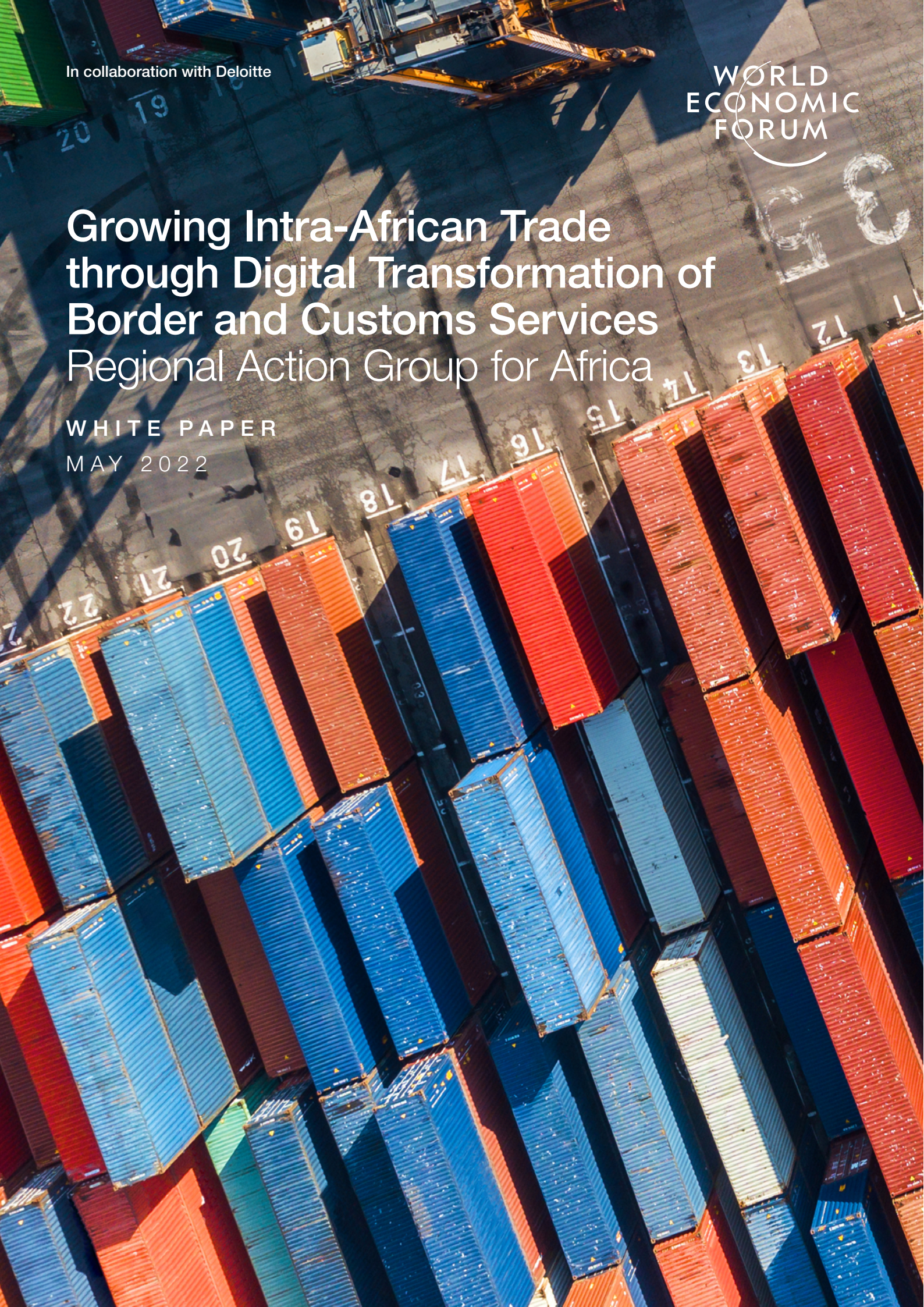WORLD
ECONOMIC
FORUM

Growing Intra-African Trade through Digital Transformation of Border and Customs Services
Regional Action Group for Africa

WHITE PAPER

MAY 2022

Contents

Foreword

Kavitha Prag
Director, Deloitte Africa

Børge Brende
President, World Economic Forum

The interdependent nature of supply networks in today's global economy means that disruptions in one region can have a global impact. We have seen black swan events such as the COVID-19 pandemic, social unrest, cybersecurity breaches and even wars completely disrupt regional and global supply chains. In many instances these supply chains have not recovered from the setbacks.

Organizations today rely heavily on supply chains that have historically been built on the basis of cost minimization. These principles have been stress-tested under disruptive conditions and have been found wanting. Building for efficiency has often come at the cost of redundancy and resilience. Moreover, it has become apparent that supply chains' end-to-end visibility and capacity to react to changes in the value chain fall short of the level required for resilience and agility. As a result, fundamental shifts are starting to emerge across global supply chains.

As business interests come together to create additional visibility, global supply chains often hit a wall in customs control. Days, if not weeks, are added to transportation times due to delays in processing at customs checkpoints. This – combined with the lack of visibility, onerous legislation and manual processes – injures an already fragile supply chain.

Supply-chain resilience and agility are becoming critically important. It has become necessary to devolve processes and decision-making to improve autonomy so that organizations can react more quickly. To make this possible, it is vital that supply-chain operations across the levels are equipped with the right tools, processes and datasets to enable end-to-end visibility, from raw materials all the way to the last mile and ultimately into the customer's hands. The implementation of digital tools in the supply chain, coupled with high levels of system integration between customer, manufacturer, logistics provider and customs control, has increased. Risk and exception-based processes, accompanied by the use of process automation, the internet of things (IoT) and artificial intelligence (AI), are allowing supply chains to shift from being reactive to proactive, delivering the best of both worlds: low cost and speed.

There is also a movement towards supply-chain diversification arising from a real need to hedge supply sources to mitigate against uncertainty and risks. In some industries, this has seen a move towards supply-chain "nationalization" or "regionalization" as companies and organizations have moved to reduce their import dependency by creating domestic or regional sources of supply. The economic recession and subsequent erosion of small businesses and employment are further motivating a move towards this regionalization.

The growing collaboration across the African continent, underpinned by the African Continental Free Trade Area (AfCFTA), represents an opportunity. Regional supply-chain efficiency needs to be used not only as a safeguard for citizens of the region against supply-chain shocks, but also to act as an engine for regional growth, thereby establishing a competitive market position for the continent.

Thus, this paper has significant relevance and is well timed in highlighting the prominent role of an interconnected and efficient regional supply chain. As the paper explores the use of technology to enhance border and customs controls, it acknowledges that technology is no elixir. Trade, logistics, customs and borders and the role of lawmakers therein will be the ultimate driver of success in the regional value chain. The supply-chain impact on the quality of lives on the continent, including medical and food security, is indisputable. Remarkable times call for remarkable collaborations. We are, after all, in this together.

Executive summary

Regional value chains rely heavily on the movement of intermediate and finished goods across borders and through ports in a region. At times, these goods may move across multiple borders as they are transformed into finished products or sent as finished items to the markets in which they will be sold. The ability to move goods swiftly at a sustainable cost helps to build and strengthen regional value chains by increasing the incentive to source raw materials, intermediate goods and finished products within a specific region as these items can be obtained at competitive prices.

A leading impediment to the timely and cost-efficient movement of goods on the African continent is the administrative burden of border and customs clearance of goods at borders and ports. Globally, world trade could be boosted by up to $1 trillion per year if these processes were made more efficient, while the United Nations Conference on Trade and Development (UNCTAD) estimates that the reduction of non-trade barriers (some related to border and customs administration) could lead to trade gains in Africa of $20 billion per year, compared to the $3.6 billion that could be achieved by the elimination of tariffs.[1,2] In terms of reducing trade costs, reforms to customs procedures are expected to deliver the most benefits, followed by the upgrading of transport infrastructure and other border agency reforms.[3]

However, the challenges of border and customs processes on the African continent remain a significant concern and failure to improve the efficiency of these processes may result in Africa or some African countries being unable to achieve the full benefits of trade arising from the AfCFTA. Sub-Saharan Africa remains a poor performer relative to other regions globally, with high costs and long durations associated with border and documentary compliance when importing or exporting goods. Studies have indicated that a 24-hour delay in transit times adds the equivalent of an ad valorem tariff of 0.6% to 2.3%. Also, the effect of an additional day's delay in transit time from origin to destination due to customs procedures is estimated to cause as much as a 1.4% decline in the export growth rate.[4] It is clear that if regional trade on the continent is expected to grow as envisioned, efficiency in border and customs processes needs to improve significantly to support this growth.

One way in which efficiency can be boosted is through the use of digital solutions that help to improve processes and reduce the time taken and the associated costs. This paper considers some of the challenges related to border and customs procedures faced by stakeholders and considers digital solutions that have been implemented to address these challenges, along with the quantified benefits of the solutions. The paper concludes by discussing how countries may begin to immediately and incrementally improve their performance at borders and ports to achieve greater benefits from trade.

(1) Inefficient border and customs processes and their effects

Transporting goods into and out of countries is affected not only by the physical infrastructure available but also by the ease or difficulty of getting the goods through borders and ports as they move from one country to another.

Countries, regional economic communities and regions may have specific processes for goods being imported, exported or passing through their borders. These processes are in place for several reasons, including documenting trade flows, ensuring the collection of duties and tariffs, making sure goods adhere to local standards (e.g. health and safety) and preventing the movement of illicit goods across borders.

