring, and security for cargo transiting along trade corridors.

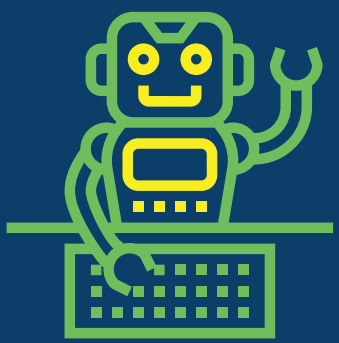
Big Data and Artificial Intelligence

The vast amount of data generated today by businesses and trade agencies presents a wealth of opportunities for businesses in Africa. By harnessing the power of Big Data and AI, businesses can gain valuable **insights into market trends, consumer preferences,** and competitor activities. A fashion retailer can use AI to analyse consumer data and identify emerging fashion trends in targeted markets. This allows them to adapt their product offerings and expand their market reach, staying ahead of the curve and maximising their competitive advantage.

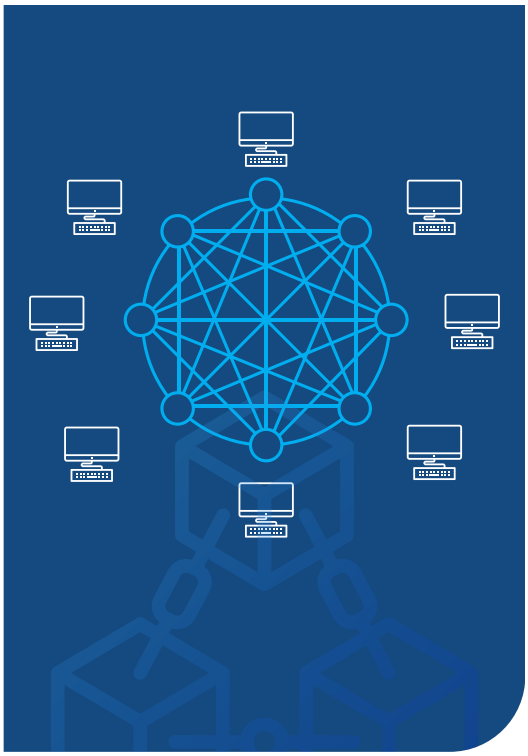


AI can analyse trade transactions to **identify patterns of fraud and suspicious activities,** enhancing security and reducing financial losses for African businesses. This fosters a more secure trade environment and builds trust with international partners. A customs authority can use AI to identify fraudulent transactions in declarations of consigment hence protecting the country from revenue loss or unfair trade practices or unsafe trade practices emanating from under or over-valuation of consignments.

AI-powered systems can automate digital trade processes in Africa, significantly reducing processing times and facilitating faster trade flows. This **reduces administrative burdens and operational costs** for businesses involved in cross-border trade. Customs and other authorities can implement AI-powered systems to automate document verification and risk assessments, leading to faster clearance of goods and reduced delays at the border, encourage fair competition, and enhance traceability for safe trade.

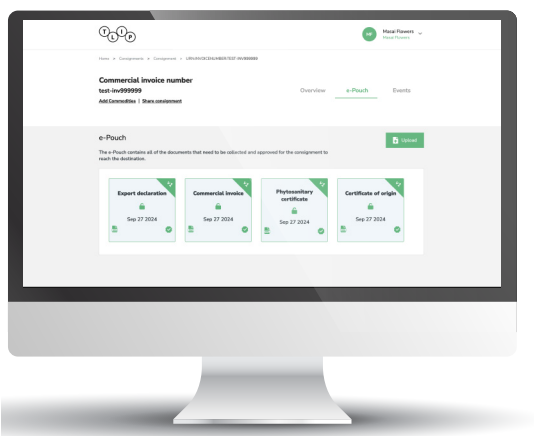


4.2
Distributed Ledger Technology: TLIP



The Trade Logistics Information Pipeline (TLIP), created by TMA and the IOTA Foundation, is an example of a secure data-sharing infrastructure built on DLT (specifically the IOTA Tangle blockchain, an open-source platform renowned for its security and efficiency). At its core, TLIP aims to use the characteristics of DLT not only to drive paperless border initiatives but critically, to guarantee the integrity of the data entered. The nature of DLT is that information cannot be changed once entered. By capturing consignment documentation and supply chain events directly from their original source, TLIP ensures data integrity and reduces reliance on intermediaries. This approach not only streamlines trade processes but also enhances transparency and predictability for all stakeholders involved.

