With the AfCFTA in force and several regional integration initiatives ongoing in Africa, effective implementation promises an economic growth and development trajectory that defines the 'Africa we want' as posited by the African policymakers within the context of the African Union's 'Agenda 2063'. This is more evident with emerging dynamics characterised by unprecedented shocks and fast-paced evolution in the digital space. The implications of these dynamics beckon a rethinking of the strategies for riding on and above the wave. This book delves into some of the policy intricacies and generates both insights on emerging shocks, digitalisation, intellectual property rights and raises interesting issues for further reflection. It is a great read that illuminates critical trade issues with important policy implications.
Enjoy the read.

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AFRICA'S TRADE FACILITATION PREPAREDNESS & ETHICAL PROPERTY RIGHTS

Odularu
Adekunle
Chekwoti (eds)

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Africa's trade facilitation preparedness & ethical property rights

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Foreword

This book highlights the need for greater African global and regional trade, hampered most recently by the pandemic's deleterious effects on trade relations. Expanding south-south trade, instead of merely continuing the mainly north-south trade that has evolved from colonialism and imperialism, would yield greater sovereignty and prosperity. Providing adequate infrastructure along agricultural and other value chains and promoting both south-north and south-south trade would also strengthen African economic resilience.

Furthering data openness, the control of intellectual property rights (IPR), and various digital mechanisms, including trading apps, blockchain, crypto-labelling, and open systems to enhance trust among cooperating nations on the continent, could boost internal African trade and improve economic performance. Greater standardisation and harmonisation of regulations are needed to obtain a more seamless digital connectivity and payment systems to develop the economic potential of a single digital market. Ghana and Rwanda have already taken steps toward using blockchain start-ups to facilitate the process of land titling putting them in a position to strengthen their trade relations. Ghana and the few other countries that have adopted a single window for trade have benefited from the resulting simplification, reduced bureaucracy, and greater customs revenue that has resulted. Alas, many other barriers to a single digital market remain unresolved, particularly on the levels of trust, transparency, the digital gender gap, and limited IPR across borders.

Presently, trade is hamstrung by the pandemic. Ethiopian World Heath Organisation (WHO) director-general *Tedro* Ghebreyesus, South African President Ramaphosa and others have called for a waiver of IPR patents for vaccines so that desperately needed cheaper generic versions of vaccines can be manufactured locally. Regrettably, the major manufacturers of COVID vaccines, such as Pfizer, will not allow patent waivers so that generic versions can be produced even though public funding enabled them to develop the vaccines.

While the signing of the African Continental Free Trade Area (AfCFTA) agreement is positive, many barriers to improved intracontinental

trade remain. At present, many small and medium-sized enterprises are hampered in their participation in cross-border trade by their lack of digitisation. The authors' quest for greater digitisation will be difficult without simultaneously updating and coordinating African nations' often antiquated political, economic and socio-technical systems. The absence of a common, hard currency besides the Central to West African CFA Franc throughout Africa means that most continental trade still occurs in dollars, the world's reserve currency. This is a serious limitation, especially without a significant debt moratorium from Northern and Chinese financial institutions. When Nigerians sell Nollywood films to Kenyans, sellers and buyers must use dollars. This enables the US to extract rent from exchanges of agricultural, mineral, and other goods utilising dollars. So, more must be done to improve Africa's south-north trade, including with China, as well as within intracontinental trade.

Crypto-labelling to increase openness and trust via traceability and strengthened IPR should both be used to limit the damage resulting from the lack of transparent signalling and the resulting asymmetric information which damages trade. By doing this, product adulteration can be avoided, such as the production of counterfeit drugs, as can moral hazards such as bribery and smuggling. The Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS) of the World Trade Organisation (WTO) can be used to reduce plagiarism and pirating.

As well, conflicting priorities between owners and workers often create the principal-agent problem where one person entrusted to act in the best interests of others instead acts mainly for themselves. Also, when African IPR is weak, many problems result, including product hoarding/scarcity and high product prices. These problems help explain why north-south trade relationships exceed south-south trade.

Human resource management and innovative actions are playing valuable roles in fostering greater trade among Kenya, Tanzania and Uganda, and other countries in the East Africa Community (EAC). The same practices could improve overall trade within Africa. Whether the free trade agreement contributes significantly to taking advantage of the ensuing competitive advantages of firms employing these facilitative phenomena remains to be seen.

Geographical indications (GI) are a way of protecting the commodities produced in specific geographical areas. GI is important in part because they are sourced from those areas and have a particular quality as a result. Often women are associated with those products as a form of gendered entrepreneurship, such as with shea butter products. African governments

must also provide women with more science, technology, engineering, and mathematics (STEM) education and digitisation opportunities, thereby improving their abilities as entrepreneurs, professionals and workers. New investment in digital hubs in Africa is helping some women overcome the digital divide, which has often excluded them. Fortunately, in West Africa, the Economic Community of West African States (ECOWAS) already has a commitment to empowering women by developing the appropriate policies in each jurisdiction, and this can be extended to the new free trade agreement. Government laws and enforcement must occur to reduce and eventually eliminate violence against women.

The 5Ps of digitisation, including blockchain and regulations for trade, food risk management, and other management policies, can be used to overcome the 'bleeding trade phenomenon' which presently characterises too much of African trade due to poor IPR and inadequate protections for both labour and competition. Utilising global positioning system (GPS) via smartphones with Bluetooth or payment apps can help limit the pandemic and increase prosperity.

How to lower the rapidly increasing transaction costs are next examined in this volume. Trade can also be improved by protecting indigenous property rights. Whereas trade in services has been increasing, goods and service barriers to trade often include non-tariff barriers in addition to tariffs and COVID-19. Improved transparency, simplification, harmonisation, and standardisation can all be effective ways of combatting these barriers.

Extracontinental trade is also very important for Africa. For instance, with half of the world's cobalt reserves, the largest trading partner of the Democratic Republic of the Congo (DRC), China, mines and buys most of its cobalt and copper to make lithium batteries for its production of more than 1 000 000 electronic vehicles (EVs) per year (Griffiths and York 2021). In turn, the DRC purchases many Chinese-manufactured goods. However, because so many within Africa are dependent on mineral and agricultural exports and the prices for those commodities are largely determined by buyers in external markets, volatility often results.

Consequently, most African trade has been south-north instead of south-south, wherein the usually more technologically developed northern businesses have systematically been gaining an extra part of the surplus extracted from the continent's workers, appropriated as profit, rent and interest. This extraction has been enabled partly because of the technological edge that northern corporations enjoy but often, as well, because of unequal exchanges in investments and trade of these goods and

services between the corporations and Africa, but that discussion awaits another volume.

Glen Filson

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Griffiths, J & York, G (Nov. 1, 2021). 'How China is using Congolese minerals to dominate the global EV market' Globe and Mail 1 November 2021, Report on Business B1 and B6

Acknowledgments

The famous adage that it takes a community of leaders to raise a child applies to publishing a book at a pre-eminent university press, such as the Pretoria University Law Press (PULP), South Africa. After the successful publication of our co-edited book, *Negotiating south-south regional trade agreements: Economic opportunities and policy directions for Africa*, which primarily contributed to Nigeria's Federal Executive Council (FEC)'s approval of the establishment of the Nigeria Office for Trade Negotiations (NOTN) in May 2017, this book project titled *Africa's trade facilitation preparedness and ethical property rights* was initiated in October 2017. Two years later, in June 2019, my professional discussion with the Economic Security Department of the Jewish Women International (JWI), based in Washington DC, reinforced our efforts to implement the book project. This discussion paid off as one of this book's chapters focused on the role of emerging technology in enhancing gendered entrepreneurship. Fast forward to 2022 and, as articulated in one of the book chapters, the World Trade Organisation (WTO) 12th Ministerial Conference (MC12) in June 2022 emphasised re-purposing trade policies to support women's economic empowerment and cover financial and non-financial incentives. With the high bias due to the COVID-19 pandemic, copious evidence reveals that ethical trade policies will bring gendered entrepreneurship back better from the trade disruption created by the pandemic.

The primary authors of this book include Christine Kajumba; Folasade B Adegboye; Tolulope F Adesina; Caiphas Chekwoti; Augustine Iraoya A Okhale; Adewale S Bello; Sand Mba-Kalu; Glen Filson; Bamidele Adekunle; and Gbadebo Odularu. This book project could not have been realised without the editors and their primary institutional affiliations – Virginia Military Institute (VMI); Bay Atlantic University (BAU); University of Guelph (U of G); Toronto Metropolitan University (TMU);[1] and the Trade Policy Training Centre in Africa (TRAPCA).

Hearty thanks go to Professor Glen Filson for writing the foreword to this book. Furthermore, we greatly appreciate Professor Filson's support and commitment to every stage of the book project. He deserves extra

1 Formerly Ryerson University (RU).

special thanks for his willingness to learn more about African trade policy complexities by viewing early drafts of the manuscripts. We admire and look to you as a role model for the type of scholar, mentor, and professor Africa's young researchers and faculties should be.

It is worthy of expressing utmost gratitude to Dr Dario Cidro, Dr Sridharan Sethuratnam and Dr Omolola Adedokun for their scholarly comments on each book chapter during Africa's Preparedness Virtual Brown Bag Workshop, which was held biweekly between February and April 2021. Thank you for your tireless patience and ample feedback at every stage toward enhancing the analytical depth of the book. I also thank Africa's Preparedness Virtual Brown Bag Workshop audiences (with participants worldwide) for their excellent contributions during the book chapters seminar presentations. Furthermore, the Brown Bag workshops provided additional opportunities to present the book chapters and meet some doctoral students who helped the authors learn the land lay. These postgraduate candidates contribute to the ongoing Journal of African Development (JAD) special issue on 'Cyber frontiers and building economies back better in a digital age'. We thank Olaitan Ogunnote for pivotally facilitating the workshop series during the book chapter presentations and discussions. We are also grateful to all the anonymous reviewers who provided critical inputs in the entire manuscript.

Dele and I have been great friends and research collaborators on numerous projects since 2001, when we enrolled in the same Agricultural Economics Master's programme at the University of Ibadan. For the past 21 years, Dele and I have been in touch almost daily to creatively demystify experiential research among underrepresented minorities in the Global South. Consequently, much of the inspiration for this book came from both of us, and we are thankful to Professor Caiphas Chekwoti for believing in us to co-edit the book project with us. We are sincerely grateful to all authors that contributed to this book project. We also thank countless others who have supported us in this PULP book project.

Like many others, this book would not have come to fruition without the tremendous contributions of the PULP management. We are deeply indebted to Professor Charles Fombad, Lizette Hermann, Liesl Hager and the PULP copy-editing team.

The respective families of the Chekwotis, Adekunles and Odularus, who bore with us for spending many nights away in our study rooms and libraries to finish this book, represent a formidable force behind this book's success. Our utmost gratitude goes to our families for their unconditional love and support.

All thanks to God for giving us the courage, strength and energy to make it through this book project and other research endeavours. We appreciate God for guiding us toward this targeted research direction to serve the entire African trade policy stakeholders. May this book benefit the needy, the under-served, and the vulnerable small-scale entrepreneurs in Africa and the Global South. We dedicate this book to many colleagues and clients who are tirelessly implementing anti-fragile trade policies to make Africa great.

The views and positions expressed in the book are the authors' views and not the official policies of the Pretoria University Law Press, South Africa, or other organisations that supported the success of this *Africa's trade facilitation preparedness and ethical property right* publication.

Gbadebo Odularu

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Iraoya A Okhale
Iraoya Okhale advances evidence-based research for Evidence-Informed Policy Making (EIPM) in Africa and other world regions. He currently leads research on strengthening women's capacity in trade in the African region, funded by the International Development Research Centre (IDRC) and the Trade Facilitation Office (TFO) Canada. He also researches the potential impact of the African Continental Free Trade Area (AfCFTA) on Africa's biodiversity, funded by the Global Development Network (GDN). He is a Trade and Digitalisation Specialist at the Centre for the Study of the Economies of Africa (CSEA). Iraoya is a member of the Econometric Society (ES) and the African Economic Research Consortium (AERC). He holds Master's degrees from Sokoine University, the University of Pretoria and the Federal University of Technology Akure (FUTA).

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1 Introduction: Digital platforms, unfair trade, and computational competition

Gbadebo Odularu and Caiphas Chekwoti**

Abstract: The existence of inequality between digital markets or technology companies, on the one hand, and their clients, on the other, underscores the inherent inequity characteristics of large technology giants or companies and the distortionary impact of their anti-competitive market powers such that incumbent digital platforms reap off millions of opportunities that could have been maximised by emerging or budding micro, small and medium enterprises (MSMEs) in Africa, especially in the creative industry. Thus, this chapter investigates the existence of trade malpractices and 'winner-takes-all' behaviour on digital platforms in Africa, especially when these dominant online firms conduct themselves to exclude their rivals, thereby contravening national and continental competition laws in Africa. Retrospectively, the research finds that existing competition laws in Africa adopt a command-and-control approach based on the theory of harm rather than a computational competition methodology that is more forward-looking and adaptive.

Key words: network effects; contestable markets; switching costs; consumer privacy; unfair trade; personal data protection; consumer choices; market structure; Jumia Africa; Takealot; 'winner-takes-all'; discriminatory practices; exploitative treatment; harm theories; remedies

1 Introduction and the problem

There is no gainsaying the fact that digital economies are rapidly shaping African markets, businesses, social media, politics and entertainment. Consequently, many African companies are modelled around Bitcoin, Spotify, Wikipedia, Airbnb, Alibaba and Facebook. As of May 2022, Facebook recorded the largest market share among social media platforms in Africa, reaching a traffic generation capability of 82,2 per cent, followed by YouTube at 9,4 per cent (see Figure 1). Though several interrelated

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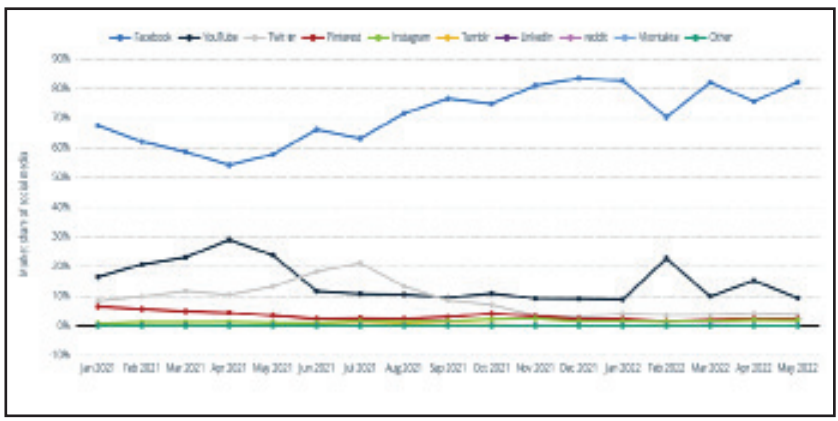
** Trade Policy Training Centre in Africa (TRAPCA), ESAMI, Arusha, Tanzania.

factors increasingly influence Africa's trade landscape, the COVID-19 pandemic has accelerated the pace and the need to harness digitalisation, intelligent deals, and transformative technologies to enhance sustainable development.

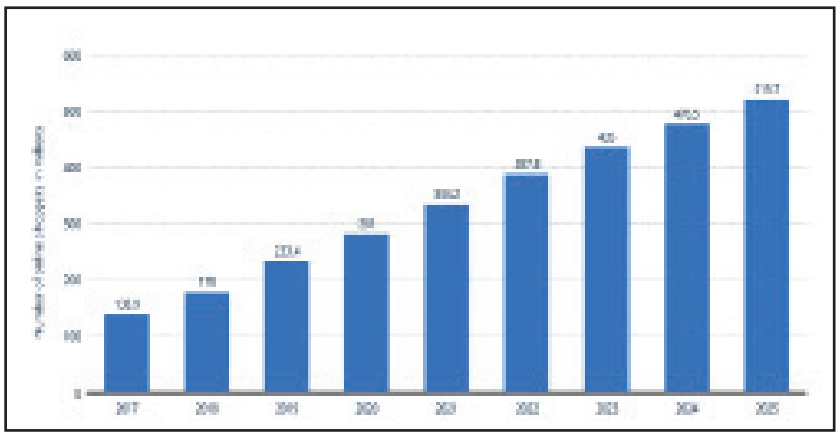
Figure 1: Market share of social media platforms in Africa from January 2021 to May 2022 by platform



Source: StatCounter.

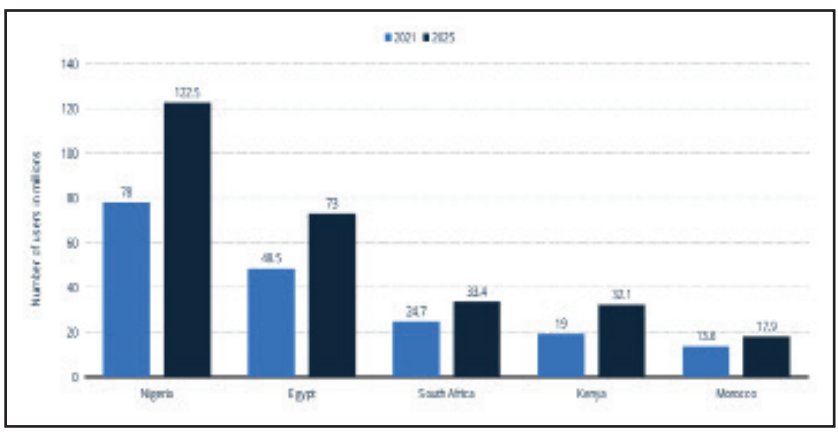
As the African digital economy evolves, more consumers and businesses operate in e-commerce clouds (see Figure 2, Figure 3 and Figure 4). Most of Africa's originated digital platforms are local start-ups such as payment providers, logistics or mobile application providers by providing local skills, but often with imbalanced relationships with larger platform providers, which share the future growth of these African-based digital platform actors or agencies. The figures respectively show the explosive growth of online shoppers, e-commerce users, and e-commerce penetration rates in selected African countries); there has been an uptick in the number and trends of anti-competitive practices such as abuse of dominance, price gouging, margin squeezing, predatory practices, price fixing, collusion, abuse of buyer powers, and cartelisation in the services sector, thereby undermining consumer welfare and the gains from trade.

Figure 2: Number of online shoppers in Africa from 2017 to 2025 in million users



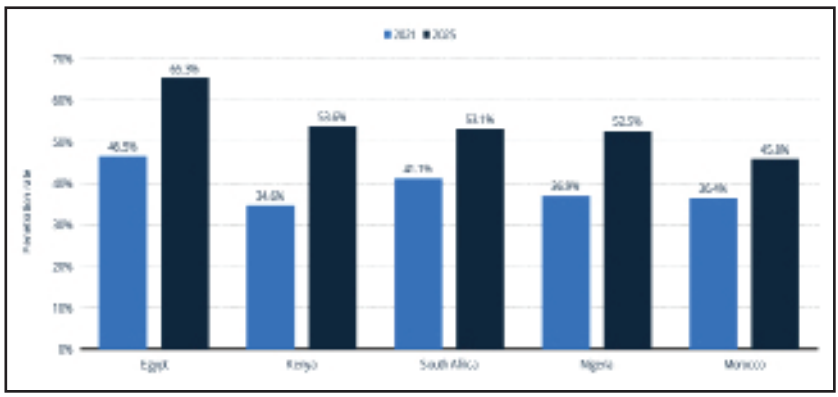
Source: Statista, Statista Digital Market Outlook.

Figure 3: Number of e-commerce users in selected African countries in 2021 and 2025, in million users



Source: Statista, Statista Digital Market Outlook.

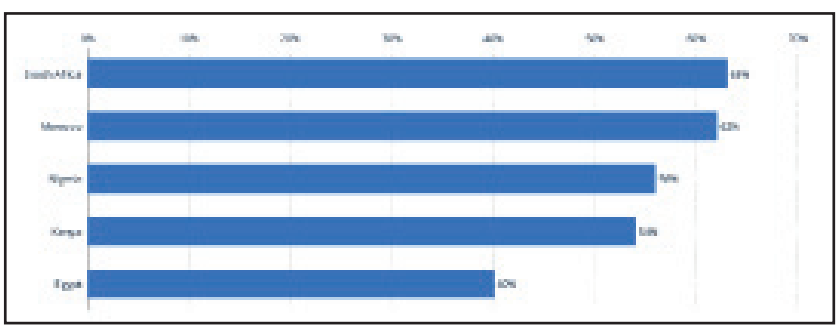
Figure 4: E-commerce market penetration rate in selected African countries in 2021 and 2025



Source: Statista, Statista Digital Market Outlook.

Africa's regulatory authorities are increasingly saddled with more statutory responsibilities of curbing the anti-competitive excesses unleashed through artificial intelligence, big data, and other disruptive technologies. Figure 5 presents the share of e-commerce in national gross domestic product (GDP), with South Africa ranking first, followed by Morocco and Nigeria at 56 per cent, while Egypt was at 40 per cent in 2020.

Figure 5: Share of mobile e-commerce in selected African countries in 2020

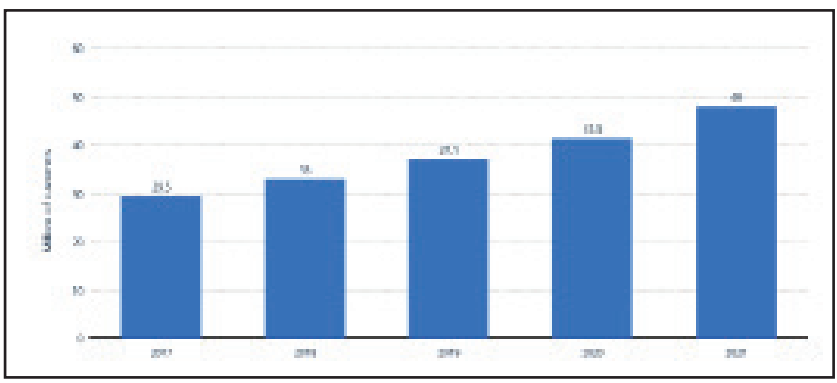


Source: PPRO.

For example, Figure 6 presents millions of M-Pesa customers from 2017 to 2021. As M-Pesa, a non-banking application, is redefining the way East Africans transfer cash and pay for commodities, taxi-hailing applications are disruptive innovations by redefining how Kenyans consume mobility services while edging out traditional road transportation players. Furthermore, the East African Community (EAC) aviation sector

comprises Rwanda Air, Precision Air, Kenya Airways and Uganda Airlines. EAC Competition Act for the aviation sector, as an example, promotes intra-EAC competition by fostering an open sky policy and competitive ecosystem for local market airlines originating from other countries such that consumers are always the most significant winners. Furthermore, the African Competition Forum (ACF) Eight-Member Cross-Country Study – South Africa, Kenya, Zambia, Nigeria, Angola, COMESA, Mauritius and The Gambia – presents the airlines market structure, alliances, state involvement, regulatory setting, and competition concerns confronting the respective Competition Agencies.[1] As Africa implements its African Continental Free Trade Agreement (AfCFTA) e-commerce Protocol and the e-commerce conclusions during the WTO Ministerial Conference (MC) 12, competition and data protection regulators should cooperate towards effective competition that will protect consumers' right to privacy.

Figure 6: M-Pesa customer numbers from 2017 to 2021, in millions



Source: Vodafone.

2 Research objectives, methodology, motivation, and the structure

Typically, digital markets, trade facilitation, data infrastructure, and an enabling policy ecosystem foster innovation, productivity growth, and socio-economic outcomes due to the effective networking and information exchange facilities provided through digital platforms. Nevertheless, this story is slightly different in Africa (i) mainly because digital platforms also compound inequality; and (ii) partly because the major platforms

1 African Competition Forum (ACF). 'ACF Cross-Country Study on Airlines,' 2021. Available online at: https://www.compcom.co.za/wp-content/uploads/2021/10/ACF-CROSS-COUNTRY-STUDY-ON-AIRLINES_amend-12.pdf (accessed 1 May 2021)

and data providers sharing local digital economies are owned by large multinational enterprises that operate in the developed economies. Based on this background, the aims of this chapter are in two prominent folds. The objectives of the first fold are to (i) expatiate on the economics of digital platforms and the theories of harm from both market dominance and disadvantageous outcomes for consumers; (ii) analyse Africa's digital platforms within the legal context of fairness and contestability; (iii) identify and discuss cases of trade malpractices and 'winner-take-all' behaviour on digital platforms in selected African countries; and (iv) provide forward-looking and adaptive remedies for promoting pro-competition practices in digital markets based on the theories of harm.

The second fold objective articulates the book road map, the rationale behind this book project, the summaries of each chapter, and the way forward. The increased attention by African competition authorities in digital markets and the preparedness of African governments for the future of digital markets motivate this study. The methods adopted in this study are descriptive statistical techniques as well as doctrinal research. While descriptive statistical methods analyse the growth and emerging trends in selected digital platforms' activities and indicators, it also presents some evidence of harm caused by incumbent digital platforms in Africa. The doctrinal research approach to this study focuses on a review of relevant literature on the theories and economics of digital platforms, trade malpractices and competition law. The analytically doctrinal approach includes some focused group discussions with selected officials from African countries' competition authorities that specialise in trade imbalances notifications on digital platforms.

Structurally, the second section introduces this chapter, and the third section presents the study objectives, methodology, and motivation. The fourth section discusses a primer on the economics of digital platforms, winner-take-all, and the theory of harm. Section five focuses on fairness and contestability within Africa's digital platform landscape. While the sixth section discusses a couple of trade malpractice cases on Africa's digital platforms, the seventh section presents the forward-looking remedies for correcting the trade imbalances and anti-competition behaviour of these incumbent digital platforms without dampening innovation. Finally, the eighth section presents and summarises every chapter in this book project.

3 Deeper into digital platforms' bargaining powers and winner-takes-all effect

By definition and for the focus of this chapter, digital or online platforms are websites, online or mobile applications (apps), operating systems,

digital assistant, or online services that (i) enable a user to generate content that can be viewed by other users on the platform or to interact with other content on the platform; (ii) facilitate the offering, sale, purchase, payment, or shipping of goods and services, including software applications, between and among consumers, and businesses not controlled by the platform; and (iii) enable user searchers or queries that access or display a large volume of information.[2]

The economics of consumer privacy protection, the equilibrium level of privacy and its welfare consequences depend on the mechanisms employed by two-sided platforms to mediate the exchange of consumer data, thereby determining the scale and granularity of consumer data intermediation. The critical driver of a digital platform's bargaining power is whether it is instrumental for a match between consumers or producers or enabling the match to occur under better complete information. Thus, the intermediary role of most digital platforms connects many users to commodities producers.[3] The essential data-intermediation role requires a digital platform to generate information from multiple users, monetize it through multiple producers or firms of merchants, and lastly, consumers and producers may meet to create off-the-platform opportunities. A single platform may either increase consumer welfare if network effects are significant or welfare-decreasing due to higher prices or a reduction in platform variety.[4]

Platform Economics is increasingly shaping privacy issues into a social, competition, and regulation complexity such that the platform dimension of privacy and the dual role of digital platforms as gatekeepers of information and competition portends some socioeconomic challenges that require more a-platonic modeling approaches. According to Deutscher,[5] digital markets comprise three distinct features: (i) the importance of multi-sided intermediary platforms; (ii) the prevalence of extreme economies of scale and scope, network effects, and market

2 Based on this definition of online platforms, they are also similar to core platform services which include (i) online intermediation services, which include marketplaces and app stores; (ii) online search engines, (iii) online social networking services, (iv) video-sharing platform services; (v) number-independent interpersonal communication services, such as WhatsApp; (vi) operating systems; (vii) advertising services; and (viii) cloud computing services.

3 A, Bonati. 'The platform dimension of digital privacy'. National Bureau of Economic Research (NBER) Tutorial on the Economics of Privacy. May 2023.

4 C. Farronato, J. Fong, & A. Fradkin. 'Dog eat dog: measuring network effects using a digital platform merger'. NBER Working Paper No. 28047. November, 2020.

5 E Deutscher 'Reshaping digital competition: The new platform regulations and the future of modern antitrust' (2022) 67 *The Antitrust Bulletin* 302.

tipping; and (iii) the presence of vertical or diagonal integration which shapes incentives accruable to incumbent digital platforms, as well as horizontal interaction among competing platforms, business users, and end users.

The importance of extreme returns to scale and scope, as well as network effects that increase the incentives of incumbent digital platforms to tip markets in an irreversible manner, is evident in the horizontal relationship between platforms. Invariably, and as markets tip in favour of digital platforms, they entrench their market power and generate monopoly profits via different monetisation channels. Based on this monopoly position, digital markets become more market dominant over time and threaten new or small enterprises from entering the market. By implication, these asymmetric dynamics empower an incumbent digital platform to spend more or sacrifice more profits to insulate its monopoly profits from potential competition than new entrants may be willing to invest in order to remain competitively viable in the market.[6] Invariably, incumbent digital platforms possess huge incentives to eliminate horizontal competitors by engaging in exclusionary conduct or acquiring new market entrants, which largely explains why competition authorities investigate mergers and acquisitions before their approvals. Thus, manipulation by incumbent digital platforms.[7] Lack of transparency in decision making and centrality of vertical integration considerably undermine competition in 'search', digital advertising and social media sectors while posing various harmful effects on consumers. If all these anti-competition excesses are not strategically curtailed, they transform an incumbent digital platform into a 'winner-take-all' player. In addition to the 'harm' inflicted on digital platforms and 'competing firms', the economics of digital platforms from consumers' perspective focuses on the misuse of consumer data and harm to their privacy. In a similar case, Liu, Brynjolfsson, & Dowlattabadi analysed the question: 'Do digital platforms significantly affect moral hazards or service quality, compared to traditional settings?' by analyzing trip-level data, and found that Uber technology platform and pricing scheme reduce driver moral hazard behaviour where taxi moral hazard return is high.[8] In consistency with the agency theory, taxi drivers detour

6 E Hovenkamp & SC Salop 'Asymmetric stakes in antitrust litigation' USC Legal Studies Research Papers Series 20-12 (2020) 1, https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3563843.

7 Digital platforms wedge power over upstream and downstream markets and other related markets, prices, and client traffic towards enhancing and attaining network effects. A good example is raising prices and harming consumers after eliminating a competitor.

8 M Liu, E Brynjolfsson, & J Dowlatabadi. 'Do digital platforms reduce moral hazards? The case of Uber and taxis'. NBER Working Paper No 25015. 2018. Available online

more relative to Uber drivers on airport routes, and especially among non-local riders.

