Common Market for
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COMESA

CUSTOMS DIGITALIZATION AND DEEPENING INTRA-COMESA TRADE

Special Report

By:
Netta Gichuki
Trade Expert, Trade and Customs Division
Frederick Msiska
Project Manager, Trade and Customs Division

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1.   BACKGROUND

The past few decades have witnessed a transition in the role of customs from the traditional roles of revenue collection and protection of society to trade facilitation and border security. The blueprint for customs administration produced in 2002 entitled 'Customs in the 21st Century' noted the changing role of customs reiterating the globally accepted mission of Customs which is 'to develop and implement an integrated set of policies and procedures that ensure increased safety and security, as well as effective trade facilitation and revenue collection' (WCO, 2002).

The reforms and modernization of customs has involved a shift from processing of manual documents to automation of customs processes and procedures. The changes are wide ranging and include electronic document submission, adoption of electronic payments, inter-agency cooperation & coordination including interfacing of government agency systems involved in clearance, implementation of One Stop Border Posts (OSBPs) pre-arrival goods processing, coordinated border management, electronic tracking of goods and risk-based management. Such measures have long been recognized by Revenue and Customs Authorities to secure and facilitate trade. Customs authorities employ automated customs systems for the processing and clearance of goods, encompassing manifest lodgment, risk assessments, processing of payments to actual release of goods. The efficacy of the automated systems is further enhanced when they are interfaced with other agencies involved in the clearance process along the supply chain, that is, Cross Border Trade Agencies which have automated systems.

Despite automation[1] achievements, complicated processes and a lack of acceptance of electronic forms have made paper-based procedures and processes to remain dominant in many cross border trade transactions. The onset of the COVID-19 pandemic has seen customs authorities increasingly accept digital copies of documents as the main official documents for clearance and online processing

1   Customs automation is defined as the use of Information and Communication Technologies (ICT) to accomplish the objectives of customs and may support the whole or only part of the clearance process (United Nations Trade Facilitation Guide, n.d.) Digitization involves optimization of internal processes through conversion of analog to digital processes (e.g., work automation and minimization of paper) while digitalization goes beyond this and is the use of digital technologies and digitized data to impact work, transform how customers and companies engage and interact, and create new (digital) revenue streams (Chapco-Wade, 2018).

has become the norm with remote working seen as the 'new normal'.

Further, the COVID-19 pandemic has brought to the fore the need for customs administrations and other supply chain stakeholders to digitalize their processes and procedures to ensure connectivity and enable seamless electronic clearance and processing in customs administrations. New and emerging technologies advanced by the fourth industrial revolution are increasingly playing a significant role by promoting greater automation.

The COMESA region is part of the global community making important strides in the automation of the customs systems. However, the process is not without challenges. It is therefore important to understand the status of automation in the region with a view to identifying areas where further enhancement of automation is needed, so as to increase intra-COMESA trade.

2. OBJECTIVES

The overall objective of this policy brief is to provide insights into how increasing the use of Information, Communication & Technology (ICT) by customs administrations could affect intra-COMESA Trade. Specifically, the brief seeks to:

    i.   Provide an overview of the global policy framework for customs automation
    ii.   Discuss technologies for customs automation
    iii. Discuss the implications of customs digitalization to intra-COMESA trade
    iv. Interrogate the status of customs automation programmes and initiatives in the COMESA region

3. THE GLOBAL CONTEXT FOR CUSTOMS AUTOMATION

WCO Tools and Instruments

The World Customs Organization WCO (2021) postulates that it is imperative that digitalization of

procedures is conducted with harmonized approaches in mind, employing internationally accepted standards.

The World Customs Organization's (WCO) Digital Customs is an initiative aimed at keeping customs in tune with global developments by replacing paper with electronic processes and utilizing digital systems in the administration of customs operations from collection of duties to ensuring secure cross border movement of goods (WCO, n.d.).