In an era defined by rapid digitalisation and the imperative for seamless cross-border trade, new technologies offer solutions to persistent challenges. One such problem is the falsifiability of data used in trade processes. From e-phyto certificates to customs clearances, much of the trade documentation used today is still either in paper form, or in simple electronic documentation. The difficulty for regulatory authorities to trust the provenance of such data leads to constant checks and re-checks. What if a system could be created that gives all users complete confidence in the quality of all data in a trade transaction?



› **One of TLIP's strengths lies in its robust data security features.** Built-in digital identity credentials ensure trust in the identity of the original owners of supply chain documentation, mitigating the risk of fraud and counterfeiting. Advanced permissions management enables secure and trusted data sharing on a need-to-know basis, fostering collaboration between supply chain partners and government border agencies while maintaining data privacy. The TLIP Dashboard provides stakeholders, including government border agencies, with real-time visibility of the consignment journey. This real-time tracking capability enhances risk management and enables proactive interventions to address potential bottlenecks or delays. It also allows for seamless data upload and download, facilitating the automation of key supply chain processes such as customs declarations.

› **TLIP therefore addresses a critical challenge in international trade: the need to reduce trade transaction costs.** By streamlining documentation procedures and eliminating physical documentation requirements, TLIP minimises redundancies and administrative burdens. This not only saves time and resources, but also improves trade efficiency by enabling faster clearance times and smoother logistics processes. Moreover, TLIP promotes compliance and risk management by utilising DLT to authenticate and share information securely. This enhanced security fosters trust among stakeholders and facilitates smoother cross-border transactions. TLIP also empowers stakeholders through capacity-building initiatives, equipping them with the knowledge and skills to navigate the evolving trade environment effectively.

› **Blockchain's inherent characteristics – such as immutability, traceability, and security – make it an ideal solution for managing sensitive trade data.** The decentralised nature of blockchain ensures that no single actor has control over the entire system, promoting transparency and accountability. Furthermore, blockchain eliminates the need for intermediaries, reduces paper processes, speeds up transaction times, and increases efficiency and transparency. This translates to significant cost savings and improved operational efficiency for businesses and government agencies alike.

› **TLIP is designed with a focus on inclusivity and collaboration.** It recognises the diverse needs of various stakeholders, including:

Private Sector: Exporters, Carriers (airlines or shipping companies), Freight forwarders, Logistics service providers (warehouses, truckers, ground handlers), Distribution networks (distributors, wholesalers, retailers).

Public Agencies: Customs authorities, Bureaus of standards, Sanitary and phytosanitary regulators (Departments of Plant Health Protection, Departments of Livestock and Fisheries), Ministries of Trade and Foreign Affairs.

TLIP has already demonstrated its potential through successful pilot projects focusing on flower and coffee exports from Kenya to the UK. By 2023, the pilot stage was successfully completed, demonstrating the technology's scalability and its potential to significantly reduce transaction costs and time. This involved ten exporters and 76 consignments. The documents captured included invoices, packing lists, bills of lading, and declarations and health certificates, all related to coffee, tea, flowers, frozen fish and canned food. Traders benefit from greater predictability of access to customs facilities while crossing borders, which in turn reduces their administration costs and effort.

TLIP has already been integrated with several essential systems in Kenya. For example, it can directly retrieve export declaration certificates from the KENTRADE platform, eliminating the need for redundant data entry and reducing the necessity to store multiple copies of records. The Kenya Revenue Authority provides access to documents like declarations, certificates of origin, and certificates of origin for export. KEPHIS facilitates the exchange of phytosanitary certificates. And AIRFLOW provides access to House Airway Bills.

Flower Export Kenya < > UK

80	45	30
Daily flower consignments	**Successful consignments**	**Minutes**
Consignments recorded on TLIP in parallel to the physical consignments from 26/04 - 26/05.	Consignments that had a complete set of required documents and were viewed by the destination market.	Average time to fetch/receive documents.