4 Emerging trends in energising competition and consumer protection law enforcement: Fairness and contestability within Africa's digital platforms landscape

The increase in smartphone ownership and internet penetration has enhanced access to large quantities of personal data in Africa, thereby deepening the challenge of data theft and the dire need for data protection and privacy laws in the face of rife anti-competitive practices. According to the African Competition Forum (ACF) and the Competition Commission of South Africa (CCSA), digital markets, which include online intermediation platforms, are the fastest growing segment of African economies – South Africa, Egypt, Kenya, Mauritius, Nigeria, and so forth. Online intermediation platforms facilitate trade, business, and transactions between business users and end customers (B2C platforms) in the following areas: selling goods, services, software such as apps for business and household consumption, online classifieds, price comparator services, and intermediated services for food delivery, travel and accommodation. The leading platforms in South Africa are (i) Google search in general search (as an input to platform competition); (ii) Apple App Store and Google Play store in software app stores; (iii) Takealot in eCommerce; (iv) Booking.com, Google.com, and Airbnb in travel and accommodation; (v) Mr. Delivery and UberEATS in food delivery; (vi) Property24 and Private Property in property classifieds; and (vii) Autotrader and Cars.co.za in automotive classifieds. Since these tech-driven digital platforms advance much more quickly than most people anticipate, Africa needs more dynamic socio-economic and political structures, institutions, and paradigms to address these platforms' ethical and legal challenges. Jumia[9] is Africa's number one e-commerce giant, with monthly visitors hitting around 32 million in April 2021. Takealot.com is Africa's second largest e-commerce zone, with an average of 10,5 million monthly visits, while the online retailer Souq, now Amazon, registered about 10 million visitors per month (see Figure 7). According to Statista's Digital Market Outlook report, due to rapid growth in internet penetration and accelerated digital transformation, Africa's e-commerce users are forecast to surpass the half-billion mark by 2025.

at: https://www.nber.org/system/files/working_papers/w25015/w25015.pdf

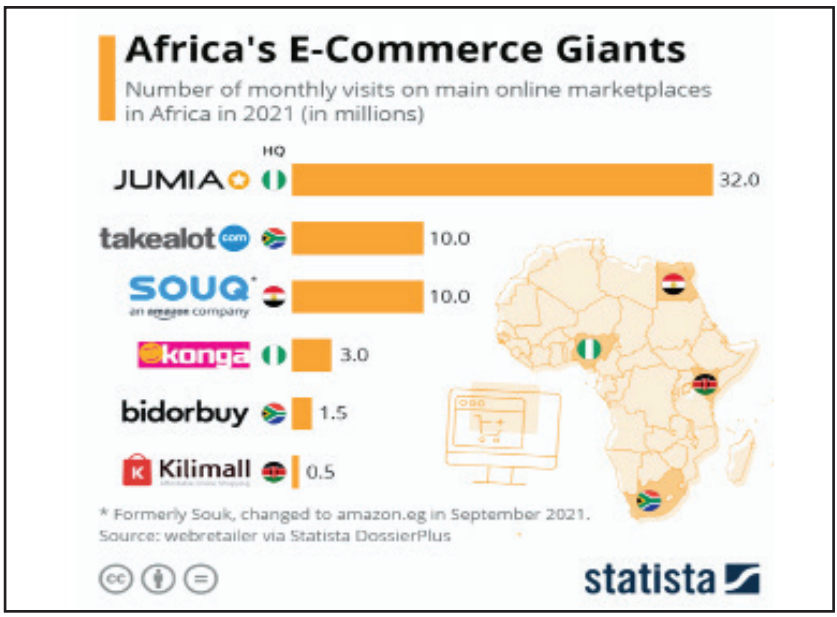
9 Jumia operates like multicrop Amazon because it sells pretty much everything from groceries to clothes, own food delivery service – Jumia Food – and hostel booking service, Jumia Travel.

The trade malpractices or unfairness on digital platforms are evident in the unequal relationship between businesses and dominant platforms and the need to implement a principle of a balanced exchange between the two sides. This captures the definition of fairness in that it should allow businesses to multi-home while offering their services via more than one platform, as the platforms are not allowed to give preference to their services at the expense of those of rival businesses operating through the same platform. Furthermore, indirect harm arises during unfair terms for business users of platforms, unfair access to consumers through platforms, and unfair restrictions on the use of alternative platforms.[10] This largely explains why digital platforms are increasingly experiencing regulatory scrutiny, as Farronato, Fong, & Fradkin deployed a difference-in-differences approach to estimate if a single platform may enhance consumer welfare if network effects are large or may decrease welfare due to higher prices or reduction in platform variety.[11] The analysis revealed that consumers are, on average, not substantially better off with a single combined platform than with two separate and competing platforms. Furthermore, acquiring platform users benefited from merger due to network effects, while acquired platform users experienced worst outcomes.

10 N Dunne 'Pro-competition regulation in the digital economy: The United Kingdom's digital markets unit' (2022) 67 *The Antitrust Bulletin* 341-366.

11 C. Farronato, J. Fong, & A. Fradkin. 'Dog eat dog: measuring network effects using a digital platform merger'. NBER Working Paper No. 28047. November, 2020. Available online at: https://www.nber.org/system/files/working_papers/w28047/w28047.pdf

Figure 7: Africa's e-commerce giants

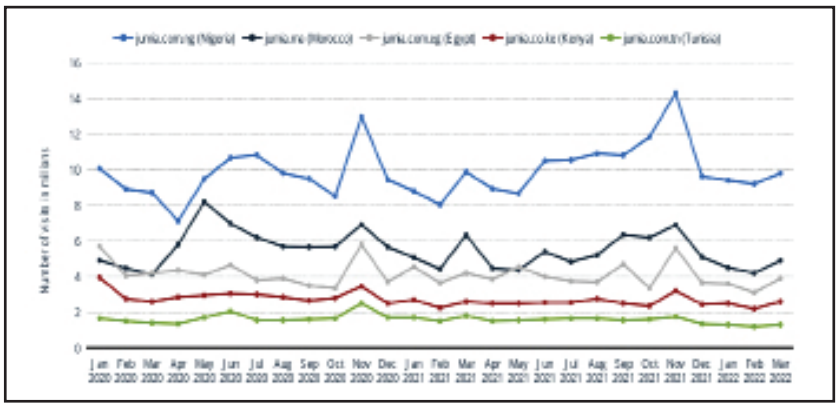


Source: Statista.

According to Monti,[12] contestability objectives would enhance digital platforms in Africa to achieve three outcomes: (i) allow the emergence of competitors to challenge the position of dominant platforms; (ii) achievement of platform disintermediation, thereby empowering digital platform users to opt to use some of the platform's services but may also in parallel utilise some of the services of other rivalry platforms; for example, a consumer may use a dominant Takealot e-commerce website but then interoperate easily to any of the Jumia domains, or businesses might sell via the Jumia e-commerce platform but see to receive payment using a service provided by another digital bank not provided on Jumia website; (iii) forbidding digital platforms from extending their market powers into adjacent markets and across a range of similar services stifle the emergence of competitors. Both Figure 8 and Figure 9, respectively, present the monthly number of visits to selected Jumia domains and takealot.com from January 2020 to March 2022.

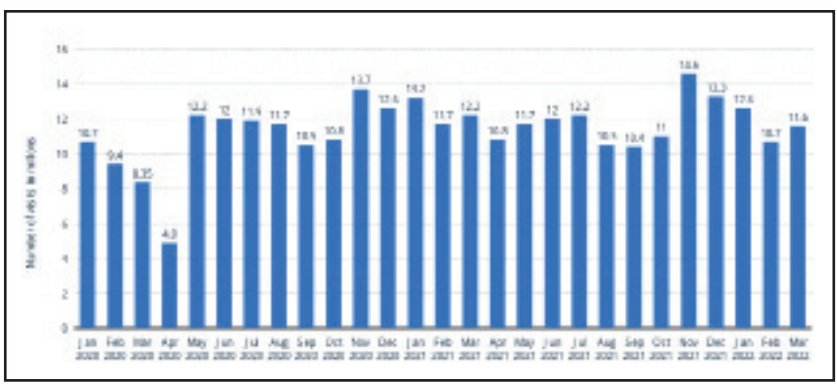
12 G Monti 'Taming digital monopolies: A comparative account of the evolution of antitrust and regulation in the European Union and the United States' (2022) 67 *The Antitrust Bulletin* 40.

Figure 8: Monthly number of visits on Jumia on selected domains in Africa from January 2020 to March 2022, in millions



Source: SimilarWeb.

Figure 9: Monthly number of visits on Takealot.com from January 2020 to March 2022, in millions



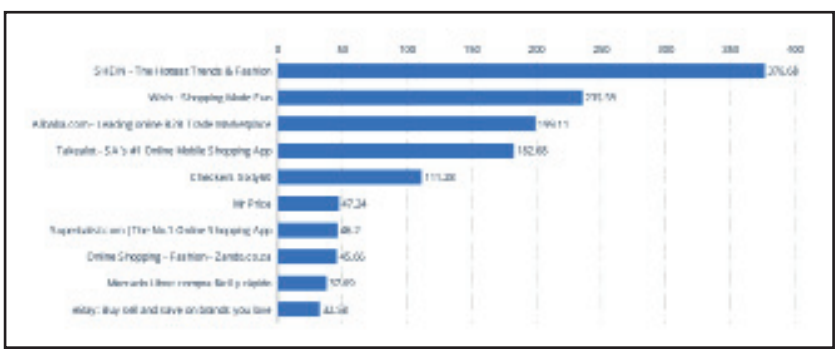
Source: SimilarWeb.

Despite being one of the largest, relatively tech-developed and infrastructure-robust characteristics, thereby boasting of a fair share of digital platforms compared to other countries in sub-Saharan Africa, South Africa still exhibits a highly unproductive government expenditure space, which has one of the worst income distributions in the world. In redressing this economic anomaly, the South African government manages an extensive social grant system where more than 40 per cent of the population receives social grants from the government, and 44 per

cent of the government budget is spent on social development, thereby improving income distribution, but at an unsustainable approach.[13]

Theoretically and practically, digital platforms comprise two sides that need consumers on one side and business users on the other to function. Jumia Africa operates national office platforms in 13 African countries. Jumia Africa provides convenience for consumers through shorter shipping times, tailored payment options, local language interfaces, linkages with local industries and suppliers, and export promotions. Jumia Foods is the food delivery sub-enterprise of Jumia Africa. Furthermore, Jumia Foods, as e-commerce continues to attract venture capital funding, online grocers tap into cost-saving solutions for consumers as grocery prices skyrocket; meal kits regain popularity as consumers look for new and novel ways to prepare meals at home. In addition, increased venture capital activity, tech innovation, and environmental considerations have pushed food tech firms to grow at an unprecedented rate, where the ten largest industry deals of the decade are in food tech, thereby underscoring the need to examine Africa's food e-commerce drivers behind food tech's evolution, including the proliferation of app-based delivery platforms, consumer preferences, and venture capital funding. Figure 10, Figure 11, Figure 12 and Figure 13 present the most popular apps in Google Pay Store in the shopping categories in South Africa, Kenya, Egypt and Nigeria.

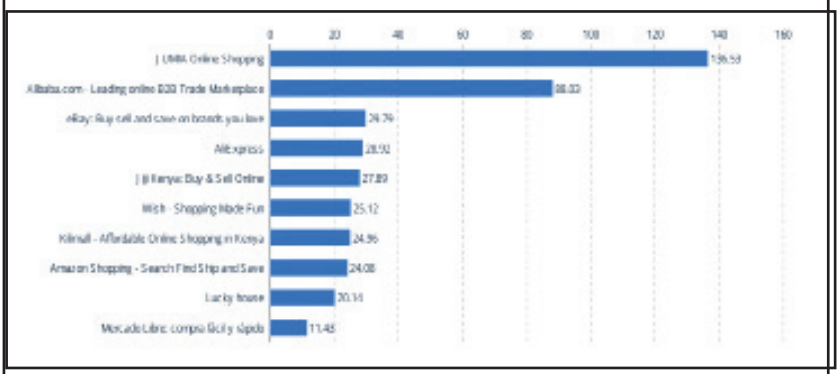
Figure 10: Most popular apps in Google Play Store in the shopping category in South Africa on July 2021, by number of downloads in thousands



Source: Airnow.

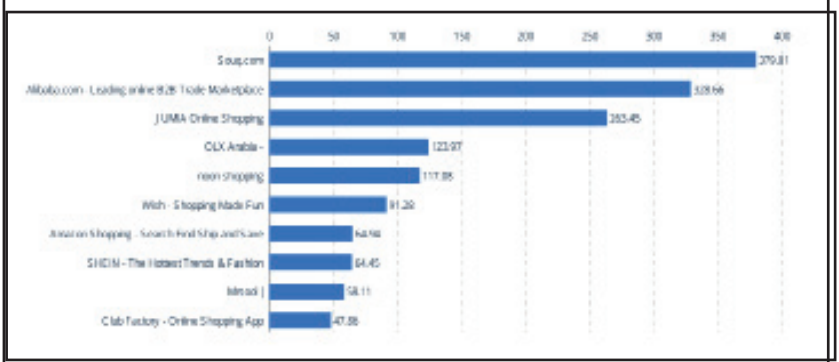
13 S Francois and others 'A fiscus for better economic and social development in South Africa' (2022), GTAP Resources: Resource Display: A fiscus for better economic and social development. (purdue.edu).

Figure 11: Most popular apps in Google Play Store in the shopping category in Kenya on July 2021, by number of downloads in thousands



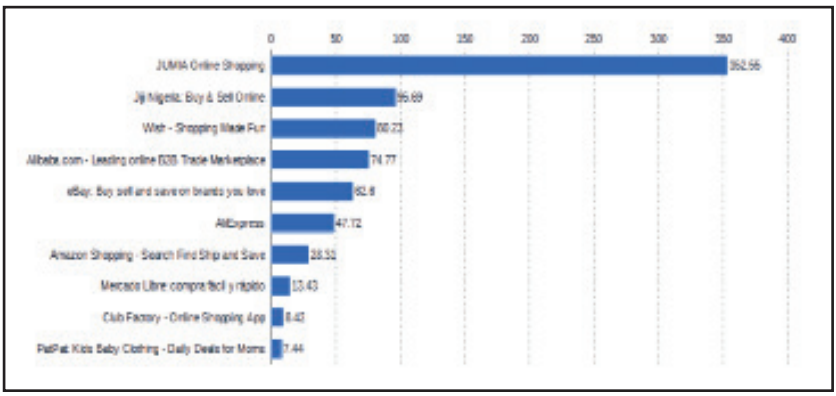
Source: Airnow.

Figure 12: Most popular apps in Google Play Store in the shopping category in Egypt on July 2021, by number of downloads in thousands



Source: Airnow.

Figure 13: Most popular apps in Google Play Store in the shopping category in Nigeria on July 2021, by number of downloads in thousands



Source: Airnow.

Jumia Foods operate a two-sided digital platform in which well-defined tasks are remunerated with a fixed rate payment such that deliveries are paid not by the hour but on an agreed sum for the food delivery. This creates inequality from the perspective that the tasks performed are sufficiently well defined that a virtually complete contract is possible, and the only way that workers can be employed is through the platforms owned by a few firms. This means that the food delivery bikers have no real bargaining power. Furthermore, if a Jumia Foods worker objects to the terms, there will always be another worker to do the job. The worker who refuses the job will unlikely find better gigs on the Jumia Foods platform. One of the payoffs is pooling workers with free time, required skills, and other relevant equipment – with those willing to pay for completed service.

Nevertheless, a few platforms and many workers result in minimal pay for often onerous work. Further, workers face great economic insecurity and are not guaranteed a fixed schedule of hours and pay, nor do they receive health insurance benefits, maternity leave, holiday pay or pension contributions. If regular employment relations between employers and workers are characterised by incomplete contracts[14] such that profit maximization drives employers to choose a merely acceptable contract that often does not bother to mention that a worker should work hard and well, talk less of a digital platform in which an employment contract does not bind a team member, thus subjecting the relations to increasing numbers of legal battles. This analogy defines the concept of reservation

14 Read Chapter five of this book for more information on 'incomplete contract' from digital trade perspectives.

wage, in which digital platforms pay limited wages because the workers do not need to be motivated by the workers to do the job – if it is not done, the worker will not be paid.

The transformation of the Nigerian fiscal space occurred with the enactment of the Finance Act 2021 (Finance Act or Act), which introduced an excise duty of N10 per litre on non-alcoholic, carbonated and sweetened beverages, fine-tuned tax law provisions about the taxation of the digital economy and increased the Tertiary Education Tax rate from 2 per cent to 2,5 per cent. However, some of the challenges in Africa's digital markets also include digital taxation distortions, as well as the need for national competition authorities to issue guidelines or new regulations to prohibit anti-competitive behaviour by leading platforms in online intermediation platform markets, as well as continual identification and review of leading platforms, which aligns with the need for computational competition.

Digital platform inequity occurs when online platforms hinder competition among themselves, practice discriminatory and exploitative tendencies, and digital market action that may adversely impact the participation of MSMEs and historically disadvantaged persons-owned businesses. Given this, one of Africa's dilemmas is that digital platforms have generated fewer opportunities for the teaming unemployed youth in Africa.

After a very long wait and several failed attempts at the Nigerian national level to develop its very first competition law, the Federal Competition and Consumer Protection (FCCPC) Act was enacted by the National Assembly in December 2018 and subsequently signed into law in January 2019 to eliminate market distortions across all sectors. Notably, the FCCPC Act repealed the Consumer Protection Council Act, which dissolved the Consumer Protection Council. The FCCPC Act prohibits the abuse of a dominant position in any industry by any business undertaking, especially in this digital age.[15] A good understanding of the antecedents of the Nigerian FCCPC as a legal framework governing competition issue in the country is crucial to the successful implementation and energising the enforcement of competition law on digital platforms.[16]

15 KPMG 'The Nigerian Government Federal Competition and Consumer Protection Act' (2022), https://assets.kpmg/content/dam/kpmg/ng/pdf/tax/ng-Federal-Competition-and-Consumer-Protection-Act.pdf.

16 F Ukwueze and others 'Connecting the dots in the legal framework for competition regulation in Nigeria' (2021) 47 *Commonwealth Law Bulletin* 231-250.

Digitalisation, e-trade, e-commerce, trade tech and digital technologies have broadened and deepened the scope and capacities of domestic, national, regional, continental, and global markets, and Africa is not left out. Consequently, regional laws such as Common Market for Eastern and Southern Africa (COMESA) Competition Regulations are strategically relevant to addressing cross-border markets-related challenges such as restrictive business practices, merger control, consumer protection, settlements and penalties. According to COMESA, nearly 5 per cent of Zambian businesses have permanently closed due to COVID-19 since early 2020, while more than 70 per cent of Zambian firms have been experiencing depressed demand for their products compared to the pre-pandemic period. About 70 per cent of firms experience disrupted inputs and outputs supply chains due to the pandemic.

The Treaty Establishing the Common Market for Eastern and Southern Africa (COMESA) recognises the need for competition law if the common market trade will be free and liberalised, culminating in the COMESA Competition's promulgation Regulations 2004 and the establishment of the COMESA Competition Commission. Fifty-four countries are currently signatories to the Africa Continental Free Trade Area (AfCFTA), and 41 of these countries have ratified the agreement. 16 of the 41 countries are COMESA member states guided by the Tripartite Agreement 1 competition Protocol. The AfCFTA agreement provides a competition protocol for attaining free and liberalised trade in Africa.

5 Trade malpractices in digital markets and COVID-19-related anti-competition cases

An increasing number of tech enterprises dominate different digital markets in Africa. Thus, the advantages of big data evolve towards vertically integrating firms that own digital platforms and compete with other sellers on that platform. Consequently, online digital platform owners access other sellers' information that they could use to their advantage, making vertically integrated firms incentivise self-preferencing by giving preferential treatment to their digital platform services over the services of other companies, thereby resulting in market dominance. While it is pertinent to note that competition cases in digital platforms sometimes struggle to compellingly demonstrate a distortion or absence of competition to establish concrete harm to consumers, some of the predominant narratives that have emerged in the African anti-competitive landscape are discussed below.

5.1 COVID-19 and health-related cases

- In the case of price gouging by Tsutsumani Business Enterprises (TBS), which occurred during the COVID-19 lockdown, the Competition Tribunal of South Africa found TBS guilty of price gouging when it supplied 9 million face masks to the South African Police Service (SAPS) at the rate of R32,50 per mask, rather than R17,35 per mask.

- Second, the Competition Commission of South Africa (CCSA) investigated three labs – Ampath, Pathcare and Lancet – for charging exorbitant prices for COVID-19 and rapid antigen tests, and the labs agreed to reduce PCR tests prices from about R850 to no more than R500. In contrast, antigen test prices were reduced from R350 to R150.

- Roche Holding AG and its subsidiaries imposed excessive prices for Trastuzumab, a breast cancer drug, which resulted in about 10 000 breast cancer patients being unable to afford the drug between 2011 and 2019. Most of these patients are poor women, and thus the CCSA referred Roche Holding AG's matter to the Competition Tribunal of South Africa, which led to a 10 per cent fine on Roche and its subsidiaries' annual turnover in South Africa.

5.2 Trade facilitation-related anti-competition and coded biases cases

- Predatory behaviour in digital lending space: The Competition Authority of Kenya (CAK) conducted a study and found that only 27 per cent of digital borrowers were aware of the fees and costs of other digital loan providers, and more than 70 per cent failed to pay their loans as scheduled. Consequently, CAK mandated disclosure of loan terms and compelled mobile digital lenders to disclose their terms before disbursing loans to borrowers, thereby making the digital lending space more transparent and accountable. Similarly, the Federal Competition and Consumer Protection Commission (FCCPC) developed a regulatory and registration framework and guidelines to guide digital payment platforms and the comprehensive processes for publishing new digital money lending apps on app stores. FCCPC's aim of suspending harmful businesses from using the payment gateway services, freezing bank accounts and payment platforms of digital money lenders, and ordering app stores to draw

down specific applications will contribute to eliminating unethical money lending businesses.

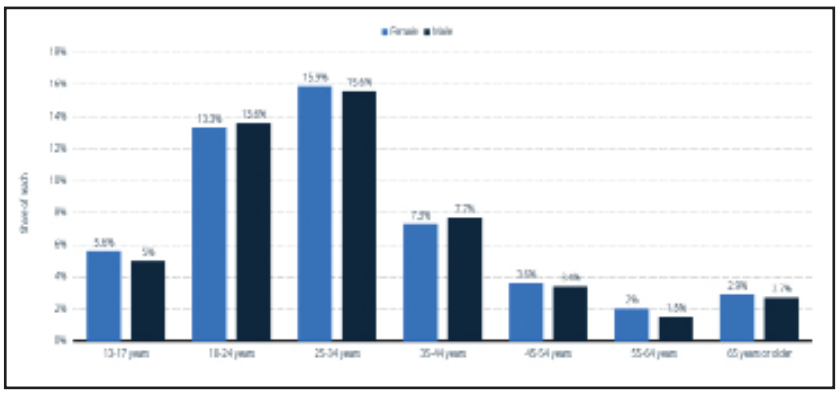
- The Competition Commission of South Africa (CCSA) has restricted the abuse of buyer power to a few sectors, namely, grocery wholesale, agro-processing, retail, e-commerce, and online services. CCSA establishes that a player is dominant if it controls more than 45 per cent of the market.

- The Competition Commission for the Common Market for Eastern and Southern Africa (COMESA) – (CCC) launched an inquiry into the joint Safaricom's interest in Ethiopia to assess whether the joint venture will substantially prevent or lessen competition in the regional market. Subsequently, Safaricom Ethiopia joint venture paid the International Finance Corporation (IFC) a transaction fee of US $4 million for new market entry services. Thus, the venture is set to launch operations in August 2022 in the city of Dire Dawa and accelerate to 24 other cities, including Addis Ababa.

- South Africa's online platform – GovChat – comprising about 9,2 million active users and approximately 630 million messages, accused WhatsApp of dominating and anti-competitive practices. Figure 14 shows the demographics of advertising reach across the Meta platforms in South Africa. In March 2022, CCSA referred the Tribunal to prosecute Meta and its subsidiaries (WhatsApp and Facebook) for abusing their dominance through a threatened off-boarding to GovChat.[17] There is palpable unfairness in online access among dominant global players – WhatsApp, Telegram, and so forth. For instance, Google's Play Store excludes new, innovative, and rival search engine apps like in the case of Chooya, a Nigerian start-up that intends to provide search services to off-internet people, especially in rural and remote geographies in Africa.

17 In November 2020, and an exclusionary act as prohibited under South African competition law, GovChat complained to CCSA that WhatsApp abused its dominance by threatening to off-board GovChat ... the CCSA also found that the terms and conditions … are designed to shield and insulate Facebook from the potential competition, such as the potential competition presented by…. GovChat..'

Figure 14: Share of combined, deduplicated potential advertising reach across the Meta platforms Facebook, Instagram, and Messenger in South Africa as of 2022 by age and gender



Sources: Hootsuite; We Are Social; DataReportal; Meta Platforms.

- The Federal Competition and Consumer Protection Commission (FCCPC) concluded pieces of evidence on the anti-competitive and distorting practices of cartel oligopolies in Nigeria's shipping and freight forwarding industry.

- Based on financial, technology, expertise and intelligence resources at their disposal, conglomerates collude dominantly across markets by imposing 'harmfully' political power on markets to the detriment of (i) consumers and (ii) small and medium-sized players. Looking at the anti-competitive roles of national and regional conglomerates within the AfCFTA, SADC, COMESA, and ECOWAS contexts is crucial. Take, for example, the distorting behaviour of South African conglomerates in Southern and Eastern African energy, aviation, telecoms, digital platforms, and financial markets, as well as the possible anti-competitive behaviour of Nigerian conglomerates in the West African regional economy. The Dangote Group remains a dominant conglomerate in Nigeria and West Africa's pasta, gas, sugar, flour, cement, steel, salt, and oil sectors.

- Come October 2022, Africans and the world await the outcome of the Online Intermediation Platform Market Inquiry being conducted by the SACC on (i) the protection of journalism and its funding in South Africa; and (ii) platforms such as Google and Meta should compensate publishers fairly for journalistic efforts. This may result in developing a South African law that would force technology giants to pay for the news that appears on their feeds. In the case of media, content creation or generation, and journalism, all media and creative

enterprises in Africa need Facebook, Google, YouTube and Netflix, among other platforms, because these big techs have intermediated themselves between African journalists and their African clients to the financial advantage of the big techs, and the demise of local creative and media enterprises. This represents a classic case of market failure in that local journalism represents a community and justifies it as a public good from which we all benefit.

6 'Media Code' lessons and forward-looking remedies: Computational competition

As Africa's digital economy evolves, more African countries such as South Africa, Egypt, Kenya, Nigeria, Mauritius and Tanzania are sharpening their competition laws and authorities to prepare for the future of digital markets, for instance, South Africa's Competition Act 89 of 1998, Egypt's Law on the Protection of Competition and the Prohibition of Monopolistic Prices, Law 3 of 2005, and Nigeria's enactment of the Federal Competition and Consumer Protection Act of 2019 (FCCPA). However, more harmonisation efforts are needed as Africa implements its AfCFTA and TFTA, thereby avoiding duplicity of interventions in the face of meagre resources. About 14 African countries do not have a competition law, and a further nine have rules that are yet to be operationalised and not enforced. One of Africa's active regional competition authorities is the COMESA Competition Commission (CCC). However, its capacities need to be enhanced to meet its mandates, especially in comparison with the more advanced South Africa Competition Commission. In a famous example of the 2017 Bayer-Monsanto merger in the seeds and fertilisers markets, the CCC's decision was barely two pages long, the competition analysis was two single-sentence paragraphs, while the Competition Commission of South Africa articulated significant anti-competitive reasons and ordered divestments to protect relevant markets.[18]

According to Dunne, traditional competition law tools will be insufficient to address the identified competition behaviour of digital platforms.[19] There is an increasing need for more out-of-the-box regulations, enforcement of competition in online markets, and data protection law facilitation. Africa's competition authorities should sharpen their continental collaborative strategies to focus on the impact of algorithms while enhancing the transparency of digital platform activities and how these platforms protect consumers and businesses from potential harm. Furthermore, Africa's competition authorities should re-calibrate

18 E Fox & M Bakhoum *Making markets work for Africa* (2019) 136-139.

19 Dunne (n 7).

their operations based on seven thematic areas: organisational, regulatory capacity, data protection, regulatory coherence and enforcement priorities, advisory policy role, entrenching the culture of enterprise risk management (ERM), business continuity management (BCM) and, finally, collaboration with regional competition agencies.20

Thus, a more strategic approach is needed by the African Union (AU) Commission, the AfCFTA, the African Competition Forum (ACF), the Economic Community of West African States (ECOWAS) Regional Competition Authority (ERCPF), the East African Community Competition Act (EAC Competition), and COMESA-CC (CCC) leadership towards regulating online platforms and computational competition may be a way forward. Africa should improve its competition law articulation and enforcement, especially in clipping the anti-competitive wings of technology-related firms and businesses. More importantly, AfCFTA aims to foster MSME expansion due to their current contrition of 80 per cent of Africa's employment and 50 per cent of Africa's GDP. CCC and AfCFTA should create a level playing field for all businesses, especially MSMEs and MSMEs owned by historically disadvantaged people (HDPs). Thus, more nuanced and sophisticated approaches should be deployed to prepare Africa for the future of digital trade platforms.

According to the CCSA, digital platforms require a differently unique approach and mind set as a result of some innovations such as first-mover advantage, data accumulation, network effects, data privacy concerns, and rapid expansion of one large dominant global platform that transcends Africa's digital economy and its national borders. Since competition and data protection issues overlap in digital platforms, national and regional cartels forensic and bid-rigging detection labs should be established to develop appropriate tools for detecting digital cartels, assess the effects of cartels, investigate both small-scale, domestic and global acquisitions, including investments in start-ups, and analyse cases of digital collisions that may undermine Africa's economy. Thus, competition policy will have to play a more dynamic role in the context of leveraging digital platforms' network effects and their implications for creating and capturing value in African economies.[21]

20 VK Kigwiru 'The cooperation on competition policy under the African Continental Free Trade Area' (2020) 17 *Manchester Journal of International Economic Law* 98-121, https://www.electronicpublications.org/stuff/777, SSRN: https://ssrn.com/abstract=3591015 or http://dx.doi.org/10.2139/ssrn.3591015.

21 UNCTAD 'Digital economy report, 2019: Value creation and capture: Implications for developing countries: Digital Economy Report 2019' (2020), https://unctad.org/system/files/official-document/der2019_en.pdf.

Rather than adopting a command-and-control approach, ACF competition enforcement and regulatory leadership should learn from the Australian Competition and Consumer Commission (ACCC)'s investigation, which resulted in the News Media and Digital Platforms Mandatory Bargaining Code (Media Code) that was formally approved on 2 March 2021, and legislated that tech platforms to negotiate prices to pay news publishers for their contents. Similar competition interventions are being considered in Canada, the United Kingdom and the European Union (EU), where copyright protections are extended for news publishers requiring tech platforms to pay for displaying news feeds beyond a primary Uniform Resource Locator (URL).

Regarding country specificities, furthermore, the workable practicality of competition law in Nigeria requires the appreciation of the two distinct areas of the law – competition, on the one hand, and consumer protection, on the other.[22] In addition, Nigeria should take lessons from the South Africa Competition Act 89 of 1998 and the Consumer Protection Act 68 of 2008, where regulation and enforcement remain separated while emphasising the welfarist competition legislation approach in enhancing equity without necessarily admitting 'efficiency' considerations.[23]

Although the COVID-19 pandemic affected the timely responses of legal obligations under different competition regulations, part of the responsiveness of the regulation with numerous requests from parties should extend the timelines for submitting merger filings occasioned by information collection and collation delays. In a similar vein, competition authorities in South Africa, Egypt, Mauritius, Kenya and Nigeria cooperate on competition policy enforcement, together with the African Competition Forum's support through cross-country study into the competitive dynamics of various African economic sectors. The aim is to gravitate towards a converging continental approach to competition laws, policies and principles.

The fact remains that mere regulatory responsiveness via competition law alone is grossly insufficient to rein in the powers of digital platforms because of the expensive and time-consuming enforcement nature it requires of competition agencies to prove the likely consumer welfare losses effects of Google, Amazon, Facebook, Apple and Microsoft

22 E Okiche & A Okiche 'The balance between equity and efficiency: Reflections on the goals of the new Nigerian competition law' (2020) 46 *Commonwealth Law Bulletin* 331.

23 S Tavuyanago 'The interface between competition law and consumer protection law: An analysis of the institutional framework in the Nigerian Federal Competition and Consumer Protection Act of 2019' (2020) 27 *South African Journal of International Affairs* 391.

(GAFAM)'s conduct.[24] For instance, it took the European Commission six and a half years to investigate Google's practice of favouring its own shopping services by positioning and displaying search results from its own service in a more eye-catching manner in the Google shopping saga.[2526] Computational competition methodologies[27] have great relevance for the operationalities of digital platforms and the application of competition laws in regulating mergers in the increasingly digitalised African economy.[28] The interpretation and application of the COMESA Competition Regulations and the COMESA GAFAM Competition Rules should be revisited and revised as the ecosystem within which it operates evolves. For instance, the Competition Law Protocols for the AfCFTA, and the Tripartite Free Trade Area, dovetail into the practice and workability of economic regulation principles, regional competition dynamics, and enforcement in light of the AfCFTA. In this regard, balancing market efficiency with equity is key to operationalising this balance in the evolution of COMESA's competition law while taking only strategically adaptable lessons from the European Union.