The performance of border and customs clearance processes can generally be evaluated by the speed, simplicity and predictability of these processes.[5] Growth in international trade can be hindered if these processes are not conducted efficiently, leading to delays in processing cargo as well as driving up the costs of transporting goods, which may make goods from outside a region more cost-competitive relative to goods originating from within that region.
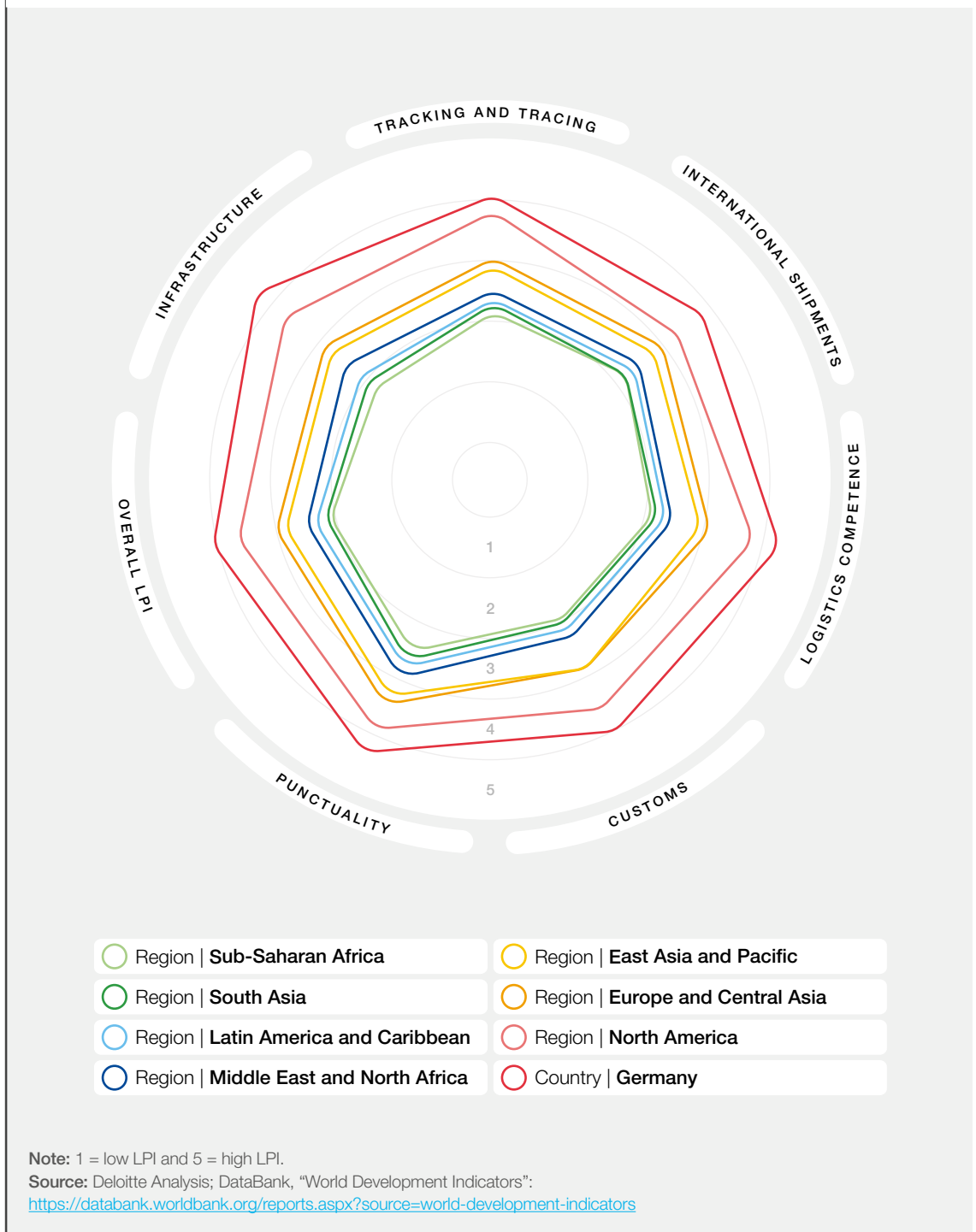
1.1 Comparing the efficiency of processes at borders and ports

The World Bank Logistics Performance Index (LPI) compares more than 160 countries across the world based on six components (customs, infrastructure, international shipments, logistics competence, timeliness, and tracking and tracing) related to the movement of goods in these countries. The LPI reflects the global logistics community's perception of a region or country's capacity and capability to participate competitively in global trade and value chains. Potential investors may even consider the LPI performance of a particular region or country of interest as part of their due diligence before investing.[6] Figure 1 shows the performance of seven global regions compared to the global leader in the index, Germany, for 2018 (most recent data available). North America is the highest-ranked region. The two regions that include African countries, sub-Saharan Africa (SSA) and the Middle East and North Africa (MENA), rank seventh and fourth, respectively.

FIGURE 1 | **Logistics Performance Index (LPI) comparison across world regions (2018)**

Region	Sub-Saharan Africa	Region	East Asia and Pacific
Region	South Asia	Region	Europe and Central Asia
Region	Latin America and Caribbean	Region	North America
Region	Middle East and North Africa	Country	Germany

Note: 1 = low LPI and 5 = high LPI.
Source: Deloitte Analysis; DataBank, "World Development Indicators":
https://databank.worldbank.org/reports.aspx?source=world-development-indicators

In terms of the overall LPI scores, eight of the 10 worst-performing countries in the World Bank's 2018 report were in Africa (Afghanistan and Haiti are the other two).[7] SSA's LPI performance suggests that the global logistics community perceives the SSA region to have a lower capacity to participate competitively in global trade and value chains than other regions of the world.

Another measure that can be used to assess the performance of border and customs processes in isolation is the World Bank Doing Business index, which measures the time and

cost (excluding tariffs) associated with three processes – documentary compliance, border compliance and domestic transport – within the overall process of exporting or importing a shipment of goods. The data is gathered through a questionnaire administered to local freight forwarders, customs brokers, port authorities and traders. The repercussions associated with the relatively poor performance of the overall LPI in the SSA and MENA regions are reflected in Table 1, which shows the costs of border and documentary compliance measured in time (hours) and monetary ($) terms.[8]

TABLE 1	Time and cost of border and documentary compliance across regions, importing and exporting – (2020)							
	Border compliance duration (hours)		Border compliance cost ($)		Documentary compliance duration (hours)		Documentary compliance cost ($)	
	Importing	Exporting	Importing	Exporting	Importing	Exporting	Importing	Exporting
East Asia and Pacific	68.4	57.5	422.8	381.1	53.7	55.6	108.4	109.4
Europe and Central Asia	20.4	16.1	158.8	150.0	23.4	25.1	85.9	87.6
Latin America and Caribbean	55.6	55.3	628.4	516.3	43.2	35.7	107.3	100.3
Middle East and North Africa	94.2	52.5	512.5	441.8	72.5	66.4	262.6	240.7
South Asia	85.7	53.4	472.9	310.6	93.7	73.7	261.7	157.9
Sub-Saharan Africa	126.2	97.1	690.6	603.1	96.1	71.9	287.2	172.5
Global Average	**75**	**55**	**481**	**400**	**64**	**55**	**186**	**145**
MENA compared to global average (%)	26%	-5%	7%	10%	13%	21%	41%	66%
SSA compared to global average (%)	**68%**	**77%**	**44%**	**51%**	**50%**	**31%**	**54%**	**19%**

Compared to other regions on the continent, it takes longer and costs more to comply with customs when importing or exporting goods in SSA. The table above shows that the duration of compliance (border and documentary compliance) ranges from 31% to 77% longer than the global average, while the cost of compliance ranges from 19% to 54% above the global average. Overall, MENA performs better than SSA; however, noticeably, documentary compliance costs for importing and exporting are 41% and 66% higher than the global average, respectively.

Figure 2 compares the overall LPI scores in SSA and MENA with the eight African Regional Economic

Communities (RECs) for 2012 and 2018. SSA's overall LPI performance declined by 0.1 from 2012 to 2018, while MENA remained stable with an LPI score of 2.8. The overall LPI performance across the African RECs remained somewhat inert for the period 2012–2018, as shown in Figure 2. Only four of the eight African RECs improved their overall LPI scores from 2012 to 2018: the Common Market for Eastern and Southern Africa (COMESA), the East African Community (EAC), the Economic Community of Central African States (ECCAS) and the Intergovernmental Authority on Development (IGAD). EAC and IGAD showed the most improvement, with increases of 0.37 and 0.32.

Note: MENA = Middle East and North Africa; SSA = sub-Saharan Africa; UMA = Arabian Maghreb Union; COMESA = Common Market for Eastern and Southern Africa; CEN-SAD = Community of Sahel-Saharan States; EAC = East African Community; ECCAS = Economic Community of Central African States; IGAD = Intergovernmental Authority on Development; SADC = Southern African Development Community.