Coffee Export Kenya < > UK

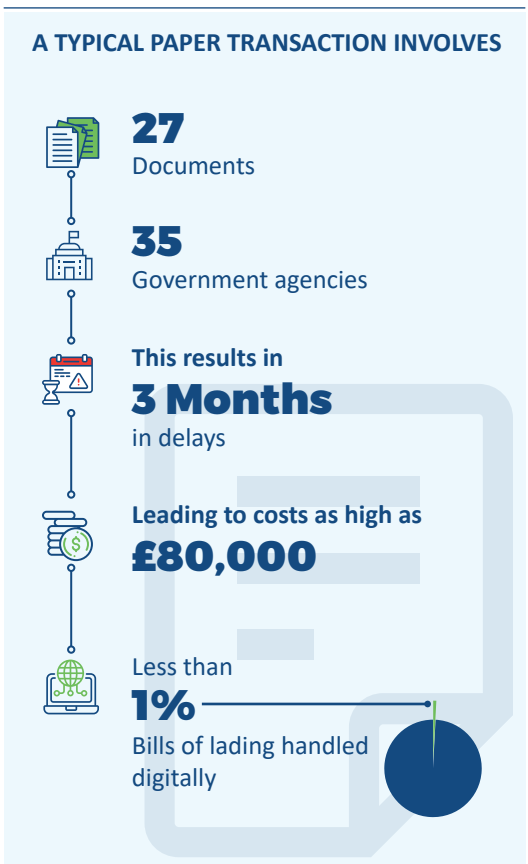
4	45	4
Weekly coffee consignments	**Successful consignments**	**Days**
Consignments recorded on TLIP in parallel to the physical consignments from 26/04 - 26/05.	Consignments that had a complete set of required documents and were viewed by the destination market.	Average time to fetch/receive documents.

4.3
Trade Worldwide Information Network (TWIN): A Vision for the Future of DLT-enabled trade transactions

Building upon the success of TLIP, the Trade Worldwide Information Network (TWIN) is an ambitious initiative poised to offer seamless transactions globally. A consortium of international partners, including TMA, IOTA Foundation, the World Economic Forum (WEF), The Global Alliance for Trade Facilitation (GATF), Tony Blair Institute for Global Change (TBI), and the Chartered Institute of Export and International Trade (IOE), have joined forces to develop this infrastructure to serve as a global public good.

At its core, TWIN aims to contribute to a future where global trade is seamless, efficient, transparent, sustainable, and predictable. This will be achieved through an open digital infrastructure that promotes greater global connectivity, integration, and access. TWIN's development and implementation are guided by five core values: neutrality, a non-profit approach, trust and transparency, open access, and embracing the information age to address trade and logistics challenges.

Its development is driven by the urgent need to address the glaring inefficiencies plaguing current global trade processes. As highlighted by the International Chambers of Commerce (UK), a typical paper-based transaction can involve 27 documents and 35 government agencies, causing delays of up to three months and imposing costs as high as £80,000 on those involved. Globally, less than 1% of bills of lading are handled digitally, underscoring the urgent need for modernization. TWIN directly confronts these challenges by streamlining cumbersome paperwork, reducing reliance on multiple intermediaries, and simplifying complex regulations. This transformative digital infrastructure will be housed under a foundation that will oversee the global development and propagation of TWIN, establishing various regional or sector-based ecosystems, such as TLIP in Africa. By fostering efficiency, transparency, and accessibility, TWIN promises to unlock the full potential of global trade for businesses.



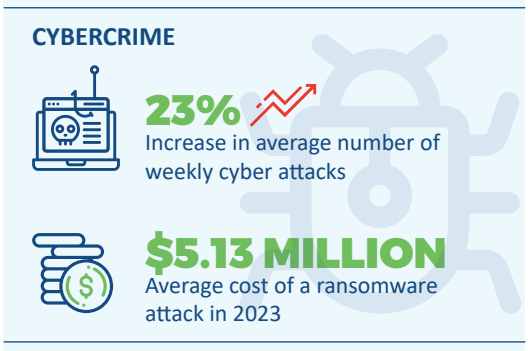
CHAPTER 05

Risks, inclusion and sustainability

This chapter also points to the need to be aware of risks emerging in the digital space, and to ensure that it delivers on inter-related development challenges, in particular inclusion and sustainability.