In February 2022, South African, Egyptian, Mauritius, Kenyan and Nigerian competition authorities discussed a unified and collaborative approach to enhance their readiness, conduct rigorous research, and share investigations intelligence for overcoming the anti-competitive tendencies of the continental digital economy, significantly as Meta, Google, Apple, Amazon, and so forth, evolve, thereby speaking with one voice for the continent and in the interest of AfCFTA. From a more optimal intervention perspective, commission authorities' regulations will be most effective in addressing trade injustices if they are more targeted at the different models adopted by digital platforms and GAFAMs. In other words, the episodic regulatory dialogue approach to taming digital platforms and data portability and interoperability methods is more effective than the current deterrence-based approach, which most competition authorities currently adopt.[29] In other words, regulatory remedies should be digital platform

24 AC Witt 'Taming tech giants' (2022) 67 *The Antitrust Bulletin* 187.

25 AC Witt 'Who's Afraid of Conglomerate Mergers?' (2022) 67 *The Antitrust Bulletin* 208-236.

26 Case T-612/17Google and Alphabet vs. Commission (Google Shopping), ECLI: EU:T:2021:763.

27 Computational Antitrust is an initiative of the Stanford Computational Antitrust. It is based on the analogy that legal informatics and computational law can foster the automation of antitrust procedures and improve antitrust analysis more generally.

28 T Schrepel & T Groza 'The adoption of computational antitrust by agencies: 2021 Report' 2 Stanford Computational Antitrust, 78 (2022), VU University Amsterdam Legal Studies Paper Series, https://ssrn.com/abstract=4142225.

29 G Monti 'Taming digital monopolies: A comparative account of the evolution of

specific because digital platforms often operate hybrid business models due to their vertical and diagonal integration characteristics and expand into the neighbouring marketplace by providing upstream, downstream, or complementary services.[30] In other words, Africa's competition regulation responsiveness should challenge conventional wisdom where false positives of competition law enforcement are more costly than false negatives based on an error-cost framework recalibration that perceives that digital markets' anti-competitive harm probability and magnitude may be greater than usually assumed by conventional competition law literature.[31] For example, although pro-competition is the desired outcome, the overt pro-competition regime is neither the only nor necessarily the best regulatory instrument to foster competition in digital markets.[32]

7 The book's roadmap: Futurity, Africa's post-pandemic preparedness and trade facilitation innovation

Drawing on a diverse set of empirical contexts as Africa's trade landscape and digital economy is increasingly fraught with rising inequality, stagnant productivity, socio-economic fragility, and environmental extremes, every chapter in this book provides in-depth, cutting-edge and strategic bits of advice for understanding the future of trade innovation, including one health, diversification of economies, jobs, resilient food systems, sustainable platforms, linking farmers to markets, digital financial innovation, leveraging the private sector and post-COVID-19 recovery.[33] Moreover, ethnic conflicts, cross-border relations mistrust, trade disputes among vulnerable populations, and unsustainable commercial ties still persists among African businesses. The combination of regional trade dynamics, digitalisation, interdisciplinary scope and legislative parameters are the main strengths of this book. Compared to earlier research, this publication frames Africa's trade facilitation policy within a global context. While Africa's perspective is the most predominant, case studies

antitrust and regulation in the European Union and the United States' (2022) 67 *The Antitrust Bulletin* 40.

30 SP Anderson & Ö Bedre-Defolie 'Hybrid platform model' CEPR Discussion Paper DP16243 (2021), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3886686.

31 Deutscher (n 3).

32 Dunne (n 7); M Lao 'No-fault digital platform monopolization' (2020) 61 *William and Mary Law Review* 755.

33 JC Basques de Oliveira 'COVID-19 immunisations and health services and systems: The way forward' *Collateral Global* 30 June 2021, https://collateralglobal.org/article/covid-19-immunisations-and-health-services-systems-the-way-forward; 'Interruption of childhood vaccinations in Mozambique' *Collateral Global* July 2021, https://collateralglobal.org/article/interruption-of-childhood-vaccinations-in-mozambique.

are presented from East, West, Southern, Central, North Africa, and so forth. This subsection summarises the chapters discussed in this book based on this background.

The book explores the legal perspective and trade facilitation dimensions of the current trade relations and issues within Africa. It also assesses how proactive, legal, fair, digital, and sustainable trade strategies could boost post-COVID-19 business and investment volumes, direction and composition in this decade. Of great relevance is the need to understand how communication technology, physical infrastructure and information remain critical components of sustainable trade policies towards reaching across legal borders, enhancing tradability among consumer markets, fostering cooperative agribusinesses among small and medium-scale producers, and facilitating socio-economic recovery as well as trade trajectory in Africa, especially within the AfCFTA framework. In other words, this research will analyse the socio-economic impact of COVID-19 on trade, investment, and business relations. This situation also includes implications for how we should be better prepared for future socio-economic shocks, trade facilitation innovation, and geopolitical repercussions for African governments.

The research methodologies adopted by the different chapters of this book include socio-scientific approaches, including media content analysis, in-depth stakeholder interviews, deliberative workshops, comparative interpretive methods, epistemological studies, and other social science methods, which were adopted to investigate the emerging scientific study on deploying legal instruments and trade facilitation innovations for Africa's preparedness for post-pandemic socio-economic recovery. The simulation and systems science intervention approach supports investigative and collaborative research focusing on understanding and addressing the implication of AfCFTA on the minority and vulnerable traders and trading associations. It also engages critical actors to provide an assessment of findings and deliberate on inclusive AfCFTA. Overall, this book project contributes to the theory and practice of responsible research, innovation, and scholarship in technoscientific studies on the governance of trade-related aspects of generative artificial intelligence (AI), competition policy, and trade facilitation innovation in Africa.

Although competition law themes emerged in classical economics, digital markets are bringing to the fore older research and making them refreshingly relevant. The first chapter of this book delivers a revelatory examination into the largely elusive category of digital platforms, trade malpractices and regulatory responsiveness in Africa. It investigates the essential and recent research developments related to Africa's competition

authorities' preparedness for the future of trade facilitation innovation in the digital age. It also highlights forward-looking remedies to enhance Africa's capacities to maximise gains from digital trade platforms despite the current anti-competitive practices characterising selected globally large digital platforms.

Chapter 2 discusses hidden asymmetries and how traceability, crypto-labelling and ethical property rights could enhance trade. This chapter examines the implications of information asymmetry on trade facilitation in Africa and how a better understanding of adverse selection, moral hazard, and principal-agent problems can resolve it. We proposed explaining how and why crypto-labelling will help advance traceability and trade facilitation in Africa under an appropriate intellectual property rights (IPR) regime. Furthermore, this paper presents a conceptual framework that provides a theoretical framework on how the prisoners' dilemma (tit-4-tat, indefinite game, repeated game), opacity in trade, creation of incentives, cross-border services, and a pandemic such as a COVID-19 – face masks and vaccines, creates fragility in regional and global trade. We posit that the legal trade framework is not necessarily ethical based on our inductive and deductive reasoning, and policymakers should be cognisant of this challenge.

The third chapter utilises Kenyan, Tanzanian and Ugandan data to assess the role of human resource management (HRM) practices in firm innovation and product competitiveness and its implications for intra-regional trade in East Africa. This chapter provides insights into the link between HRM and firm innovation as a strategic response to foster product competitiveness for three East African countries, namely, Kenya, Uganda and Tanzania. The chapter utilises a detailed firm survey dataset conducted by the World Bank through their enterprise surveys programme during 2013-2014 in three EAC countries – Uganda, Tanzania and Kenya. The preliminary findings from the paper highlight the facilitative role of HRM practices on firm innovation in products and processes. Finally, enhanced product competitiveness attributed to innovative firms fosters increased intra-regional trade. The facilitative role of HRM reinforces the relative importance of skill development policies that support firms in their innovation path.

In today's global, congested marketplace, the concept of geographical indication (GI) is one instrument to achieve gender equality, inclusivity, and equity form of globalisation that expands trade capacity, especially for women and youth. The concept of 'geographical indication' refers to an intellectual property right recognised by the legal bodies of various countries and international organisations. It identifies and protects

products in a specific geographical area of which the characteristics and reputation are essentially linked to their territorial origin. Based on this background, this chapter presents a detailed understanding of the role of GIs in gendered trade capacity by critically examining the concept of GIs in gendered trade capacity in Africa, including the GI conceptual framework, GI international protocols and implications for Africa, Africa continental GI strategy analysis, Africa's continental GI strategy, and other thematic areas.

As the world becomes increasingly driven by cross-border data flows and technology, this requires market regulations, enhancing safety, fostering well-being, and adaptation to socio-economic and technological transformations. In addition, it compels us to anticipate unforeseen risks, leverage data and evidence in decision making, align with digital trade regulations, and protection of privacy; with connected technologies requiring the ability to share news and information in an instant, people are more aware of the regulatory policies that touch their lives. Consequently, this fifth chapter focuses on Africa's new and post-pandemic perspectives and preparedness for digital trade regulation. It also discusses intelligent strategies for overcoming the 'negative bleeding trade' phenomenon currently embedded in Africa's trade agreements, deals, outputs and outcomes. This chapter attempts to answer some of these questions: (i) What are some of the regulatory and implementation challenges in an increasingly fragile Africa's continentally free trade space? (ii) What is the role of technology and data in setting new rules for the AfCFTA? (iii) How should national and community businesses collaborate to overcome complex, interconnected cross-border risks.

There is conceivable innate potential for trade in services in West Africa, especially with the advent of the Continental Free Trade Area (AfCFTA). This free trade agreement in Africa would expand intellectual property (IP) rights. Better IP rights engagement would improve trade in service activities while facilitating regional trade. The fluidity of our world necessitates that rules are made and imposed to strengthen procedures for organised outputs, which is much required for developing areas, essentially West Africa, where remarkable change is much desired economically. Trade-in services stimulate improved performance and activities in the agricultural and manufacturing sectors. Quite a several services are essential resources, and this is because they act as an intermediary, hence providing for other sectors of the economy. To a large extent, benefits have become an essential feature in economic activity and play a critical part in infrastructural development, improved level of competition and, consequently, trade facilitation. The sixth chapter leverages this

background to analyse the intellectual property right and trade facilitation perspective of trade in services in West Africa.

Women's digital empowerment is critical to unlocking the African Continental Free Trade Area (AfCFTA) and mitigating the potential threats. This study aimed to identify opportunities for women in the AfCFTA. The study further analysed challenges for women in harnessing the prospects of the AfCFTA and the potential ways of tackling these challenges. The study argues that for women to be competitive and maximise the potential benefits of AfCFTA, barriers to trade that disproportionately affect women need to be tackled. The topmost among these barriers is the persistent digital-gender divide in Africa. Based on this analysis, chapter 7 discusses strategies and a new equation model for promoting women's participation in AfCFTA through digitalisation and digital entrepreneurship. It is also pertinent to note that rural-located, remote, and residential-based MSMEs, women, and youth are of critical trade policy implications and relevance because of the impacts in helping households, businesses, and economies to build back better through innovative trade agreements. Evidence-based and innovative trade facilitation policies will enhance gendered entrepreneurship towards fostering a more resilient and inclusive Africa.

In sub-Saharan Africa (SSA), high trade costs stifle trade flows and the region's economic potential. To reduce these costs and increase trade worldwide, the WTO initiated the Trade Facilitation Agreement (TFA) to enhance trade facilitation (TF) – standardisation and harmonisation of trade processes – in all member states. Using inductive reasoning, direct and participant observations, interviews, spatial and location analysis, content analysis and secondary data analysis, this chapter presents a political-economic analysis of TF and NTBs in SSA. This eighth chapter presents a simple economic trade facilitation model that posits that TF is an excellent public problem with a shared cost. Furthermore, the chapter concludes that the implementation of TF is usually affected by the principal-agent problem. Based on our assessment of TF in SSA, we have the impression that the success of TF requires continuous policy reform, improvements in border management, and infrastructural development.

As emerging technology advances digital trade facilitation platforms, there is an increasing need to efficiently integrate digital trust tools and frameworks into trade, entertainment, education, health, and food systems, drawing on data science experiences to create a programmatic approach to overcoming inequity. Based on research reports and epidemiological models, Green (2022) argues that the COVID Consensus aimed to quarantine and lock down large population segments that had

caused more harm than good.[34] The last chapter of this book distils the key lessons and strategically emerging regional trade policy directions, focusing on sustainable competitive advantage, investment deals, and digitisation, especially among women enterprises in the post-COVID-19 era. These policy recommendations will enhance Africa's business ecosystems and ensure optimal allocation of the continent's abundant human and natural resources, transforming high-potential enterprises into maturely productive and profitably reliable businesses.

The digital revolution in the fourth industrial age requires more nuanced innovations in Africa's legal instruments and ethical frameworks. This book explores Africa's trade dynamics and the legal or regulatory frameworks at national and continental levels and from interdisciplinary perspectives to overcome its trade facilitation challenges. This book explores the conceptualisation of international trade relations, partnerships, rivalries, differences, and commonalities of trade facilitation tools and agreements that could foster sustainably practical trade solutions in Africa to highlight the role of trade facilitation innovation in preparing Africa for the future of post-pandemic trade. The authors and editors look forward to translating these trade facilitation recommendations into implementable programmes toward accelerating the realisation of the AfCFTA vision and mission.

34 T Green *The COVID consensus: The new politics of global inequality* (2022); T Green 'Medical colonialism: Pandemic impacts and vaccine delivery' *African Arguments* 17 December 2021, https://africanarguments.org/2021/12/medical-colonialism-pandemic-impacts-and-vaccine-delivery.

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2 Hidden asymmetries: Enhancing trade through traceability, crypto-labelling and ethical property rights

Bamidele Adekunle, Christine Kajumba** and Adewale S Bello****

Abstract: This chapter examines the implications of information asymmetry on trade facilitation in Africa and how it can be resolved through a better understanding of adverse selection, moral hazard and principal-agent problems. We propose an explanation of how and why crypto labelling will help advance traceability and trade facilitation in Africa under an appropriate intellectual property rights (IPR) regime. Furthermore, the chapter presents a conceptual framework that provides a theoretical framework on how the prisoners' dilemma (tit-4-tat, indefinite game, repeated game), opacity in trade, creation of incentives, cross-border services, and a pandemic such as COVID-19 with face masks and vaccines, creates fragility in regional and global trade. Based on our inductive and deductive reasoning, we posit that a legal trade framework is not necessarily ethical, and policy makers should take cognisance of this challenge.

Key words: intellectual property rights; information asymmetry; crypto-labelling; traceability; trade facilitation; ethical (legal) instruments

1 Introduction

The non-tariff and vexatious cross-border obstacles at most African borders have placed Africa at a disadvantage, with intra-regional trade remaining very low. As Africa undergoes an intensive reorganisation and consolidation through trade blocs, there is a requirement for a consistent

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and harmonised cross-border framework necessary for sustainable intra-regional trade. This chapter addresses the issues associated with cross-border trade in Africa at a crucial moment when Africa is forging a united front in its strategies towards sustainable intra-regional trade as well as grappling with the devastating impacts of COVID-19 on its economies. With the launch of the African Continental Free Trade Area (AfCFTA), Africa seeks a united intra-continental trade as it wrestles with the cross-border inconsistencies of unstandardised regulations, diverse and volatile macroeconomic structures, incompatible infrastructure and constant conflicts. This creates economic uncertainties and growing concerns. Is it possible for African countries to overcome fragility and thrive? We propose in this chapter that antifragility can be attained if hidden asymmetries in the trading market are reduced and if it is understood that the market is always in a state of disequilibrium due to the activities of the players in the market, though equilibrating tendencies are visible.

The root cause of many of the cross-border obstacles is the result of information systems supported by ill-defined policies and poorly designed tracking systems, leaving important trade decisions dependent on ambiguous systems and asymmetric information. The outcome has been information opacity which is inversely related to trade facilitation.

This chapter looks at opacity in trade (OT) and its contribution to Africa's trade dilemma, explaining how opacity in trade can be reduced through the use of a single window, up-to-date websites, automatised systems, blockchain, traceability and a well-defined property right. Ethical and beyond-legal intellectual property rights (IPRs) are important in disseminating technology if due acknowledgment is made and appropriate royalties are paid. However, caution must be taken in the implementation of IPRs as they may impede development while promoting a global oligopolistic structure wherein a few players exercise a monopoly. Therefore, if developing countries and Africa, in particular, intend to grow their inter-regional trade, appropriate frameworks beyond merely legal instruments and capacity development should be emphasised. Specifically, we examine the following:

- the challenges of asymmetric information in trading using the tit-for-tat approach;
- the nexus between traceability and intellectual property rights;
- the implications of trade facilitation;
- the reasons why policies and standards should be ethically grounded and more than simply legally.

2 Hidden asymmetries

The interaction between people or stakeholders in any market, at times, is fraught with incomplete information because of the non-availability of desired information and the cost associated with searching for information. Even when the marginal benefit (MB) for an additional search is greater than the marginal cost ((MC), MB >MC), the desirability of information will still depend on the nature of the good, that is, whether they are search goods or experience goods of which the quality can be known through inspection or after the product has been consumed, respectively. It is more difficult with non-tangible goods such as intellectual property rights because of challenges in defining and protecting copyright, trademark, patent, and trade secrets, among other aspects. As a result of this, inventions and ideas should be protected by well-defined policies that enable their creators both to signal the originality of their ideas and to receive appropriate compensation. In other words, a lack of appropriate signalling mechanisms promotes asymmetric information, which leads to adverse selection because the bad, usually crowds out the good products. On another note, when the activities of the players in the market are difficult to monitor, it enhances moral hazard. For example, let us assume that there is an insurance company in Durban, South Africa, that insures cargo and freight companies in Africa. The availability of insurance may make some of the leaders of the companies not take extra care in their day-to-day activities. The solution is to arrange a contract that indicates only partial coverage in the case of loss or damages. If this arrangement is not in place, a full coverage contract may create an incentive for some unscrupulous elements in such logistics companies to contrive, for example, a vehicle fire or vehicle disappearance. Finally, to avoid the principal-agent problem, the germane staff both in public, for example, immigration, customs, law enforcement agencies, tax collectors, and standards organisations and private sector, for example, shipping companies, airlines, and financial institutions, should be well-trained and familiar with both new technologies, as well as various cross-border legal protocols. They should also be competitively compensated, for example, efficiency wage, profit sharing and bonuses and provided with a guaranteed retirement plan, as well as fringe benefits that will better align their long-term objectives with the objective of the organisation.

As indicated above, players in the trade market always have their motives when they operate in the market. Based on this premise, we suppose that the interaction between nations and individuals involved in trade across borders is a game. Hypothetically, let us imagine that there are three countries in the market for vaccines, for example, COVID-19

and antiretroviral drugs. Country A has a pharmaceutical company that produces the vaccines; B is a country in Africa with a compulsory licence to produce these vaccines; and B is supposed to export the generic drug to C, another country in Africa. Please note that the export of generic drugs at times is cumbersome due to the trade-related aspect of intellectual property rights (TRIPS). However, in this model we will assume that this will not be a problem, and it is given just as the activities of the rest of the world (ROW) are constant. In our model, we assume that players A and B are supposed to cooperate because it is a repeated prisoner's dilemma game. Suppose A defects by not supplying the necessary patented information or help with the necessary active ingredients or chemicals, then B might also defect by looking for another source and undercutting returns to A. Therefore, a tit-for-tat strategy may be useful to enforce cooperation in a game involving the exchange of goods or ideas across borders.

Tit-for-tat usually is a strategy employed in repeated games, otherwise, players are likely to defect if it is a one-shot game or if the end game is known. A player employing this strategy will start by cooperating and then subsequently imitate an opposing player's previous action. If the opposing player was cooperative previously, the initiating player is cooperative. If otherwise, the initiating player is not. For this strategy to work, the players must be stable, as well as preferably few in number; there must be a way to detect defection and retaliate, demand and cost functions must be relatively stable, and the number of moves must be infinite. The chief executive officer of Air Peace, Allen Ifechukwu Onyema (2021), alluded to using tit-for-tat to secure reciprocity from Côte d'Ivoire and Togo regulatory authorities as a result of hidden asymmetries in the movement of people and cargo in the region. He indicated that some countries whose flights can operate in Nigeria refused or were reluctant to allow Air Peace to operate in their countries, for example, Lomé's initial non-approval and Abidjan's exorbitant and discriminatory landing fee of around US $10 000. According to the entrepreneur, a court ruling or an injunction that stops airlines from such countries, mostly Francophone, from operating in Nigeria may be necessary to obtain reciprocity. In other words, the cons of tit-for-tat notwithstanding, it is a strategy that ensures commitment among players in international trade if the game is infinite.

Tit-for-tat cannot be applied for a one-shot game involving two or more players. This is even more challenging when the property right of creative work is not well defined and then exported as a trade-in service internationally via platforms such as Netflix. This example of hidden asymmetries in the market of intellectual property rights was seen in the case of *Mo Abudu v Tobore Ovuorie*, of an investigative journalist who had the impression that she had not been adequately compensated by

Mo Abudu and her company EbonyLife (EL) for using her story[1] for a popular movie, Oloture, which started streaming on Netflix late in 2020. Meanwhile, Mo Abudu indicated in a video published online, to which Tobore responded, that the journalist was employed by *Premium Times* where the article was published, that the media house was well compensated for the idea and that both the media house, *Premium Times* and Tobore had been adequately[2] acknowledged in the production. Who owns the copyright? Is a former employee bound by a contract signed by a former employer even when the idea was developed in collaboration with other organisations? Is the time of conception relevant in determining copyright protection? Legal is not necessarily ethical. This scenario, which leaves most of the questions above unresolved, is an example of the inappropriate attribution of credits for ideas when property rights are not well defined. Furthermore, cases of injunctions against the streaming of movies have been obtained because of the inappropriate impression that the idea was another person's copyright. If developing countries want to continue to trade in services across borders, appropriate frameworks and legal instruments should be well developed coupled with capacity building for pertinent professionals.

3 Traceability and intellectual property rights

The asymmetries in the exchange of corporeal and non-corporeal goods can be resolved by traceability and a well-defined property right. This part presents scholarly papers and examples related to traceability, the challenges and solutions to traceability, intellectual property and trade, the economics of intellectual property rights and why the conversion of a non-excludable good to an excludable good through the introduction of intellectual property rights, such as patents, copyrights, trademarks, geographical indications and industrial designs, creates imperfection in the market. This scenario notwithstanding, there is always a residual that will remain in the commons.

3.1 Traceability

Trade in Africa has continued to be challenged by the lack of appropriate legal instruments.[3] Based on this premise, important trade decisions are

1 The article 'Inside Nigerians ruthless human trafficking Mafia' was published on 23 January 2014 by Tobore Ovuorie in *Premium Times* as an employee of the media house.

2 Credits were also given to Tobore and *Premium Times* in the movie.

3 MG Sikoyo and others 'Intellectual property protection in Africa. Status of laws, research and policy analysis in Ghana, Kenya, Nigeria, South Africa and Uganda' (2006) African Centre for Technology Studies (ACTS) Ecopolicy Series 16, series editor Judi W Wakhungu, Nairobi, ecopolicy16_1.pdf (africaportal.org)

made based on ambiguous systems, asymmetric information, and both poorly interpreted and understood policies, rules and regulations. This has left room for misinterpretation, dishonesty and mistrust. For instance, a system that promotes organic or halal foods, or both, will expect a farmer to account for the place of origin, raw materials, soil, farming methods, harvesting, processing, transportation and distribution of produce. This is a laborious and strenuous activity requiring rigorous record keeping. If the benefits are not well understood by the stakeholders in the supply chain, then the record keeping may be compromised. The lack of understanding and awareness of the benefits end up being a deterrent to accurate record keeping and consequently compromise traceability. Traders would rather exploit less cumbersome processes as they do not understand and appreciate the benefit of traceability. This has resulted in regional and cross-border trade being flawed with dubious activities,[4] which are difficult to trace back to the original source. Foul play with regard to the quality and quantity of products for selfish goals is a common practice that has undermined profits and acted as a disincentive to trade facilitation.

Trade facilitation can be enhanced through traceability, which promotes quality, creativity and ownership. The possibility to trace and associate a product to its origin creates an incentive to maintain quality which in turn allows for openness and protection of self-image and hence fosters excellence as there is an increased appreciation for quality.[5] As trade becomes globalised, more people are appreciating the value associated with quality and aggressively protecting the image of their products on the market. In the African context, since there is little ability to trace due to a lack of branding, proper packaging and record keeping, stakeholders are not motivated to maintain quality and standards. Many stakeholders are able to get away with poor-quality products in the pool of anonymous producers, thereby enabling the continued manufacture of low-quality goods and services.

There is a need to harmonise information for a common trade language through efficient, transparent and secure electronic data management, sharing procedures, packaging and labelling regulations, all of which remain underdeveloped in Africa, to facilitate cross-border trade

4 C Lesser & E Moise-Leeman 'Informal cross-border trade and trade facilitation reform in sub-Saharan Africa' OECD Trade Policy Paper 86 (2009), https://www.oecd-ilibrary.org/trade/informal-cross-border-trade-and-trade-facilitation-reform-in-sub-saharan-africa_225770164564 (accessed 15 January 2021).

5 C Yuan and others 'The impact of food traceability system on consumer perceived value and purchase intention in China' (2020) 120 *Industrial Management and Data Systems* 810, https://doi.org/10.1108/IMDS-09-2019-0469 (accessed 31 January 2021).

in Africa. Informal trade flow across borders comprises the bulk, which goes largely unrecorded. Moreover, the trade language across borders has not been standardised.[6] The promotion of cross-border trade requires set regulations, compliance with those regulations, documentation for imports, and an understanding of the legalities involved in documentation and data management to promote traceability.[7] As well there should be protocols and publications that create awareness and ensure reliable information, as well as record keeping that is traceable and accessible by all stakeholders. With such a system in place, easily accessible information can reduce information asymmetry and alleviate market failure. This system may be further advanced through the use of crypto-labelling to allow the traceability of a product from the start of a value chain to the end.[8] This labelling technology would, for example, solve the asymmetries in the halal industry as it enhances product traceability. Crypto-labelling helps to contain product adulteration, and tampering with expiry dates and ingredients, thus promoting authenticity, transparency and trustworthiness. Crypto-labelling also helps one understand the journey of a product from start to end and solve a global value and supply chain fraught with traceability challenges. Table 1 below presents different scholarly papers on the challenges of traceability and the suggested solutions.

6 DM Dooley and others 'FoodOn: A harmonized food ontology to increase global food traceability, quality control and data integration' (2018) 2 *Science of Food* 1; S Charlebois and others 'Comparison of global food traceability regulations and requirements' (2014) 13 *Comprehensive reviews in food science and food safety* 1104.

7 M Tripoli & J Schmidhuber 'Optimising traceability in trade for live animals and animal products with digital technologies' (2020) 39 *Revue Scientifique et Technique* 235, Optimising-traceability-in-trade-for-live-animals-and-animal-products-with-digital-technologies-EN--FR-Optimiser-la-tracabilite-des-animaux-vivants-et-des-produits-dorigine-animale-faisant-lobjet-d.pdf (researchgate.net) (accessed 15 January 2021).

8 B Adekunle 'Halal food: Conception, misconceptions, and certification [Blog]' *ECVOntario* (2019), http://evcontario2011.blogspot.com/2019/01/halal-food-conception-misconceptions.html (accessed 31 January 2021).

Table 1: Summary of studies about traceability

Author/Year	**Study**	**Solution**
Olsen, P & Borit, M 'How to define traceability' (2013) 29 *Trends in Food Science & Technology* 142-150.	Traceability has been defined by Olsen and Borit as the ability to access any or all information relating to that which is under consideration, throughout its entire life cycle, by means of recorded identifications.	In their definition, they emphasise the value of record-keeping as a key component of traceability.
Pizzuti, T, Mirabelli, G, Sanz-Bobi, MA & Gomez-Gonzalez, F 'Food track & trace ontology for helping the food traceability control' (2014) 120 *Journal of food Engineering* 17-30.	Pizzuti et al 2014 helped create a traceable food chain from farm to folk by describing the food language used in cultures around the world, making an effort to create a common food language. In so doing, the opacity in food terminologies and gaps were addressed.	A common understanding of food terminologies and classifications across the food value chain is important in order to improve traceability and facilitate trade across borders.

Opara, LU & Mazaud, F 'Food traceability from field to plate' (2001) 30 *Outlook on Agriculture* 239-247.	There is growing demand for food traceability globally, given concerns about food safety and ethical issues such as the use of GM materials, hormones and growth regulators, animal welfare issues and food production methods. However, traceability requires investment in IT and human resources which cannot be afforded by many developing countries.	There is a need for food policies and regulations that promote traceability and investment in IT and human resources in order to boost the technical and financial capacity of small-scale consumers in implementing food traceability.
Van Rijswijk, W & Frewer, LJ 'Consumer perceptions of food quality and safety and their relation to traceability' (2018) *British Food Journal*.	Food quality and food safety are considered interlinked and important for the traceability and purchase of a product.	Food quality and food safety play a major role in food traceability.

Golan, EH and others (2004) 'Traceability in the US food supply: Economic theory and industry studies' (No 1473-2016-120760).	Traceability in the US is motivated by economic profits, where consideration is on profits rather than government regulations. The traceability system is motivated by the effect of minimising distribution and recall expenses. However, to make traceability effective, there is a need to ensure that the traceability system works in conjunction with an effective safety	While it's necessary for the African governments to enforce traceability regulations, African stakeholders in the supply value chain, too, need to understand and appreciate the economic value of an efficient and effective traceability system and its association with an effective safety control system.
Pearson et al 'Are distributed ledger technologies the panacea for food traceability' (2019) 20 *Global Food Security* 145-149.	Distributed Ledger Technology (DLT), and blockchain in particular, is essential in improving and maintaining traceability; however, there is a need for data standardisation along the food supply chain, ease of use of the DLT to facilitate entry into the food chain, governance and scalability.	In theory, DLT can provide an immutable record of food traceability. This enables extremely robust and rapid traceability of food origin through the chain.

Charlebois, S and others 'Comparison of global food traceability regulations and requirements' (2014) 13 *Comprehensive Reviews in Food Science and Food Safety* 1104-1123.	According to Charlebois (2014), Many of the OECD countries lacked specific legislation on food traceability. However, global tracing and tracking of imported products done through record keeping, lot identification and	An integrated and standardised global traceability system with uniform electronic identification and database is important to support cooperation across border trade.
Adekunle, B & Filson, GC 'Understanding halal food market: Resolving asymmetric information' 2020 5 *Food Ethics* 13	This is a seminal paper about asymmetric information in the halal food market. The authors alluded to the fact that the level of asymmetric information leads to opaqueness in the food system and is inversely related to food authenticity, based on Adekunle and Filson (2019). There is generally a problem of adverse selection, which is pronounced in the food sector based on their attributes as an experience good.	Appeal to Adekunle (2016). The authors suggested the use of crypto-labelling, a blockchain technology, to reduce asymmetric information in the food sector through traceability, authenticity and transparency.

3.2 Intellectual property rights and cross-border trade

IPRs are the ownership of originators' inventions, created as an incentive to foster creativity for the benefit of the economy while enabling the inventors to enjoy the fruits of their achievements. IPRs act as a motivation for disclosure as patent holders reveal the step-by-step details of their creativity, which otherwise would never have been known. Through the use of trade licensing, joint ventures and franchising, patent owners can

reveal the details of the patent,[9] making technology transfer possible. This increases transparency as it encourages disclosure of processes and end products. IPR protection helps inventors recover the costs of the invention by awarding exclusive rights to commercialise their assets over a period. This enables them to sell proprietary rights above marginal cost,[10] hence encouraging continued investment in creativity. So, patents, trademarks and copyrights are important in trade as they enable investors to recoup their initial investment, facilitate continued production and hence avoid market failure due to underproduction. However, if not well-managed IPRs may lead to market failure as competition squeezes out those who cannot afford to pay the high prices associated with IPRs.

IPR management differs from one country to another, with developed economies observing stricter IPR protection policies compared to developing economies. The difference in the strength of the IPRs policies as well as in the law enforcement capability of the two countries, is likely to affect trade flow.[11] Countries with stricter IPR policies and implementation tend to trade with countries with equally good IPR policies, making IPR protection a prerequisite for a positive cross-border and international trade flow.[12] Because of the perceived positive impact of IPR on trade facilitation, countries with a strong IPR policy have continued to push for stronger global IPR adherence believing this is important for international trade. While IPR policies may be necessary for trade facilitation, developing countries are known to have weak IPR policies or a weak implementation capability which makes these countries less competitive.