Source: Deloitte Analysis; DataBank, "World Development Indicators":
https://databank.worldbank.org/reports.aspx?source=world-development-indicators
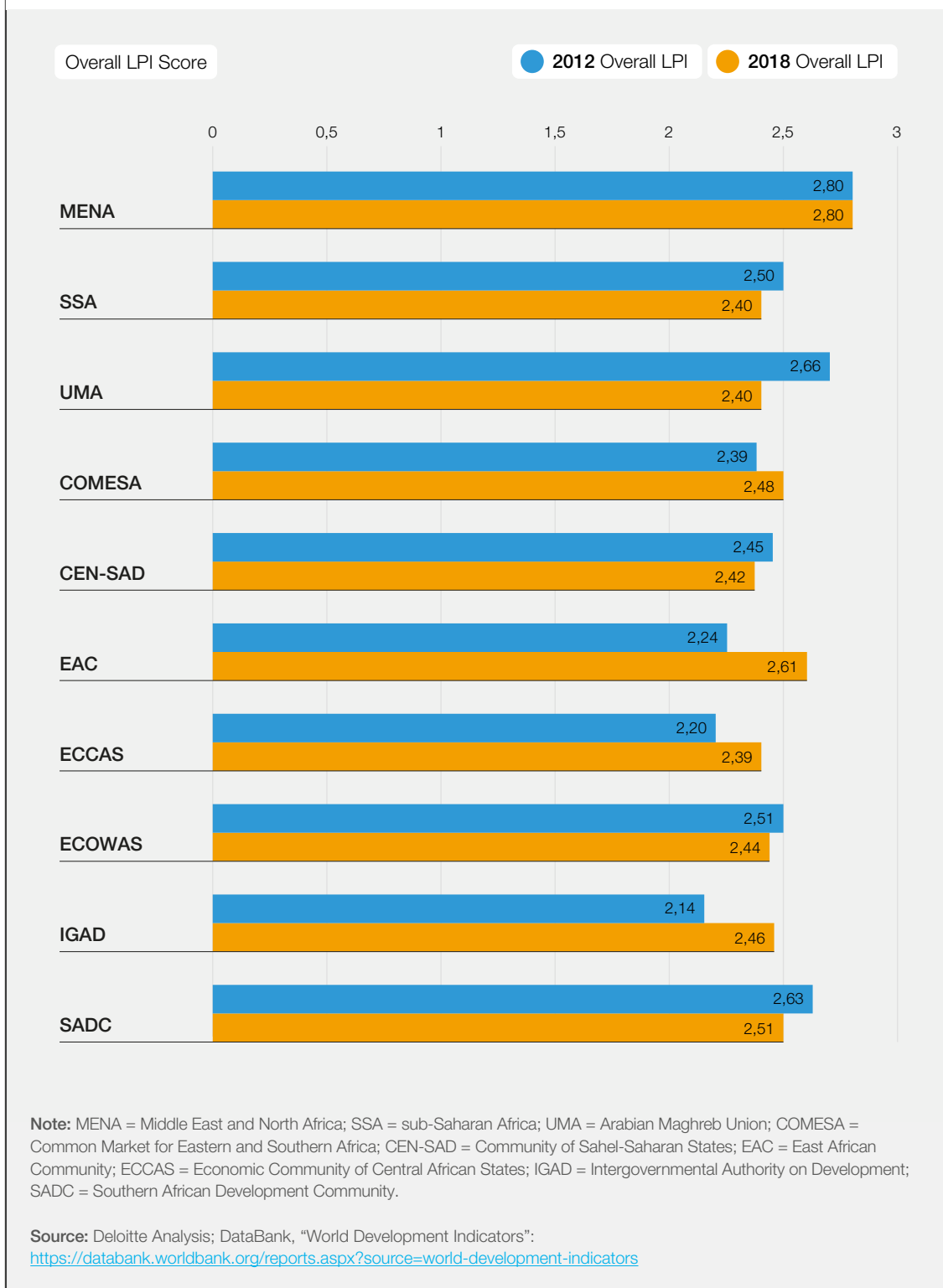
The other four African RECs observed declines in their LPI scores from 2012 to 2018. The Arabian Maghreb Union (UMA) had an overall LPI score decline of 0.26, while the Southern African Development Community (SADC) saw a 0.12 reduction. In a study investigating the drivers of high transportation costs in the SADC region, 60% of large logistics companies and 40% of small logistics companies operating in the region reported that delays resulting in standing time at borders are the most significant factors driving transport costs.[9] Table 2 shows the average time and cost (excluding tariffs) associated with border and documentary compliance when importing or exporting in the eight African RECs.

The average time and cost for border and documentary compliance across African RECs, exporting and importing (2020)

- Top 4 African RECs (border and documentary compliance efficiency)
- Bottom 4 African RECs (border and documentary compliance efficiency)
- African RECs average

	Border compliance duration (hours)		Border compliance cost ($)		Documentary compliance duration (hours)		Documentary compliance cost ($)	
	Importing	Exporting	Importing	Exporting	Importing	Exporting	Importing	Exporting
UMA	99	46	490	490	62	60	224	157
COMESA	126	86	677	493	91	73	340	187
CEN–SAD	113	83	644	467	85	61	294	140
EAC	191	77	690	430	164	80	380	170
ECCAS	195	149	1106	883	140	93	440	200
ECOWAS	112	98	625	514	91	67	252	134
IGAD	134	81	754	479	138	91	333	219
SADC	102	85	636	655	57	64	189	195
African RECs average	**134**	**88**	**703**	**551**	**104**	**74**	**323**	**175**

Source: Deloitte Analysis; World Bank, "Trading Across Borders": https://archive. doingbusiness.org/en/data/ exploretopics/trading-across- borders

SADC and UMA are the two African RECs with the least cost and the shortest time to comply with customs when importing goods. It takes less time to comply with customs when importing in SADC compared to UMA, but the process costs less in UMA compared to SADC. UMA and CEN-SAD are the two African RECs that cost the least and take

the shortest time to comply with customs when exporting goods. The two African RECs where it costs the most and takes the longest to comply with customs when importing goods are the ECCAS and EAC. The two African RECs where it costs the most and takes the longest to comply with customs when exporting goods are ECCAS and IGAD.

1.2 | Issues affecting border and customs processes

Several challenges have been identified through interviews with logistics practitioners that operate on the continent. These may help shed light on the difficulties that have resulted in the low LPI scores and high border and documentary compliance costs in time and money observed above.

– **Manual paper-based processes:** Many countries still have paper-based processes for the submission and checking of documents. This results in more touchpoints being required to check and verify paperwork, which leads to additional staff being needed at these touchpoints, both from the relevant government agencies and from the companies that are transporting the goods. Needing to repeatedly check significant amounts of paperwork at these touchpoints may also result in longer times for processing goods. Manual paper-based processes also exacerbated delays at borders during the onset of COVID-19 as fewer officials were able to work at ports and borders due to measures aimed at minimizing the spread of COVID-19.

– **Movement of goods through ports:** In some ports, multiple touchpoints are required to move containers through them, necessitating teams at ports from logistics companies to ensure that the containers are cleared successfully. There is also poor traceability in some instances, requiring freight forwarders and logistics companies to search for containers. This can greatly increase the time taken to process these containers and deliver them to their final destination.

– **Limited cooperation between border agencies:** Cooperation between border agencies is key to achieving regional trade integration. Initiatives that facilitate more timely and cost-efficient trade of such single-window systems involve a multitude of agencies and other actors and also require cooperation between these agencies to function properly. Through cooperation, agencies can agree on aspects such as controls, inspections and standards conformity to ensure smooth transit of goods from one country to another, generating significant savings.[10] Where there is little cooperation, these initiatives will have little impact, as processes will still be duplicated on either side of the border.

– **High inspection rates for goods and vehicles/containers at ports and physical inspections:** Many ports and borders on the continent have not implemented risk-based customs management. As a result of this, all cargo is inspected at ports of entry or exit, leading to significant time delays as well as increased 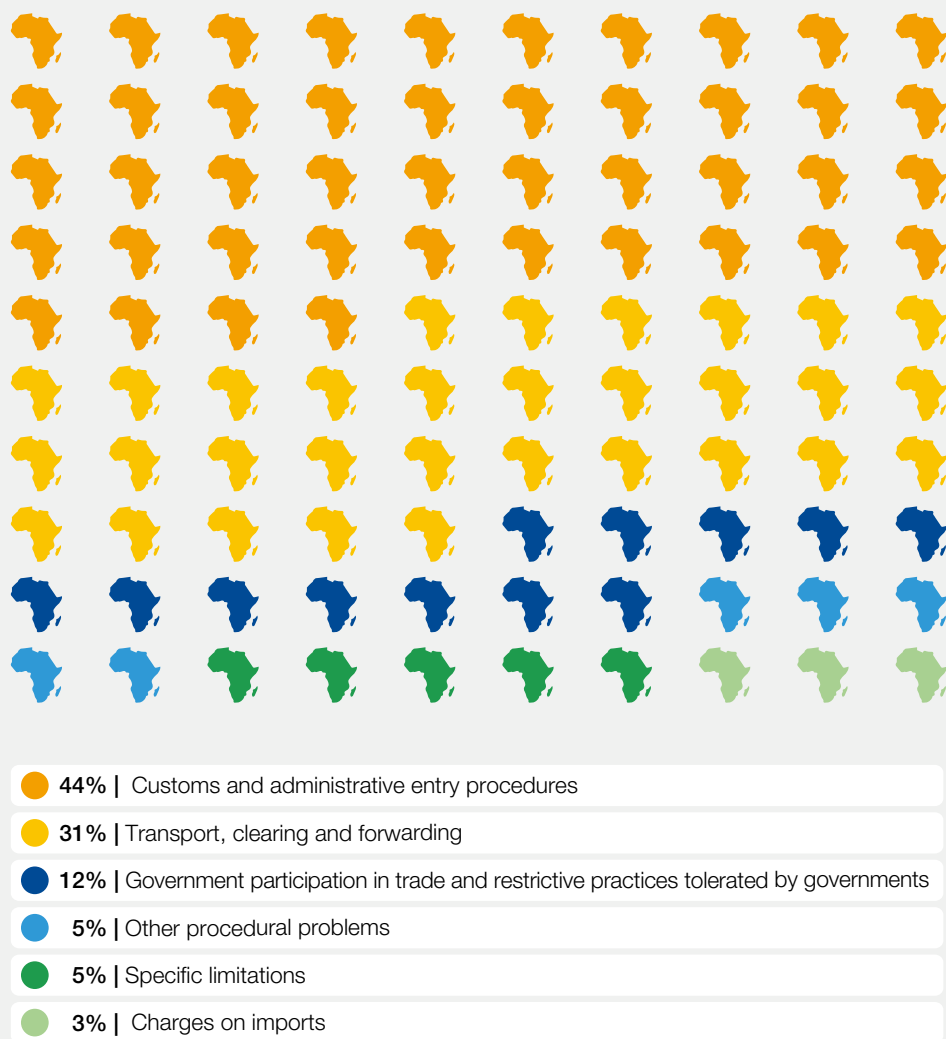costs. In addition, inspections are mostly conducted physically due to a lack of modernized tools and processes for inspections.[11]