5.1
Data protection and Cybersecurity

› The future does not only hold potential. As Africa's digital economy expands, cybersecurity and data protection concerns become more pressing. While noting a rise in the financial and social impacts of cybercrimes, Interpol's 2023 report on Africa observes that there was a 23% year-on-year increase in the average number of weekly cyberattacks per organisation in Africa. This average was the highest in the world[41]. As the same report notes, the financial impact of attacks also appears to be on the rise: according to IBM, the average cost of a ransomware attack in 2023 was $5.13 million.[42]



› The protection of personal and commercial data is core to building consumer and business trust in systems. Establishing data governance frameworks is largely a policy question, including the enactment of data protection laws and transparent data-sharing protocols, alongside classification systems, robust security measures and the creation of oversight institutions. These measures allow for secure cross-border data flows, and promote responsible data utilisation, ultimately fostering innovation and economic growth within the digital trade ecosystem.

› These frameworks must be accompanied by robust cybersecurity measures, to safeguard digital trade infrastructure and transactions. This includes adopting national and organisational cybersecurity frameworks, deploying advanced threat detection and prevention technologies, and developing comprehensive incident response plans. At the policy level, developing cybersecurity and digital trade policies will better govern digital data flows. This will entail crafting regulations and policies that govern the exchange of goods and services in the digital economy through digital technologies, including the internet, e-commerce platforms, and mobile devices. TMA will continue to work with Governments and agencies not only to digitise trade processes, but also to enhance cybersecurity for trade (TLIP is one such example). As with other digital tools, much of the risk lies in user behaviours – enhanced awareness is essential to educate stakeholders about risk and best practices within the digital trade community.

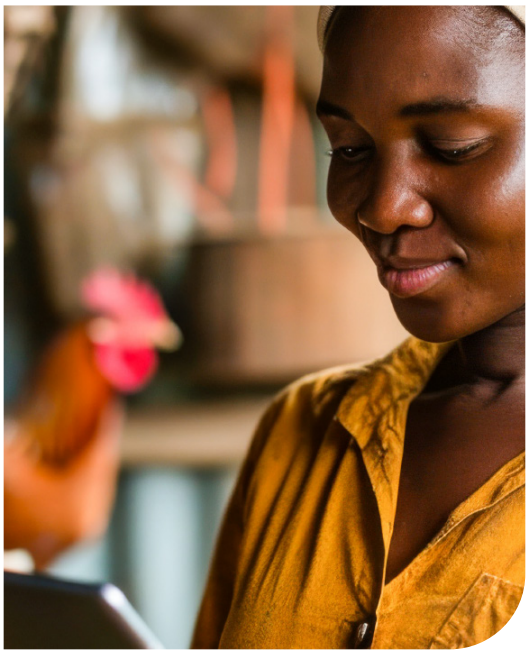
› Rapid digitisation should also remember to safeguard the public good. While attracting private finance into developing digital infrastructure, and new technologies is going to be essential if we are to maintain the pace required, it is equally important to ensure that trade facilitation remains a public good. Not all investment is good investment – public engagement with commercial incentives must retain a laser focus on achieving trade facilitation outcomes, not least the reduction of cost and time in trading across borders. Excessive fees and poorly designed monopolistic arrangements risk acting against this.

[41] Interpol, Interpol African Cyber Threat Assessment Report 2024. https://www.interpol.int/content/download/21048/file/24COM005030-AJFOC_Africa%20Cyberthreat%20Assessment%20Report_2024_complet_EN%20v4.pdf

[42] Ibid, pp 13

5.2
Inclusion – using e-tools to make trade accessible

› **Digitalisation can both help and hinder inclusion of vulnerable and marginalised groups in trade processes.** Digital inclusion must therefore go beyond simply providing internet connectivity; it should encompass ensuring people can utilise digital tools, engage in the digital economy, and contribute to shaping the digital future. In designing and delivering digital interventions for Africa, actors in the continent can take a two-pronged approach. This includes mainstreaming digital inclusion in solutions and interventions right from design to final delivery. Secondly, targeted digital inclusion interventions are an effective measure to further bridge the divide.



› **In delivering digital transformation for all, three anchors are pivotal:**

- **Availability of digital services** for everyone who needs to participate in trade. The role of internet connectivity and mobile technologies will play an important role in creating this availability. Deepening the availability of digital technologies to small businesses, women, or youth as part of their daily operations is essential for their participation in trade.

- **Accessibility and usability** of digital trade platforms by special groups. This could involve developing platforms that are compatible with assistive technologies, thus proactively designed to support special groups. Similarly, internet connectivity and mobile technologies are also expected to support this consideration. Use of digital technologies requires the appropriate skills for effective participation in trade.