For example, referring to our countries, when country A, with weak IPR policies, trades with two countries, B and C, where country B observes strict IPR rules and country C has a weaker adherence, country A has a choice to import authentic goods from country B or cheaper affordable imitation from country C. Since imitation goods may suffice as substitute goods for those from country B, the imitation goods are likely to flood the market, deterring the importation of goods from country B despite its strong IPRs protection. Apparently, country A has turned its country into

9 L Yang & EK Maskus 'Intellectual property rights, technology transfer and exports in developing countries' (2009) 90 *Journal of Development Economics* 231.

10 C Fink & AC Primo Braga 'How stronger protection of intellectual property rights affects international trade flows' (1999) Policy Research Working Papers, World Bank Group eLibrary.

11 KE Maskus & M Penubarti 'How trade-related are intellectual property rights?' (1995) 39 *Journal of International Economics* 227.

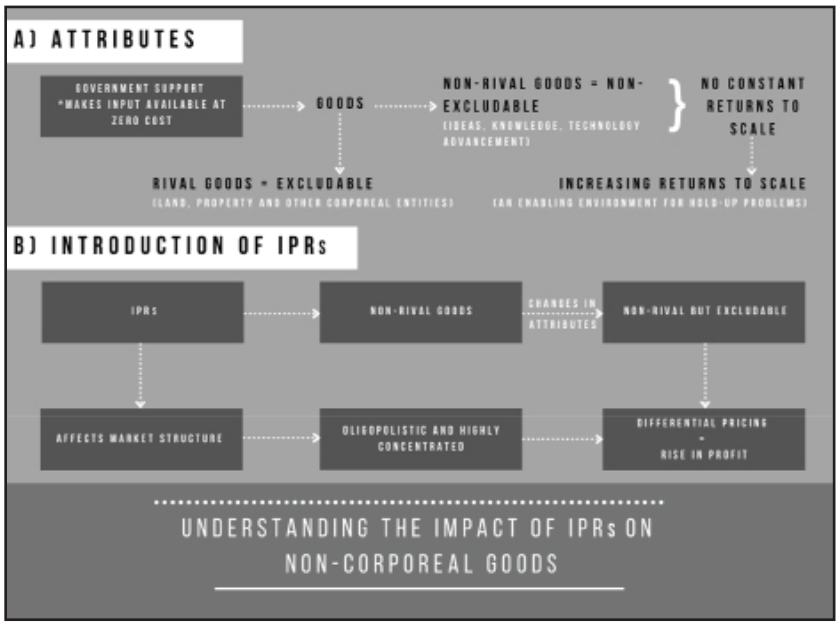
12 CA Primo Braga & C Fink 'The economic justification for the grant of intellectual property rights: Patterns of convergence and conflict (1997) in Abbott, FM & Gerber, DJ (eds) *Public policy and global technological integration* (1997) 439-461.

a market for lemons. This may adversely impact country A trade which may see an increase in profits on the substitute products from country C while incurring a decrease in profits on legitimate products from country B. This may discourage innovation and slow technology advancement as country B may not be able to cover the high costs invested in research and development (R&D). Diminishing country B's profitability results in a negative market contraction for country B. On the other hand, strengthening IPR protection by country A reduces the consumption of imitation products from country C and increases the importation of legitimate goods from country B. This stimulates trade between countries A and B as the net demand for imports from country B increases, thus displacing the imitations and leading country B to enjoy a greater market share. However, how does country A benefit from this arrangement, especially if a large majority in country A cannot afford the legitimate products? Country A may have to forgo the cheaper goods for the more expensive, unaffordable, patented goods. Although IPR protection may be an incentive for innovation, the benefits from strict adherence to IPR policies are more significant in technologically advanced economies. There has been little consideration given to the impact of strong IPRs on market prices and their impact on developing economies with weaker purchasing power. Because of this, cross-border trade in many developing countries has been tainted with IPR violations. To have a clearer picture of how the introduction of IPRs changes the nature of a good, we present the economics of intellectual property rights below (see Figure 1).

3.3 Economics of intellectual property rights

The analysis of the economics of intellectual property is presented below to provide the logic behind the arguments on whether or not TRIPS should be waived. In this subsection, we present the attributes and nature of goods – corporeal and non-corporeal – and how the inclusion of a nonrival and noncorporeal good in the production function introduces increasing returns to scale; thus, hold-up problems arising. Furthermore, we present how the inclusion of IPRs changes the market structure and the nature of non-corporeal goods from nonexcludable to excludable, even though there will still be a residual in the commons (see Figure 1 below).

Figure 1: Economics of intellectual property rights (IPRs)



Note: Please see Romer (1990), Takeyama (1994), and Fulton (1997) for further clarification.

As seen in Figure 1, goods can be rival or nonrival goods. Rival goods are excludable, while non-rival goods are non-excludable. The availability of government support makes inputs available at zero costs. When non-rival goods are included as variables in the production function, there will be increasing returns to scale instead of constant returns to scale.[13] This is possible because of the reusability of the factor of production. The implication of increasing returns to scale is that the organisation cannot be a price taker[14] – an attribute of an imperfect market. As a result of increasing returns to scale, firms must charge a price that is greater than the marginal cost. The nature of nonrival goods and its support for increasing returns to scale can lead to hold-up problems where parties refuse to cooperate because it may lead to a better bargaining position for the other player at the expense of the returns and profits of the firm. In other words, there is a reluctance to invest in the development of a noncorporeal good because of the fear that the benefits may accrue to

13 PM Romer 'Endogenous technological change' (1990) 98 *Journal of Political Economics* 71.

14 M Fulton 'The economics of intellectual property rights: Discussion' (1997) 79 *American Journal of Agricultural Economics* 1592.

other parties who did not contribute to the advancement of the idea.[15] This imperfection can be resolved with the support of the government through the funding of research and development.

The sunk cost involved in the investment and development of innovation is the reason why it may be desirable to strengthen IPRs. The introduction of IPRs limits technology transfer and changes the market structure by transforming the attributes of non-rival goods from non-excludable to excludable. Furthermore, the market becomes highly concentrated, which is a situation where originators have monopoly power, and there are mostly few players in the market; in other words, oligopoly. This is observed in the market for COVID-19 vaccines where there are few players, such as AstraZeneca and Oxford alliance, Pfizer and BioNTech collaboration, Moderna, Johnson and Johnson, Novavax, Sanofi GlaxoSmithKline, among others. The presence of oligopoly in the market leads to differential pricing, scarcity of the good, real or artificial, and increase in profit – at times arbitrary and abnormal. This situation makes accessibility difficult for some people who need the goods, especially for the poor and a significant percentage of people in developing countries when it comes to goods like seeds, vaccines and other pharmaceutical products.

The economics of IPRs indicates that IPRs transform the nature of non-rival goods, thus creating barriers to usage. But the transfer of technology spreads innovation because copying may be desirable since it can lead to a positive externality and an increase in demand for the goods that were copied.[16] In other words, technology transfer and appropriate copying of ideas – attribution and credit given to the source, and royalties paid to the originator for commercial use of ideas – lead to economic development and a Pareto efficient solution. We will conclude the analysis in this part by stating that there is no way a non-rival good can be totally exclusive. There will always be a residual left in the commons. So, if the use of the goods is for a commercial purpose, the originator should be compensated – royalty, fees, profit sharing or any other agreed-upon arrangements – but if it is for non-commercial use, the originator should be appropriately acknowledged as the source.

15 The argument used by people who assert that the trade related aspect of intellectual property rights should not be waived. Their impression is that the waiver will create a disincentive for the development of non-corporeal goods such as biologics and other technological innovations required for vaccine development.

16 LN Takeyama 'The welfare implications of unauthorized reproduction of intellectual property in the presence of network externalities' (1994) 42 *Journal of Industrial Economics* 155.

3.4 Trade-related aspects of intellectual property rights (TRIPS)

The increased violation of patents, copyrights and trademarks has led to the urgency for more workable property protection laws by the advanced economies, which want both to curtail an enabling environment that stifles new ideas and to maintain their profit, at times, in a non-competitive space. Although initially intended as an incentive for creativity, IPRs have been linked to increased profits by powerful multinational companies capitalising on the use of monopoly power to promote their agenda. Both the duration and scope of IPRs have been tampered with, going from an initial short duration and limited geographical scope to a 20-year globalised system. This IPRs governance system was then smuggled into the World Trade Organisation (WTO) under the Trade-Related Aspects of Intellectual Property Rights (TRIPS), culminating in price hikes due to IPR-related royalty payments on innovations.[17] These unconscionable restrictions have rendered IPRs a subject of contentious discussion, with a thin line between the interests of proprietary holders and the interest of users of the technology. Therefore, TRIPS was instituted to ensure participating WTO countries abide by the rules to curtail losses incurred through plagiarism, pirating and illegal copying. However, TRIPS is not beyond legal, nor necessarily ethical, as TRIPS was initiated with selfish intentions and its establishment was based on lobbying and a lack of democratic bargaining. The pervasive patenting of innovations through TRIPS has therefore led to slow diffusion and utilisation of new inventions in less developed economies.

Consequently, IPRs have become a stumbling block to the accessibility of badly-needed resources by the less privileged, as IPRs have been used to promote business endeavours rather than to incentivise development. This has reinforced a global oligopolistic structure, which is highly concentrated, and in which a few players exercise monopoly power in different contexts. This scenario promotes the creation of a few players with huge profits and an industry with entry barriers while the services remain too expensive for the consumers, especially the poor. For example, HIV drugs remained expensive and unaffordable for the vast majority from 1985 to 2005, resulting in millions of deaths that would have otherwise been preventable. In Uganda, the development of a generic HIV drug by Cipla Quality Chemical Industries (CQCI) reduced the cost of medication from US $16 000 to US $100 per annum and saved the

17 P Drahos 'The Real News Network (2016) TRIPS: Linking intellectual property to trade' Peter Drahos 1/7 [Video] YouTube, https://www.youtube.com/watch?v=BCJ2cDgoZ_Q (accessed 20 December 2020).

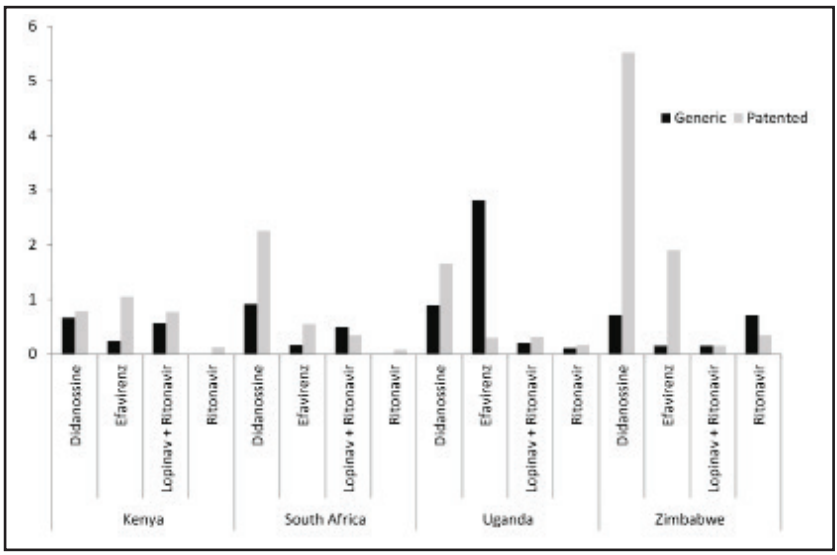
lives of millions[18] who would have otherwise never been able to afford the cost of the patented HIV drug. While generics helped the Ugandan population, South Africa, one of the hardest-hit countries with a total of seven and a half million people with HIV by 2020, could not access affordable generics. Efforts to boost its medication supply through an approved parallel importation of low-cost medication and use of generics were opposed, and a lawsuit was filed for infringement of IPRs at the WTO by pharmaceutical giants including Bristol-Myers Squibb (US), GlaxoSmithKline (UK) and Boehringer Ingelheim (Germany) who held the patents for the antiretrovirals.[19]

It is apparent that the development of generic HIV drugs reduced the cost of AIDS treatment, making it affordable for many in Africa. Figure 2 below illustrates the relationship between four patent drugs and their generic counterparts, as recorded by the WHO. A comparative study of the unit prices of four generics with their patent drug equivalents, Ritonavir, Didanossine, Lopinav and Efavirenz, revealed the necessity of generics in improving drug accessibility and affordability. Generic drugs remained markedly cheaper than the corresponding patented drugs. In this case study drug unit prices as quoted in US dollars by WHO were considered from four African countries. For consistency, the cheapest of each type, generic or patent, was selected for our study. Generally, results obtained indicated that generic drugs were relatively cheaper than the patent version across the four countries, with the exception of Efavirenz in Uganda and Ritonavir in Zimbabwe, of which the generic version was more highly priced than the patented equivalent.

18 S Charon & L Soustras 'An entire continent in need of cheap medicines. Africa's struggle for pharmaceuticals *Le Monde diplomatique* (2020), https://mondediplo.com/2020/12/09africa-pharma (accessed 15 December 2020).

19 As above.

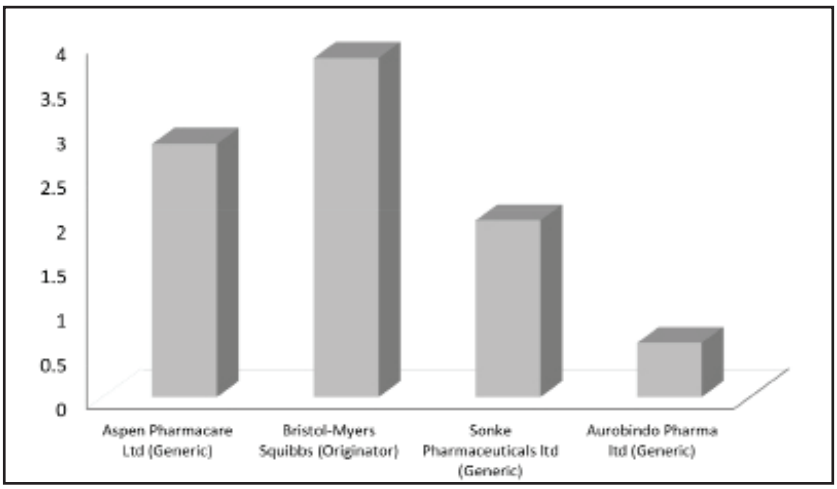
Figure 2: Prices of generic and originator drugs in four select countries in Africa



Note: Represents the cheapest of the generics and patented drugs as represented by WHO statistical data.

Further analysis of the data demonstrated the impact of increased numbers of generic versions on the market price. An increase in the number of generics on the market allowed for competition, bringing down the unit price. For example, patented Didanosine (100mg) manufactured by Bristol-Myers Squibbs in South Africa went for an average unit price of US $3,84, yet the generic equivalents of the same drug at the same strength manufactured by Aspen Pharmacare Ltd, Sonke Pharmaceuticals Ltd and Aurobindo Pharma Ltd was averaged at US $2,85, US $1,99 and US $0,61, respectively (see Figure 3). The results from a comparison of the unit prices of HIV drugs reveal that multinational companies have used IPRs for corporate gain by charging high prices. The initial purpose of IPRs has changed over time to benefit innovators at the expense of consumers.

Figure 3: Average unit price in US dollars of Didanosine 100mg in South Africa



3.5 Ethical IPR policies

For consumers to benefit from IPR protection, it is essential to institute ethical IPR policies by revisiting both the restrictions on the patent length and the control over the creations. There should be trade-offs that make the protection conditional and therefore limit absolute control. The short-term patents enable ample time for the creators to harness their profits while ensuring the creation remains accessible to consumers. With short-term restrictions, the investors realise a modest profit while the well-being of consumers is promoted through the provision of affordable generics and, in some cases, through improved technology. The more affordable generics benefit weaker economies that are import-dependent, especially with respect to technology and innovation. This promotes trade with countries involved in the production of generics.

While generics have improved accessibility and affordability, dubious companies have increased the production of counterfeits disguised as generics. Consequently, there has been an increase in fake drugs made with less efficacious ingredients rendering them less effective, and hence an accelerated record of drug resistance to antibiotics and antimalarials has occurred.[20] This is evident in Africa, where cheap products from

20 S Yeung and others 'Quality of antimalarials at the epicenter of antimalarial drug resistance: Results from an overt and mystery client survey in Cambodia' (2015) 92 *American Journal of Tropical Medicine and Hygiene* 39-50 DOI:https://doi.org/10.4269/ajtmh.14-0391(accessed 20 October 2020).

China flood the market. In West African countries, counterfeit products of Nivaquine, an antimalarial, have been sold under the names of Niruquine and Samquine. Trafficking of counterfeit products is on the rise, especially with the claims that they are effective against the COVID-19 virus.[21] In Nigeria alone, the pharmaceutical industry has been reported as a hotspot for the manufacture and trade of fake drugs resulting in a loss of an estimated N200 billion annually.[22] This has not stopped at counterfeit drugs but also extends to cheap goods and products, especially in the entertainment industry, where sophisticated recording methods have led to an increase in movie and music pirating. With weak IPRs, there has been escalated software piracy.[23] Table 2 below shows some of the ways the IPR system has hurt the African economy.

Table 2: IPR infringement in five select African countries[24]

Country	**Industry**	**IP infringement**	**Weakness in IP enforcement**	**Strategies in place**
Nigeria (Score – 10.97) GIPC, 2017; Awomolo-Enujiugha, OF (2020)	Nollywood (Movie industry)	High rates of physical and online piracy 67 percent Software Piracy (2003)	The legal and regulatory framework is weak Enforcement challenges persist Limited participation in international IP treaties	Basic IP framework NCC (enforcing copyright laws, enlightening the populace on copyright issues as well as monitoring and curbing piracy) Signatory to (Patent Law Treaty and WIPO Internet Treaties)

21 Charon & Soustras (n 18).

22 PriceWaterhouseCoopers 'The impact of intellectual property infringement on businesses and the Nigerian economy' (2019), Impact of Intellectual Property Infringement on Businesses and the Nigerian Economy (pwc.com) (accessed 20 October 2020).

23 Weak IPR laws can result in economic losses as demonstrated in this table. Likewise, too strong IPR laws can result in price exploitation and the inaccessibility of essential drugs for consumers; therefore, there is a need to find the right balance.

24 The scores were calculated based on 35 indicators under six categories including patents, trade secrets and market access, copyrights, trademarks, membership and ratification of international treaties and enforcements (GIPC, 2017).

South Africa (Score – 12.70) GIPC, 2017; WIPO, 2005	Textile and fabric Industry	High level of counterfeit goods Theft of designs and textile prints	IP protection is not well addressed in the new IP Consultative Framework Weak protection for patents Health-related IP rights are missing.	Draft copyright amendments provide greater clarity on copyright exceptions Software piracy is low compared to other African countries (33 percent in 2015)
Egypt (Score – 9.38) GIPC, 2017; Awomolo-Enujiugha, OF (2020)		High levels of Software piracy 52 percent Software Piracy (2003)	Weak framework for health-related IPR Challenging enforcement environment and lack of border measures Not a signatory to (WIPO Internet Treaties and Patent Law Treaty)	WTO member, Basic national IP framework in place The Egyptian government protects its valuable cotton seed to maintain its quality. They have registered an international trademark application (Madrid system number 756059), guaranteeing the quality and superiority of Egyptian cotton.

Kenya (Score – 13.95 GIPC, 2017		67 percent Software Piracy (2003)	Weak Judicial system Weak copyright protection Legislative and resource barriers to border enforcement	Basic IP framework Dedicated IP bodies and enforcement agencies Stronger efforts to address IP infringement Signatory to WIPO Internet Treaties, Singapore Treaty on the Law of Trademarks, Patent Law and Post-TRIPS FTA Reduced IP-related market barriers for a better market environment

Algeria (Score – 9.34) GIPC, 2017		High rates of piracy (83 percent software piracy) The bulk of imports - cosmetics, mobile devices, and consumer goods are counterfeit.	Health-related IP rights are missing. Weak legal framework for enforcing copyrights and Unfavourable Patent enforcement environment. Lack of transparency in customs activities- no systematic recording of IP rights infringing goods. Not a WTO member or TRIPS signatory	The basic framework for IP protection Signatory to international IP treaties (WIPO, Internet Treaties and Patent Law Treaty)

Although IPR policies are required to protect an invention, the repercussion of strict IPRs has resulted in a scarcity of products and usually has an adverse impact on developing economies; developed economies take advantage of these same policies to hoard technologies. This creates a scarcity of products, especially socially valuable goods like drugs and agricultural products.[25] This has left developing economies scrambling for the much-needed drugs as their weak technological and manufacturing capabilities expose them to the liability of the reliance syndrome as indicated in the scramble to obtain the COVID-19 vaccine. India's push for a waiver on the COVID-19 patent met strong resistance from the US, UK and Japan, leaving it, along with other low-income countries, scrambling for the limited doses with an inoculation record of only 0,2 per cent as of 4 May 2021.[26] According to Dr Moeti of WHO, as of 28 April, Africa was playing the catch-up game in the COVID-19 vaccination race as less than 2 per cent of the 690 million COVID-19 vaccine doses administered

25 M Mazzucato, J Ghosh & E Torreele 'Waiving COVID patents. Intellectual property and COVID-19' *The Economist* 20 April 2021, Mariana Mazzucato, Jayati Ghosh and Els Torreele on waiving covid patents _ The Economist.pdf (accessed 15 May 2021); Gravitas 'European Union blames China, Russia for vaccine disinformation' (2021) Palki Sharma – YouTube video, https://youtu.be/uzDXCMeW-LA (accessed 30 November 2021).

26 Gravitas Plus 'Vaccine hyper nationalism is helping no one' (2021) Palki Sharma - YouTube video, https://youtu.be/flugu1PyzwU (accessed 30 November 2021).

globally had been in Africa (WHO, 2021) while countries such as the US and UK stood at 69 per cent.

Apart from charging high prices for licensing, multinational companies holding IPRs have also manipulated the market through transfer pricing, where profits are shifted to low-tax regions by transferring assets between subsidiaries, preferring to pay licence fees in jurisdictions with low taxes.[27] The taxation games played around intellectual property rights have led to fiscal degradation affecting both rich and poor economies as a substantial reduction in tax revenue is recorded. The increased focus on financial gain has also meant little motivation to invest in the research and development of tropical medication as it is considered less profitable, with tropical medication accounting for less than 1 per cent of the drugs produced.[28]

The high research and development (R&D) costs have been used to justify the high price tags for patented social goods; however, this rationalisation of pricing has been considered inadequate, especially when the argument focuses on costs incurred on failed R&D. First, the funding of R&D, by the government, usually is predetermined regardless of the end result and, in some cases, arrangements are made for advanced government purchases to mitigate any risks in the event of a financial loss. Second, a lot of drug-related R&D benefits from prior public research or public funds, and these same innovations then get patented, and the public pays tax (private tax) on them yet again. This acts as a double taxation as companies levy high licensing fees while imposing high prices on the products.[29]

So, to curtail IPR-related concerns and ensure enhanced trade facilitation, enforcement of legal instrumentation that is ethical and beyond legal is important as it reduces opacity in trade and improves availability and accessibility while ensuring reasonable returns for the patented goods. Citizens need to be educated on the importance and value of these trade agreements and strengthened implementation structures to enable a more transparent system. All other strategies stand on the foundation of a system that is ethical and beyond legal. There should also be strategies employed to regulate the enforcement of IPRs to prevent a market failure. The TRIPS implementation has therefore undergone repeated provisions, with developing countries allowed a period of up to January 2005 and least-developed countries up to January 2006 in which

27 Drahos (n 19).

28 P Trouiller and others 'Drug development for neglected diseases: A deficient market and a public-health policy failure' (2002) 359 *The Lancet* 2188.

29 Drahos (n 19).

to implement, which was eventually extended to July 2013, and July 2033, respectively, allowing these countries' gradual adjustment and adoption of the TRIPS regulations. Who knows what will happen next? The flexibility in these dates indicates the inadequacy of the implementation of the TRIPS agreement, as low-income countries fall short of expectations. Governments have also intervened using compulsory licensing of patented products to prevent market failure.

3.6 IPR and compulsory licensing

Product accessibility and affordability have also been guaranteed through either voluntary or compulsory licensing. Compulsory licensing, established as a legislative provision under the TRIPS agreement, allows governments to sanction the reproduction of a generic product for their use without the consent of the inventor as long as the patent holder is adequately compensated. It is used by governments under specified conditions, and it is limited in scope and duration.[30] On the other hand, voluntary licensing has been employed where the patent holder willingly accords licences allowing the production of the patented product to promote accessibility to the product.[31] Table 3 below further illustrates how both compulsory and voluntary agreements have been used under the IPR system.

Table 3: Compulsory and voluntary licensing in the IPR system

Compulsory licensing[32]	**Voluntary licensing**
Compulsory licensing involves a third-party patented product without the patentee's permission.	Other exceptions to accessing patented products have been through the use of voluntary agreements between patent holders and generic manufacturers.

30 WTO 'TRIPS and pharmaceutical patents: Obligations and exception' (2006), http://www.wto.org/english/tratop_e/trips_e/factsheet_pharm02_e.htm#art31 (accessed 20 November 2021).

31 International Federation of Pharmaceutical Manufacturers Associations (IFPMA) 'Voluntary licences and non-assert declarations' (2010) Actions by R&D pharmaceutical companies that facilitate access to medicines 28 July 2010.

32 Compulsory licensing may not always be a solution to price reduction as the cost of some patented medicines (for example Efavirenz) produced under compulsory licensing has been reported to be more expensive (WHO, 2021).

Compulsory licensing offers exceptions to existing patent products, therefore, improves accessibility to a patent product by a member country without having a price negotiation with the patent holder.	Contractual pacts have also been used between patent holders and generic manufacturers, such as the Medicine Patent Pool2.
Originally, compulsory licensing was predominantly for the domestic market of the country receiving the licence, and no exporting was acceptable. So, the benefits were limited to only those countries with manufacturing capabilities.	Price negotiation is another strategy that can be effective in lowering prices and improving accessibility to the badly needed patented product (Raju, 2017).
With the 30 August decision, amendments to the 'Paragraph 6 system' allowed the export of generics to countries that lack technological capacity.	Other voluntary provisions may include the non-assert declaration where patents may not be imposed on a low-income community, therefore, allowing the use of the generic version that meets the agreed upon international standards (IFPMA, 2010).
Compulsory licensing may face distribution constraints in some non-LDC countries that are listed as import or export prohibited, even if both countries issue a compulsory licence.	Voluntary licences on patented products commonly have geographical and economic limitations (Gold and Morin, 2012), for instance, countries like China and Russia (Luca, 2015) which may restrict the export of products to these countries.

4 Trade facilitation

The bottleneck of hidden asymmetries in trade across SSA countries could be further addressed through trade facilitation to minimise its negative impact on cross-border trade. Trade facilitation refers to initiatives, measures, and policies targeted at minimising trading costs through the enhancement of performance at every stage along the international trade chain. The WTO defines trade facilitation as the 'simplification of trade procedures', which are understood as the 'activities, practices and formalities involved in collecting, presenting, communicating and processing data required for the movement of goods in international trade'.

Undoubtedly, trade facilitation is witnessing growing attention because of the no-tariff policy in operation in some areas lately. Interestingly, aside from the WTO, trade facilitation has become a force to be reckoned with by a circle of international bodies, namely, United Nations (UN) – different arms, the World Customs Organisation (WCO), and those that are related to economic development, supply chain security, as well as sector-specific concerns that include but are not limited to international transport and logistics. Trade facilitation efforts, initiatives, and recommendations, which include reducing paperwork requirements, improving procedures, modernising and harmonising customs requirements, can be instrumental in reducing the cost and time required for the movement of people, goods and services globally.

It is generally believed that intra-sub-Saharan African trade is minimal, and so it requires an expansion for continuous growth in the economy and social development. Thus, several initiatives, such as trade facilitation, are part of the action plans devised by the African Union (AU) to promote seamless trade in SSA. The trade facilitation initiated in both developed and developing countries has greatly helped in the elimination of red tape and bureaucracy that hindered the free flow of goods across borders. The positive impacts are more noticeable in developed countries because they are more fully complied with legislation and carry out policy executions. It has been estimated that trade among SSA countries stands at 10 per cent, while Europe and North America account for approximately 60 and 40 per cent, respectively. This fact could be further buttressed as the volume of trade between developed and developing countries is far higher than the trade among developing countries, including African countries, due to non-tariff barriers (NTB) that are expected to be significantly reduced by trade facilitation. The reduction of NTB through trade facilitation will reduce transaction costs in the business environment and promote trade. For example, the improvement of border management jointly executed by both the East African Community (EAC) and the Economic Community of East and Southern Africa (COMESA) has been yielding a positive impact on the intra-trade between these regions. African countries need to improve 'cross-border initiatives' to ease the flow along their borders. Such initiatives are thriving in Nigeria en route Republic of Benin up to Côte d'Ivoire and beyond. The most common cross-border companies are ABC transport, Chisco transport, Efex Executive transport, Cross Country transport and Guo Transport, to mention but a few.

The associated cross-border bottlenecks are reasonably managed because transport companies are considered corporate entities, and their dealings with relevant agencies and stakeholders are well arranged. For example, the use of ABC transport with respect to the movement of goods

across the West African borders from Nigeria to Ghana is convenient and reduces the nervousness associated both with travelling across such borders and with the stamping of passports in and out of countries, the introduction of one-stop border posts (OSBP) will eliminate this NTB. Furthermore, the introduction of OSBP will reduce the duration of border crossing and diminish the opaqueness of border requirements currently in place. It currently takes two weeks to truck consumer goods, such as Nestle products, from Nigeria to Accra – a distance of less than 480 kilometres. A roughly equivalent distance of 540 kilometres from Montreal to Toronto in Canada takes between six and seven hours, depending on the driver and the time of the day as a result of the traffic in the Greater Toronto Area (GTA). Even where the OSBP are functional in Africa with the help of TradeMark East Africa (TMEA), they are more functional in terms of structure but not processes and procedures. While a building is commissioned for trade-related officers of both countries, goods and passengers will still pass through agents of both countries. This is not a 100 per cent OSBP. Desirable examples of OSBP are located at both the Fort Erie (Canada)-Buffalo (United States) and the Windsor (Canada)-Detroit (United States) borders, where cargo and people only need to deal with the entry officers.

The desirable reduction of NTBs through trade facilitation is why we agree with the ideas presented by Adekunle on the need for simplification of processes and procedures as well as the creation of a structure that promotes intra-regional trade in Africa. A single window will help importers, exporters, freight forwarders, and shipping lines to do away with cumbersome paperwork and will increase customs efficiency. Moreover, the publication of up-to-date information on the website of countries' Ministry of Trade and Customs websites will make it clear what is contraband by addressing the problem of asymmetric information where traders, and at times, some customs officers, are not aware of updated standards with respect to goods allowed into a country. The absence of trade facilitation provokes traders to bribe and customs officers to exercise overweening authority. Another important part of trade facilitation is automation. It fast-tracks processes and reduces the time traders have to deal with customs officers – a platform for corruption. Automation in this century should be 5G compliant and blockchain-based. The use of blockchain makes trade data immutable, decentralised and trustworthy. Traceability is also enhanced through a blockchain-based technology referred to as crypto-labelling.

The introduction of blockchain is an innovation that has successfully assisted with international money transfers (for example, Western Union), compensation for creators through property rights protection, value

chain authenticity, an appropriate sharing economy, and management of data. Thus, it can help to achieve reasonable improvements in trade and digital business transactions because fixed and provable deals entered in a blockchain remove the need for the conventional use of paper prevalent among SSA countries along the trade corridor. Moreover, faster payment is also enhanced while it mitigates corruption through desirable technology, for example, smart and green technologies. A good example of such technology in operation will be if an embedded sensor in a truck or container signals a rise in temperature above the accepted level. Such a smartly designed system can prompt customs to screen, impose a fine or verify an insurance indemnity.