– **Slow turnaround times for granting of permits:** Permits are required for the movement of goods across borders. At times, however, special permits may be required in addition to ordinary permits when moving goods to specific countries if there is no harmonization on the need for such permits. It may take time to apply for and obtain these special permits, delaying the movement of goods across borders. COVID-19 has made matters worse because there is a capacity shortage in the issuing of permits, resulting in greater delays.

– **Lack of transparency:** A lack of transparency in customs administration can create a hurdle for traders. For instance, when laws and regulations are not clearly set out and easily accessible, traders may be unaware of their rights and obligations and the resolution of complaints or findings against traders may take a while. This lack of transparency is also perpetuated by parties that may seek to circumvent laws and regulations and they may resist changes that provide greater transparency.[12]

– **Lack of predictability:** Traders require predictability in their operations. This includes ensuring that rulings made on tariff classifications and customs origins are made in advance and are binding for a set period. This will increase the confidence of companies to conduct trade due to the increased predictability of elements such as costs. Companies will also have assurances that they will avoid disputes while their cargo is in transit.[13]

The extent to which these challenges disrupt trade or make trade more difficult can be seen in the Tripartite Free Trade Area (FTA) Non-Tariff Barriers (NTB) monitoring, reporting and resolution mechanism. The mechanism allows stakeholders conducting business within the 29 countries making up COMESA, EAC and SADC to report NTBs that they encounter and monitor the resolution of these complaints.[14] Figure 3 shows active NTB complaints reported by stakeholders that conduct business in COMESA, EAC and SADC by NTB type or nature of NTB complaint for 2020–2021. Some 75% of the complaints for the period relate to customs and administrative entry procedures as well as transport, clearing and forwarding. These two categories include border operating hours, delays at border posts, lengthy and costly customs clearance procedures, inadequate or unreasonable customs procedures and charges, lack of capacity of customs officers and issues related to pre-shipment inspections.

FIGURE 3 | NTB complaints by category (2020–2021)

● **44%** | Customs and administrative entry procedures

● **31%** | Transport, clearing and forwarding

● **12%** | Government participation in trade and restrictive practices tolerated by governments

● **5%** | Other procedural problems

● **5%** | Specific limitations

● **3%** | Charges on imports

Source: Deloitte Analysis, "COMESA-EAC-SADC: Non-Tariff Barriers":
https://www.tradebarriers.org/active_complaints/page:1/sort:unique_number/direction:desc

The extent to which complaints related to border and customs procedures dominate NTB complaints illustrates the extent to which the inefficiencies in these processes hamper trade.

(2) Interventions in African countries

Despite the declining overall LPI scores observed over time in some RECs (2012–2018), certain reforms have been implemented on the continent.

An extensive amount of work has been undertaken to resolve border and customs costs and delays across the continent, as mentioned above. Some of these interventions have included the use of technology to resolve challenges. Below are examples of digital solutions and reforms in African countries, with details of their results.

2.1 | Automated customs

The customs clearance process involves an influx of data and files. With limited human resources at borders despite the volume of trade, customs officers can easily become overburdened. Automated customs solutions can ease this congestion. They can also speed up the transmission of information, facilitating engagement between customs agencies.[15]

Angola 🇦🇴

Before Angola[16] implemented the Automated System for Customs Data World (ASYCUDAWorld) system, its customs operations were characterized by manual processes including separate processing of customs declarations and cargo manifests and capturing of customs-related payments from receipts.

In 2017, ASYCUDAWorld introduced a paperless and electronic environment. Cargo XML standards as defined by the International Air Transport Association (IATA) were integrated, allowing electronic communication between airlines, shippers, freight forwarders, customs and security agencies. Customs were streamlined with international methodologies and electronic payments were introduced.

As a result of the implementation, Angola saw several benefits, including:

- Angola Revenue Authority (AGT) revenue increased by 44% in 2018 and by a further 13% in 2019

- Paperwork for goods clearance was reduced by 70%

- The customs clearance process of goods was reduced from 30 to seven steps

Electronic single-window systems

A single-window system is defined by the United Nations as "a facility that allows parties involved in trade and transport to lodge standardized information and documents with a single entry point to fulfil all import, export and transit-related regulatory requirements".[17] Single-window systems can be fully electronic or mixed (electronic and manual).

Where single-window systems are electronic, they allow simultaneous and sometimes one-off submissions of customs documents (ACI declarations, customs declarations, applications for import and export permits, sanitary and health certificates, summary data, certificates of origin, invoices, bills of lading, packing lists) and other government agency information that enable clearances in a shorter time.[18,19] Costs can also be reduced by limiting the duplication of processes and the need to physically submit documents, which may require those submitting these documents to travel a considerable distance to do so. In addition, electronic single windows can allow traders access to markets that may previously have been too costly or difficult to enter as electronic windows make it easier to access and process information.

Image: @ermingut/Gettyimages

Rwanda 🇷🇼

Before the implementation of the Rwanda Electronic Single Window (ReSW), investors identified opportunities in Rwanda but had to deal with numerous regulatory agencies that used manual procedures and often had overlapping roles.[20] Consequently, importers were typically required to wait more than 11 days to clear their goods through customs for import purposes. Exporters were also required to wait approximately two days and 19 hours for their exports to be released to their respective markets. In addition, it would take four days to clear tax-exempt goods.[21]

In 2005, the Rwanda Development Board (RDB) began to drive automation initiatives for government service delivery purposes after identifying that investors faced challenges when it came to clearing goods that they were either importing to or exporting from Rwanda, resulting in the development of the ReSW.[22] The implementation of ReSW was assigned to Rwanda Revenue Authority (RRA) and in 2011 Rwanda began to use ASYCUDAWorld (a software suite with a customs management system and an integrated border management system) as the central platform for the ReSW.[23] This was followed by extensive training for all of the key stakeholders – RDB, RRA, the Rwanda Standards Board (RSB), the Magasins Generaux du Rwanda (MAGERWA), clearing agents and freight forwarders – and, in 2012, the ReSW was piloted before being rolled out in 2013.[24]

Following the implementation of ReSW, Rwanda saw several benefits, including:[25]

– The time required to clear goods through customs for import purposes was reduced by 46% (from more than 11 days to 1 day 10 hours and 55 minutes in 2014)

– The time between registration and payment decreased by 26%

– Export release time was reduced by 64% (from approximately 2 days 19 hours to 1 day 10 hours)

– The electronic application and approvals of exemptions have reduced the clearance time of tax-exempt goods from 4 days to 0.5 hours

– The amount of inspected cargo increased from 14% in 2012 to 42% in 2014

Image: @Delmaine Donson/Gettyimages

Kenya

The strategic geographical location of Kenya played a major role in making the Port of Mombasa the largest port in East Africa. The resulting growth in trade volumes increased the complexity and duplications of processes and extended the time it took to process maritime trade documents, and ultimately delayed seaborne trade goods. Before the implementation of the Kenya Trade Net System, compliance with business regulations for export would take 26 days, while it took 24 days to comply with business regulations for import.[26]

In 2005, both the Kenya Revenue Authority (KRA) and the Kenya Ports Authority (KPA) commissioned a feasibility study to determine the requirements, benefits and cost implications of setting up a Community Based Computerized System (CBS) designed to ease trade and combat corruption at the Port of Mombasa.[27] The World Bank, through its East African Trade and Transport Facilitation (EATTF) project, provided the needed support for the implementation of CBS at the Port of Mombasa. With the success of CBS at the Port of Mombasa, the Kenyan government then adopted the CBS concept in 2007 and developed it into a national electronic single window system known as the Kenya TradeNet System, overseen by the KPA, KRA, the National Treasury, the Ministry of Transport and the Ministry of Trade. The Kenya TradeNet System covered rail, air, sea, road and maritime systems, encompassing all government agencies involved in trans-border trade.