- For digital development for Africa, it is important that interventions are conceived and implemented with **digital skills development** as an inherent consideration from the onset. The design of digital services will need to be premised on the unique needs of the different special groups. These considerations are demonstrated in delivery of the iSOKO platform in East Africa.

iSOKO: A Practical Solution

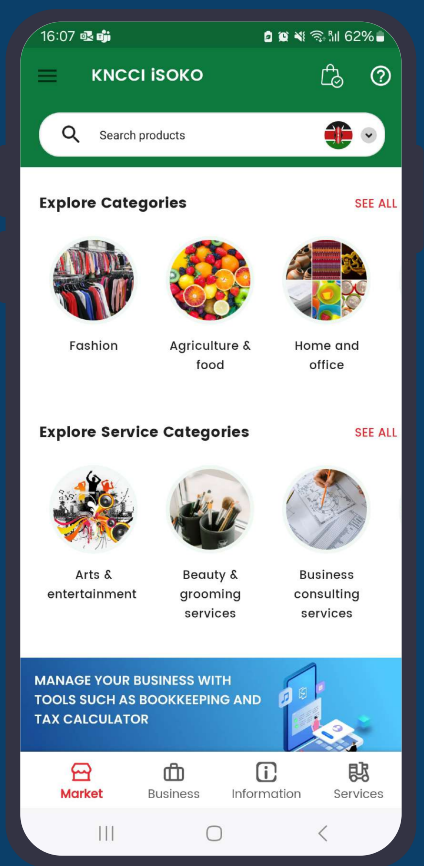
Rolled out by chambers of commerce from Kenya, Rwanda, Uganda, Tanzania, and Burundi in collaboration with TMA, iSOKO is a comprehensive solution for MSMEs to carry out cross-border trade. iSOKO addresses the problems that people at the bottom end of the trade pyramid face in a rapidly digitising world: how to find buyers and sellers across borders and understand prices; how to find partners in the supply chain essential for the efficiencies that make trade profitable; and how to run a business simply and effectively.

iSOKO offers an integrated solution to all these questions – a free-to-use app provides market information especially for agricultural products; at the same time as links to aggregators and transporters, and ways for MSMEs to pool their products for efficiency; and crucially a simple bookkeeping tool where they can manage their sales and profits. In order to ensure that it is accessible and useful for all, a simplified version is also available on a USSD interface as well as on the internet for those without smartphones.

iSOKO digital platform developed (mobile, web and USSD) and hosted in Uganda, Rwanda, Tanzania and Burundi to facilitate improved access to information and markets reducing the time poverty women traders face.

80,000
Users so far, generating an average cost saving of **$22**

In 2023, on average, the transaction value while trading on the platform increased by **2.5%** as compared to when trading off the platform.



5.3
Sustainability: Promoting Green Trade Practices through digitalisation

› **As climate-related trade restrictions become ever more prevalent, digital solutions will become correspondingly important.** The WTO has noted that the proportion of trade restrictions that are environment-related grew from 8% in 1997 to 19% in 2021. As of 2023, UNCTAD reports more than 2,300 climate change related non-tariff measures are in place[43] – they have now gone from niche to mainstream, and that is only likely to grow. This highlights that while we are finally drawing the link between climate and trade, it is all too easy to forget about the third leg of the stool. The Jacques Delors Institute has traced increasing blowback from developing countries, as climate-related trade restrictions are being seen to lack the conferral of agency, as part of a new 'green imperialism'. ECDPM have talked about 'kicking away the ladder'[44]. These perceptions matter in a multilateral world.

› **Africa has an opportunity to deploy leapfrog technologies to accelerate the establishment of circular economies that have export potential.** This includes increasing the volume and value of green goods and services traded that have a comparative advantage in export markets and meet international green standards. Key to this are sustainable export value chains with traceability, certification, environmental footprint identification built in; and product transformation from raw material to finished goods throughout the value chain – focusing on exports that steward natural resources. At a time when sustainability consumer concerns are growing, enhancing traceability will satisfy the increasing proportion of consumers especially in overseas markets that display traceability consciousness and are willing to pay a premium for traceable food products and natural resource.