In sum, trade facilitation can be enhanced by innovative cross-border initiatives such as Gatatransport, a technology-based trucking start-up operating across borders, as well as passenger transport businesses such as ABC Transport and any other trucking businesses in the region. Cargo flights, airline connectivity and the development of indigenous airlines should be promoted on the continent. Furthermore, crowd-funded platforms for agricultural production, ThriveAgric, Crowdyvest, Groupfarma, and Greenhill's farms should become regional and serve as hubs for food security and agribusiness. All these initiatives should carry out with enhanced digitalisation through the use of mobile apps such as Mpesa, Kuda and other cross-border trade apps. Sustainable and inclusive growth will require the use of mobile technology that is integrated with social media platforms, and QRCode enabled. Growth and development will be boosted if solutions such as single window, harmonisation of processes and procedures, one-stop border post, automation, and publication, are in place. The strengthening and sustainability of this growth will be enhanced by blockchain. Blockchain technology helps with international money transfer, compensation for creators, property rights protection, value chain authenticity, an appropriate sharing economy, and management of data.

5 Crypto-labelling

Trade facilitation can be enhanced through the use of crypto-labelling. As defined by Adekunle, 'crypto-labelling uses secure communication technology to create a record which traces the history of a particular food from the farm to the grocery store. It would require consistent records, no duplication, a certification registry, and easy traceability.' Adekunle further described how digital technology could be used to ensure traceability, authenticity and transparency across borders. In this chapter we employ the framework from Adekunle and Filson

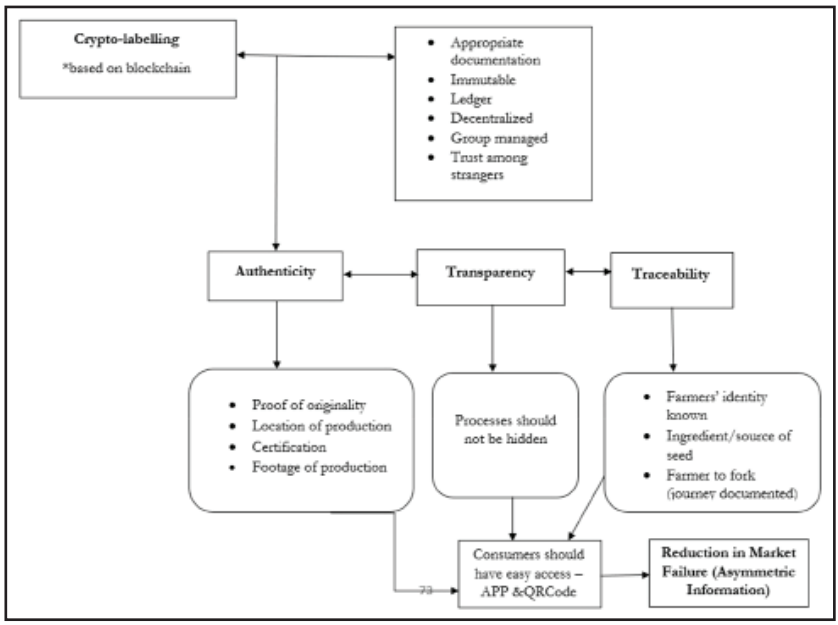
to explain how crypto-labelling can reduce market failure due to asymmetric information.

As seen in Figure 4 below, crypto-labelling is a blockchain-based technology that allows people who do not know or necessarily trust each other to cooperate in a decentralised, immutable, and group-managed ledger. Successful implementation of this structure leads to the promotion of authenticity, transparency, and traceability in any commodity or product sector. The interaction of these variables will reduce opaqueness in global value supply chains, including those in Africa. Consumers or final product users can use a mobile phone application, which has an easily read QRCode, managed by a user group or a consortium, to ascertain the originality of a product. This approach will reduce asymmetric information and market failure associated with the exchange of both corporeal and non-corporeal goods.

6 Understanding legal instruments: Ethical versus legal

Traceability, crypto-labelling, and ethically-defined property rights are important for sustainable and desirable regional and global trade. There should be well-developed legal instruments that are ethical and beyond legal to make these concepts workable. Given legal activity may not necessarily be ethical, ethics should be the building block of trade policy and negotiations as Africa prepares for the future. In this chapter we present our analysis with the assumption that the players in cross-border trade are involved in a game. In this game, the players are countries that are in continuous interaction with other players because, in our globalised world, no country can live in isolation. So, the game of trade is an indefinite game where all the players do not know the end game. If the trade market has an end game, it leads to a situation where players can easily become dubious and not follow the standards that are necessary to ensure traceability, promote crypto-labelling and guarantee the development of well-defined physical, tangible and intellectual property rights. Analysis of legal instruments is more interesting in terms of IPR, especially in the context of ethics.

Figure 4: Market failure reduction in the food market by crypto-labelling



Source: Adekunle and Filson (2019)

Ethics is one of the challenges of the intellectual property rights (IPRs) for countries and is even more pronounced in the trade-related aspects of intellectual property rights (TRIPS) because these legal structures are defined by private sector leaders who lobby policy advocates and law makers to develop laws that will protect their innovation, at times at the expense of the consumers. According to Drahos, IPRs are usually imposed from the developed onto the developing countries, mostly decided by the quad, the United States, the European Union (EU), Japan and Canada, and not consistent with the theory of democratic bargaining. The theory of democratic bargaining is implemented when there is representation, full information and non-domination in the development and implementation of trade practice. This is not necessarily the case with TRIPS. This is part of the reason why we are suggesting that the legal framework for sustainable and desirable global trade should be beyond legal.

To have a trade structure that promotes ethical behaviour, one of the prerequisites would be trade facilitation through the harmonisation of processes and procedures. Currently, in Africa there presently is no consistency across regions in terms of macroeconomic stability. According to Isemede,

the prerequisites for common currency – a common external tariff (CET), single-digit inflation, a fiscal deficit of less than 4 per cent, tax revenue greater than 20 percent of the GDP, stable real exchange rate and positive real interest – are not present in most of the ECOWAS member states. Furthermore, value-added tax (VAT) is consistent in Francophone countries but not in Anglophone countries. Most of the Francophone countries have currency centres instead of their own central bank, with the central bank for the region in Dakar, Senegal. Trade facilitation in Africa can only be enhanced if harmonisation is well implemented with an appropriate legal structure that keeps undergoing reform based on the changes occurring globally and the implications of digitalisation. Ethically developed legal instruments should reduce opacity in trade facilitation. Opacity arises when there is asymmetric information in the system, and it can also be referred to as the level of asymmetric information. Furthermore, in the analysis of the food market by Adekunle and Filson, opacity and food authenticity are shown to be inversely related. We adapted this idea to trade by proposing that opacity in trade and trade facilitation are also inversely related.

Opacity in Trade (OT) = f {Asymmetric information} (1)

Opacity in Trade (OT) appears in multiple forms, such as dubious product quality, customs not following processes and procedures, customs and immigration interested in making money at the expense of the trade process, and unclear publications about standards, among other issues. All these issues are summarised in equation (2) below as different forms of asymmetric information that can lead to adverse selection, moral hazard and the principal-agent problem.

$OT \alpha {}^{1}/_{TF}$, where TF is trade facilitation (2)

As indicated in (2), the inverse relationship indicates that the more opaque trade processes are, the more difficult it is to do business across borders. Appropriate legal instruments that are up to date, coupled with an ability to solve current challenges, will enhance trade facilitation. Policies and laws should be standardised where required, and both producers and consumers should be adequately protected as they use technology.

Legal Instrument – OT + Ethical Consideration = Enhanced Trade Facilitation (3)

In a nutshell, trade policy instruments should be beyond legal if Africa wants to be competitive in the global landscape.

The competition will be sustainable if there are various incentives that encourage the players to commit to cooperation on a long-term basis. Imperfection in the international trade market should be taken into consideration as Africa prepares for the future. For example, cross-border services – banking, airline, and telecommunication – are controlled by a few players. Policies should also be resilient in the face of challenges and randomness, such as the COVID-19 pandemic that has changed the factor market and commodity market for face masks and vaccines. The implications of such randomness and uncertainties underscore the importance of public goods and the desirability of positive externalities across borders.

7 The future

The future of prosperous cross-border trade depends on a vastly improved market free from asymmetric information. Figure 5 below summarises the future of trade in Africa. As Africa leverages to grow its regional trade, it is necessary to reassess its trade policies and guidelines to emphasise ethical and beyond-legal policies that are aimed at creating cross-border consistency and strengthening value chains that guarantee the quality, consumer protection and ethical pricing. For the guidelines to be ethical and beyond legal, there should be transparency in the formulation and interpretation of the policies and guidelines. A shortage of African government expertise in this area has meant that expensive experts are hired to draft and interpret these laws. These challenges culminate from the fact that Africa lacks awareness about the importance of IP protection and has not invested enough in the science and technology of IP. This lack of awareness is clearly exemplified by Nigeria's popular Nollywood industry which, absurdly, registers low patronage of the IPR system despite a robust creative capacity in the Nollywood industry.

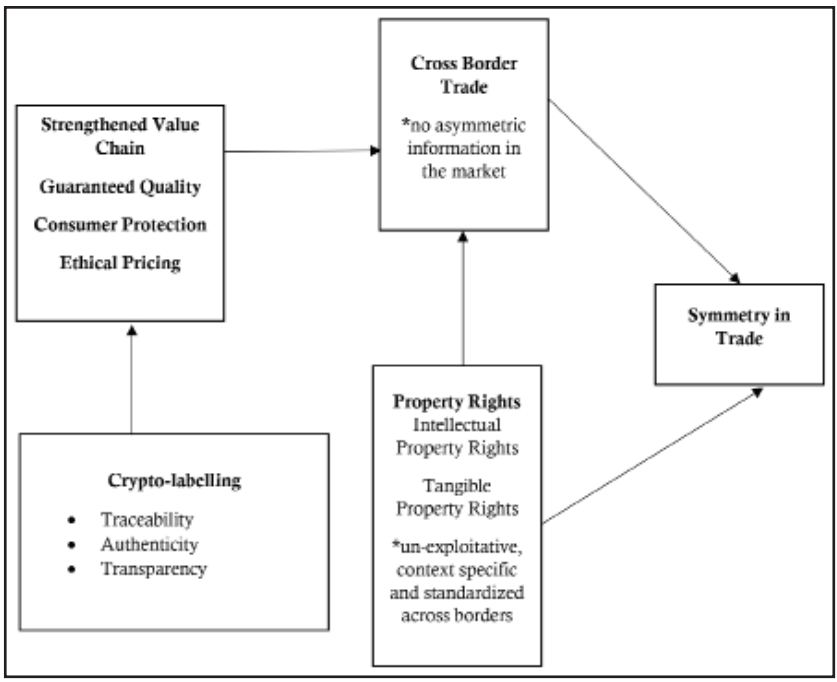
Second, the policies and guidelines enacted should be authentic as well as developed to reflect and represent the values and requirements of the consumers. However, until recently, countries in Africa have continued using IPR regulations designed in the colonial era designed to favour the colonial masters. Africa should invest more in educating the general public about the laws that govern their trade. Neither direct importation of foreign policies nor the use of colonial policies are conducive to African trade or meet the needs and values of African consumers.

As well, Africa should emphasise traceability, where everyone along the value chain is cognisant of the importance of a systematic, accountable and traceable system that clearly considers the well-being of consumers and the environment. A traceable record obliges one to maintain quality as

well as encourages people to keep each other accountable along the value chain. The accountability is rooted in blockchain technology through systems such as crypto-labelling, which enables accurate maintenance and tracking of information. Crypto-labelling allows for the protection of consumer interests, such as IPRs and tangible properties, using un-exploitative, standardised, cross-border systems that are not open to manipulation. This clears the anomalies created because of asymmetric information, thereby fostering confidence and enhancing symmetry in the trade of both corporeal and non-corporeal goods. This may not be achieved instantaneously as it requires commitment and obligations from all participating parties and, as we see, even the strongest trade blocks are still struggling with many different challenges.

In sum, we posit that the path to information symmetry in trade is not linear because products have different attributes. For example, the nature of IPRs and their impact on corporeal and non-corporeal goods are not similar and should be handled differently. Furthermore, macro-economic variables are difficult to standardise across borders because of weak or non-existent infrastructure, non-tariff barriers, and limited use of technology. Value chains should be strengthened, quality should be guaranteed, and consumers should be protected with respect to food safety and accessibility, including ethical pricing to promote a symmetric trading system in Africa. Moreover, the current opaque system will be less opaque by crypto-labelling and its concomitants – traceability, authenticity, and transparency. All these innovative prescriptions will only work if cross-border trade is devoid of adverse selection, moral hazard, opacity, mislabelling and questionable signalling devices. A conducive trade environment is established when asymmetric information is removed, and property rights are well defined. The scenario described above ensures symmetry in trade, a prerequisite for sustainable and competitive intra-regional trade in Africa.

Figure 5: The path to symmetric trade



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3 The role of HRM practices in firm innovation and product competitiveness: Implications for intra-regional trade, evidence from firms in Kenya, Uganda, and Tanzania

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Abstract: With increasing exposure to product market competition both in export markets and at the domestic level, in part due to deeper trade reforms pursued by East African countries as part of their integration agenda, the firm survival may hinge on innovative products and processes. Motivated by the theoretical and empirical findings that product competitiveness is positively correlated with product and process innovation and the potential facilitative role of human resource management (HRM) practices on innovative behaviour, this chapter provides insights on the link between HRM and firm innovation as a strategic response to foster product competitiveness for three East African countries, Kenya, Uganda and Tanzania. The chapter utilises a detailed firm survey dataset conducted by the World Bank through their enterprise surveys programme during 2013-2014 in the mentioned three East African countries. The preliminary findings from the chapter highlight the facilitative role of HRM practices on firm innovation in products and processes, the role of training in research and development (R&D) and the important role of innovation as a strategic counter to competitive pressure. Finally, enhanced product competitiveness attributed to the firm innovative activities fosters increased intra-regional trade. The facilitative role of HRM reinforces the relative importance of skill development policies that support firms in their innovation path.

1 Introduction

In an ever-increasing competitive business world driven by globalisation, dynamics of user needs and changing technologies, innovation capability appears to be a rational strategy to foster the survival and sustainability of firm products in the marketplace.[1] Many studies have delved into the link between human resource management (HRM) practices and firm

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1 R Aryanto, A Fontana & AZ Afiff 'Strategic human resource management, innovation capability and performance: An empirical study in Indonesia software industry' (2015) 211 *Procedia-Social and Behavioural Sciences* 874-879.

innovation performance[2] in which it is argued that the HRM practices foster innovative activity in an organisation. HRM practices that involve rewards, training and career development facilitate and enhance the innovative drive of employees.[3] Rewards coupled with delegation may allow the discovery and utilisation of local knowledge to support discovery and new ideas.[4] In addition, team-driven engagements foster better use of local knowledge that could improve processes and products in an organisation.[5]

There is, however, variability in the expected links between HRM practices and different types of innovation activity. For instance, Shipton and others[6] find a strong link between HRM practices and product innovation but not higher levels of process innovation. Influenced by the availability of predominantly cross-sectional data for analysis, most of

2 S Arvanitis, 'Modes of labour flexibility at firm level: Are there any implications for performance and innovation? Evidence for the Swiss economy' (2005) 14 *Industrial and Corporate Cha*nge 993-1016; J Jiménez & R Sanz-Valle, 'Innovation and human resource management fit: An empirical study' (2005) 26 *International Journal of Manpower* 364-381; K Laursen & NJ Foss, 'New human resource management practices, complementarities and the impact on innovation performance' (2003) 27 *Cambridge Journal of Economics* 243-263; K Laursen & NJ Foss 'Human resource management practices and innovation' in M Dodgson, DM Gann & N Phillips (eds) *The Oxford Handbook of Innovation Management* (2014); J Michie & M Sheehan 'HRM practices, R&D expenditure and innovative investment: Evidence from the UK's 1990 Workplace Industrial Relations Survey' (1999) 8 *Industrial and Corporate Change* 211-234.

3 S Beugelsdijk 'Strategic human resource practices and product innovation' (2008) 29 *Organisation Studies* 821-847; SA Snell 'Control theory in strategic human resource management: The mediating effect of administrative information' (1992) 35 *Academy of Management Journal* 292-327, https://doi.org/10.2307/256375 (accessed 9 August 2021). K Jiang and others 'How does human resource management influence organisational outcomes? A meta-analytic investigation of mediating mechanisms' (2012) 55 *Academy of Management Journal*; Z Zhang, D Wan, D & M Jia 'Do high-performance human resource practices help corporate entrepreneurship? The mediating role of organisational citizenship behaviour' (2008) 19 *Journal of High Technology Management Research* 128-138.

4 I Bohnet & F Oberholzer-Gee '*Pay for performance: Motivation and selection effects*' (2001); FA Hayek 'The use of knowledge in society' (1945) 35 *American Economic Review*, 519-530; MC Jensen, & WH Meckling 'Specific and general knowledge and organisational structure' in L Werin & H Wijkander (eds) *Contract economics* (1992) 251-274; Laursen & Foss ('Human Resource Management Practices) (n 2).

5 E Ennen & A Richter 'The whole is more than the sum of its parts: Or is it? A review of the empirical literature on complementarities in organisation' (2010) 36 *Journal of Management* 207-233; JA Schumpeter *The theory of economic development: An inquiry into profits, capital, credit, interest and the business cycle* trans R Opie (1912/1934); Laursen & Foss (2003) (n 2); J Love & S Roper 'Organising innovation: Complementarities between cross-functional teams' (2009) 29 *Technovation* 192-203.

6 H Shipton and others 'Managing people to promote innovation' (2005) 14 *Creativity and Innovative Management* 118-128.

the studies suffer from sample attrition since a number of firms disappear over time.[7] Findings from studies that incorporate longitudinal data in the analysis, however, are consistent with the cross-sectional data studies,[8] reinforcing the perceived positive link between HRM and innovation activity.

The literature on the correlation between firm size and innovation abounds[9] in the sense that larger firms are more likely to find a larger output to apply the results of the innovation relative to smaller firms. However, recent findings[10] appear to indicate a high incidence of innovating firms among small firms.

It is evident in the empirical literature that not all firms succeed in triggering innovation in practice for a variety of reasons. One source of innovation failure is associated with HR competencies.[11] Incidentally, the proportion of firms exhibiting innovation failure is relatively higher in Africa than in the rest of the world. It is, however, observed that few African entrepreneurs are innovative. Competitive pressure appears to boost productivity, given fragmented markets and weak institutions to compel innovation in firms.[12]

Insights from the work of Özbag and others[13] and the reports by the African Development Bank (AfDB), the Organisation for Economic Cooperation and Development (OECD) and the United Nations Development Programme (UNDP)[14] raise important empirical questions. Is there any evidence link between HRM practices and firm innovative

7 Laursen & Foss (2014) (n 2).

8 H Zhou, R Dekker & A Kleinknecht 'Flexible labour and innovation performance: Evidence from longitudinal firm-level data' (2011) 20 *Industrial and Corporate Change* 941-968; C Zoghi, R Mohr & P Meyer 'Workplace organisation and innovation' (2010) 43 *Canadian Journal of Economics-Revue Canadienne De Economique* 622-639.

9 WM Cohen & S Klepper 'Firm size and the nature of innovation within industries: The case of process and product R&D', (1996) 78 *Review of Economics and Statistics* 232-243.

10 I Booyens 'Are small, medium and micro-sized enterprises engines of innovation? The reality in South Africa' (2011) 38 *Science and Public Policy* 67-78.

11 GK Özbağ, M Esen & D Esen 'The impact of HRM capabilities on innovation mediated by knowledge management capability' (2013) 99 *Procedia-Social and Behavioural Sciences* 784-793.

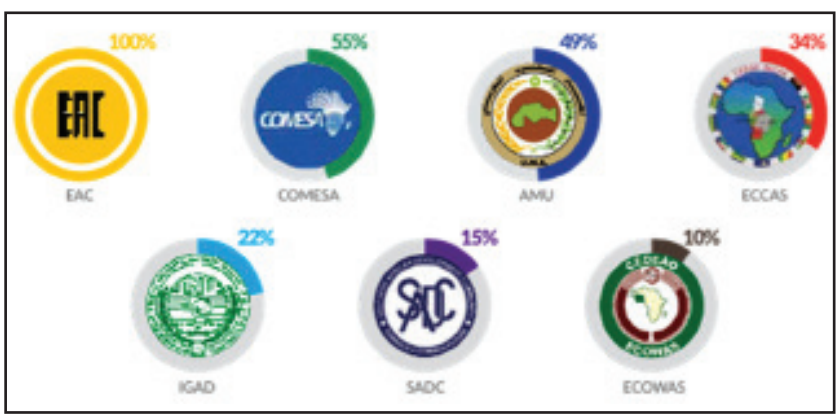
12 AfDB/OECD/UNDP (2017) *African Economic Outlook 2017: Entrepreneurship and Industrialisation*, OECD Publishing, Paris, https://doi.org/10.1787/aeo-2017-en. (accessed 9 August 2021)

13 Özbağ and others (n 11) 784-793.

14 AfDB/OECD/UNDP (n 12).

activity among African firms? Does size matter? This chapter leverages the availability of micro firm-level data from the World Bank Enterprise surveys and the observed deeper integration of the East African Community (EAC) that provides the requisite product market competitive pressure to drive innovative activity among firms to provide insights into these questions. Since 2000, the EAC has recorded several milestones, including the creation of a customs union and a common market. The common market came into force in 2010 with the signing of the East African Common Market Protocol, in which the partner states agreed to maintain a liberal position on the free movement of factors of production, goods and services. The scope of this chapter is limited to Kenya, Uganda and Tanzania. The choice of the three countries is informed by the fact that they constitute the founding members of the EAC, and that the Community has currently attained a significant level of integration among other regional economic communities (RECs) in sub-Saharan Africa (SSA). At the level of a common market, the EAC has undertaken a range of reforms to reduce trade barriers and inadvertently expose firms to regional and external import competition that may have a bearing on innovative activities among firms. This is clear from the level of tariff liberalisation undertaken at EAC relative to other RECs, as illustrated in Figure 1 below.

Figure 1: Tariff liberalisation across African Regional Economic Communities (RECs)



Source: UNECA et al (2016)

Within this context, this chapter assesses the link between HRM practices and firm competitive strategies that foster product competitiveness. The rest of the chapter is structured as follows: Part 2 provides an exposition on the theoretical underpinnings and conceptual framework. Part 3

highlights the methods and data used. In part 4 the descriptive analysis and discussion of findings are presented, while part 5 presents conclusive remarks, limitations of the chapter and potential areas for further research.

2 Theoretical underpinnings

The theoretical underpinnings that link HRM practices to innovative activity within an organisation are anchored on the resource-based view (RBV) and ability motivation and opportunity (AMO) theories[15]. The RBV theory establishes that human resources enable firms to achieve competitive advantage[16], whereas AMO shows the link between better firm performance driven by better-performing employees who are motivated.[17] It thus is expected that firms keen to create new products and processes that enhance their competitive advantage are more likely to treat HRM practices as an important organisational strategy[18] that recruits, train, reward, and encourage teamwork.

The implication of these arguments is that HRM practices are expected to be positively related to organisational innovation. However, it could be argued that the empirical link between HRM and innovation activity is expected to be stronger in developed countries relative to least-developed economies, given that most of these studies were undertaken in better-developed systems that foster research and development. In this regard, our main hypothesis is constructed as follows:

> Hypothesis: The level of HRM practices (recruitment, training) will be positively related to firm innovation (product innovation, process innovation).

> The conceptual framework based on the literature and the research hypothesis is as follows.

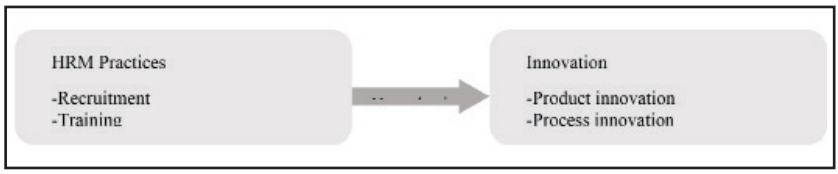
15 JB Barney 'Strategic factor markets: Expectations, luck and business strategy' (1986) 32 *Management Science* 1231-1241; JB Barney 'Firm resources and sustained competitive advantage' (1991) 17 *Journal of Management*, Vol.17, No.1, pp. 99-120; J Paauwe & P Boselie 'HRM and performance: What's next?' (2005) 15 *Human Resource Management Journal* 68-83; CL Tan & AM Nasurdin 'Human resource management practices and organisational innovation: Assessing the mediating role of knowledge management effectiveness' (2011) 9 *Electronic Journal of Knowledge Management* 85-180.

16 Barney (1986) (n 15); Barney (1991) (n 15) 99-120.

17 Paauwe & Boselie (n 15) 68-83.

18 ZM Wang 'Organisational effectiveness through technology innovation and HRM strategies' (2005) 26 *International Journal of Manpower* 481-487.

Figure 2: Conceptual framework



Source: Adapted from Jan Kees and others (2004)
Note: Recruitment and training are the main variables in the study.

This chapter utilises available firm-level survey data collected by the World Bank in 2013 in their Enterprise Survey initiative on firms from three East African countries, Kenya, Uganda and Tanzania, to assess the link between HRM practices and organisational innovation even in the least developed economies with relatively less developed systems.

3 Methodology

This chapter utilises a rich data dataset on 1 541 firms surveyed by the World Bank from three East African countries – Kenya, Uganda and Tanzania – during the 2013-2014 period. The survey conducted by the World Bank Enterprise Surveys programme was specifically designed to capture the innovation activities of firms. The data was collected in 2013 on firms from Kenya, Uganda and Tanzania in the World Bank 2013 Enterprise follow-up innovation surveys.[19] A total of 549 successful interviews were performed in Kenya with business owners and top managers from October 2013 to February 2014. The firms include food processing, textiles and garments, chemicals, plastics and rubber, retail, other manufacturing, and other services located in major towns of Kenya in Central, Nairobi, Mombasa, Nakuru and Nyanza regions. On the other hand, a total of 543 successful interviews in Tanzania were performed with business owners and top managers from October 2013 to February 2014. The firms were located in Arusha, Dar es Salaam, Mbeya, Mwanza and Zanzibar. For Uganda, a total of 449 successful interviews were performed with business owners and top managers from September 2013 to January 2014 on firms located in Kampala, Jinja, Lira, Mbale, Mbarara and Wakiso.

The main variables of interest are derived from the questionnaires. The questionnaire provides responses on the product, process, organisational and marketing innovation. The main questions of interest in the questionnaire are those that relate to the innovation activity of the firm

19 https://www.enterprisesurveys.org/en/survey-datasets (accessed 9 August 2021)

(product, process, and organisational innovation) and those that identify HRM practices (recruitment, training). In the questionnaires, the questions on innovation activity asked respondents to indicate if they introduced a new innovation and the number of innovations (product, process and organisation) introduced. The identifiers for HRM are captured in questions that ask the respondents if the organisation recruited employees specifically for the innovation activity, changes in skilled and unskilled workers, and training is specifically done to support the innovation activity.

Descriptive statistics of the data set are explored to assess the link between HRM practices and the innovation activities of the firms. The descriptive statistics are derived from responses to the relevant questions that identify HRM practices and innovation activities at the firm level. The questionnaires used for the World Bank Enterprise surveys provide easy identification of the questions and responses characterising the innovation endeavours and HRM practices at the firm.

4 Analysis and findings

Preliminary analysis indicates the perceived exposure to product market competition among the firms for the three countries. Table 1 presents the basic characteristics of the firms in the sample. In terms of the perceived intensity of completion exposure, domestic competition appears to be considered a significant threat by firms relative to competition from foreign-based firms through import competition. In terms of firm size, the firms in the sample depict the observed small-scale phenomenon as the dominating feature, with an average of over 55 per cent in Uganda and Tanzania. This is, however, different for Kenya, with more firms in the medium-scale category relative to its smaller economy neighbours. Similarly, in terms of age, most of the firms are relatively younger, with most under 20 years on average since establishment.

Table 1: Firm characteristics

	Uganda	**Tanzania**	**Kenya**
Number of firms	445	524	540
Perceived domestic competition	81%	70%	85%
Perceived foreign competition	34%	48%	48%
Firm size			
Small (5-19 employees)	63%	55%	31%

Medium (20-99 employees)	29%	32%	39%
Large (100 employees)	8%	13%	30%
Firm age			
Young (<20 years)	67%	59%	45%
Mid (21-50 years)	31%	38%	46%
Old (>51 years)	2%	3%	9%

Source: Author's computation based on World Bank Enterprise Survey data

4.1 Innovation activities

Interestingly, the perceived positive correlation between larger firms and innovation activities driven by scale economics does not seem to be supported by the data, as illustrated in Table 2. The proportion of firms that introduced a new product is relatively higher in Uganda and Kenya but not in Tanzania. However, research and development (R&D) activities were more pronounced among Tanzanian firms than in Uganda, whereas in both process and product innovation, firms in Uganda indicate an active engagement in innovation activities.

Table 2: Pattern of innovation activities at the firm level

	Uganda		**Tanzania**		**Kenya**	
Type of innovation activity	**No.**	**%**	**No.**	**%**	**No.**	**%**
New product	238	53	89	16	233	43
Process	226	50	205	38	209	38
Internal R&D	65	15	121	22	136	25

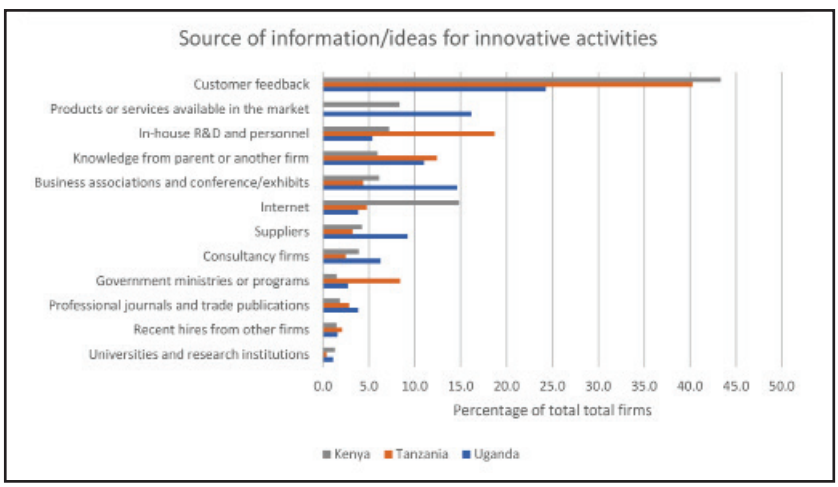
Source: Author's computation based on World Bank Enterprise Survey data

In a business era in which access to information through the internet and social media is increasingly becoming more predominant, it is tempting to perceive that firms keen to tap into new ideas are more likely to turn to the internet and social media to feed their new knowledge needs. Interestingly, across the three countries, firms appear to depend heavily on customer

feedback for information and new ideas to drive innovation activities, as illustrated in Figure 3. Even within this information channel, a higher proportion of Kenyan firms appear to source their ideas from customer feedback, followed by the firms in Tanzania and Uganda.

However, it can be inferred that after customer feedback, the internet is the second-most important source of new ideas for Kenyan firms implying relative intensities in both infrastructure and use of ICT services among the firms across the three countries. Notable is the limited role of the universities and research institutions perceived as sources of new ideas by the firms across the three countries. This is interesting as it may signal the disconnect between the research focus of universities and research institutions hence rendering it irrelevant for firms.

Figure 3: Source of information or ideas for innovation activities



Source: Author's computation based on World Bank Enterprise Survey data

Within the pursuit of new products and new processes, both theoretical and empirical literature highlights the role of HRM practices. As reflected in the introduction, this evidence has predominantly been associated with firms in developed and emerging economies. How significant are the HRM practices among firms in a sub-Saharan African setting? To draw some insight, we present in Table 3 the number of firms and their relative proportion among those firms involved in HRM practices. The HRM practices captured in the survey questionnaire include recruitment and training specifically for product and process innovation activities.

Overall, the survey data indicate a relatively higher proportion of firms in Kenya that utilise HRM practices compared to their counterparts in

Uganda and Tanzania. In Table 3, about 43 per cent of the firms recruited new employees specifically for product innovation, whereas Tanzania and Uganda had 22 per cent and 36 per cent, respectively. Similarly, for process innovation, 45 per cent of Kenyan firms recruited new employees specifically for this activity, relative to 29 per cent and 26 per cent in Uganda and Tanzania, respectively.