'The Digital Customs initiative aims to replace paper-based Customs procedures with electronic operations, thus creating a more efficient and modern Customs environment in tune with global developments. By focusing on Digital Customs, we, as a Customs community, are signaling our aspiration to further develop digital solutions and services, making life easier for the trading community, other border agencies and Customs officers, and to further adopt enabling technologies, such as the use of big data, telematics and the Cloud, to help increase operational performance, and to facilitate the reinvention of the way we do business' (Mikuriya, n.d., para 4).

WCO tools, instruments and applications of significance to customs administrations on digitalization include Revised Kyoto Convention, Revised Kyoto Convention (RKC) Guidelines on Application of Information and Communication Technology, Single Window Compendium, IT Guide for Executives, Model Bilateral Agreement on Mutual Administrative Assistance in Customs Matter & Guidelines for Developing a Mutual Recognition Arrangement/Agreement, Risk Management Compendium, WCO Cargo Targeting System, Customs Enforcement Network (CEN) suite, Recommendation on the Use of Unique Consignment Reference, WCO Data Model and the Recommendation related to its use, and the WCO Study report on Disruptive Technologies, Revised SAFE Framework of Standards 2021,amongst others. The use of these tools and instruments by customs administrations in the region will ensure a standardized and harmonized approach to automation/digitalization. In COMESA, as at November 2021,13 Member States (MS) are contracting parties to the RKC namely Democratic Republic of Congo (DRC), Egypt, Eswatini, Kenya, Madagascar, Malawi, Manutius, Rwanda, Sudan, Tunisia, Uganda, Zambia and Zimbabwe. Given its significance as a blueprint for efficient, effective and modern customs procedures, there is need for the non-contracting COMESA MS to accede to the convention as soon as possible.

Technologies for Customs Digitalization/ Automation

The Fourth Industrial Revolution (4IR) is distinguished by the amalgamation of the digital, biological and physical spheres of an economy. It is also the growing utilization of new and emerging technologies such as artificial intelligence (AI), the Internet of Things (IoT), cloud computing, advanced wireless technology and 3D printing. To harness the innovations of the Fourth Industrial Revolution (4IR), TradeTech, that is, the set of technologies and innovations that enable trade to be more efficient, inclusive, and equitable, is fundamental to support public good (World Economic Forum (WEF), 2020). The means to facilitate international trade abound with the rise of 4IR technologies. Increased digitalization and the use of advanced technologies have the potential to significantly reduce processing times and the cost of cross-border movements of goods and further facilitate trade in services (WEF, n.d.).

The World Economic Forum (WEF) conducted a survey on Tradetech in 2020 with the aim of understanding the utilization of technology in trade by firms and to assess the impacts of technologies on global trade going forward. The study found that technologies that are thought to have their full impact on trade the soonest are e-commerce, digital payments, cloud computing, IoT, digital services, digital documents and 5G. Technologies expected to impact trade in the longer term are robotics, virtual reality (VR), 3D printing (3DP) and AI (Frontier Technologies are fully defined in the UNCTAD Technology and Innovation Report 2021: Catching technological waves: Innovation with equity and are provided in the endnote to the brief)[1]. Figure 1, (WEF, 2020).

The Figure 1 maps the trade technologies and some of its specific applications in the trade ecosystem in terms of time of impact.