› **Digitalisation offers some solutions, not least in enhancing the traceability that is required by many of these mechanisms.** For example, the EU Deforestation Regulation (EUDR) aims to ensure that products entering the EU market are not linked to deforestation or forest degradation. Enacted in 2023, it mandates companies to provide detailed traceability of commodities like soy, palm oil, coffee, timber, cocoa, and rubber, verifying their production's environmental impact. Compliance could sustain market access, improve sustainability practices, and foster global competitiveness in case similar regulations are adopted in other export markets. With significant exports in these sectors coming from Africa to the EU, affordable and effective

[43] UNCTAD, Trade Regulations for Climate Action? New insights from the global non-tariff measures database, 2023. https://unctad.org/system/files/official-document/ditctab2023d5_en.pdf

[44] ECDPM. 2023. Navigating green economy and development objectives: Between 'green' and development narratives. "https://ecdpm.org/work/navigating-green-economy-development-objectives-between-green-development-narratives"https://ecdpm.org/work/navigating-green-economy-development-objectives-between-green-development-narratives

traceability mechanisms will be crucial. At best, these can be fully integrated into the platforms used for end-to-end trade transactions such as TLIP, although standalone systems will also have significant impact in maintaining Africa's access to European markets. Such systems will also help improve sustainability practices, and foster Africa's global competitiveness in case similar regulations are adopted in other export markets.

› **Another sustainability challenge is the level of emissions from road transport.** Even as multi-modal shifts are being implemented, road haulage will remain a driver of emissions for a long time. Tried and tested technologies can be deployed here to tackle these, not least vehicle tracking, facilitating better coordination between transport stakeholders (both public and private). Carbon tracking mechanisms along trade corridors can also measure and mitigate the carbon footprint associated with the movement of goods and services. TMA has for instance developed a digital toolkit for emission tracking on the Northern Corridor from Mombasa. This critical first step of measurement allows policymakers and companies to understand where the challenge lies, and how best to address it.

› **A known driver of high transport costs and greater emissions is the problem of empty backhauls.** On average, a truck charges $3,000 to move goods from Nairobi to Kigali, a fare sufficient to cover the round trip to Nairobi empty. Aside from policy solutions to address in particular the issue of cabotage, digital solutions can also be brought to bear. For example, load matching platforms apply IT techniques to better connect transporters to producers, so reducing backhaul and therefore offering lower rates and lower emissions.

TMA'S GREEN TRADE INITIATIVES

TMA adopted a two-pronged approach to tackle challenges related to climate change, and economic and social vulnerabilities. Noteworthy developments included the establishment of the Green Trade department, with the aim of driving the green growth agenda across Africa's main trade, transport and logistics corridors. This approach is premised upon:

1. Reviewing and refining policies such as Environment, Social, and Governance, and aligning our green objectives with TMA's Strategy 3.
2. Strengthening infrastructure and communities along transport corridors to reduce greenhouse gas (GHG) emissions and enhance resilience against climate impacts.
3. Supporting and augmenting trade and exports through green economy potential and value chain enhancement.
4. Initiating mechanisms to mobilise green finance for sustainable initiatives.

EMERGING RESULTS

- Environmental and Climate Change Reporting: In its programmes, TMA is now mandated to report on GHG emission reduction, climate change mitigation/adaptation, and environmental management.
- Empowering Women in Trade: To raise awareness and identify opportunities for greening trade, TMA conducted the inaugural training on climate change, environment, and social safeguards, targeting almost 3,000 women cross-border traders at 21 borders across the EAC.
- Strategic Green Trade Developments: TMA continuously supported initiatives on green infrastructure in trade and logistics programmes. A key highlight includes support for the development of the feasibility study at Tog Wajaale one-stop border post between Somaliland and Ethiopia to incorporate green logistics and green trade corridors that respond to the region's development agenda.

CHAPTER 06
Summary of Abstracts

For this report, TMA has brought trade and digitalisation experts to chart collective ideas on priorities that should inform action for enhancing digitisation for trade. This chapter provides abstracts from their research. Continental regulatory harmonisation, expansion of access and skill development, and reduction of regulatory restrictedness emerge as top priorities. The papers also point out to the concerns that digitalisation efforts should be cognisant of.

Lola Aworanti Ekugo

The Role of Emerging Digital Technologies on Intra-African Trade.