This was then followed by the establishment of the Kenya Trade Network Agency (KenTrade) in 2011, to implement, operationalize and manage the Kenya National Electronic SWS and to facilitate international trade. In 2013, Kenya launched the TradeNet System in Nairobi.[28]

From 2013 to 2018, the benefits yielded by the Kenya TradeNet System included:[29]

– The number of days taken to comply with business regulations for export decreased from 26 to 19

– The number of days taken to comply with business regulations for import decreased from 24 to 18

– There was a 50% decrease in the cost to import (an estimated $25.36 million reduction in costs)

– There was an approximately 50% decrease in the average number of steps involved in processing clients' applications (from 1,332 steps to 684 steps)

Image: @dan_prat/Gettyimages

Ghana 🇬🇭

The process of establishing a single window in Ghana began in 2000 when the stakeholders raised concerns about the inefficient nature of port clearance processes in Ghana.[30] As a result, the Ghana Community Network Services Limited (GCNeT), a public-private partnership (PPP) joint venture was formed by SGS (a Swiss multinational company) in 2000 and was mandated by the Ghana government to design, finance and manage the implementation of GCNet.[31] In 2003, the first phase of the Ghana National Single Window (GNSW) was operationalized by the GCNet and focused on automating customs processes and procedures.

This was later succeeded by the launch of the second phase of the GNSW in 2015.

The second phase extended the National Single Window automation and integration approach to all government agencies and private-sector operators involved in international trade.[32] Unlike the first phase of the GNSW, the second phase is entirely automated and allows for a single entry point to seamlessly facilitate the one-time submission of the required trade information for processing by relevant government agencies and private-sector operators, together with the receipt of the relevant responses.[33]

The second phase of the GNSW is still operational and has so far yielded the following benefits for Ghana:

– The time taken for import classification and valuation of compliant transactions has been reduced from two weeks to 48 hours and in some cases just over two hours

– An increase of 24% in government revenue for the period 2015 to 2017, from GH₵744 billion ($99 billion) in 2015 to GH₵975 billion ($1,295 billion) in 2017[34]

– The cost and time of importing were reduced by $50 and 40 hours per consignment between 2014 and 2016[35]

Digitizing of processes and procedures

The import and export of goods involves a significant amount of documentation to ensure that all necessary information is collected by agencies involved in a transaction. In a paper-based environment, this can result in a large volume of documents that need to be produced or delivered to various locations many times during the import/export process, as well as increasing time and costs. Through digitization, information could possibly be captured once and disseminated to all relevant parties in the process, reducing time and monetary costs, as well as minimizing the loss of documents and risk of fraud that could take place during the process.as electronic windows make it easier to access and process information.

Below: @Chalabala/Gettyimages

South Africa 🇿🇦

South Africa's ports and borders play a significant role in trade in southern Africa. In addition, there has been a growing demand for cross-border regional integration. To cope with increasing demands, several issues needed to be addressed, including the reliance on paper-based processes, manual processes and non-value-adding customs activities. The South African Revenue Services (SARS) embarked on a review of its legacy customs systems. Following the review, various interventions were implemented between 2009 and 2013. These included: the use of electronic supporting documents; the introduction of a mobile application tool to support inspections that allows inspection results to be captured and which includes pictures of cargo; and a new web-based platform for end-to-end processing of customs clearances.

The impacts of these initiatives included:

– Cutting the use of paper, from 40 million pieces of paper used to process 5.5 million declarations down to 800,000 pieces of paper

– Reducing the time needed for physical inspections from eight hours to two hours (on average)

– Simplifying real-time customs declarations, allowing traders to be dealt with in as little as seven seconds

– Halving the number of days taken to imports goods[36]

Cargo scanners

Cargo scanners are electronic tools that allow for non-intrusive inspection and monitoring of containerized goods. These tools help to determine the types and quantities of goods imported through various borders and ports. They can be used as a substitute for manual inspections, which can be time-consuming (unloading and loading goods for searches), and more intrusive examination procedures that may include drilling and dismantling goods.[37]

Electronic tracking systems for cargo

Electronic cargo tracking systems make it possible to monitor goods in transit in real time. This is achieved with tracking devices that use radio frequency identification (RFID) and Global Positioning System (GPS)/General Packet Radio Service (GPRS) technology. Electronic cargo tracking systems can help to ensure that cargo travels across mandated routes, which can help to reduce theft, ensure that cargo undergoes the correct clearance processes and reduce the number of inspections required. The electronic format of data also means that information on specific cargo can be accessed quickly should the need arise, compared to manual paper-based processes.[38] This, coupled with other risk-management techniques, makes some customs procedures redundant, allowing for a faster customs examination process.[39] Lastly, tracking cargo can assist with planning at borders as officials have real-time awareness of when shipments will reach their borders.

Below: @kokouu/Gettyimages

Uganda 🇺🇬

The Uganda Revenue Authority (URA) indicated that the daily cost incurred by transporters when trucks were delayed along transit routes was $200–250.[40] This was fuelled not only by the distance travelled but also by the number of roadblocks resulting from the use of physical escorts, traffic police and customs authorities, as well as weighbridges. For example, physical escorts would typically increase transit time from one day to two to four days and, as a result, escalated the cost of transport by $400–500.[41] The aforementioned factors that increased cargo transport costs, together with the theft of goods in transit and attacks on Uganda's truck drivers, necessitated the establishment of an electronic cargo tracking system in Uganda. In 2013, the URA, with the support of the World Bank and Trade Mark East Africa (a trade facilitation institution), launched an electronic cargo tracking system (ECTS) to reduce the cost of doing business in Uganda.[42] One of the main features of the ECTS is that it provides customs with real-time information, making it easy to locate goods in transit at any time and thus counteract custom-seal tampering and off-route diversion of goods.[43]

The benefits envisioned by the URA when it decided to implement the ECTS in Uganda have since materialized and include:[44]

– A decrease in transit time from seven to two days, which is attributable to the real-time monitoring mechanism that helped prevent time wastage on transit routes

– Some 25,689 sensitive consignments being e-monitored in the period May 2014 to October 2015, which translated to estimated cost savings of UGX3.85 billion ($1.1 million) due to the reduced need for physical escorts

Below: @kokouu/Gettyimages

Zimbabwe 🇿🇼

Before the introduction of an ECTS in Zimbabwe, volumes of illegal imports were dumped in the country's domestic markets, due partly to the absence of a live tracking mechanism for cargo. At the time, only transit data was available in the system[45] and consequently other data was being tampered with and delays in transit often occurred, along with incidents of theft and smuggling.[46] For example, between 2009 and 2016, the smuggling of petrol and diesel increased by almost 600%, and it is alleged that smugglers would often disguise petrol and diesel as duty-free paraffin.[47] In 2017, the Zimbabwe Revenue Authority (ZIMRA), with the support of the African Development Bank (AfDB) group and Techno Brain, introduced an ECTS to curb incidents of dumping and reduce the operational cost of transit monitoring and,

ultimately, strengthen its enforcement of cargo-handling regulations.[48]

The Zimbabwean ECTS uses 21 geofenced transit routes covering all important commercial cargo (e.g. break-bulk cargo, containerized cargo and fuel tankers) and is integrated into the existing ASYCUDAWorld portal.[49] Using electronic seal devices that are attached to the transit cargo at the ports of entry enables real-time tracking and monitoring of transit cargo from the point of entry into Zimbabwe to the point of exit.[50] These electronic seals are linked to the designated ECTS control room, which reports any violations or tampering to the standby ZIMRA reaction teams for corrective action, which may include seizure of the cargo or penalties depending on the nature of the offence.[51]

In less than a year after the operationalization of the ECTS in Zimbabwe, ZIMRA reported the following benefits as attributable to the system:

– Four tankers that entered Zimbabwe with 140,000 litres of diesel were detained after it emerged that while supposedly in transit to the DRC their contents were illegally emptied within Zimbabwe and replaced with an equivalent volume of water; this saved Zimbabwe $55,650 in excise during the month of the incident[52]

– ZIMRA's monitoring and tax collection capabilities were strengthened, resulting in the registration of 3,232 new taxpayers and 106 cases referred to audits[53]

Risk-based and joint inspections

Cargo inspections can result in significant delays at borders even when non-intrusive inspections are conducted, especially when all of the cargo is checked and there is insufficient information to determine which shipments should be inspected. In addition, sampling of consignments can take several days, causing further delays.

Risk-based inspections assist in reducing the number of inspections that need to be undertaken. Past data on various types of cargo such as the level of inspection, the outcome of inspections and

the penalties applied for infractions can be used to determine risk scores that can then be used to determine which cargo should be inspected in future. In this way, the number of shipments inspected can be narrowed down to those that have a higher probability of infractions.[54]