Figure 1: Technologies to impact trade
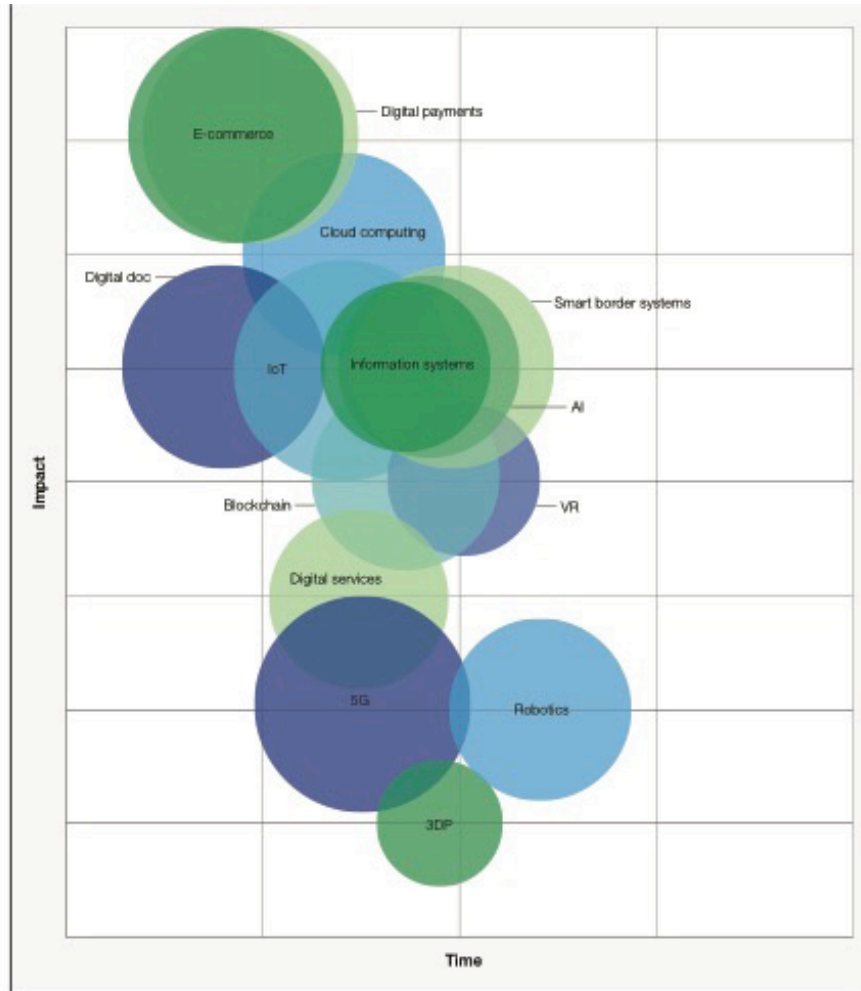
In addition, a WCO Study report on disruptive technologies raises awareness on the latest technologies and their potential for customs administrations and provides practical examples and use cases (WCO, 2019).

4.   HOW CUSTOMS DIGITALIZATION COULD HELP INCREASE INTRA-COMESA TRADE

The automation and digitalization of customs processes and procedures and other cross border trade agencies processes and procedures reduces the amount of time goods spend at borders. This reduces costs for stakeholders along the clearance supply chain and in turn allows firms efficiency gains through reduced production costs thus increasing output for export and domestic markets. Within the COMESA region, this will lead to increased intra-COMESA trade. This can be pursued through enforcement/uptake of ICT by customs administrations in measures and initiatives within the ambit of international trade facilitation agreements/conventions that provide best practice.

Studies have shown that an increase in digital trade or the use of ICT in trade does have an impact on export performance. Shepherd & Duval, (2014) estimated the impact of implementing cross border paperless trade reforms on trade time in the Asia Pacific region. They found that if all countries sampled implemented paperless cross border reforms, the region would gain US$ 36 billion annually in exports and full implementation would lead to US$257 billion annually. Portugal-Perez & Wilson, (2008) assessed the impact of four trade facilitation measures, (one being the extent to which an economy uses ICT to improve efficiency, productivity and reduce transaction costs) on export performance on 101 countries and found that it had significant positive impact, though more on developed countries. Willie, (2018) investigated the impact of implementing digital trade facilitation reforms on intra-COMESA exports and found scaling up digital transformation would stimulate intra-COMESA exports and that a 1 percent increase in implementation score would result in 0.55 percent increase in intra-COMESA exports. Hence the critical role that customs administrations play in trade facilitation could have a direct impact on exports and the increased digitization within the COMESA region could translate to increased intra-COMESA trade.