African states need to adopt an ecosystem-wide approach towards digital policy harmonisation. The objective should be to align data governance, trade, and consumer protection policies at both national and regional levels. The AfCFTA Digital Trade Protocol (DTP) launch and widespread adoption provides a prime opportunity to drive this harmonisation, which must also balance cross-border data flows with strong domestic privacy safeguards to facilitate digital trade, especially for digital services. Finally, regulation should strengthen online consumer protection frameworks to boost trust and increase participation in digital markets.

The implementation of the AfCTFA, alongside the rise of digital technologies, presents a transformative opportunity to significantly advance intra-African trade. By overcoming longstanding barriers - such as inadequate infrastructure, complex regulatory environments, and fragmented markets-these technologies are expected to streamline operations across sectors and pave the ways for increased and seamless trade."

Bruce Byiers

Interoperability of digital payment systems: Lessons from the East African Community

With a focus on EAC, this study looks at the opportunities and challenges of implementing interoperable, instant and inclusive digital payment systems, which are essential for e-commerce and cross-border trade in Africa. Digital economic integration is critical for the financial inclusion of millions of small traders – of whom 70% are women – as well as vulnerable communities in border regions. The analysis suggests the need for a solid regulatory framework at national, regional and continental levels to increase the volume of cross-border trade under the African Continental Free Trade Area (AfCFTA) on top of the interoperability of digital payment systems. Regional Economic Communities (RECs) are leading the harmonisation of standards and regulations for interoperable payment systems at the regional level. Yet, as the case of the EAC shows, without the political buy-in of member states and key players within those states, their efforts at implementing these systems remain limited. In this context, it will be important to increase the cooperation between national governments, RECs, the private sector and international partners.

"There is low interoperability between cross-border payment systems due to limited capacity and knowledge sharing among regulators, overlap and competition in different payment systems and lack of coordination between key players at the regional level"

Dr. Simon Mevel

Enhancing Intra-African Trade through Digitalisation.

Digitalisation is increasingly changing the way exchanges are taking place across the globe. In recognition of this, AU member states have adopted a protocol on digital trade under the AfCFTA. Its implementation is seen as a game changer for Africa's transformation and development, and digital trade will have a key role to play for the success of the AfCFTA reform. The analysis shows that it is the intensity of restrictiveness of regulations more than the number of measures, that undermines intra-African digital trade. Public procurement, domestic data protection and privacy, and technical standards and procedures, are top priorities for reform – improving the regulatory environment around these could substantially enhance intra-African digital trade. Continental-wide harmonisation of data policies is another crucial step. The paper proposes 3 essential actions: First, harmonizing cross-border data policies through reducing the number of regulatory restrictions is essential. Second improving standards harmonisation beginning with the certification of products to be traded digitally, along with improving screening and testing requirements as well as the development/enhancement of encryption standards which are critical for data protection and privacy. Thirdly, and as a pre-requisite for promoting and facilitating investment in ICT goods and digital infrastructure which are vital for digital trade.

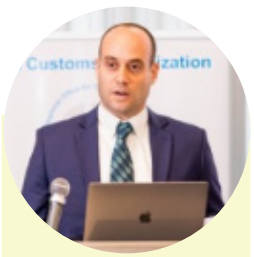
"Findings from the econometric analysis show that both the level of restrictiveness of regulations (based on Africa's RDTII score) and the number of the restrictive regulatory measures in the RDTII limit intra-African digital trade, with the intensity of the restriction having a greater negative impact than the number of restrictions. Specifically, a 1% reduction in Africa's RDTII score is expected to boost intra-African digital trade by 21.5% (or USD 508 million), whereas a 1% reduction in the number of restrictive regulatory measures is projected to increase intra-African digital trade by just 0.25% (or USD 6 million)."

Floriana Borino

Advancing Firm Digitalisation in sub-Saharan Africa.

The SSA region has witnessed notable progress in business digitalisation over the past decade, yet part of its potential remains untapped. This chapter uses the International Trade Centre's Enterprise Digital Transformation Index (e-DTI) to examine how companies in SSA can fully reap the benefits of digitalisation. Using a novel dataset comprising over 7,000 enterprises, this chapter stresses how both firm-level actions, as well as policies and interventions at the business environment and national levels, are critical to advance digital transformation among firms, and economies, in SSA. The creation of a digital-supportive environment is critical, as SSA's digital readiness lags behind other regions of the world. The lower level of digital readiness in the region results in lower digital transformation for firms, compared to those in the rest of the world.