In addition, joint inspections of cargo by various agencies of the same country or joint inspections by officials from two neighbouring countries can help to reduce the number of times cargo needs to be inspected. This, coupled with risk-based inspections, can significantly reduce the time taken to clear goods.
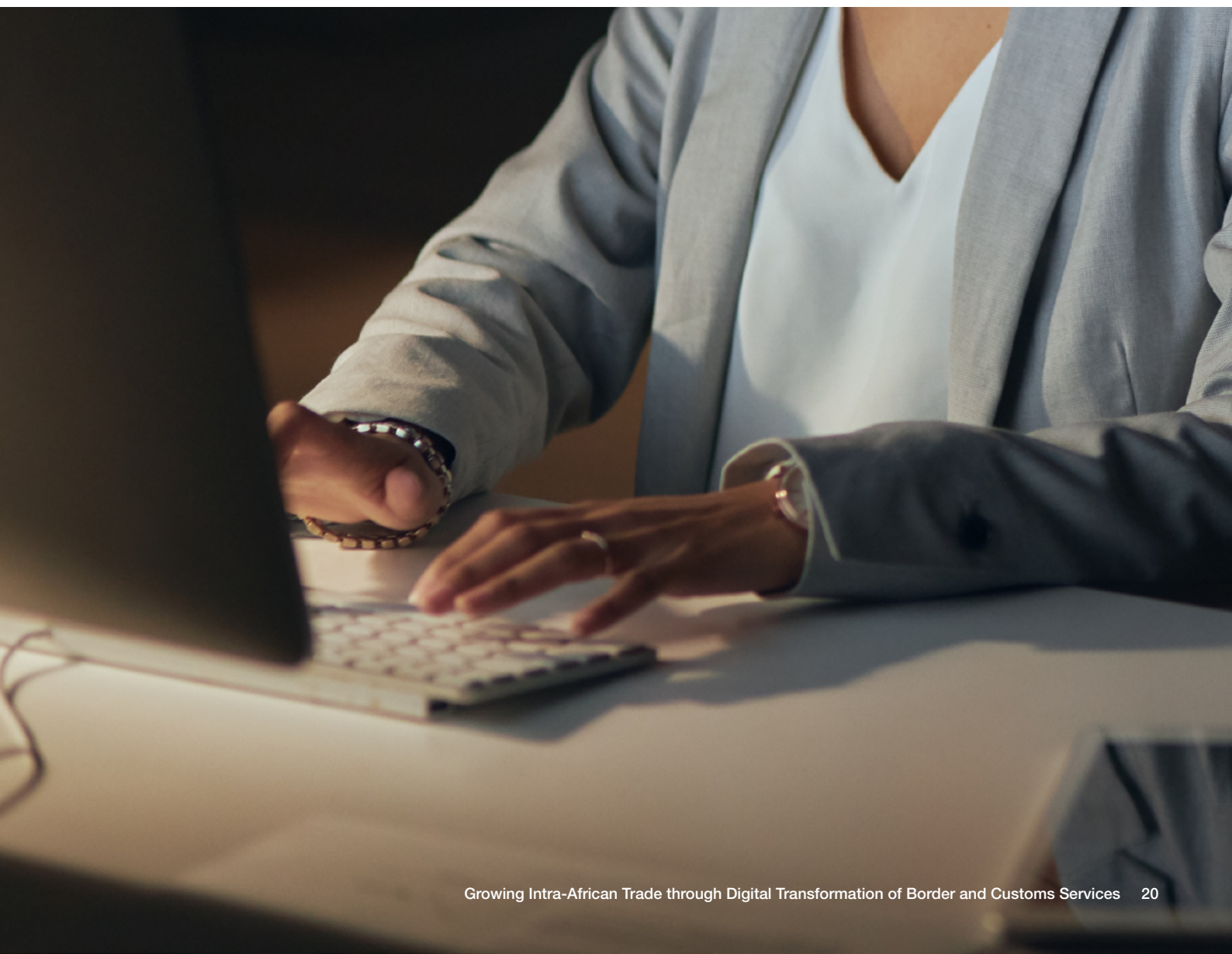
Below: @alynst/Gettyimages

3 | Towards more efficient customs and border processes

Improvements in cargo efficiencies need not be undertaken all at once but can be made over time and according to countries' specific needs and situations.

The interventions discussed above give some indications of the benefits that can be achieved from the use of digital tools in customs processes. Vital to the case studies presented in the previous section is the fact that introducing efficiencies in cargo customs journeys need not be completed in one fell swoop. Countries can take targeted actions, each with a high impact, over time. This building-block approach is important as many of the interventions required may come with specific challenges, and trying to implement them all at once may serve only to add increased complexity and delay the realization of favourable outcomes. In addition, different countries will have different national priorities, policy considerations and capabilities available to them (financial or human resources, technological infrastructure, etc.). By taking a phased approach, countries can, for instance, target achievable goals or apply the 80/20 principle (80% of targeted results can be achieved through 20% of the efforts needed) by addressing a few prioritized issues at first that would yield the most impact based on the current efficiency of their customs processes.[55]

3.1 | The digital customs maturity model

In taking a phased approach to improving efficiencies, each country must have a roadmap to ensure an additive approach to outcomes (interventions need to be complementary to the extent that the overall customs process is improved with the implementation of each intervention). The World Customs Organization (WCO) Digital Customs Maturity Model provides an example of a path on which countries may embark towards a fully digital customs environment. In this instance, countries start with relatively simple interventions such as electronic data capturing and the publication of all relevant information for imports and exports to provide access to stakeholders. Countries then add increasingly complex interventions such as single window systems and interactive services. As a country moves from left to right on the diagram, previous interventions help to add more complex capabilities (e.g. having initially captured all information and supporting documents electronically, this can make the implementation of an electronic single window environment easier to achieve).

FIGURE 4 | Digital Customs Maturity Model
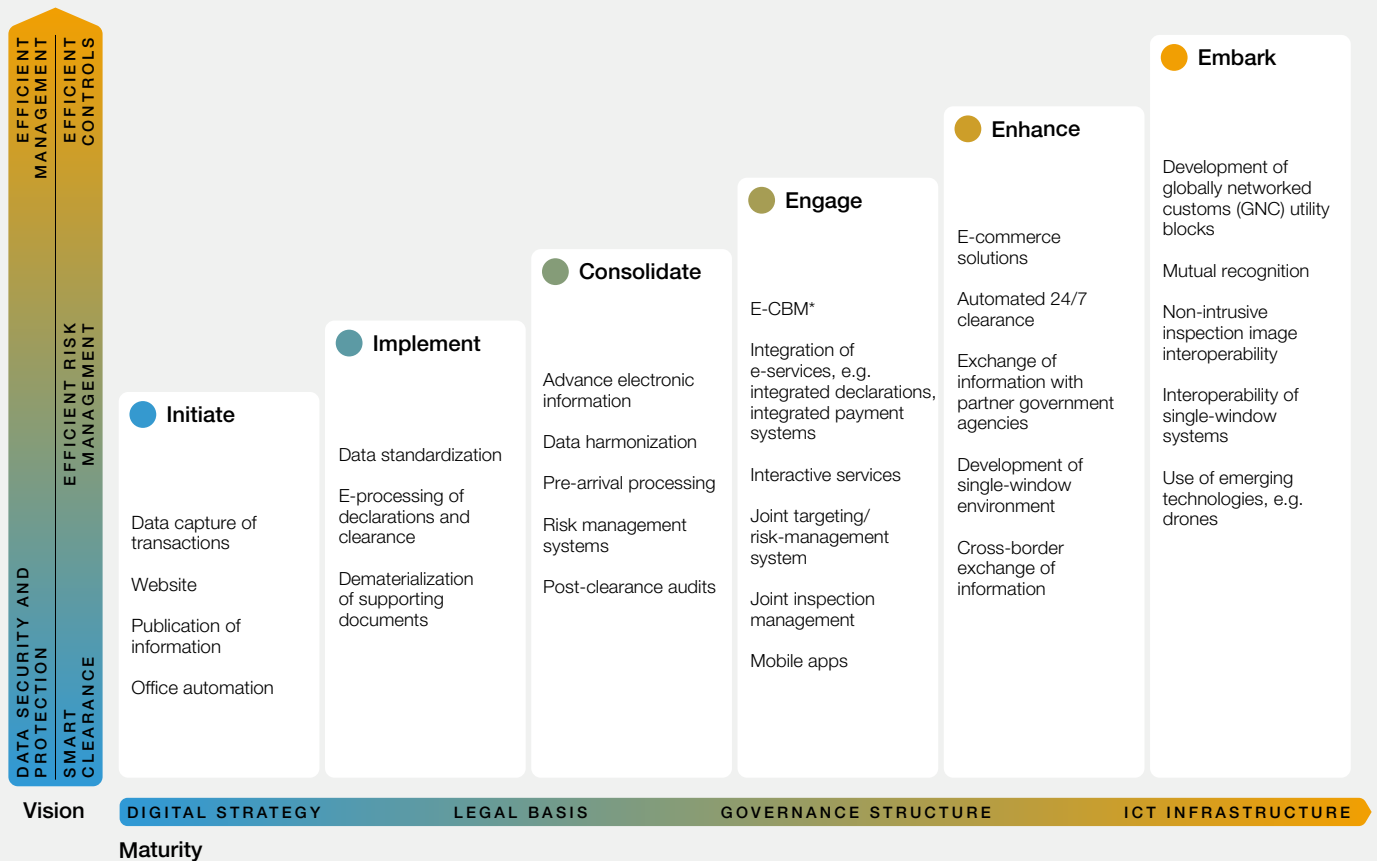
* CBM (cubic metre) is the measurement used to determine the volume of a shipment.
Source: World Customs Organization (2018), "Strategic Leadership in Information Technology: IT Guide for Executives": http://www.wcoomd.org/-/media/wco/public/global/pdf/topics/facilitation/instruments-and-tools/tools/it-guide-for-executives/it-guide-executives.pdf?db=web

3.2 | Demand-driven interventions

The demand-driven approach can be used to target specific challenges that, when resolved, help to improve efficiencies.

This approach is often used by the Global Alliance for Trade Facilitation (GATF). By working closely with the private sector as well as governments, the GATF can identify the demand for interventions based on the challenges experienced by private-sector players in various countries. Such an approach allows partnerships between the private and public sectors to ensure that the reforms are implemented to

address specific issues faced by participants in the trade. It also ensures that the solutions developed are fit for purpose and agreeable to all parties to achieve the highest adoption rates possible.

The GATF is currently involved in several projects in nine countries in Africa, where it is assisting in the facilitation of trade. These projects include: improving phytosanitary trade processes;[56] implementing advanced rulings for importers and exporters and automating practices; and making data-sharing more secure.