Automation has been one of the main tools used to facilitate trade through implementation of modern customs management practice (OECD, 2005). The WTO TFA which entered into force in 2017 contains provisions for expediting the movement, release and clearance of goods, including goods in transit. It also sets out measures for effective cooperation between customs and other appropriate authorities on trade facilitation and customs compliance issues (WTO, n.d.). It is an important tool to aid not only

customs administrations but all supply chain stakeholders. A modern and automated customs is integral to its successful implementation. WTO estimates show that the full implementation of the TFA could reduce trade costs by an average of 14.3 percent and boost global trade by up to $1 trillion per year, with the biggest gains in the poorest countries.[2]

The status of ratification by COMESA Member States of the WTO TFA Agreement and notifications of Category B and C Commitments is shown in Table 2 below: (Category A provisions that a developing country member designates for implementation by the time the Agreement enters into force (LDC countries have an additional year), Category B provisions that a developing or LDC member designates for implementation after a transitional period of time after entry into force of the Agreement and Category C provisions that a developing or LDC Member designates for implementation after a transitional period of time following the entry into force of the Agreement and requiring the acquisition of implementation capacity through the provision of assistance and support for capacity building, (WTO, n.d.))

Table 2: Notification of Categories A, B and C and Ratification of the TFA

Country	Category A Notification Done	Category B Notification Done	Category C Notification Done	Ratification Done	Established National Trade Facilitation Committee
1. Burundi	X	x	X	12.12.2019	X
2. DR Congo	X	-	-	-	X
3. Djibouti	X	x	X	05.03.2018	X
4. Egypt	X	x	X	24.06.2019	X
5. Eswatini	X	x	X	21.11.2016	X
6. Kenya	X	x	X	10.12.2015	X
7. Madagascar	X	x	X	20.06.2016	X
8. Malawi	X	x	X	12.07.2017	X
9. Mauritius	X	x	X	05.03.2015	X
10. Rwanda	X	x	X	22.02.2017	X

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2   https://www.wto.org/english/tratop_e/tradfa_e/tradfa_e.htm

11. Seychelles	**X**	**x**	**X**	11.01.2016	X
12. Tunisia	**X**	**x**	**X**	17.07.2020	X
13. Uganda	**X**	**x**	**X**	27.06.2018	X
14. Zambia	**X**	**x**	**X**	16.12.2015	X
15. Zimbabwe	**X**	**x**	**X**	17.10.2018	X
Total	**15**	**14**	**14**	**14**	**15**

Source: https://www.tfafacility.org/

As shown in Table 3 below, COMESA's progress on implementation is at an average of 41.1 percent compared to Africa's 43.7 percent and a global rate of 70.5 percent.

Table 3: WTO TFA progress on implementation commitments

Entity	Developed	Category A current	Category B current	Category C current	Category B projected	Category C projected	Unknown
Global	23.31288	38.9519	6.127236	2.087952	7.658401	19.11378	2.747848
Africa		32.48663	8.708938	2.463713	15.36478	38.70321	2.272727
COMESA		27.13085	13.7455	0.270108	14.64586	44.20768	

Source: tfadatabase.org as at 26.11.2021

Whist general information on implementation progress is available at the TFA database, currently there are no applied methods of monitoring and evaluating implementation performance in COMESA. This is envisioned to be undertaken within the purview of the Monitoring and Evaluation Performance System being developed under the EU funded EDF 11 Trade Facilitation Programme (EDF 11 TFP).

The most critical TFA measures for the COMESA region with respect to automation and digitalization are Article 1.2 Information available through the internet, Article 7.2 Electronic payment, Article 7.4 on Risk Management, Article 7.7 on Authorized Operators, Article 8 on Border Agency Cooperation, Article 9 Movement of Goods and Article 10.4 on Single Window.