"Increasing, first and foremost, the coverage and quality of electricity connections is vital to provide a groundwork for internet infrastructure. Once this is in place, initiatives and policies that aim to increase access, affordability and quality of internet services and internet-enabled devices will be needed to ensure equitable access to the internet and digital services for all"



David Smason

Beginner's Guide for Customs AI Implementation.

In an era of exponential growth and rapidly evolving international trade patterns, customs organisations worldwide face unprecedented challenges in balancing trade facilitation with risk management. Customs operations are being transformed by the surge in containerised cargo, small parcels and especially digital commerce, creating new vulnerabilities and complexities in the global supply chain. AI represents a pivotal technology in this transformation. At its core, AI enables the automation of processes traditionally performed by human beings through sophisticated algorithms, data analysis, and neural networks. While AI has become an inseparable part of consumer life - as simple as using the latest smartphone - its implementation in complex customs organisations presents unique challenges and opportunities.

"The modern customs landscape demands innovative solutions that can adapt to both traditional and emerging risks. Advanced technologies such as connected tamper-evident seals, blockchain-based distributed ledger systems machine learning algorithms and AI non-intrusive inspection (NII) technologies are revolutionizing how customs authorities monitor and secure international trade. These tools, when properly integrated, can create a more resilient and transparent supply chain ecosystem"

Professor Alwyn Hoffman

Neural Models to Implement Environmentally Friendly Best Fleet Management Practices

Fuel cost is of critical importance to the profitability of road transport operators. In addition, the transport industry is a primary contributor towards harmful emissions. Earlier studies identified fuel economy as an important contributor towards fuel cost, and found that truck driver behaviour is an important determinant for this phenomenon. We used a representative data set to extract regression and neural models for fuel economy and used these models to remove the impact of factors not controlled by the driver, allowing us to measure driver performance more accurately. All models extracted demonstrated significant out-of-sample predictive ability. Neural models for fuel economy outperformed regression models. We verified the significance of compensating for factors not controlled by the driver by demonstrating large differences in driver fuel economy ranking before and after compensating for route inclination and payload.

"Important properties of green corridors are trans-nationality, multi-modality, public-private partnerships and multi-level stakeholder structures. This requires new governance models to safeguard efficient management, sustainable corridor development and strong alignment of transport policies at various administrative levels."

Dr. Dirk Willem Te Velde

Implementing the Digital Trade Protocol of the African Continental Free Trade Area: Expected impacts, early experiences and challenges ahead

The AfCFTA DTP aims for a unifying regulatory framework for Africa's digital economy. It offers a comprehensive framework designed to harmonise digital trade regulations, foster cross-border data flows, enhance cybersecurity measures, and promote digital inclusion. The expected benefits are significant in terms of GDP and investment, increased intra-African trade, job creation, and the expansion of key sectors like e-commerce and fintech. But there are also challenges. Using the case study from three African states - Ghana, Nigeria and Namibia - the paper demonstrates the challenges to implementation as well as solutions.

"Realising the benefits of the DTP hinges on addressing significant challenges such as infrastructure deficits, regulatory fragmentation, digital literacy gaps, and cybersecurity concerns. Investments in digital infrastructure - such as broadband expansion and affordable devices - are crucial to bridge the urban-rural digital divide, with public-private partnerships playing a key role."

Jens Lund Nielsen

It's a matter of Trust: Beyond Paper-Based Trade

Africa's share of global trade has dropped, and intra-continental trade remains below its potential. Non-tariff barriers, exacerbated by bureaucracy, triple the average import tariff on the continent. Only 14% of African trade occurs within the continent, compared to 59% in Asia and 68% in Europe. The AfCFTA combined with technology could greatly enhance African trade. Technology can address inefficiencies and barriers that impede cross-border commerce. Blockchain and DLT simplify and secure trade transactions, reducing delays and costs. This paper outlines the experiences of a consortium of partners who have joined to implement the Trade Logistics Information Pipeline (TLIP), to streamline trade processes and enhancing efficiency. Early trials indicate TLIP could cut some trade costs by up to 20%, improve data transparency, reduce fraud risks, and boost access to finance.

"Single Window Systems are designed for document exchanges with specific governmentsin individual countries. However, international trade requires interaction with multiple countries and customs agents, forwarders, and transporters, leading to the need to interface with numerous systems and processes. It is unrealistic to expect all global value chains to adopts the same system or vendor, creating a resistance among actors."

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