TABLE 3 | **Global Alliance for Trade Facilitation projects in Africa**

Country	Project name/description	Category of project
Madagascar	Advance rulings project to lower costs, boost confidence in customs processing	Advance rulings
Madagascar	Backing the government's initiative in improving phytosanitary trade processes in plant or plant products	Other measures to enhance impartiality, non-discrimination and transparency
Malawi	Upskilling clearing agents to facilitate trade	Upskilling and training
Morocco	Automating practices and making data-sharing more secure	Formalities connected with importation and exportation and transit
Morocco	Improving data exchange and reducing congestion	Other measures to enhance impartiality, non-discrimination and transparency
Mozambique	Digitizing and streamlining the handling of vaccines and other medical products	Formalities connected with importation and exportation and transit
Mozambique	Digitizing and streamlining border processes to make the shipment of rapid test kits faster and easier	Other measures to enhance impartiality, non-discrimination and transparency
Nigeria	Creating a better business environment for growth in Africa's largest economy	Formalities connected with importation and exportation and transit
Senegal	Introducing the IPPC's ePhyto Solution to digitize certification processes	Formalities connected with importation and exportation and transit
Senegal	Initiative to make importing more transparent, faster and less costly	Formalities connected with importation and exportation and transit
Tunisia	Going digital through the single window to cut out paperwork	Other measures to enhance impartiality, non-discrimination and transparency
Uganda	Streamlining and automating processes at Uganda packhouses and Entebbe Airport to cut delays and costs	Formalities connected with importation and exportation and transit
Zambia	Modernizing licensing for customs clearing agents	Upskilling and training

While the interventions outlined in the Digital Customs Maturity Model can greatly improve efficiency, several aspects must be carefully considered and implemented if digital solutions are to have their maximum impact:

– Legislation needs to be supportive of the changes that will be made if these changes are to be widely accepted and implemented. This includes legislation surrounding electronic signatures and transactions or the use of digital tools (e.g. the use of drones for tracking cargo).

– Buy-in from various government agencies involved in customs processes is vital to the implementation of digital tools. Garnering political will ensures that the required resources are made available, that challenges in implementation can be overcome and that changes can be made across all agencies to benefit every stakeholder involved (e.g. all agencies will accept electronically submitted data and documents).

– Both public- and private-sector participants need to be involved in changing customs processes. While the public sector will provide the necessary digital tools to improve efficiency, making changes without consulting private-sector stakeholders who will also be users of the upgraded systems may result in users feeling frustrated if they believe that the changes made do not increase efficiencies. This may also negatively affect the adoption of digital solutions by actors involved in the importing and exporting of goods. Some stakeholders may also resist changes as they rely on inefficient processes to circumvent laws and processes. This must be addressed when implementing new systems. Trust is vital in building relationships between the public and private sectors. The GATF's research into the Colombian automotive industry and customs revealed that several factors can greatly increase trust between the private and public sectors, including: (1) public-private dialogue; (2) trainings and working groups that enhance knowledge-sharing and understanding; and (3) the public sector's

willingness to review regulations and accept proposals that address trade challenges and make consistent decisions.[57]

– While the use of digital solutions focuses on digital tools, human resources remain an integral component of customs processes. The interventions discussed in this paper are designed to enhance the productivity of customs and government agency officials given the important role they play. For customs and government officials and traders to extract the maximum benefit from digital solutions, officials need to be sufficiently trained in the use of the technologies used.

– Finally, coordination between countries plays a vital role in whether trade facilitation will be successful, even when digital solutions are implemented. Such coordination in aspects such as standards for goods and processes helps to facilitate trade. For example, the establishment of a Single Customs Territory (SCT) by the EAC has seen a significant increase in efficiency in the clearance and movement of cargo. Some of the benefits that have been derived from the SCT include:[58]

  – All intraregional traded goods among Kenya, Uganda, Rwanda and Tanzania are cleared under the SCT scheme

  – Customs officers from one country can be deployed to work in other countries. This flexibility has further eased the clearance of goods, allowing them to move directly from points of dispatch in one partner state to the owner's premises in another partner state without going through further customs checks

  – A single electronic declaration before shipping of goods has been implemented. This has reduced the documentation currently used to release goods to their destination by 80%

  – Real-time sharing of customs information upon arrival of goods has been implemented

Conclusion

There is significant potential for increased intra-African trade to build a substantial case for industrialization in the region and create greater and more inclusive economic growth. This is supported by the estimated benefits of properly implementing the AfCFTA and increasing the prevalence of e-commerce. The region has the benefit of learning from its European and Asian counterparts, which have trialled various trade facilitation initiatives as well as different digital solutions to improve operational effectiveness at trading ports.

The analysis strengthens the argument for border and customs authorities to look at integrating digital reforms, from logistics to customs management, to create a seamless experience for parties using these services. This requires investing in systems and accompanying connectivity infrastructure that can interface with one another to manage traffic at ports expeditiously. Trade facilitation specialists also need to provide specialist guidance on solutions that resolve current challenges and allow countries to reap the benefits of future trade opportunities enabled by the AfCFTA and by e-commerce.

Further, business organizations should place greater emphasis on collaboration with governments to create better networked ports and improve the efficiency of ports through avenues such as demand-driven interventions. Governments can also encourage this transition to greater efficiency by driving the adoption of modernized processes and enacting laws that support such interventions.

Contributors

World Economic Forum

Mirco Moencks
Lead author – Institute for Manufacturing, University of Cambridge; Fellow at the World Economic Forum

Walter Mandela
Community Specialist, Regional and Global Cooperation, Africa

Chido Munyati
Head, Regional and Global Cooperation, Africa

William Petty
Head, Global Alliance for Trade Facilitation

Jimena Sotelo
Project Lead, Digital Trade, Center for the Fourth Industrial Revolution

Deloitte

Martyn Davies
Director, Deloitte Africa

Harsha Desai
Associate Director, Deloitte Africa

Tsheki Kolobe
Manager, Deloitte Africa

Daniel Materu
Senior Manager, Deloitte Africa

Thabang Mccamel
Consultant, Deloitte Africa

Kavitha Prag
Director, Deloitte Africa

Acknowledgements

Agility

Geoffrey White
Chief Executive Officer, Agility Africa

Tony Saliba
Former Chief Executive Officer, Agility Logistics

Jason Scully
Chief Executive Officer

ECIC

Benoit Fugah
Head, Political, Economic Analysis and Research Unit

Warren Koen
Manager, Office of the CEO

Jeffrey Mashiane
Senior Economist

Nepad

Kisa Nkhoma
Move Africa Programme Lead

Endnotes

1. International Chamber of Commerce, "Customs and Trade Facilitation": https://iccwbo.org/global-issues-trends/trade-investment/trade-facilitation/.

2. United Nations Conference on Trade and Development (2020), "Efforts to Tear Down Barriers to Trade in Africa Gather Pace": https://unctad.org/press-material/efforts-tear-down-barriers-trade-africa-gather-pace.

3. Trade Law Centre (2015), "Africa's Inter-Trade Improving But Digitalization of Customs Procedures Lags Behind": https://www.tralac.org/news/article/7963-africa-s-inter-trade-improving-but-digitalization-of-customs-procedures-lags-behind.html.

4. Hummels, D. L. and Schaur, G. (2012), "Time as a Trade Barrier", SSRN: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1989330.

5. Faulin, J., Grasman, S., Juan, A. and Hirsch, P. (2018), "Sustainable Transportation and Smart Logistics: Decision-Making Models and Solutions": https://www.sciencedirect.com/book/9780128142424/sustainable-transportation-and-smart-logistics#:~:text=Sustainable%20Transportation%20and%20Smart%20Logistics%3A%20Decision-Making%20Models%20and,probabilistic%20models%20for%20transportation%20logistics%20problem-solving%20and%20decision-making.

6. Trade & Industrial Policy Strategies (2017), "Cross-Cutting Logistics Issues Undermining Regional Integration Across SADC": https://www.tips.org.za/research-archive/trade-and-industry/item/3414-cross-cutting-logistics-issues-undermining-regional-integration-across-sadc.

7. World Bank (2018), "Connecting to Compete 2018: Trade Logistics in the Global Economy: The Logistics Performance Index and Its Indicators": https://openknowledge.worldbank.org/handle/10986/29971.

8. It should be noted that in 2021 the World Bank announced that it would be discontinuing the Doing Business Report, "because the internal report raised ethical matters, including the conduct of former board officials as well as current and/or former bank staff, management reported the allegations to the Bank's appropriate internal accountability mechanisms". These concerns appear to relate to specific countries' metrics. Thus, the report may still however provide a significantly more useful overview at regional levels: https://www.worldbank.org/en/news/statement/2021/09/16/world-bank-group-to-discontinue-doing-business-report.

9. Trade and Industrial Policy Strategies (2017), "Cross-Cutting Logistics Issues Undermining Regional Integration Across SADC": https://www.tips.org.za/research-archive/trade-and-industry/item/3414-cross-cutting-logistics-issues-undermining-regional-integration-across-sadc.

10. United Nations Conference on Trade and Development (2019), "Digitalization in Maritime Transport: Ensuring Opportunities for Development": https://unctad.org/system/files/official-document/presspb2019d4_en.pdf.

11. TralacBlog (2021), "Improving Border Efficiency in Sub-Saharan Africa: The Need to Look at 'Beyond the Border' Operations", Trade Law Centre: https://www.tralac.org/blog/article/15328-improving-border-efficiency-in-sub-saharan-africa-the-need-to-look-at-beyond-the-border-operations.html.