Table 3: HRM practices

	Uganda		**Tanzania**		**Kenya**	
HRM practice	**No.**	**%**	**No.**	**%**	**No.**	**%**
Recruitment for product innovation	85	36	20	22	100	43
Recruitment specific to process	65	29	53	26	95	45
Training specific to innovation	104	23	136	25	198	36

Source: Author's computation based on World Bank Enterprise Survey data

Training is critical to ensure that employees have the requisite competencies to craft new designs and processes. This is supported by the extant literature, and it is evident in the survey data. Based on the survey data, 36 per cent of the firms in Kenya that innovated conducted specific training for the purposes of innovation activities, whereas Uganda and Tanzanian firms that innovated had 23 and 25 per cent, respectively.

Would it imply that firms that hired employees for specific innovation activities innovated? As the survey data illustrates in Table 4, it appears that this is not necessarily the case that the use of HRM practices by firms translates into innovation activities. This would be the rationale given that HRM practices constitute critical factors that spur innovation activities for firms. The survey data indicates that among firms that hired new employees specifically for innovation activities and introduced new products, Kenya had the highest proportion with 43 per cent, followed by Uganda with 38 per cent and Tanzania with 22 per cent. The data shows similar relative distribution among the firms that introduced new processes but had hired employees specifically for the activity. Evidence shows that Kenyan firms explored this channel relatively more than firms in the other countries, with 45 per cent of the firms, followed by Uganda with 29 per cent and Tanzania with 26 per cent.

Table 4: HRM practices deployed for innovation activities

	Uganda		Tanzania		Kenya	
Interactions	**No.**	**%**	**No.**	**%**	**No.**	**%**
Employees hired for product innovation	85	38	20	22	100	43
Employees hired for process innovation	65	29	53	26	95	45
Training specific for product innovation	70	30	25	28	123	53
Training specific for process innovation	66	29	90	45	114	55
Training specific for R&D	35	54	70	58	90	67

Source: Author's computation based on World Bank Enterprise Survey data

The prominence of Kenyan firms may highlight the relatively higher likelihood of innovation given the more aggressive and developed business environment and relatively larger firms than the other two neighbours. From Table 5, it is evident that Kenya ranks higher than the other two countries in terms of per capita gross domestic product (GDP) and competitiveness index.

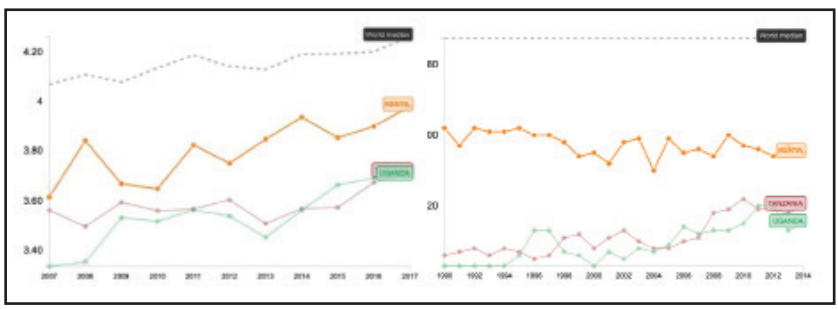
Table 5: Basic indicators of the three countries

	Population ('000)	**Population density (people per km2)**	**GDP (US $millions)**	**GDP per capita (US $)**	**Av annual real GDP growth 2010-2020(%)**
Kenya	50951	88	177441	3483	5.9
Uganda	44271	183	96658	2183	5.1
Tanzania	59091	62	175929	2977	6.8

Source: AfDB (2019)

In terms of country competitiveness and competitive industrial performance comparison, Kenya performs better than Uganda and Tanzania,[20] as shown in Figure 4. In the first graph, Kenya gained country competitiveness ranking by about 1,02 percentage points over the 2007-2017 period. Uganda improved its competitiveness ranking in 2014, overtaking Tanzania but still less than Kenya. To support the argument that Kenya has a more competitive business environment, the competitive industrial performance for Kenya has been relatively higher than Uganda and Tanzania over the 1990-2014 period. This would imply that the firms in Kenya are more likely to pursue an innovation strategy to foster their competitive edge.

Figure 4: Competitiveness index and competitive industrial performance comparison



Source: World Bank TCdata360

However, the training conducted by the firms that innovated presents an interesting picture, with firms that developed in-house R&D indicating relatively similar proportions in terms of the training conducted across the firms in the three countries. On average, about 55 per cent of the firms that introduced in-house R&D across the three countries conducted training specifically to facilitate this innovation activity.

Differences appear to be in both product and process innovation. The proportion of firms that introduced new products was distributed with the highest at 53 per cent in Kenya, followed by Uganda at 30 per cent and Tanzania at 28 per cent. Uganda and Tanzania had relatively similar proportions, probably owing to the similarity in the level of economic development in the two countries relative to Kenya. A similar pattern is evident for process innovation, although firms in Tanzania appear to

20 https://tcdata360.worldbank.org (accessed 9 August 2021).

have a relatively higher proportion of 45 per cent compared to product innovation with only 28 per cent.

5 Conclusions and areas for further research

Based on the survey data, preliminary evidence in Uganda, Tanzania and Kenya indicates the potential role of HRM activities as key strategic dimensions in firm innovation. This is clear from the descriptive statistics for product and processes innovation activities in terms of key HRM practices, particularly recruitment and training. Moreover, survey data also highlights the importance of HRM practices in firm innovation. The policy implication is that enhanced product competitiveness should diminish the perceived fears of competition by firms in Kenya, Uganda, and Tanzania. This diminished fear of competition will lead to reducing non-tariff barriers (NTBs) and increasing intra-regional trade among these countries. In the context of the ongoing integration efforts within the African continent towards the AfCFTA, the insights from this chapter reinforce the need for a competitive product by firms. This has a direct bearing on market entry to export markets, given the relatively limited preference utilisation by most African countries in preferential arrangements. This could boost regional value chains and intra-regional trade.

In terms of further work, it is not clear, however, the extent to which HRM practices may drive innovation or vice versa. Since the analysis of causative dimensions has not been covered, such a useful inference constitutes an area for further research. Equally, it will be useful to examine the role of firm characteristics as an intermediating role in the HRM innovation interrelationship. The research could also be extended by incorporating firm competition in the equation to assess its impact on innovative activities and the intensity of utilisation of HRM practices. It introduces other dimensions that could be explored, for example, that which drives the incentive of the firm to expand and its implications on product competitiveness.

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4 African gendered trade capacity: Geographical indications perspective

*Sand Mba-Kalu**

Abstract: In this chapter, the topic of geographical indications (GIs) is introduced as a useful tool in promoting gender equality, inclusivity, and equity in cross-border trade. GIs is a type of intellectual property recognised by legal authorities in various countries and multilateral institutions. It is used to identify and protect products from specific geographical areas known for their unique characteristics, reputation, and quality that are closely linked to their origin. GIs and gender trade capacity benefit both consumers and producers by creating and maintaining employment, promoting fair income distribution, ensuring high product quality, preserving local culture, and enabling product differentiation, which is vital in international trade. In particular, many GI products of African origin are produced by women, who play a critical role in adding value to these products for export. The sub-sections of the chapter focus on the appropriability of GIs, the role of gender in the quality of unique products in Africa, the importance of product differentiation for the advancement of Africa, international protocols for GIs; Africa's continental strategy, and case studies on successful GI products. Additionally, the chapter analyses African countries' commitment to enforcing the WTO TRIPS agreement and categorises countries into three groups based on their protection of GIs. Finally, the chapter compares the trademark regime and the *sui generis* system in regulating GIs.

Key words: appellation of origin; certification marks; code of practice; collective trademarks; geographical indications; gender; indication of source; *sui generis*; terroir; intellectual property; trade

1 Introduction

There is limited research and debate on the relationship between trade, gender equality and geographical indications (GIs), particularly in African countries and other parts of the world. Insufficient data is available on the

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connection between these important topics. GIs is an aspect of intellectual property rights (IPRs) recognised by most countries and multilateral systems to safeguard and promote products whose names are derived from a particular geographic area that is closely linked to the product source of origin. In another scenario, traditional names for products that are not necessarily linked to a geographic area can also be protected and promoted as GIs as long as they are associated with unique attributes, quality, reputation or characteristics of the product and explicitly linked to the territory.

Hence, women in Africa play a crucial role in the trade of GIs products and food value chains, which presents numerous opportunities for developing countries and women's gender.[1] Traditional African products sold on the international market have been recognised as essential for economic growth and poverty reduction in countries where women's groups depend on them as their main occupation.[2] This chapter explores the value of Africa's GI products, which are primarily designated by their place of origin and gendered makeup in the value chains. A gendered trade capacity GI aims to eradicate poverty, empower women, preserve culture, and promote sustainable, people centered development. Although women in trade and GI-related activities face significant discrimination and challenges due to cultural beliefs and practices, this challenge is becoming more significant in the increasingly competitive global marketplace, particularly in Africa's milieu of hazed competitive trade. GI is an instrument that can support gender equality, inclusivity, and equity in trade capacity for women and youth, as highlighted by the *United Nations Conference on Trade and Development* (UNCTAD.[3] For example, it is evident that there are more women in the Argan oil value chain, starting from those collecting the raw material to processing it in Morocco, as reported by Charrouf[4] and Nouaim.[5] Therefore, boosting gendered capacity in

1 S Escudero 'International protection of geographical indications and developing countries' South Centre (2001).

2 S Team & C Doss 'The role of women in agriculture (2011) ESA Working Paper 11-02, Agricultural Development Economics Division, The Food and Agriculture Organisation of the United Nations, www.fao.org/economic/esa accessed 16 July 2021.

3 UNCTAD Gender and Trade – Assessing the impact of trade agreements on gender equality: Canada-EU Comprehensive Economic and Trade Agreement (UN-Women/2020/1) (2020), https://unctad.org/publication/gender-and-trade#tab-2 accessed 16 July 2021

4 Z Charrouf 'Valorisation of argan oil for a sustainable management of the arid zones of south-west (2005) CIRAD. The challenges relating to geographical indications (GIs) for ACP countries. A Joint CTA, AFD and CIRAD workshop report, Montpellier, 24-27 March 2009.

5 R Nouaim 'L'arganier au Maroc: Entre mythes et réalités-Une civilisation née d'un arbre.' L'arganier au Maroc (2005) 1-230.

GIs value chains will reflect the contribution of women to GIs products, considering that women are frequently underrepresented when it comes to formulating national, regional, continental and multilateral laws that support GIs advancement.

This chapter explores the meaning of GIs, the difference between trademark and sui generis, the conceptual framework of African gendered trade and GIs, the analyses of Africa's continental GIs strategy and attempts to address the question of whether product differentiation is crucial to Africa. Additionally, the chapter analyses some traditional products as case studies where women are involved in the value chain and other related themes.

2 Definitions of keywords

Appellation of origin: A geographical name is used to identify a specific locality, region, or country that produces a product of which the quality and characteristics are primarily influenced by the natural and human factors of the surrounding environment.

Certification marks: A certification mark is a word, name, symbol or device that indicates that a third party has authorised the product's characteristics, including its geographical origin. It adheres to the owner's specifications document, which can apply to the place of origin and/or production methods. The owner of the mark must verify that the set attributes have been met or are presented before allowing the mark to be used.

Code of practice: In the *sui generis* system, local producers create a code of practice (CoP) to register a GI. This document outlines the criteria and requirements necessary to achieve the specific quality associated with the GI product. The CoP essentially is a set of rules governing the use of the GI for a product, which may also be referred to as a 'book of requirements', 'specification code', 'product specifications', 'disciplinary document', code of conduct, or regulations, depending on the jurisdiction.

Collective trademarks: Collective trademarks are used to indicate that a particular product or service has been created or marketed by a specific group of individuals. These marks also serve to show that the person using the collective mark is a member of that group. To become a member of the association or group that owns the collective mark, one must adhere to certain regulations, such as producing goods within a specific geographic area or meeting certain production standards.

Generic: When a term, name or symbol is so commonly used that consumers view it as a name or symbol for an entire category of goods or services rather than a specific geographic origin, it is known as 'generic'. In relation to GIs, the term 'generic' refers to names that, while indicating a product's place of origin, have become customary names for that product. For instance, Camembert cheese is a GI product that has become a generic term, meaning that it can be used to describe any type of cheese that is similar to Camembert.

Geographical indications: According to the 1994 Trade-Related Aspects of Intellectual Property Rights (TRIPs) Agreement by the World Trade Organisation (WTO), geographical indications (GIs) refer to goods that can be traced back to a specific region or locality within a member's territory. These goods are known for their unique characteristics or reputation that is essentially linked to their geographical origin (article 22.1).

Indication of source: The Madrid Agreement of 1891 and the Paris Convention of 1883 state that any symbol or mark that indicates the origin of a product or service from a specific place without any other indication of quality or reputation is considered an indication of the source or indication of provenance. Intellectual property refers to the creations of the mind, such as literary and artistic works, inventions, and commercial symbols, names, and images. There are two categories of IP: copyright, which covers literary works and industrial property, which includes patents for inventions, trademarks, industrial designs, and GIs.

Reputation: Reputation is a term used to describe the level of recognition a product or business has gained from its history, traditions, and consumption by society. It is a measure of the well-known and recognisable character of a company or a product produced by the company in terms of trade.

Sui generis: Sui generis is a legal term of Latin origin that refers to something that is one-of-a-kind or distinct. In the field of law, it is used to describe a situation that is so unique that it cannot be classified under any existing categories and, therefore, requires the creation of specific texts.

Terroir: A terroir is a defined region where a community has, over time, developed unique production methods and skills. It is influenced by both the physical and biological environment, as well as human factors that contribute to the authenticity and reputation of the products produced within it.

Trademark: A trademark is a logo, brand name, or other distinctive symbol that sets apart the products of one business from those of another. The

term 'company' encompasses all types of commercial organisations, including associations and producers' groups.

3 Differences between trademark and *sui generis*

For over a century, the established legislative system for GIs and trademarks has been used to protect GIs products in advanced economies. In 1919, France became the first country to develop a national system to guarantee and protect the quality of traditional products of local origin, particularly its wines.[6] The legal framework laid the foundations for the present-day GIs systems worldwide.[7]

The economic value of GIs is becoming more evident in Africa as many governmental and non-governmental entities are attempting to promote the protection of unique products of local African origin which hitherto, or currently, were treated as generic commodities despite their reputation and even in some cases, have been subject to intellectual property infringement and theft. The difference between the trademark and *sui generis* system with keywords are presented in Table 1 below:

***Table 1: Differences between trademark and** sui generis*

Keywords	**Trademark regime**	**Geographical Indication Sui Generis system**
Certification of origin	May certify the origin of the product, but the trademarks should not mislead the public about the origin of the product.	Must certify the origin of the product
Collective or individual approach	Both individual and collective marks can be registered. One entity allows its members to use the mark with the collective mark.	In principle, a group applies for the name certification. The registered name is available to any producers within the designated area who meet the requirements in the GI specification book.

6 Adding value to traditional products of regional origin, https://www.unido.org/sites/default/files/2011-07/ENG_Publication%20ORIGIN_0.pdf accessed 5 April 2021.

7 D Giovannucci & International Trade Centre UNCTAD/WTO *Guide to geographical indications: Linking products and their origins* (2009), http://www.carib-export.com/obic/documents/Geographical_Indications.pdf accessed 11 April 2021.

Link to the geographical origin	Production is not linked to a specific place.	Production is rooted in the defined geographical area.
Specification Code	Is the private individual that owns the trademark that will provide guidance to companies granted permission to use the trademarks by the third party	The system requires local producers to draw up a Code of Practice (CoP) containing the criteria and requirements for the specific quality. The CoP is a mandatory document establishing the rules for using a GI. Depending on the jurisdiction, it may be called a 'book of requirements', 'specification code', etc.
Scope of protection	Provides exclusive rights to the use of the name and/or logo in the classes of products under which it has been registered to an individual. There is no guarantee against the use of the trademark in translation and with expressions like 'style', 'type', etc. There is no guarantee against 'genericity': if the trademark owner does not assert their rights, the trademark name can become a generic name. For the protection to be effective, the trademark must be put to active use in the marketplace. Failure to use the trademark can lead to cancellation.	The system provides for comprehensive protection of agricultural products. Such protection is, for protection, against: – direct or indirect commercial use of a registered name for products not covered by the registration. – misuse, imitation or evocation of the name on a non-registered product. This extends to expressions such as 'style', 'type', etc., suggesting that the product is equivalent or associated with the original, even if the true origin of the product is indicated or if the protected name is translated;

		– 'Genericity' means that the GI name cannot become generic once registered. Protection of GIs is usually not conditioned on their use on the market.
Enforcement of the IPR	Enforcement of trademark rights is entirely private, and it is up to the owner to defend their right.	It relies mainly on private actions from the group that owns it (collective ownership/brand); in some cases, public authorities can also take action on their own initiative. In countries with *sui generis* systems of protection, GI is protected through administrative enforcement.
Cost of protection	Relatively high costs of registration and high costs of rights enforcement in many countries	Often, there are limited registration costs. At the EU level, GI registration for agricultural products is free of charge. Often less expensive costs of rights enforcement
Controls	An individual that is the owner controls a trademark and oversees inspection.	Collective control by producers or independent agencies, or the government undertakes inspections on compliance.

Source: Author's curated information, 2022

4 African gendered trade and GIs – A conceptual framework

Gendered trade in Africa refers to how policies, practices, and their impact affect men and women differently in the context of GIs. GIs have, over time, proven to be a tool to address gender equality, red tape, the barrier

to trade, and many issues concerning the economic development of rural and urban women in many developing and developed economies.[8]

The conceptual framework helps us understand the connection between African gendered trade and GIs in terms of promoting gender equity, inclusive trade, cultural preservation, sustainable rural development, product differentiation, and economic prosperity for the continent. Female cross-border entrepreneurs often face policy and legal obstacles, gender-biased sociocultural norms, higher tariff and non-tariff barriers, and lack of access to technology, finance, and education, which is severely detrimental to the world economy. The result is low consumption in some jurisdictions, high poverty, and declining well-being of women and their families, especially in many African countries, where women in successful cross-border businesses are still low compared to the most advanced economy. It has been argued that low consumption and high poverty issues will be addressed with the right trade policy and cross-border agreements that offer opportunities for women to access cross-border markets. Gendered trade could be structured in trade agreements by embedding gender-inclusive clauses that encourage market access and address the challenges faced by women in cross-border trade. According to the World Bank report of 2011, countries that do not encourage women to participate fully in economic activities are less competitive.[9] Supporting and negotiating agreements that embed increased women's participation in the GIs value chain can be one way to increase the number of women from African countries who can fully participate in economic activities. For example, the only women's association in Tunisia can be found within the Harissa value chain. Harissa is one of Tunisia's most famous culinary products and is sometimes dubbed as 'the national condiment of Tunisia'. It is traditionally spread over a host of North African and Middle Eastern cuisines, such as meat or fish stew, couscous, soups, vegetables and salads. The production of harissa dates back to the seventeenth century, and today, recipes vary among countries and regions, but it is widely recognised that the Tunisian recipe is the most authentic one. Tunisia is also the biggest exporter of harissa. It is considered that the harissa value chain, which covers chilli pepper farmers, collection centres, small-scale manufacturers and industrial companies, creates employment for around 25,000 people in Tunisia.[10] The women's cooperative is one of the leading cooperatives

8 Gender and Trade/UNCTAD 'Assessing the impact of trade agreements on gender equality: Canada-EU Comprehensive Economic and Trade Agreement, https://unctad.org/webflyer/gender-and-trade (accessed 16 July 2021).

9 World Development Report, Gender Equality and Development (2012), https://doi.org/10.1596/978-0-8213-8810-5 accessed 18 April 2021.

10 Z Xingfei 'Food quality label opens up new market for Tunisian harissa', https://www.unido.org/news/food-quality-label-opens-new-market-tunisian-harissa (accessed 14 June 2022).

that produce harissa for family consumption and export the product to the European market under the cooperative´s registered trademark. Another example is Moroccan argan oil, a GI-protected product produced by women's cooperatives in the southwestern region of Morocco. The GI system has helped to increase the value of argan oil and create new market opportunities for women's products.

4.1 Nature of conceptual framework

The conceptual framework for GIs aims to comprehend the evolving legal framework for protecting GI products. This framework has significantly evolved since 1883[11], as different dimensions of GIs are closely embedded in various legal and institutional frameworks. The term "appellation of origin" refers to a specific type of GI system. It was first introduced in 1883 to establish a connection between the protection of origin products and their location as a strategic asset. This involves considering the geographical name of a country, city, region, or locality of a territory for a product or service whose qualities or characteristics are exclusively or essentially attributed to the geographical environment, including natural and human factors. The goal is to protect the product's origin and ensure its authenticity. However, the term 'geographical indications' was first used and defined in the TRIPS Agreement of the WTO, which came into force in 1995. Applying the conceptual framework for GIs and gendered trade, one will realise that it does not affect developing and developed countries equally or all developing countries equally, nor do they affect men the same way as women in a given country. Understanding these differential effects' specifics can help indicate ways to minimise negative impacts and maximise women's participation in the GIs system.

Most African countries are WTO members and, as such, are expected to enforce legal tools to protect GIs. Under article 1 of TRIPS, WTO member states are allowed to use their discretion on protection options for origin-related products, provided they are compliant with the TRIPS Agreement[12]. These protection options range from unfair competition, trademark law, administrative means, and specific legislation in the sui generis system. When it comes to the GIs protection conceptual framework as a form of intellectual property, countries generally fall into three main categories:

11 D Benavente 'The Economics of Geographical Indications', https://books.openedition.org/iheid/652?lang=en (accessed 17 April 2021)

12 D Vivas-Eugui 'Negotiations on geographical indications in the TRIPs council and their effect on the WTO agricultural negotiations: Implications for developing countries and the case of Venezuela' (2001) 4 *Journal of World Intellectual Property* 703.

- countries that do so employing GI-specific laws or sui generis systems;
- countries that do so through a trademark system or other legal or administrative means;
- countries that do not formally recognise or protect GIs;

Firstly, the European Union (EU) countries fall within the first category. EU occupies a vital position in this category with its advanced GIs system application in force. The EU has defined the GIs system at the community level under a *sui generis* regulatory framework since 1992. The EU GIs *sui generis* system distinguishes between two types of protection: protected designation of origin (PDO) and protected geographical indication (PGI).[13] The PDO is designated for products of which the production is wholly linked to a specific geographical area, while PGI refers to products that derive a significant amount of their production reputation tied to a particular location[14]. According to the European Commission, 7.1% of all EU agri-food and drink products are registered under Protected Designation of Origin (PDO) or Protected Geographical Indication (PGI)[15]. Products with PDO certification have a strong connection to the region in which they are made. To earn this certification, all raw materials must originate from the designated region, and all production stages must occur within the same area. An example of a PDO product is Parmigiano Reggiano cheese, which can only be produced in the Parma and Reggio Emilia regions of Italy.

On the other hand, PGI products require at least one stage of production, processing, or preparation to occur in the region of origin. For instance, Feta cheese is a PGI product that can be made in Greece and Cyprus, but the milk used must come from sheep and goats raised in those countries. Most agri-food and drink products of which the names are protected by the EU as GIs represent a sales value of €74,76 billion, according to 2017 research findings.[16] Recently, non-EU countries such as China, Thailand, Colombia and Turkey started using this system to register agri-food products.

13 D Barjolle & B Sylvander 'PDO and PGI products: Market, supply chains and institutions' Final Report, FAIR 1-CT95-0306, June 2000 European Commission, Brussels.

14 G Belletti and others 'The roles of geographical indications (PDO and PGI) on the internationalisation process of agro-food products' No 690-2016-47339. 2007.

15 'Geographical indications and quality schemes explained' https://ec.europa.eu/agriculture/quality/schemes/index_en.htm.

16 European Union Commission 'Geographical indications – A European treasure worth €75 billion'(2020), https://ec.europa.eu/commission/presscorner/detail/en/IP_20_683 accessed 4 May, 2021.

Second, some countries fall within the second category that deploys trademarks for GI protection. Countries such as the United States of America, Australia, Kenya, South Africa and others employ GIs protection by the rules applicable to trademarks. However, some African countries use both trademarks and the *sui generis* system for GIs recognition and protection; examples are Morocco and South Africa.

Morocco's GIs Protection Approach

Morocco adopted a sui generis system in 2008 as its GIs protection framework. The provisions of law 25-06 established adequate protection for products other than wines through Geographical Indications, Appellations of Origin, and Agricultural labels identified by specific logos. Another Decree No. 2.75.321 regulates the making of wine, including the stocking and circulation, while Order No. 869-75 of the Minister of Agriculture and Agrarian Reform regulates the trading of wines using the appellation of origin. To further support the development of GIs in the country, the Moroccan Industrial and Commercial Property Office (OMPIC) is the agency saddled with the responsibility of handling cases of registration and management of GIs and AOs from the country.

The adoption of a trademark system for GIs registration and protection should be treated with caution because even though trademarks and GIs may have similarities in identifying the origin or the source of a good and help differentiate individual products among similar goods by communicating the specific qualities, there are inherent differences that limit the scope of protection that could be offered through trademarks as outlined in Table 1 above. Some of these differences lie in the fact that GIs identify a good or service as originating from a specific geographic place based on a particular quality, characteristic or reputation. A *sui generis* system offers wider protection than that granted by trademarks. A trademark often consists of signs that may be used by an individual owner or another person anywhere in the world, provided it is linked to a specific company and not to a particular place. By contrast, the sign used to denote GIs usually corresponds to the name of the place of origin of the product or to the name by which the product is known in that place of origin. Anyone who is a member of the producers group operating within a specific area of origin and complying with the standards set out in the specification book may use a GI on the specific product that has been assigned the GIs status. However, since it is associated with the place of origin, it cannot be granted or licensed to individuals outside that territory or those who are not part of the authorised producers' group. According to

EU regulations, a product that is registered only under a trademark system and has all the characteristics of a GI is not considered a geographical indication. The product must be protected under the *sui generis* system to qualify as a GI product.

Third, most countries in Africa fall within the third category. They do not have an operational GIs system or protection nationally. However, because most African countries are members of WTO and, as such, rely on the multilateral legal tools for the protection of GIs, especially article 1 of the TRIPS Agreement, which affords the WTO member states discretion on the protection options for origin-linked products, provided they are submissive with TRIPS. These options usually range from unfair competition to trademark law through specific regulation, consumer protection laws or passing-off laws.

African countries that do not yet have a domestic legal framework to protect GIs, usually have individuals, non-governmental organisations (NGOs) or associations championing the advocacy as a common interest cause to galvanise the necessary buy-in from relevant government and other stakeholders to establish appropriate legal conditions for GIs.

Table 2: List of African countries with GIs Extant Protection Law

Trademark	**Sui Generis**	**Legislative act**	**Standard labelling rule**
Kenya	Benin Republic	Morocco	Kenya
Egypt	Morocco		
Ethiopia	South Africa		
South Africa	Mozambique		
Morocco	Guinea		
	Tunisia		
	Algeria		
	Cameroon		

Source: Author's compilation, 2022

In addition, the conceptual frameworks for geographical indication have been designed to encapsulate all the processes, stakeholders, and economic actors in the entire supranational body and collective framework of GIs beyond the legal system. Not all economic operators involved in GIs value chains are automatically accepted in the collaborative association or organisation that uses the GIs label. However, this does not prevent other operators from freely choosing to join the official authorised group that oversees and uses the right to protect the GIs product, provided they meet the requirement of the authorised managing group within the local areas.

The conceptual framework of GIs shows the connection among producers, processors, and distributors, which guarantees the quality control of the product and maintains its reputation or characteristics that are linked to the product's origin territory. Local stakeholders, such as NGOs, research institutions, and government agencies, play a vital role in ensuring the market credibility and authenticity of GIs products. Many producers believe that joining the collaborative association offers significant advantages and simplifies certification procedures.

Furthermore, the nexus between international, national, and supernational regulators on GIs product certification, control and inspection activities and the cost, if any, has to be well defined under the framework. For example, who bears the cost for GIs product certification, what would be the validation duration of the GIs certification before the expiration and subsequent renewal application, and how consumers' expectations will be captured in the entire framework? In practice, consumers of GI products should be informed in the description section about the product's geographical origin and the quality or characteristics linked to its place of origin.

Case study on Mozambique GI protection approach

As a member of ARIPO, Mozambique enforces collective and certification marks for GIs protection and is the first ARIPO member state to have a GIs-registered product. The framework for GIs protection is captured in the Regulations on Appellations of Origin and Geographical Indications approved by Decree 21/2009 in 2009. Subsequently, a new Mozambique Industrial Property Code, approved by the Council of Ministers by Decree 47/2015 in 2015, came into force in 2016, providing a more comprehensive legislative framework for Appellation of Origin and Geographical Indications by highlighting more precise definitions, specifications, and requirements for GIs compliance (Update in new IP code (Decree 47 of 2015) in Mozambique, 2016). The agency responsible for the registration of GIs in Mozambique is the Industrial Property Institute, which manages and coordinates the registration and certification of GIs in the country.

4.2 Relationship between conceptual framework of gendered GIs, trade and Africa

The relationship between gendered GIs, trade, and Africa can be complex. However, GIs can be a useful tool for promoting gender-inclusive trade in Africa. They can help overcome some of the barriers women face in trade by enabling them to differentiate their products and add value, creating market opportunities for women's products, supporting the development of women's livelihoods and businesses, and empowering them to negotiate better prices and terms of trade.

The ability of a gendered GIs system to boost trade in agricultural products can give Africa a competitive advantage in global trade. Women play a critical role in Africa's traditional agricultural product value chains, which makes it imperative for African countries to implement strategies that focus on GIs valorisation to boost rural development, indigenous traditional knowledge and traditional products, which empowers women who are the drivers of deeper rural development processes.[17] In order for an African product to be registered under this legal model, it must already have a certain level of popularity and reputation among consumers as a quality product from a specific region. This means that African countries should establish regulations to effectively enforce the protection of geographical indications while promoting gender equality and inclusivity.

It is important to note that trade is an indispensable component of the economy, and gender equality has many implications for economic development. Most African countries still have a fragmented GIs system that does not link trade, gender, and policy to economic development. Without a well-established framework that addresses and connects gender-related trade issues at a national level, African countries will not be able to fully utilise the benefits of GIs on the continent. To harness these benefits, there needs to be a workable policy that creates sustainable incomes for rural women participating in GIs products' supply and demand value chains, including small processing units and petty traders.

However, recent discoveries reveal that several African countries have established some form of GIs systems that align with international protocols, which can be considered beneficial to their national interest, with the prospect of improvement.