Challenges normally encountered in customs clearance in the COMESA region include manual processes, procedures and payments, delays in clearance due to physical inspections and a lack of inter-agency exchange of information, lack of connectivity between customs systems of Member States, low levels of compliance of stakeholders (e.g. customs agents, importers, exporters, transiters), unsynchronized offence management, high operational costs of stakeholders (customs administrative costs), lack of appropriate infrastructure for example at borders and other customs offices, lack of equipment and tools such as scanners, loading and offloading machines, lack of capacity building programmes for both customs officers and their stakeholders and lack of mutual recognition of operators e.g. AEO, amongst others .

The use of globally accepted tools and instruments by customs administrations in the COMESA region would ensure a standardized and harmonized approach to automation/digitalization and overcome the above stated challenges faced by Customs officials in the region.

As some customs processes are still manual, especially at the borders, their digitalization as outlined in the aforementioned TFA articles will significantly improve clearance times thus improving the ease of doing business within the region. Additionally, the use of new technologies such as artificial intelligence, blockchain, cloud computing, data analytics and big data to streamline customs management enhances the goods clearance experience.

Similarly, the time taken to clear goods can be significantly reduced by having a one stop shop for all stakeholders to submit their import/export permits electronically and have these processed online instead of having individual agency systems with manual application and processing. This is the concept of single window systems that has been proven to reduce clearance time and increase the ease of doing business.

COMESA Automation/Digitalization Programmes and Initiatives

Within COMESA, customs administrations have automated their customs clearance systems (manifest and declaration processing, electronic payments, bonds and exemption management etc.), with most Member States using ASYCUDA World. However, there is need for the different country systems

to be interfaced to ensure faster goods clearance especially at the borders. In addition, using risk-based management to identify high risk consignments enables authorities to properly allocate their resources and results in less physical inspections saving time on goods clearance. Also, noting that some Member States are land linked, proper transit goods management will facilitate the movement of goods within the region with fewer disruptions and bottlenecks along the transit route; a regional electronic cargo tracking system providing real time goods monitoring aids in the same.

In the COMESA region, concerted efforts have been undertaken towards implementing the regional Authorized Economic Operators (AEO) programme for COMESA with the Regional AEO Guidelines adopted by the 40th Meeting of the Council of Ministers in November 2019, and the AEO training materials, AEO implementation roadmap and the Terms of Reference (ToR) for the AEO TWG adopted at the 42nd Council of Ministers Meeting held in November 2021. The Secretariat is currently working to develop Standard Operating Procedure manuals for the AEO programme and updating the adopted AEO guidelines. The AEO program will bolster movement of goods by accredited persons having 'green channel' clearance at compliance and security levels thus reducing clearance times.

The COMESA Coordinated Border Management programme (CBM) under the EDF 11 TFP is supporting the implementation of CBM principles through border upgrade projects which are being implemented at the five targeted border posts of Galafi between Djibouti and Ethiopia; Chirundu between Zambia and Zimbabwe ; Moyale between Ethiopia and Kenya ; Mwami/Mchinji between Zambia and Malawi; and Tunduma/Nakonde between Zambia and Tanzania; and provides the framework for assistance to Member States on a coordinated approach to border management. The CBM guidelines and implementation strategy developed under the programme once adopted by Member States will provide impetus to having a common regional approach.

Further, under the EDF 11 TFP, the Customs Automation Regional Support Centre (CASRC) under development in collaboration with UNCTAD is intended to provide technical support and capacity building to customs administrations on customs systems management. The COMESA Secretariat is supporting some Member States in developing or upgrading their customs automations interconnectivity and electronic single window as well as ICT facilities and equipment at identified

targeted border posts. In addition, work is underway to implement a regional single window project with a view to harmonizing and standardizing exchange of trade data and operationalizing the regional single window strategy based on internationally standardized data sets and best practices.