12. TralacBlog (2020), "Customs Modernisation in Africa and Related Challenges", Trade Law Centre: https://www.tralac.org/blog/article/15053-customs-modernisation-in-africa-and-related-challenges.htm.

13. Global Alliance for Trade Facilitation (2020), "Madagascar: Bringing Certainty to Trade: Making Trade Processes More Transparent and Predictable for Businesses": https://www.tradefacilitation.org/project/making-trade-processes-more-transparent-and-predictable-for-businesses/.

14. Trade Barriers.org, "The Mechanism for Reporting, Monitoring and Eliminating Non-Tariff Barriers": https://www.tradebarriers.org/about.

15. Trade Law Centre (2020), "Digital Solutions for Trade Facilitation": https://www.tralac.org/blog/article/14716-digital-solutions-for-trade-facilitation.html.

16. United Nations Conference on Trade and Development (2020), "ASYCUDA Partnerships for Sustainable Development": https://unctad.org/system/files/official-document/dtlasycuda2021d1_en.pdf.

17. United Nations Economic Commission for Europe (2005), "Recommendation and Guidelines on Establishing a Single Window to Enhance the Efficient Exchange of Information Between Trade and Government: Recommendation No. 33": https://unece.org/DAM/cefact/recommendations/rec33/rec33_trd352e.pdf.

18. CargoX (2021), "What Is a Single Window System and How Does It Help Business and Governments?": https://cargox.io/blog/single-window-system/.

19. The Journal of Commerce Online (2018), "What the Single Window System Means for Trade": https://www.joc.com/regulation-policy/customs-regulations/what-single-window-system-means-trade_20180123.html.

20. IFC, "Taking Advantage of a Window of Opportunity: The Rwanda Electronic Single Window for Trade Efficiency": https://documents1.worldbank.org/curated/pt/248011488807240462/pdf/113173-BRI-IFC-SMART-LESSONS-BRIEF-PUBLIC-20170303T111535-2017-Rwanda-Single-Window-Trade-A.pdf

21. Trade Mark East Africa, "The Rwanda Single Electronic Window": https://www.trademarkea.com/project/the-rwanda-electronic-single-window/.

22.	International Finance Corporation, "Taking Advantage of a Window of Opportunity: The Rwanda Electronic Single Window for Trade Efficiency": https://documents1.worldbank.org/curated/pt/248011488807240462/pdf/113173-BRI-IFC-SMART-LESSONS-BRIEF-PUBLIC-20170303T111535-2017-Rwanda-Single-Window-Trade-A.pdf.
23.	Trade Mark East Africa, "The Rwanda Single Electronic Window": https://www.trademarkea.com/project/the-rwanda-electronic-single-window/.
24.	International Finance Corporation, "Taking Advantage of a Window of Opportunity: The Rwanda Electronic Single Window for Trade Efficiency": https://documents1.worldbank.org/curated/pt/248011488807240462/pdf/113173-BRI-IFC-SMART-LESSONS-BRIEF-PUBLIC-20170303T111535-2017-Rwanda-Single-Window-Trade-A.pdf.
25.	Trade Mark East Africa, "The Rwanda Single Electronic Window": https://www.trademarkea.com/project/the-rwanda-electronic-single-window/.
26.	Kenya Investment Climate Program, "Impact Evaluation of the Kenya National Electronic Single Window", World Bank Group: https://www.kentrade.go.ke/wp-content/uploads/2019/05/Impact-of-Kenya-TradeNet-System-2018.pdf.
27.	Beja, P. (2002), "Kenya Ports Authority to Establish Computerised System Project in Port", AllAfrica: https://allafrica.com/stories/200203090140.html.
28.	KenTrade, "About TradeNet": https://tfp.kenyatradenet.go.ke/TFBSEW/login/aboutTradeNet.jsp.
29.	Kenya Investment Climate Program, "Impact Evaluation of the Kenya National Electronic Single Window": https://www.kentrade.go.ke/wp-content/uploads/2019/05/Impact-of-Kenya-TradeNet-System-2018.pdf.
30.	World Customs Organization, "Single Window for Trade and Customs Transactions – Ghana's Experience": http://www.wcoomd.org/en/topics/facilitation/activities-and-programmes/single-window/~/media/F0A44374C07A41AE989A5739EEE168E3.ashx.
31.	SGS, "Single Window: Make it Happen": https://www.sgs.co.ao/-/media/global/documents/brochures/sgs-gis-single-window-a4-en-14.pdf; State Interests and Governance Authority, "Ghana Community Network Services Limited (GCNeT)": https://siga.gov.gh/sector/ghana-community-network-services-limited-gcnet/.
32.	Organisation for Economic Co-operation and Development, "Ghana National Single Window (GNSW) Programme Case Study": https://www.oecd.org/aidfortrade/casestories/casestories-2017/CS-128-West-Blue-Consulting-Ghana-National-Single-Window-Programme%20.pdf.
33.	Ibid.
34.	Modern Ghana (June 2018), "Single Window Saved Gov't $200m": https://www.modernghana.com/news/863547/single-window-saved-govt-200m.html.
35.	Graphic Online (November 2016), "Ghana Improves in Logistics Performance in 2016 – World Bank Report": https://www.graphic.com.gh/news/general-news/ghana-improves-in-logistics-performance-in-2016-world-bank-report.html.
36.	World Customs Organization (2016), "SARS' Experience Regarding the Impact of Digitalization on Human Resources": https://mag.wcoomd.org/magazine/wco-news-79/sars-experience-regarding-the-impact-of-digitalization-on-human-resources/.
37.	Salihu, N. A., Mohammed, Z. and Abubakar, T. (2021), "Deployment of Non-Intrusive Inspection Technology by Customs Service for Trade Facilitation in Nigeria", International Journal of Arts and Commerce, vol. 10 no. 2: https://ijac.org.uk/articles/10.2.4.37-44.pdf.
38.	Mugambi, N. (2017), "Effect of Cargo Tracking Systems on Cross-Border Trade Between Kenya and Uganda": http://erepository.uonbi.ac.ke/bitstream/handle/11295/103181/Mugambi_Effect%20Of%20Cargo%20Tracking%20System%20On%20Cross-Border%20Trade%20Between%20Kenya%20And%20Uganda.pdf?sequence=1&isAllowed=y.
39.	World Bank Group (2005), "GFP Explanatory Notes – Cargo and Vehicle Tracking": https://assets.publishing.service.gov.uk/media/57a08c6aed915d622c00132b/C21-trackingnote.pdf.
40.	Trade Mark East Africa, "Uganda Electronic Cargo Tracking System": https://www.trademarkea.com/project/uganda-electronic-cargo-tracking-system/.
41.	Ibid.
42.	DFIDGRID (June 2015), "Electronic Cargo Tracking": https://dfidgrid.wordpress.com/2015/06/09/electronic-cargo-tracking/.
43.	Uganda Revenue Authority, "Electronic Cargo Tracking System (ECTS)": https://www.wcoesarocb.org/wp-content/uploads/2018/08/Uganda-Revenue-Authority-Electronic-Cargo-Tracking-System.pdf.
44.	Ibid.
45.	The ZN, "ZIMRA Launches Cargo Tracking System, 2017": https://www.thezimbabwenewslive.com/zimra-launches-cargo-tracking-system/.
46.	Techno Brain, "ZIMRA – Electronic Cargo Tracking System": https://www.wcoesarocb.org/wp-content/uploads/2018/08/ZIMRA-Case-Study.pdf.
47.	New Zimbabwe (September 2017), "ZIMRA Cargo Tracking to Curb Transit Fraud": https://www.newzimbabwe.com/zimra-cargo-tracking-to-curb-transit-fraud/.
48.	Techno Brain, "ZIMRA – Electronic Cargo Tracking System": https://www.wcoesarocb.org/wp-content/uploads/2018/08/ZIMRA-Case-Study.pdf.

49. | Bulawayo 24 News, "Zimra Hastens Electronic Cargo Tracking to Avoid Dumping of Foreign Goods": https://bulawayo24.com/news/national/102499.

50. | Techno Brain, "ZIMRA – Electronic Cargo Tracking System": https://www.wcoesarocb.org/wp-content/uploads/2018/08/ZIMRA-Case-Study.pdf.

51. | Ibid.

52. | Ibid.

53. | Bulawayo 24 News, "ZIMRA Rolls Out Cargo Tracking System": https://bulawayo24.com/index-id-news-sc-national-byo-105554.html.

54. | Karabay, B. and Hillberry, R. (2017), "Formalizing Risk Management in Border Inspection": https://cdn.auckland.ac.nz/assets/business/about/our-departments/od-economics/2018%20Australasian%20Trade%20Workshop/Presentations/Karabay,%20B_ATW13.pdf.

55. | World Customs Organization (2018), "Strategic Leadership in Information Technology: IT Guide for Executives": http://www.wcoomd.org/-/media/wco/public/global/pdf/topics/facilitation/instruments-and-tools/tools/it-guide-for-executives/it-guide-executives.pdf?db=web.

56. | Defined as "Any legislation, regulation or official procedure having the purpose to prevent the introduction or spread of quarantine pests, or to limit the economic impact of regulated non-quarantine pests": see InforMEA, "Phytosanitary Measure": https://www.informea.org/en/terms/phytosanitary-measure.

57. | Global Alliance for Trade Facilitation (2021), "Trade Facilitation Reform as a Trust Catalyst": https://www.tradefacilitation.org/content/uploads/2021/11/2021-alliance-trust-ll-paper-final.pdf.

58. | Ministry of East African Community and Regional Development, "EAC Achievements": https://meac.go.ke/eac-achievements/.