17 S Bowen 'Development from within? The potential for geographical indications in the Global South. (2010) 13 *Journal of World Intellectual Property*: 231 - 252

Table 3: List of some selected registered GIs in Africa

S/N	Geographical Indication	Type of Product	Country of Origin	Legal Protection
1	Ain-bessem-bouira	Wines	DZ Algeria	*Sui Generis*
2	Amande d'Aknoul	Food Products / Fruits,	MA Morocco	*Sui Generis*
3	Ananas Pain de Sucre du plateau d'Allada	Food Products / Fruits,	BJ Benin (OAPI)	*Sui Generis*
4	Argan	Food Products / Vegetal oils and fats	MA Morocco	*Sui Generis*
5	Belle de Guinée	Food Products / Fruits	GN Guinea (OAPI)	Trademark
6	Bouhezza	Food Products / Cheese	DZ Algeria	S*Sui Generis*
7	Breedekloof	Wines	ZA South Africa	*Sui Generis*
8	Cabrito de Tete	Food Products / Fresh animal products / Goat	MZ Mozambique	*Sui Generis*
9	Café Ziama Macenta	Food Products / Coffee	GN Guinea (OAPI)	*Sui Generis*
10	Cederberg	Wines	ZA South Africa	*Sui Generis*
11	Central Orange River / Sentraal Oranjerivier	Wines	ZA South Africa	*Sui Generis*

12	Coffee Kenya	Food Products / Coffee	KE Kenya	Trademark
13	Coteaux de Tebourba	Wines	TN Tunisia	*Sui Generis*
14	Coteaux de Tlemcen	Wines	DZ Algeria	*Sui Generis*
15	Egyptian Cotton	Non-Food Products / Vegetal-based fibres and textile / Cotton	EG Egypt	Trademark
16	Fig of Matrouh	Food Products / Fruits	EG Egypt	Trademark
17	Huile d'olive de Teboursouk	Food Products / Vegetal oils and fats / Olive oil	TN Tunisia	*Sui Generis*
18	Kenya Tea	Food Products / Tea and other infusions	KE Kenya	Standards and labelling rules
19	Menthe « El Ferch »	Food Products / Others / Rosemary dried leaves	TN Tunisia	*Sui Generis*
20	Monts du Tessala	Wines	DZ Algeria	*Sui Generis*
21	Muscat de Thibar	Wines	TN Tunisia	*Sui Generis*
22	Oku White Honey / Miel Blanc d'Oku	Food Products / Honey	CM Cameroon (OAPI)	*Sui Generis*

23	Olive Oil of Matrouh	Food Products / Vegetal oils and fats / Olive oil	EG Egypt	Trademark
24	Poivre de Penja	Food Products / Others / Pepper	CM Cameroon (OAPI)	*Sui Generis*
25	Pomme de Sbiba	Food Products / Fruits	TN Tunisia	*Sui Generis*
26	Sidamo coffee	Food Products / Coffee	ET Ethiopia	Trademark
27	Sidi Salem	Wines	TN Tunisia	*Sui Generis*
28	Taita Basket	Non-Food Products	KE Kenya	Trademark
29	Violet du Galmi	Food Products / Fruits	NE Niger (OAPI)	Trademark
30	Yirgacheffee coffee, Sidamo coffee and Harra coffee	Food Products / Coffee	ET Ethiopia	Trademark

Source: Author/AITCR gathered from diverse sources, 2022

5 Analysis of Africa's continental GIs strategy

One of the African Union (AU) Agenda 2063's top priorities is promoting trade within Africa.

Africa is endowed with some of the finest unique traditional agriculture and handicraft products that contribute to the world's economic, social and environmental advancement,[18] but the owners of the products have not protected them.

18 World Development Report (2012). https://elibrary.worldbank.org/doi/10.1596/978-0-8213-8810-5 accessed 18 April 2021.

The Continental Strategy for Geographic Indications in Africa (2018-2023)[19] is formulated to facilitate sustainable rural development in line with the vision of African leaders of a prosperous Africa based on inclusive growth and sustainable development. The Africa Continental GI strategy was designed in cognisance of the Comprehensive Africa Agriculture Development Programme (CAADP) as enshrined in the aspiration of the AU's Agenda 2063 of *'*a Shared Strategic Framework for Inclusive Growth and Sustainable Development'*,* which was adopted by the 24th African Union Assembly in 2015 as a continental plan for the next 50 years (Agenda 2063 framework document, 2015; Africa Union, 2018).

The strategy is based on the following key pillars:

- Awareness and capacity building: The strategy aims to raise awareness of GIs and build the capacity of African stakeholders to register and manage GIs.
- Legal and regulatory harmonisation: The strategy aims to harmonise GI laws and regulations across Africa to create a more supportive environment for the use of GIs.
- Promotion and marketing: The strategy aims to promote and market GI-protected products in domestic and international markets.
- Partnership and collaboration: The strategy recognises the importance of partnerships and collaboration to achieve its goals.

By all indications, the continental strategy for GIs in Africa is currently being implemented and will continue to be beneficial to rural women through the African Continental Free Trade Area (AfCFTA), with the operationalisation of the AfCFTA Agreement that came into force on 1 January 2021. The operationalisation of the Agreement represents the commitment of African leaders to consolidate Africa's collective prosperity through integrating the economy of African countries into 'one' market where 'made-in-Africa' goods and services are easily traded with no technical and non-technical barriers to trade among State Parties. The phase II negotiation of the AfCFTA Protocol on Intellectual Property Rights (IPRs) addresses the issue of GIs. The Protocol to the Agreement establishing the AfCFTA on IPRs applies to all categories of intellectual property, including geographical indications and other emerging issues. Article 9 of the AfCFTA IPRs protocol explicitly states that State Parties shall protect GIs through sui generis systems. However, the Protocol

19 Africa Union Department of Rural Economy and Agriculture (2018) Continental Strategy for Geographical Indications in Africa, (2018-2023), https://au.int/en/documents/20190214/continental-strategy-geographical-indications-africa-2018-2023 accessed 4 May 2021.

also encourage State Parties to provide additional legal means, including certification marks, collective marks or unfair competition laws to protect African GI products.

As part of the IPRs Protocol, the AfCFTA Secretariat will create a database and information portal for registered African geographical indication products. This is in line with the implementation of the continental strategy for GIs in Africa, which aims to boost trade volumes of GI products and ensure that local producers and owners of exportable GI products receive the maximum benefits for their cross-border trade. In addition, the central database of registered African GI products addresses the issue of information asymmetries in Africa, which has negatively impacted the trade of authentic African-origin goods and services in the past.

Moreso, protecting, managing sustainably, and creating market access for African GI products is crucial to combat poverty among women and rural underdevelopment. The continental strategy for GIs in Africa underlines the need for a comprehensive approach to address these various issues and how to create new opportunities for African producers. Also, the strategy document presents a guide on how to overcome challenges such as a lack of regulatory or legislative framework, inadequate awareness among stakeholders about the benefits of GIs protection, and lack of coordination among the relevant agencies and organisations responsible for developing GIs in Africa.

The continental strategy work in tandem with regional and national institution on GIs. These include the African Intellectual Property Organisation (OAPI), the African Regional Intellectual Property Organisation (ARIPO), the regional economic communities (RECs); individual AU member states, and other relevant stakeholders. The regional intergovernmental IP institutions should implement programmes that will encourage the development of Africa GI food and non-food products that can empower women's participation in trade and preserve traditional knowledge while promoting product export.

Regional organisations in Africa have been seeking to protect GIs under their existing intellectual property systems for a long time but with no concrete outcomes until the operationalisation of the Africa Continental GIs Strategy. For example, the African Intellectual Property Organisation (OAPI) and the African Regional Intellectual Property Organisation are the leading inter-governmental IP administrators in Africa that have consistently advocated GIs at the regional level. However, OAPI, for instance, established a legal framework for IP in the 1977 Bangui

Agreement, revised in 1999, to include GIs as one area of concern. In 2005, during the Ministerial Conference in Ouagadougou, Burkina Faso, OAPI initiated an action plan to establish national committees for GIs in each OAPI member country and GIs focal points in each ministry of agriculture in every member state to facilitate the process of selecting a product that will serve as a pilot project. This declaration was adopted at the conference. However, there has not been a tangible outcome since 2005 that revolutionalise the GIs system in OAPI member nations.

At the national level, some African countries have established some form of protection for GIs outside OAPI and ARIPO structures. These countries are not signatories or members of any African intergovernmental IPR institutions. These national legislations on GIs conform with the provisions of the WTO's TRIPS Agreement; others do not, nor do they fully guarantee the special kind of protection required for GIs, especially the GIs products that have more women working within the value chains. The GI system in force in most African countries has not satisfactorily gendered concerns by making adequate provisions for gendered inclusivity in the laws. Specifically, the gender role and participation in the value chains of most potential GIs or substantive GIs products can disproportionately impact both genders. These disparate impacts and positions require proper attention and consideration, especially in ensuring that women and men are given equal opportunities to benefit from GIs systems.

Nevertheless, the continental GIs strategy has been put into action through an extensive Action Plan that offers a clear overview of the agricultural, rural development, and environmental management context. This plan aimed at reducing gender gaps and enhancing Africa's intellectual property systems. African women entrepreneurs face significant obstacles due to societal norms that prioritise women as 'home builders' and 'housewives.' This gender disparity puts women at a disadvantage in terms of wealth creation and growth. To address this challenge, the plan includes a provision for rural women who play a vital role in supporting their families through SME ventures in GIs value chains. These women rely solely on their business activities within the GIs product value chains to support themselves and their dependents because societal norms consider them to be only home builders.

Additionally, the action plan is expected to produce an efficient GIs system at the continental level and support the national/regional systems to avoid misappropriation and genericity of domestic GIs, and curb the infringement of many IPRs and origin-linked products that focus on rural women, who are often the most vulnerable due to a lack of formal education and reliance on their male counterparts for their livelihood.

Women's ability to acquire assets and wealth is generally dependent on whether institutions allow them to own and be in charge of their intellectual property assets or benefit from their technical know-how. In some African communities, women have been forbidden from monetising their traditional intellectual property rights inherited from past generations. Additionally, rural women often lack training and information to increase their capacity to access local buyers and the international market.

Although government and NGO training and capacity-building programs often target rural producers/farmers, particularly those operating within possible GIs value chains, many rural women have yet to maximise the benefit from the impact of the training. It is crucial to prioritise policies that support rural women in acquiring assets and engaging in the market to promote their economic growth. Women who have greater control over their traditional resources, including intellectual property rights assets, have the potential to improve food security. For African women, the protection and promotion of GIs can be considered a tool to promote women-led agricultural value chains due to their critical role in producing, processing and marketing many GI and potential GI products in their localities.

Finally, suppose policies are put in place to give rural women involved in the GIs production value chain control over their traditional knowledge as an intellectual property asset. In that case, the result can lead to higher income. This will allow them to overcome poverty and have greater control over household decisions that benefit them and their families.

6 Is product differentiation crucial to Africa?

GIs are a valuable tool in distinguishing similar products in the market. They are especially useful in international trade, helping consumers identify and associate a specific geographic area with an authentic product. GIs are especially important for women producing traditional African products, as they promote rural development, support commercial interests, and preserve local values.[20] The African continent is rich in such products, most of which are produced by women. The GI system could greatly benefit them, linking their products - food or non-food items - to a particular country or territory name in the global market. Unfortunately, African products are often treated as mere commodities compared to similar products from other regions, making it difficult for African women to compete.

20 CC Hinrichs 'The practice and politics of food system localisation' (2003) 19 *Journal of Rural Studies* 33-45.

Conversely, the neglect of traditional African products has resulted in them becoming generic commodities susceptible to international price fluctuations. This has adversely affected the income of rural African women, resulting in increased gender inequality, widespread poverty, and reduced external revenue for African countries. To tackle this issue, GIs can be used as a tool for product differentiation, taking away the power of price speculation and giving control of prices back to African producers. This will protect the intellectual property rights of rural women and prevent fluctuations in international prices for African GI products, which do not recognise the nuances of production sources.

An excellent example of this strategy is the use of trademarks by the Ethiopian Intellectual Property Office to protect and market three famous coffee brands named after the regions of Harrar/Harar, Sidamo, and Yirgacheffe. According to the Global Agriculture Information Network (GAIN) Report ET1904 of 29 May 2019, Ethiopia exports coffee to over 60 countries, with Germany being the principal export market at 22 per cent. Other significant markets include Saudi Arabia, the United States of America, Belgium, Sudan and Italy. Adekunle[21] affirms that trademarks for Yirgacheffe, Harrar/Harar and Sidamo coffee are registered in the US, EU, Canada, Australia, Japan and a few other countries.

The use of GIs has created a niche and specialised market for products, reducing their dependence on international pricing systems and making them more competitive against other market pricing crises. GIs agreements offer protection against unauthorised use of product names. Employing the GIs system for product differentiation can have different impacts depending on the product, but generally, it can have the following effects, including on transnational trade:

(i) enhanced reputation resulting from the GI recognition;
(ii) increase in quantities sold;
(iii) increase in consumer willingness to pay more;
(iv) increase in the final price and prices paid to producers;
(v) increase in producers' incomes;
(vi) reduction in both production and transaction costs;
(vii) quality improvement;
(viii) increase in product traceability.

21 B Adekunle 'Economics of intellectual property rights. Entrepreneurship and intellectnomics' series (Virtual and Global): Intellectnomics Research Group (IRG) and ECVOntraio, University of Guelph, 15 January 2022.

Case study on goat differentiation: Cabrito de Tete (Tete goat)

In 2020, the 'Tete goat' from the Mozambican goat market was granted GI certification under the Industrial Property System in Mozambique. This goat breed is unique to the Tete province of Mozambique and has a population of approximately 300,000 animals. The Tete goat is subject to strict standards and regulations for breeding and processing. Since achieving GI recognition, there has been a rise in the goat population due to increasing interest in its production. This has allowed producers within the value chain to sell at higher prices in local and international markets, resulting in increased income.

The European Office of Intellectual Property (EUIPO) and Africa Intellectual Property Rights & Innovation (AfrIPI) provided support for the GI registration of Cabrito de Tete. AfrIPI offered technical and logistical aid for the commercial testing, which included two training sessions for the local producers.

The economic impact of differentiating traditional African products through GI directly affects the development of rural women and sociocultural issues. This is because it helps to maintain their economic activities, increase production, and create employment opportunities for women and young people in rural areas. As a result, they and their families have better prospects for livelihoods. The case study highlights the importance of differentiation, which has established Tete goat as a well-known global brand based on the unique attributes of the goat. However, accessing international markets is challenging for African producers, particularly those led by women. By employing a GIs differentiation strategy, the Tete goat and its associated products can expand their market reach and protect women involved in the Tete goat value chain from unfair competition from imported goats. Additionally, it promotes the economic activities and local distribution of value-added products.

In order for women to benefit from product differentiation through GIs, governments must take proactive steps in developing a national policy that identifies the strengths, weaknesses, opportunities and threats of the target product. This information will inform the policy design. Additionally, it is important to create synergy with Africa's GIs product differentiation strategy and comply with other voluntary standards such as fair trade, organic, and certification marks. These labels are highly sought after in the international market. However, obtaining these certifications

can be expensive for women producers in rural communities. Therefore, government policies should include subsidies to help cover the cost of obtaining these voluntary certificates. These certifications will help to consolidate product differentiation and respond to the needs of different buyer groups, allowing for broader market segments to be reached.

Furthermore, it can be challenging for rural women to mobilise and invest the necessary financial and human resources that will differentiate traditional African products from similar products from other jurisdictions. Cultural limitations, as mentioned earlier, can make this process difficult. Additionally, commercial banks are often hesitant to provide loans at the beginning of such initiatives. Technical assistance and legal approval are crucial in defining criteria and developing specifications standards. However, implementation can be challenging, requiring external entities to offer technical training or consulting services.[22] National governments, therefore, can facilitate this process by promoting gender-based community businesses, improving access to finance, supporting SMEs, making it easier to do business, investing in infrastructure, deploying technology, and reducing corruption by promoting transparency.

7 Gender and value addition to Africa's traditional products

In Africa, traditional products such as agricultural goods, artwork, textiles, and handicrafts are unique to specific regions and often involve a significant number of women workers. Women's roles in these product value chains vary widely and are rapidly evolving due to economic and social changes, particularly in the agriculture, textiles, and handicraft sectors where women are prominent. Despite Africa having the highest number of female entrepreneurs in the world, according to the Global Entrepreneurship Monitor,[23] women in Africa generally lag behind in maximising some economic, social and political leverage that African traditional products give industry actors. In a regular African rural setting where traditional products originate, women often are very much involved while at the same time managing complex households. This affects their ability to add value to traditional products and adapt to changing

22 J-M Chappuis & P Sans 'Actor coordination: Governance structures and institutions in supply chains of protected designations of origin' in B Sylvander, D Barjolle & F Arfini *The socio-economics of origin labelled products in agri-food supply chains: Spatial, institutional and co-ordination aspects* (2000) 51-66.

23 Global Entrepreneurship Monitor 2013 Global Report, https://www.researchgate.net/publication/264953640_Global_Entrepreneurship_Monitor_2013_Global_Report accessed 16 June 2021.

market trends or production processes, with a large proportion of women uneducated and poor.

For women to add value to and promote traditional products of local origin, particularly in the agro-industry sector and to conquer the domestic and international markets, it is important for them to add value to these products within the framework of GIs. The planned value-adding strategy must be able to promote and protect endangered African products of local origin against unfair competition and address the challenge of misappropriation of names by free-riders. The misappropriation transfers the economic benefits associated with the legitimate name to illegitimate actors. It also endangers women's welfare, limits their ability to grow their businesses and makes them less productive.

Case study: Moroccan argan oil

Argan oil is a unique product that originated in Morocco and gained national recognition as a GI in 2009. It is highly sought after for its culinary, skincare, cosmetic and medicinal benefits, which has led to an increase in demand and a higher price in the global market. Ever since achieving GI certification, exports of Argan oil have grown significantly, with over 80% of the oil being exported. However, prior to certification, Moroccan Berber women who produced the oil derived minimal benefits. Additionally, there were instances where inferior products, mixed with other vegetable oils, were marketed under the name 'Argan', which led to misuse and damage to the oil's reputation. Such practice may eventually cause a loss of market and business for Argan oil.

Consumers are willing to pay more for GI products, not just for the product itself, but for the added value and assurance of quality that comes with legal protection. Women producers can attract consumers with higher incomes who are interested in unique products by adding value to their GI products. These consumers are not necessarily eating more; instead, they seek different types of food and are willing to pay a premium for them. By adding value to GI products, women producers gain an advantage in overcoming unfair competition. This is because they must maintain the unique quality attributes that are linked to the production process and supply chain's operational characteristics, which are specific to certain geographical origins or other quality attributes.[24]

24 AMR Fadinaa & D Barjolle 'Geographical indications to enhance the value chain of agricultural and agri-food products in Benin: Sugar loaf pineapple and Wagashi

It is important to recognise that local products with traditional origins are not common agricultural items but premium products. These products have a unique quality that has been passed down through generations of women's traditional knowledge. The GI seal authenticates the products and allows consumers to identify them as being linked to a specific geographic location. This helps position the products across various markets that accommodate premium brands rather than inexpensive and less sophisticated alternatives that do not carry the label. Registering the product as a GI also protects it from counterfeit imitations.

Most of the GI's products have historical antecedents and a connection to the land. For instance, Southeast Nigeria's traditional salt-making industry has been around for over 200 years. Some local women producers have decided to revive this traditional method of making raw natural and organic Okposi and Uburu salt in the twenty-first-century economy, differentiating their salt from others. They aim to add value to the presentation and packaging of the salt while maintaining the traditional method of mining and processing. The leader of the women's association believes that adding value to the local salt will increase its market value and the willingness of buyers to pay a premium for it. It is worth noting that the production and processing of Okposi and Uburu salt and other unique African traditional products often play a significant role in rural development and are centred around women.

Origin-linked products that are recognised and popular within the domestic economy benefit from the reputation of expanding to other markets. This attracts tourists and visitors to the area, and local stakeholders and businesses in the value chain, including travel and tour companies, museums, hotels and restaurants, cultural associations, environmental associations, and scientific institutions, also benefit.

7.1 Women participation in shea butter value chain

In the West African savanna, there is a vegetable fat known as shea butter from the shea tree. The local people call it Ori or karité. Although it is widely used in the cosmetic, food and beverage, and pharmaceutical industries, it has not yet been officially recognised as a GI product. Women are largely responsible for controlling the production of shea butter. If recognised as a GI product, the potential benefits could be enormous due to the ripple

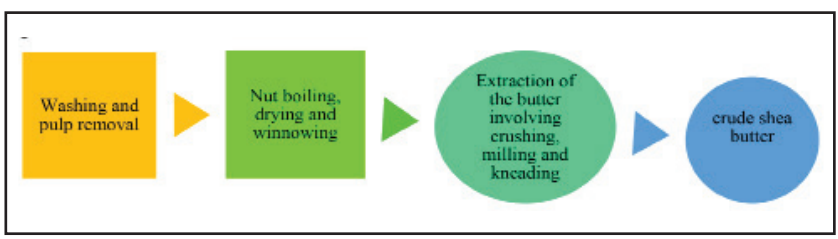
case' 13th European International Farming Systems Association (IFSA) Symposium, Farming systems: facing uncertainties and enhancing opportunities, 1-5 July 2018, Chania, Crete, Greece. International Farming Systems Association (IFSA) Europe, 2018, http://ifsa.boku.ac.at/cms/fileadmin/Proceeding2018/Theme5_Fadina.pdf/ accessed 4 July 2021.

effect. The global demand for African shea butter and its derivatives is on the rise due to growing interest in the butter as a 'natural' product for the cosmetic industry.[25] Many women in Benin, Nigeria, Ghana and other West African countries are involved in the production of shea butter, which is primarily exported. In fact, more than 28,000 women are active in the shea butter value chains in the Republic of Benin alone, while in Nigeria, it is estimated that over 10 million women work in the industry. Across Africa, it is estimated that more than 16 million women work in producing and processing shea butter, with African shea butter serving as a vital source of income for many. The extraction of shea butter involves various methods, but the traditional techniques passed down from mother to daughter are an important aspect of the cultural heritage surrounding this industry.[26] Notably, most aggregators and buyers of shea butter are women, except for the export segment, which is men-dominated.

Preparation and processing

(i) The fruits are not harvested by plucking.
(ii) They are allowed to drop, then picked and collected mainly by women.
(iii) The fruits are hand-picked or gathered regularly, at least two times a week.
(iv) This is to prevent its germination or deterioration and to ensure that insects do not attack the fruit.
(v) The immature, unripe and rotten/decayed nuts are not collected.

Figure 1: Shea butter extraction method



25 M Elias & J Carney 'African shea butter: A feminised subsidy from nature' (2007) 77 *Africa* 37-62.

26 E Ekong 'Gender Implications of Geographical Indications for Ghanaian Shea Butter' (2019).

Application and usage

(i) The indigenous people regard the shea tree as a gift from nature.
(ii) The shea tree also serves as a source of timber.
(iii) The pulp around the seed is edible.
(iv) Shea butter is used as cooking oil, which is considered very healthy.
(v) The shea butter is very nourishing to the body and the skin. It is very soft and smooth.
(vi) It also has pharmaceutical or medicinal uses.

Economic use

(i) The shea nut and the shea butter are traded in, both locally and internationally.
(ii) The nuts are purchased and transported to countries in Asia, Europe and America.
(iii) It is used as shea butter, shea cake, and so forth.
(iv) It is also used as a substitute for cocoa butter in the confectionery and chocolate industries.
(v) Another use is in the cosmetic industry.

7.2 Women's participation in the Adire cloth value chain

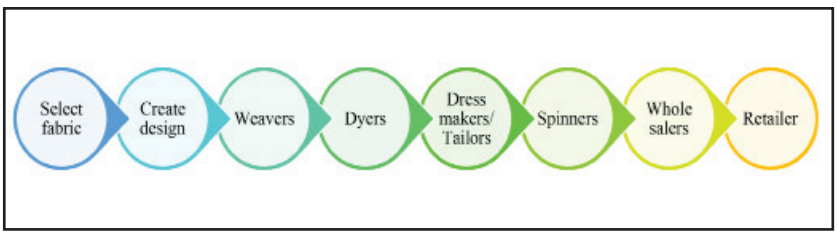
In Nigeria, the term 'Adire' is used to refer to the 'tie and dye' technique that creates beautiful patterned designs in a wide range of colours. This traditional Yoruba art form involves using wax-resist methods to produce stunning African-inspired designs. In Nigeria, the production of Adire is popular among the Egba women entrepreneurs in Nigeria's southwest region. Historically, the export of Adire fabric was facilitated by the formation of Adire makers' associations in different parts of Yorubaland, which came about due to the challenges faced by Adire makers in Abeokuta during the 1920s. The first female Adire merchant in Abeokuta was Jojolola Soetan, who died in 1932.[27] Since her death, the practice has become a significant part of entrepreneurial life among Egba women to date.

Adire clothing is produced by women in Nigeria who not only support themselves and their families but also contribute to the country's foreign exchange earnings. Despite meeting all the requirements to be classified as a GI product, Adire has yet to obtain recognition due to the absence of legal or regulatory frameworks in Nigeria. The value chain has expanded

27 'Nigerian women "dyeing" to boost Nigeria's forex earnings' *Premium Times* (9 July 2021), https://www.premiumtimesng.com/features-and-interviews/472443-nigerian-women-dyeing-to-boost-nigerias-forex-earnings.html (accessed 17 August 2021).

over time, generating employment for numerous women, including dyers and decorators. Women predominantly work in various aspects of the value chain, such as Adire Oniko, Adire Eleko, Adire Alabere, and Adire Batani, which all feature unique designs and creative patterns. While men also participate in logistics, women play a more significant role in this industry.

Figure 2: Adire cloth value chain



Source: Africa International Trade Commerce Research, 2021

Adire-making is a complex process that involves selecting the right fabric, creating unique designs and patterns, weaving, dyeing, dressmaking, tailoring, spinning, canning, and selling. In Yoruba culture, women are usually not involved in labour-intensive tasks, but today, there are five categories of people who participate in the Adire trade: producers, artists-in-residence, designers, wholesalers, and retailers. Producers are merchants with the financial capacity to purchase bulk quantities of processing materials, including clothes, caustic soda, and synthetic dyes, for retail trading.

It is interesting to note that there are no designated industrial estates or parks for Adire making in cities such as Abeokuta, Osogbo, Ilorin, and Lagos. Instead, women typically use shops in front of their homes, open spaces, and sidewalks to conduct their trade. Some homeowners even convert parts of their houses into cottage businesses.

7.3 Women in GI value chain and rooibos tea in South Africa

The Western Cape province of South Africa is best known for its winelands but is also home to the indigenous rooibos ('redbush') plant. For centuries, the local communities in the Cederberg region,[28] in the northwestern territory of Cape Town, the inhabitants have long been utilising the leaves

28 Agriculture: Opportunities in agro-processing | Ivili Loboya. http://ivili.co.za/2017/08/23/agriculture-opportunities-in-agro-processing/. accessed 19 August 2021.

of a particular shrub to create the widely-favoured local beverage known as rooibos tea.[29]

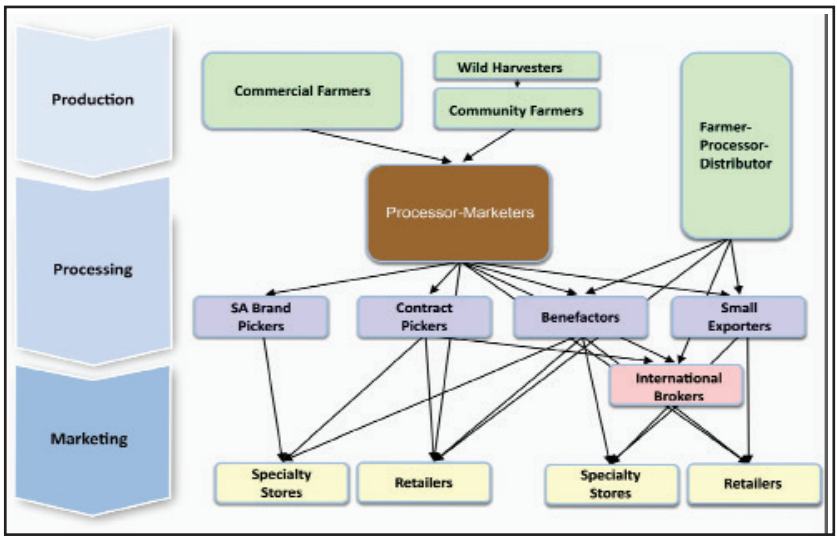
This tea is a delicious and unique option that is caffeine-free and rich in antioxidants, making it a healthy and enjoyable choice. It is commonly known as red bush tea or *aspalathus linearis*; rooibos tea is exclusively produced in the Cederberg and nearby mountains of South Africa. Rooibos tea has earned international recognition for its many health benefits and has been granted a protected designation of origin by the EU.[30] The iconic tea is the first African product to receive such status in the EU and the fortieth from non-EU countries.

According to a report by the Rooibos Council, the rooibos industry is already the largest employer of people from rural provinces in South Africa. More than 8,000 farm labourers, many of them women in the supply chain, are given direct income and employment through processing, packaging, and retailing. With increased production and international sales, this trend is likely to continue. There is an untold story of women's influence in tea commerce that has shaped the sector into what it is today. One South African woman, Annique Theron, propelled rooibos to the top of the global tea charts when she made an unexpected discovery.

29 Agriculture | Inspiring New Ways | BBC Story Works, https://www.bbc.com/storyworks/inspiring-new-ways/agriculture (accessed 22 June 2022).

30 E Bonadio & M Contardi 'Rooibos tea: EU protection is good news for South African agriculture' *The Conversation*, https://theconversation.com/rooibos-tea-eu-protection-is-good-news-for-south-african-agriculture-163502 (accessed 17 August 2021).

Figure 3: Rooibos tea value chain



Source: Rooibos Tea Value Chain[31]

Production: There are approximately 450 commercial rooibos farmers in South Africa. There are roughly 150 small-scale farmers, the majority women-owned, who are either independent or belong to cooperatives based in the communities in which they live. The two major tea cooperatives are Heiveld and Wupperthal. The production of rooibos tea increased from 4,293 tons in 1993 to as high as 18,000 tons in 2008, then declined from 2010.[32]

The two major cooperatives process about two-thirds of the farmer's delivery, which claims about 70 per cent of the global market share, exporting to more than 50 countries worldwide and has a contracted farmer base of more than 200 farms. It has an extensive product range and offers customised product development and various services, from packaging to flavouring and aroma.[33] As the dominant player in the industry, it emerged as the custodian of the rooibos name as the entire industry was threatened

31 https://erln.gtac.gov.za/attachments/article/311/Case%20Study%201_Rooibos_14%2011%2016.pdf. accessed 16 August 2021.

32 'Rooibos tea value chain: Lessons for policy and practice' 20 October 2016, http://erln.gtac.gov.za/attachments/article/311/Case%20Study%201_Rooibos_14%2011%2016.pdf.pdf accessed 16 August 2021.

33 HD Alwis (2014) WIPO/GEO/BKK/13/INF/4 page 2. 76. https://www.wipo.int/edocs/mdocs/geoind/en/wipo_geo_bkk_13/wipo_geo_bkk_13_inf_4.pdf. accessed 15 August 2021.

by the potential loss of the rooibos name on trademark grounds over the past two decades. Product innovation and extending the product line are also important. Examples include launching green or unfermented rooibos in 2003, including honeybush tea in the product line-up and producing extracts with a wide range of applications that commenced in 2011.

Marketing: In 2013, the top five countries that imported the most rooibos tea were Germany, The Netherlands, the United Kingdom, Japan, and the USA. These countries accounted for 84% of the total amount exported. As people become more concerned with living healthy lifestyles and ensuring fair production and trade, new systems for producing and marketing rooibos tea have emerged, diverging from the traditional capital-intensive agribusiness-style systems..

Apart from producing tea, the community of Heiveld also engages in another project where women from the Melkraal Women's League make cloth bags for tea packaging. The association was officially registered as an organic producer in 1999 and ensures organic production by incorporating animal manure and natural pesticides derived from a local plant called 'khakibos'.

8 Success of Kampot pepper, Cambodia: Lesson from an emerging economy

Kampot is a city known for pepper plantations for at least 1,000 years on the Preaek Tuek Chhu River in Southern Cambodia.[34] The World Bank classified Cambodia as a lower-middle-income country in 2016 based on constant and consistent economic growth over the last several years.[35] Considering that Cambodia became a significant producer of pepper and, in 2018, ranked as the world's fifth-largest producer, it can serve as a model of GI success in organised activities of women's associations for many emerging and developing economies in Africa.