Initiatives under COMESA's digital trade programmes include the Regional Transit Guarantee System (RCTG), the Electronic Certificate of Origin (eCO) and the Digital Free Trade Area (DFTA) and which have a direct impact on how fast/quickly and smooth clearance occurs.

The RCTG became operational in 2012 and aids in transit trade facilitation by providing a uniform basis for transit movement throughout the region, where only one guarantee is used for the transit of goods through all transiting Member States. The RCTG Scheme is a customs transit regime and it provides the required customs security and guarantee to the transit countries. The RCTG Agreement was signed and ratified by thirteen (13) COMESA member and non-Member States, namely: Burundi, Djibouti, DR Congo, Ethiopia, Madagascar, Malawi, Kenya, Rwanda, South Sudan, Sudan, Tanzania, Uganda and Zimbabwe. Its key benefit is the reduced cost of Bond /Guarantee and collateral charged by Sureties and Agents. The RCTG Carnet is fully digitalized and integrated with the National Customs IT Systems and is currently operational in Burundi, Kenya, Rwanda, Tanzania and Uganda[3].

The eCO was adopted by a decision of the COMESA Council of Ministers in 2014 to replace the manual Certificate of Origin. The objective was to facilitate intra-regional trade through reduction in the costs and time required in registration, application and submission of certificates and the post-verification of originating goods. In November 2019, the 40th Meeting of the Council of Ministers adopted the draft regulations to implement the COMESA eCO system. Subsequently, a Technical Working Group (TWG) on Rules of Origin was tasked to review the Rules to facilitate implementation of the COMESA eCO and other trade facilitation instruments. The eCO is currently under development for pilot testing.

The DFTA was announced in 2017 and is expected to include a number of digital instruments to aid trade in the region, including an electronic certificate of origin, underpinned by blockchain technology, and a mobile application for cross-border traders.

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3   http://rctg-mis.comesa.int/index.php

Challenges in automation/digitalization

There are key challenges experienced by customs administrations in implementing customs automation/digitalization which are principally related to the resistance to change by both external and internal stakeholders and inadequate resources (both financial and human resources). In many cases there is a lack of enabling legislation as most countries do not have adequate regulatory frameworks, for example to accept electronic signatures and cover issues of data security, allowing access to data from third parties etc. In addition, automation/digitalization is hampered by a lack of requisite IT skills; lengthy procurement processes; and high costs related to acquisition of technologies, infrastructure, procedural and organizational changes.

5.   CONCLUSION

As evidenced by the analysis above, a number of efforts are being undertaken at both the national and regional levels to conceptualize customs digitalization which could have a strong impact on intra-COMESA trade. However, most are yet to be fully operationalized. Overall, harmonization and standardization of approaches to the automation/digitalization of customs processes and procedures by COMESA Member States will help resolve some of the challenges experienced in the region in customs clearance and cross border trade and thus help fast track the implementation of the customs work programme and initiatives and eventually the customs union.

6.   RECOMMENDATIONS

To reap maximum benefits from ICT digital transformation, customs administrations in COMESA Member States could consider the following:

a)   Enhancing uptake and use of WCO tools and instruments such as with regard to the digitalization of customs processes and procedures to ensure smoother, faster, efficient and transparent goods clearance. In addition, enhanced support for implementation of WTO TFA measures.

b)   Using ICT technologies to employ intelligence-based risk management embedded in customs clearance systems to ensure fewer physical interventions leading to less delays and faster goods clearance. This could be achieved through enhancements in the already

existing automated customs clearance systems.

c) Use of new technologies such as blockchain, artificial intelligence and big data to streamline customs management. This could be pursued through the guidance issued in the WCO Study report on Disruptive Technologies.

d) Implementing national single window systems as a trade facilitation tool to enable stakeholders in the clearance supply chain have a single point for documents/permits etc. submission and processing. This is usually undertaken as a joint initiative between customs administrations and cross border trade stakeholders (with customs as the lead), to ensure their buy in and hence the successful use of the system.

The COMESA Secretariat should consider undertaking the following:

a) Finalize the design and formulation of the Digital Free Trade Area (DFTA), COMESA electronic Certificate of Origin (eCO) and other digital trade programmes, as well as foster their implementation.

b) Enhancing support to accelerate adoption and implementation of customs trade facilitation programmes such as the Authorized Economic Operator Programme (AEO), the electronic Certificate of Origin (eCO), the CBM projects and adoption of the CBM guidelines and implementation strategy amongst others as a trade facilitation tool to ease clearance in the region utilizing a modern ICT platform.

c) Supporting implementation of the COMESA Electronic Cargo Tracking System in the region as a trade facilitation tool to boost intra-regional trade.

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1   Whilst frontier technologies do not have a single definition, they are generally considered as the new and rapidly developing technologies leveraging digitalization and connectivity (UNCTAD, 2021). According to the 2021 UNCTAD Technology and Innovation report, the eleven "frontier technologies" are as follows:

Artificial intelligence: (AI) AI is normally defined as the capability of a machine to engage in cognitive activities typically performed by the human brain. AI implementations that focus on narrow tasks are widely available today, used for example, in recommending what to buy next online, for virtual assistants in smartphones, and for spotting spam or detecting credit card fraud. New implementations of AI are based on machine learning and harnessing of big data.

Internet of Things: (IoT) IoT refers to myriad Internet-enabled physical devices that are collecting and sharing data. There is a vast number of potential applications. Typical fields include wearable devices, smart homes, healthcare, smart cities, and industrial automation.

Big data: Big data refers to datasets whose size or type is beyond the ability of traditional database structures to capture, manage and process. Computers can thus tap into data that has traditionally been inaccessible or unusable.

Blockchain: A blockchain refers to an immutable time-stamped series of data records supervised by a cluster of computers not owned by any single entity. Blockchain serves as the base technology for cryptocurrencies, enabling peer-to-peer transactions that are open, secure and fast.

5G: 5G networks are the next generation of mobile internet connectivity, offering download speeds of around 1-10 Gbps (4G is around 100 Mbps) as well as more reliable connections on smartphones and other devices.

3D: printing 3D printing, also known as additive manufacturing, produces three-dimensional objects based on a digital file. 3D printing can create complex objects using less material than traditional manufacturing. Robotics Robots are programmable machines that can carry out actions and interact with the environment via sensors and actuators either autonomously or semi-autonomously. They can take many forms: disaster response robots, consumer robots, industrial robots, military/security robots and autonomous vehicles.

Drones: A drone, also known as unmanned aerial vehicle (UAV) or unmanned aircraft systems (UAS), is a flying robot that can

be remotely controlled or fly autonomously using software with sensors and GPS. Drones have been often used for military purposes, but they also have civilian uses such as in videography, agriculture and in delivery services.

Gene editing: Gene editing, also known as genome editing, is a genetic engineering tool to insert, delete or modify the genome in organisms. Potential applications include drought-tolerant crops or new antibiotics.

Nanotechnology: Nanotechnology is a field of applied science and technology dealing with the manufacturing of objects in scales smaller than 1 micrometre. Nanotechnology is used to produce a wide range of useful products such as pharmaceuticals, commercial polymers and protective coatings. It can also be used to design of computer chip layouts.

Solar photovoltaic (Solar PV): Solar photovoltaic (Solar PV) technology transforms sunlight into direct current electricity using semiconductors within PV cells. In addition to being a renewable energy technology, solar PV can be used in off-grid energy systems, potentially reducing electricity costs and increasing access. (UNCTAD, 2021, p.17)

COMESA SECRETARIAT
COMESA Center
Ben Bella Road
P.O. Box 30051

+260 211 229 725

www.comesa.int

info@comesa.int

facebook.com/ComesaSecretariat/

@twitter.com/comesa_lusaka