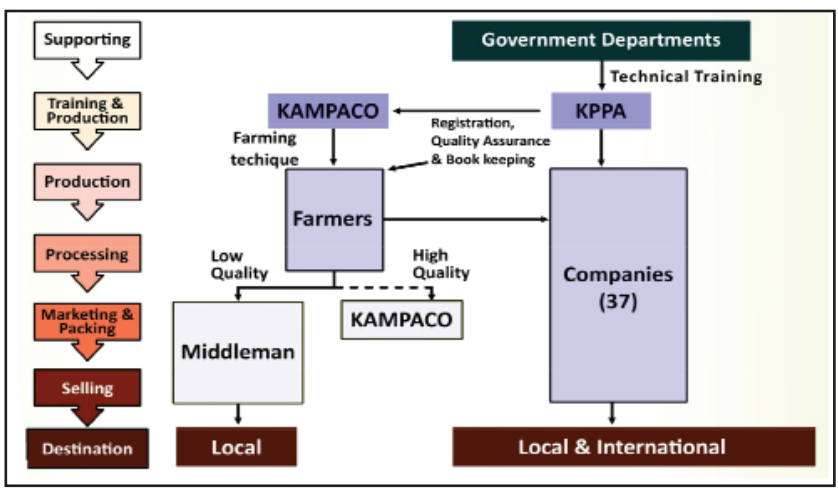
The world pepper market recognises Cambodia as one of the most important pepper suppliers with supreme quality and sustainable production. Cambodia's Kampot pepper has been linked to the top group of gourmet food items whose names are protected by the EU. The coveted

34 O Thomas 'A visit to a Cambodian pepper plantation' 9 May 2013, https://www.csmonitor.com/The-Culture/Food/Stir-It-Up/2013/0519/Travel-A-visit-to-a-Cambodian-pepper-plantation accessed 15 August 2021.

35 Y Lak 'Value chain analysis of memot pepper in Cambodia' (2018) 21 *Australasian Agribusiness Perspectives* 24-42, https://cpb-ap-se2.wpmucdn.com/blog.une.edu.au/dist/4/1340/files/2018/02/AAP-Vol-21-Paper-2-Youssey-1gak8ct.pdf. accessed 15 August 2021.

protected geographical indication designation, or PGI, means that any product sold in EU countries that is called 'Kampot pepper' must come from a designated region in Southern Cambodia, including Kampot and neighbouring Kep province.[36] The Kampot Pepper Association (KPPA) played a key role in the commercial success of a distinct pepper that naturally comes in four varieties: Black Pepper, Red Pepper, Green Pepper, and White Pepper. This success was achieved with the help of a local non-governmental organisation. To be entitled to produce and sell Kampot pepper, the producer, processor, packager, or seller must register with the association and be accredited. Declaration of volume produced is required for all members, as well as registration of transactions. The association allows anyone ready to meet the standard production regardless of gender to join. However, it is difficult to meet the production standard, which is justified by the very high premium price for the pepper that was previously sold for US $3 per kilogram and, after attaining the GI status, now costs US $18 per kilogram.

Figure 4: Kampot pepper value chain



Source: Overseas Fieldwork Report 2019 Kampot Province, Cambodia[37]

36 Kampot Province, Cambodia, https://www2.gsid.nagoya-u.ac.jp/blog/fieldwork/files/2020/03/20200330_OFW2019-Report.pdf accessed 18 August 2021.

37 Overseas Fieldwork Report 2019 Kampot Province, Cambodia, (2020), http://www2.gsid.nagoya-u.ac.jp/blog/fieldwork/files/2020/03/20200330_OFW2019-Report.pdf accessed 20 August 2021.

The KPPA has registered 450 households, mostly comprising women, along with 37 companies and a cooperative. Women are also found playing the middleman role in the low-quality pepper market, with pepper sorted by the farmers for not meeting GI specifications standards. These low-quality peppers are usually sold to local restaurants and local markets at a very low price. Surprisingly, the middleman has a strong network within Cambodia and neighbouring countries to sell low-value pepper.[38]

9 Conclusion and recommendation

The concept of GIs presents an excellent opportunity for African countries to address gendered trade disparities. It is noteworthy that most African countries are members of the WTO and rely on the multilateral system to safeguard GIs, as stated in Article 1 of the TRIPS Agreement. This Agreement provides various protection options, including unfair competition, trademark law, administrative means, and sui generis systems that would allow African countries to create frameworks suitable for their unique culture and trade capacity.

Africa's continental GI strategy holds great potential for preserving cultural heritage, boosting economic development, and enhancing market access for African traditional products. However, the success will depend on the effective implementation and collaboration that addresses various challenges associated with GI products in Africa. GIs refer to food and non-food products that have unique characteristics and reputations based on local traditions, environment, or distinctive attributes. In Africa, women play a vital role in GI product trade and value chains. However, obtaining certification for GI products does not guarantee sales success or increased demand. To gain market acceptance and visibility, it is crucial to have vibrant associations and marketing campaigns that focus on product differentiation, value addition, and women's roles. Adding Fairtrade and organic labels to GI products can also improve their international appeal. Tete goats are an excellent example of how GI differentiation strategies can increase market access, protect local women producers from unfair competition, and promote economic activities in rural areas. Value addition to traditional African products preserves cultural identities and enhances their quality and tourist attraction.

38 'Cambodian Kampot pepper, first geographical indication protected in the EU under the Geneva Act' (2021), https://agriculture.ec.europa.eu/news/cambodian-kampot-pepper-first-geographical-indication-protected-eu-under-geneva-act-2021-11-23_en accessed 20 August 2021.

Furthermore, women-owned businesses should be funded to improve the African economy, and African countries should adopt the sui generis GI system. Many African countries have a fragmented GI system that fails to link trade, gender, and policy to economic development to include market access that eliminates technical and non-technical barriers to gendered trade and gender equality. Achieving this requires special provisions in legal and regulatory framework and funding to increase women's participation in the African economy, particularly women in rural communities.

Finally, GIs can be an effective tool for increasing the competitiveness of locally-produced African products. However, without a conceptualised framework that addresses gendered trade issues at the national and continental levels, the benefits of GIs in Africa will remain elusive.

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5 Digital AfCFTA in incomplete contracts and bleeding trade contexts

*Gbadebo Odularu**

Abstract: Facilitating end-to-end trade digitalisation requires a thorough grasp of blockchain-powered information exchange across borders while fostering interoperability among multiple communities' commercial platforms. From both incomplete contracts and bleeding trade standpoints, this research digs into Africa's participation in continental trade experiments such as the AfCFTA, and how it posits an infinite spectrum of both complicated choices and opportunities. The research concludes that the bleeding phenomenon inherently embedded in Africa's digital trade landscape could be surmounted by deploying more radical trade-tech regulations.

Key words: bleeding free trade agreements; digital platform; Tradetech; blockchain; free trade agreements; regional trade agreements; African Continental Free Trade Agreements; trade facilitation; traceability; UNCITAL; MLETR

1 Introduction and the context

The rapid proliferation of digital platforms and the ubiquitous presence of algorithmic technologies have continued to distance trade from the physical value chain node, thereby intensifying uncompetitive economic practices among African businesses. Furthermore, the COVID-19 pandemic, and its adverse impact on trade, food, and health inequalities, are positing the critical role of digital trade and health laws among African communities. The COVID-19 pandemic has increasing exposed more Africans to endemically pre-existing inequalities, socioeconomic distortions, and political disorders. For instance, in 2013 to 2016 the

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Many thanks to the Forum for Agricultural Research in Africa (FARA), Ghana; Trade Policy Training Centre in Africa (TRAPCA), Tanzania; African Development Bank (AfDB); Korean Institute for International Economic Policy (KIEP), and United Nations Economic Commission for Africa (UNECA), Ethiopia; for the decade-long (2008-2020) opportunities granted to me to travel to selected African countries to experience and discuss cross-border trade facilitation issues.

Ebola crisis increased civil violence in West Africa by 40 per cent, while an International Monetary Fund (IMF) study on the effect of five pandemics, including Ebola, SARS and Zika, in 133 countries since 2001 shows that these led to a considerable increase in social unrest.[1]

Pandemics influence supply-side economics by adopting labour-saving technology. Consequently, employers prefer to limit the spread of disease, and robots do not fall ill. IMF research looks at a few recent outbreaks of diseases, including Ebola and SARS, and finds that 'pandemic events accelerate robot adoption, especially when the health impact is severe and is associated with a significant economic downturn'.

In Africa where big data, machine learning and artificial intelligence are still in their infancy, they are becoming increasingly crucial in how African trade, health, food, and other systems operate, thereby increasing need to deploy these innovations to drive trade facilitation innovations and other related positive socioeconomic impact. These data-driven insights can influence policy directions and reforms on public well-being as well as trade and economic development. For instance, the COVID-19 pandemic overwhelmingly shows that trade and transport play a strategic role in stemming and fighting the pandemic. As such, open trade in vaccine inputs and capital goods and efficient access to knowledge are crucial to quickly ramp up vaccine production, transportation, and distribution across and within African countries.

According to an International Trade Centre (ITC) survey on SMEs Competitiveness Outlook 2020, more than half of the firms recorded problems accessing production resources such as raw materials and equipment due to lockdowns in other countries. More specifically, these resulted in slower certification processes and salient logistics problems. The spread of COVID-19 has a devastating impact on traditionally managed businesses, leading to a growing level of concern among business owners. This has elicited mixed reactions by African and Global South business owners bordering on clear-cut strategies to protect their businesses in the wake of the COVID-19 pandemic. As of 18 November 2022, the number of confirmed COVID-19 cases in Africa reached 12 693 548, representing approximately 2 per cent of global infections.[2] Given this, South Africa was the most drastically affected country on the African continent, with

1 AG Buseh and others 'The Ebola epidemic in West Africa: Challenges, opportunities, and policy priority areas' (2015) 63 *Nursing Outlook* 30-40,. https://doi.org/10.1016/j.outlook.2014.12.013 (accessed 1 May 2021)

2 Statista (2022), Coronavirus cases by country in Africa 2022 | Statista (accessed 1 May 2022)

more than 1,24 million infections. As the most severely affected country, the South African government has been saddled with the arduous tasks of strengthening businesses in response to the adverse effects of COVID-19 pandemic-related macro-economic shocks.

However, the high costs of transporting physical goods, slow and undependable custom processes, and poor regulatory systems continually undermine Africa's intraregional trade and SMEs' survival. For instance, only 11,2 per cent of African SMEs' quality certifications are internationally recognised, while only 18 per cent of new exporters survive for three years. As such, regulatory policies should be implemented for the removal of these bottlenecks to facilitate cross-border e-commerce, such as the online creation of businesses, international e-payments, cross-border deliveries, aftersales services, and standards and certification.[3],[4] Consequently, enterprises, industries, and countries are investing in digitalisation tools and capacities as strategic priorities. Thus, the multilateral business landscape is gradually evolving into a strengthened network of electronic commerce-related parastatals, driven by a collective vision that rallies its stakeholders towards mobilising technical, digital, and financial resources for global competitiveness, digitalisation, servicification, and economic diversification agendas. As the COVID-19 pandemic evolves and Africa overwhelmingly accesses data via wireless networks, digital platforms have been playing an indispensable role in bringing businesses back better. An extant literature review also shows that digital trade could enhance Africa's socio-economic recovery capacities if it expands consumption, investment, and technological frontiers. For instance, the use of cellular phones for text messaging and mobile money has had tremendous development impacts, even without much broadband internet access. Invariably, access to broadband internet, combined with smartphone ownership, empowers an individual's capacity to use data for a better life, such as connecting with family and friends, accessing government services, online shopping, and reaching educational platforms, thereby tackling digital inequity related community challenges. In addition, social distance and lockdown enforcement policies have resulted in an unprecedented expansion in digital streaming, which includes exercise, shopping, education, video

3 McKinsey & Company 'How the COVID-19 crisis may affect electronic payments in Africa' (2020), https://www.mckinsey.com/~/media/McKinsey/Industries/Financial%20Services/Our%20Insights/How%20the%20COVID%2019%20crisis%20may%20affect%20electronic%20payments%20in%20Africa/How-the-COVID-19-crisis-may-affect-electronic%20payments-in-Africa.pdf (accessed 5 May 2021)

4 International Trade Centre (ITC) 'COVID-19: The great lockdown and its impact on small businesses' (2020) SME Competitiveness Outlook Report, 2020, https://www.intracen.org/SMEOutlook/ (accessed 30 May 2021)

conferencing, and related EdTech/fintech services. There are high-cost implications for government agencies, as enforcers and private operators are required to comply with those regulations.

The increasing attraction of African governments to digital trade, smart trade agreements, digital trade agreements, free trade agreements, digital platform competition, privacy regulations, cybersecurity, and data protection motivate this chapter. We adopt descriptive statistical techniques, qualitative approach as well as doctrinal research to analyse the *status quo* on Africa's continental free trade agreements responsiveness to digital markets contracts, the continental preparedness for data protection and interoperability as the core drivers of the future of trade facilitation innovation.The doctrinal research approach to this study focuses on a review of the relevant literature on the theories and economics of CFTAs.

2 Motivation, problem statement, structure and research methodology

How digital trade and platform technologies have diffused throughout the African economy has been an intensive research arena. In addition, these platforms are increasingly being scrutinized by regulatory authorities such that the past two decades have witnessed how large digital platforms such as Amazon, Facebook, Google, Alibaba, JD, and Tencent have generated extraordinary amounts of revenue by matching users with advertisers, merchants, and content producers, thereby resulting in regulatory interventions like the California Privacy Rights (CPRA), and the European Union's General Data Protection Regulation (GDPR).

Fostering fair competition and overcoming bleeding[5] trade agreements require consumers' access to information about market possibilities in terms of best value and right quality. However, information overload and digital platforms anti-competition practices such as misleading pricing, drip pricing, and unfair contract terms undermine consumers' capacities to gain from trade. More specifically, end-to-end digital trade platforms and the use of TradeTech have the potential to reduce discrimination, while automated systems provide ample opportunities to perpetuate hidden bias. Based on this understanding, if machine learning (ML) algorithms overlook actors' strategic behaviour, policy prescriptions become increasingly incompatible with the original business goal and mission, especially in this digital age, where policy makers and mechanism designers largely deploy ML for decision making. Africa's trade facilitation

5 Bleeding is generated by nonlinear amplification of random socio-economic activities such that the outputs or outcomes do not change linearly.

policy concerns include how to robustify ML algorithms toward reducing inequality on digital platforms. Would nudging transparent behaviour facilitate trade and business on the platform? There currently are many studies that attempt to analyse the impact and predict the future of Africa's spaghetti of national and regional trade agreements. However, one of the recurring trade facilitation hurdles confronting Africa is driving and deriving favourable socio-economic outcomes as the continent 'gradually' invests its resources in digital trade programmes. Given this, this research presents a theoretically nuanced understanding of Africa's effective participation in continental trade facilitation initiatives such as the African Continental Free Trade Area (AfCFTA).

Based on this background, the research sheds some light on the question: How would Africa accelerate its intra-regional trade, while positioning digital trade at the forefront of artificial intelligence (AI) and learning to build an innovative digital trade-driven ecosystem? In providing answers to this question, this chapter introduces digitalisation's 5Ps concept in understanding the infinite opportunities across Africa's invisible borders. The chapter is outlined as follows: Part 1 introduces the chapter, while Part 2 presents the research motivation of the study, the problem statement, the research structure and the methodology. Part 3 expatiates on the micro-economics of contract design under uncertainty and its application to this research. Part 4 focuses on how deep and digitalised the AfCFTA is; part 5 presents the theory of digitalisation and symmetry of increasing free trade agreement (FTA) spaghettis; part 6 conceptualises 'bleeding trade' within a universe of possible FTAs; part 7 presents the relevance of platform economics, trade tech, device economics, and digitalisation 5Ps for enhancing Africa's data protection governance and cross border trade capacities; part 8 demonstrates the connectivity between digital trust, interoperability and equitable trade outcomes for Africa; and part 9 concludes the study with workable and desirable policy recommendations.

3 Micro-economics of contract design under uncertainty: Algorithmic game theory (AGT)

Emily Durkheim (1858-1917), the founder of modern sociology, observed that not everything in a contract is contractual because there are a few matters of interest to the parties, but which cannot be articulated in an enforceable contract.[6] Contracts in this context could be perceived as interest alignment to enable gain exploitation from the cooperation

6 N Mambrol 'The sociology of Emile Durkheim. Literary theory and criticism' (2015), https://literariness.org/2017/05/10/the-sociology-of-emile-durkheim/; and Compensation and Incentives in the Workplace (jstor.org) (accessed 16August 2021).

between two parties whose interests are not the same. One of the long-standing puzzles of trade and business transactions is why simple, suboptimal contracts are ubiquitous.[7] Consequently, the algorithmic lens provides three motivations: (i) it offers a language to analyse contract complexity; (ii) it puts forth alternatives to average-case or Bayesian analysis that emphasise robust solutions to economic design problems; and (iii) the popularisation of the use of approximation guarantees when optimal solutions are inappropriate.

Although algorithm-incentive interactions generate algorithmic mechanism design (AMD) and algorithmic contract design (ACD), this relationship also results in hidden preferences and hidden actions.[8] Contract theory has been at the root of microeconomic theory by attempting to answer a fundamental question – 'how to incentivise people to work' since the 1970s.[9] [10] [11] One of the pillars of the micro-economic theory of contract design answers the question of how to incentivise people to exert efforts.[12] For instance, as trade and e-commerce contracts become increasingly digitalised and grow in scale and complexity, sources of complexity in contract design could be subdivided into (i) multiple agents[13] and (ii) multiple actions.[14]

In a Stackelberg game scenario, a leader plays against a follower. The leader begins by choosing a mixed strategy over their action set, and the follower's best response is to choose the pure strategy that maximises their

7 G Carroll 'Robustness and linear contracts' (2015) 105 *American Economic Review* 536-563 2015 10.1257/aer.20131159 https://www.aeaweb.org/articles?id=10.1257/aer.20131159. According to Carroll, it probably is the great robustness of linear contracts that account for their popularity.

8 N Nisan & A Ronen 'Algorithmic mechanism design' (2001) 35 *Games and Economic Behaviour* 166-196, ISSN 0899-8256, https://doi.org/10.1006/game.1999.0790. (https://www.sciencedirect.com/science/article/pii/S089982569990790X) (accessed 16August 2021).

9 J Laffont & D Martimort *The theory of incentives: The Principal-Agent Model* (2002).

10 P Bolton & M Dewatripont *Contract theory* (2005).

11 B Salanie *The economics of contracts: A primer* (2005).

12 Although pioneered by Kenneth Arrow as one of the pillars of economic theories in the 1960s, contract theory was driven by Oliver Hart and Bengt R Holmstrom; the 2016 Nobel Memorial Prize in Economic Science was awarded to Oliver Hart and Bengt Holmstrom for their work in contract theory – developing a framework to understand agreements such as insurance contracts, employer-employee relationships, and property rights.

13 Y Emek & M Feldman 'Computing optimal contracts in combinatorial agencies' (2012) 452 *Theoretical Computer Science* 56-74.

14 P Dütting and others 'Combinatorial contracts' (2021). In Proc. IEEE FOCS 2021. 815-826.

utility. If the leader optimally chooses their mixed strategy, this results in a Stackelberg equilibrium of this game.[15] [16] [17]

How does contract design relate to the Stackelberg game? Contract design is a general Stackelberg game where the principal is the leader (their action is choosing a contract) while the agent is the follower. Technically, computing Stackelberg equilibrium in a Bayesian game requires reducing this to computing the optimal single contract in a principal-agent setting with types. Some insightful generalisations of contract design to Stackelberg games are evident in monopsonies such as labour unions or single-payer health care. As such, how should a monopsonistic buyer set prices and design mechanisms to buy possibly multidimensional goods from several sellers? In the same vein, how should a monopolistic seller set prices and design mechanisms to sell possibly multidimensional goods to several buyers?

It is not surprising that an increasing number of classic applications of the Stackelberg game and incomplete contracts are evident in Africa's online marketplaces[18] (digital platforms, e-commerce platforms, crowdsourcing platforms, freelancing websites, platforms for hiring specialists, supply chains, marketing, and other insurance). Based on the classic contract theory that modern and increasingly digitalised economies are held together by innumerable contracts,[19] this research takes an example from a simple contract setting in which the Jumia platform provides digital crowdsourcing e-commerce space for agents to provide their goods for sale, thereby promoting the e-commerce website. Thus, the agent acts, and the principal pays. The defining feature of this example is that the agent's actions are not directly observable and are characterised by limited liability. Other examples are freelancing platforms, where a task is outsourced to a freelancer, and a massive online course website, where

15 Conitzer 'On Stackelberg mixed strategies' (2016) stackelbergSYNTHESE.pdf (duke.edu) (accessed 16August 2021).

16 V Conitzer & T Sandholm 'Computing the optimal strategy to commit to' in Proceedings of the 7th ACM Conference on Economics and Computation (EC) (2006) 82-90.

17 A Blum and others 'Computing Stackelberg equilibria of large general-sum games' in D Fotakis & E Markakis (eds) *Algorithmic game theory. SAGT 2019. lecture notes in computer science* (2019), https://doi.org/10.1007/978-3-030-30473-7_12 (accessed 16August 2021).

18 For more issues on unfair trade among online marketplaces, see Ch 1 of this book – GO Odularu & C Checkwoti *Digital platforms, unfair trade, and computational competition* (2023).

19 The 2016 Nobel Prize Announcement states that 'modern economies are held together by innumerable contracts' – Laureates Oliver Hart and Bengt Holmstrom.

students get to learn. In both cases, an algorithmic approach is usefully applicable and timely based on early proofs of concepts on (Teams)[20] [21] and (crowd sourcing).[22] If we consider a contract setting with uncertain distributions and known expectations, $R_1, \ldots, R_n$, a linear contract *maximises* the expected revenue in the worst-case over distributions compatible with $R_1, \ldots, R_n$. Thus, when a case is doubtful, opting for a design agnostic to the unknown details is advisable. Due to incomplete contract settings and high transaction costs, not all specific investments appear in contracts, leading to underinvestment and calling for socially beneficial policy, which is a renegotiation of trade contracts.[23]

In the case of Jumia, as one of Africa's foremost digital crowdsourcing e-commerce hubs, it accepts commodities from agents to attract customers. Two defining features of such a contract (within and across national borders) include (i) agents' actions are hidden – moral hazard; and (ii) principal never charges (only pays) agent – limited liability.

4 Blockchain and trade: How deep, digitalised, and interoperable is AfCFTA?

Before 2020, digitalisation[24] and artificial intelligence were already well applied to selected sectors of the African economy, and it is projected that by 2040 digitalisation can transform Africa's job markets if public policies work for all.[25] As African countries experience increasing urbanisation and socio-economic transformation in the face of inadequate digital technologies and state fragilities, digitalisation accelerates more rapidly than the world average; the progress of digitalisation in African regions differs across national and subregional economies. More specifically,

20 M Babaioff and others 'Dynamic pricing with limited supply' (2015) 3 *ACM Trans on Economics and Computation* 4.

21 M Babaioff, M Feldman & N Nisan 'Combinatorial agency' in *7th ACM Conf on Electronic Commerce (EC)* (2006).

22 C Ho, A Slivkins & JW Vaughan 'Adaptive contract design for crowdsourcing markets: Bandit algorithms for repeated principal-agent problems' (2016) 55 *Journal of Artificial Intelligence Research* 317-359.

23 RH Coase 'The nature of the firm' (1937) 4 *Economica* 386-405, https://doi.org/10.1111/j.1468-0335.1937.tb00002.x (accessed 16August 2021).Of course, there are equilibria windows within Coasian dynamics if players or actors are patient.

24 According to the National Bureau of Economic Research (NBER) 2023 Summer Lecture, digitalisation and artificial intelligence increasingly cover the same topics, such as platforms, privacy, discrimination, bias, jobs opportunities, inequality, copywright, intellectual property, surveillance, etc.

25 AUC/OECD Africa's Development Dynamics Digital Transformation for Quality Jobs (2021). AUC, Addis Ababa/OECD Publishing, Paris, https://doi.org/10.1787/0a5c9314-en. (accessed 16 August 2021).

the digital gap between high and low-income African countries shows distinctly sharp differences when digitalisation is measured in the context of ICT accessibility and ICT utilisation indicators published by the International Telecommunication Union (ITU). The gap in mobile phone subscriptions between high and low-income African countries between 2000 and 2020 has decreased, while the number of internet servers (a good measurement of digitalisation) has widened between the two groups from 2010 to 2020.[26] Consequently, the degree of maximising digitalisation opportunities could be measured with the Networked Readiness Index of the World Economic Forum (WEF), which shows Africa's intercountry digital gap by income group in terms of the quality of ICT infrastructure utilisation and enterprises' ICT usage.[27] By implication, digitally leading countries focus on basic and applied research and talent attraction, while digital latecomer economies focus on public sector reform and infrastructure creation.[28] [29] [30] Promoting digitalisation policies and strategies across industries and sectors will enhance trade, investments, and socioeconomic transformation. Although there are inter and intracountry discrepancies, there are strong incentives to foster digitalisation to enhance trade tech interoperability, trade facilitation innovation, and economic competitiveness.

Blockchain is a distributed ledger (digital) technology that portends profound risks-mitigating impacts on trade. Blockchain and DLT bring immutability of information, thereby increasing the likelihood of trusted data. Blockchain and digitalisation in its entire sphere of sustainable development influence radically as it reshapes the delivery of trade tech and fintech services and gained tremendous momentum during the coronavirus era. In addition to fostering financial inclusion by facilitating trade and remittance flows, blockchain technology is accelerating access

26 For more discussion on how African countries' digital entrepreneurship indicators, see ch 7 of this book.

27 World Economic Forum 'Enabling trade: Valuing growth opportunities' (2013), http://reports.weforum.org/global-enabling-trade-2013 (accessed 21 February 2022).

28 KIEP 'The digital economy in Southeast and South Asia: Towards mutually beneficial cooperation with Korea' (2020) KIEP Opinion 177 - The Digital Economy in Southeast and South Asia: Towards Mutually Beneficial Cooperation with Korea | KIEP Opinions | Publications: Korea Institute for International Economic Policy.

29 JG Kim and others 'Digital platform markets of ASEAN and India: Implications for cooperation with Korea' (2021) KEIP World Economic Brief (WEB) 21-33 - Digital Platform Markets of ASEAN and India: Implications for Cooperation with Korea | World Economy Brief | Publications: Korea Institute for International Economic Policy (kiep.go.kr)

30 KY Lee 'New rules for the digital economy and multilateral cooperation' (2020) KIEP Opinion 182 - New rules for the digital economy and multilateral cooperation | KIEP Opinions | Publications: Korea Institute for International Economic Policy.

to financial commodities for the unbankable by making financial services cheaper, safer, and more transparent, as it gives control over identities and privacy. As the internet revolutionised the spread of information, digitalisation is radically reshaping the current and future of trade, financial services, and entrepreneurial opportunities, especially in the era of the COVID-19 pandemic.

Despite the rapid explosion of digital platforms and markets in Africa, trade facilitation and competition measures are critical to ensuring that African firms can participate effectively in digital-enabled trade. This fast-growing internet and digital economy include new economic activities driven by ICTs, big data, AI, blockchain technology, internet economics, and digital economics towards informing consumer behaviour, firm dynamics, and government supervision in a digital space. These digital platforms are expanding in the post-coronavirus African trade landscape, especially in five sectors (fintech, entertainment, e-commerce, education and health care).

(AfCFTA) is the world's largest global free trade area by country participation. The signing of the AfCFTA represents a turning point that happened due to some previously initiated FTAs in Africa. An interesting approach is to assess the before-and-after explanation of the AfCFTA from a positive or negative bleeding perspective. In other words, are the AfCFTA objectives desirable? What are the critical assumptions required before the AfCFTA vision is achieved, and if there are side effects? Furthermore, does a more efficient approach to realising AfCFTA objectives exist? In our world of spawning complexities and dynamics, all dots have dots of their own in the sense that unless one counts God, there is no uncaused cause.

AfCFTA's objectives include (i) consolidating Africa's continental trade area; (ii) removing tariffs on 90 per cent of commodities exported within Africa; (iii) fostering economic integration; (iv) generating sustainable jobs for African youths; and (v) driving Africa's industrialisation trajectory. The AfCFTA was launched as a model of cross-border cooperation in the middle of COVID-19, trade protectionism, national isolationism, health systems collapse, food insecurity, and increasing global digitalisation. Despite its vast potential to foster growth, raise welfare and stimulate industrialisation, most smaller and vulnerable countries are concerned that they could suffer revenue losses and other adverse effects from premature or bleeding trade policy with an inadequate emphasis on labour, competition investment, and intellectual property.

It is relevant to note that Africa is gradually ramping up national and regional efforts to harmonise regulations for the continentally integrated digital economy: Southern African countries have created a few regional initiatives to facilitate digital trade, transformation, and market access.[31] [32] For instance, the Digital SADC 2027 provides the overarching framework for regional digitalisation, with a critical focus on infrastructure, coherent ICT regulatory framework, and industrial development. See Table 1 for examples of SADC's digital economic initiatives.

Table 1: Examples of regional digital economic initiatives

	Initiative	**Years**	**Description**
1	Digital SADC 2027	2012 – 2027	THE 2012 SADC Regional Infrastructure Development Master Plan's ICT pillar is aimed at universal, harmonised broadband frequencies, fibre-optic backbone infrastructure, spectrum allocation, harmonised ICT regulatory framework, centers of excellence.
2	Analog to Digital Migration	2009 – Present	Technical support to member states in meeting analog-to-digital migration
3	SSA Model Laws	2008 – 13	The Communications Regulatory Authority of Southern Africa (CRASA) drive and implements innovative strategies to reduce roaming costs in the region.
4	Declaration on Information and Communication Technologies	2001-Present	SADC ICT policy, highlighting infrastructure and regulation.
5	Rwanda – Smart Africa Alliance		A pan-African initiative endorsed by all African heads of state to accelerate socioeconomic development in Africa through ICTs

31 International Trade Centre (n 4) .

32 McKinsey & Company (n 3).

6	Next Einstein Forum (NEF) Rwanda and Kenya	2018 and 2020, respectively	NEF works to make Africa a global tech hub, placing youth at the center based on four projects: Global Gatherings, Policy Institute, NEF Community of Scientists, and NEF platform.
7	Mauritius – African Network Information Center		Serves as the Regional Internet Registry for Africa and is responsible for distributing and managing several internet resources
8	Kenya – Microsoft's Africa Development Centre	2019	Microsoft launched its Africa Development Centre in Nairobi, with USD 100 million in infrastructure and the employment of local engineers over the first five years of operations.

Source: AUC/OECD 2021, Africa's Development Dynamics 2021: Digital Transformation for Quality Jobs, AUC, Addis Ababa/OECD Publishing, Paris, https://doi.org/10.1787/0a5c9314-en

The Common Market for Eastern and Southern Africa (COMESA) aims to develop a digital free trade area (DFTA) as a digital platform that enables duty-free and quota-free trading, thereby providing a regional market worth US $17,2 billion.

South Africa, Kenya and Nigeria are among the leading digital platform countries in Africa, and their digital policies leverage digitalisation and the role of AI across all sectors to bring the continental economy back better.[33] [34] [35] [36] [37] Perhaps the litmus test of the AfCFTA in the post-

33 G Odularu 'The primer: Bracing Nigerian trading ecosystem for the future' in G Odularu (ed) *Strategic policy options for bracing Nigeria for the future of trade* (2020).

34 G Odularu 'Conclusion and policy recommendations' in Odularu (n 31).

35 G Odularu 'Digital pathways for fostering post-COVID-19' (2020c), https://www.afronomicslaw.org/2020/07/18/digital-pathways-for-fostering-post-covid-19-trade-outcomes/?fbclid=IwAR2FOS9d9U6epp8ItvrqhRlJkfmevHPblTuPmdaXRqt0ed9X12oYEH6U5Fk (accessed 16 August 2021).

36 G Odularu 'Building businesses back better amid COVID-19 pandemic in Africa' (2020) in 'Crisis and fragility: Economic impact of COVID-19 and policy responses' KIEP Visiting Scholars' Opinion Paper Visiting Scholars' Research Activities | KIEP Visiting Scholars Program | ETC: Korea Institute for International Economic Policy.

37 G Odularu & P Alege 'Trade facilitation capacity needs' (2019) Palgrave Pivot, Cham. https://link.springer.com/book/10.1007/978-3-030-05946-0 (accessed 16 August 2021)

pandemic world will be how much supply chains, trade facilitation, and digital trade can systemically create or originate, drive and lead (CDL).

Regarding the digitalisation of financial services, and the creation of its central bank digital currency (CBDC), increasing number of African countries are keenly interested in NFTs, especially South Africa, which is among the top ten countries by NFT users in 2021. Furthermore, bitcoin made its way to the national treasure and was declared legal tender in the Central African Republic due to new regulations. The cybersecurity market is proliferating and is predicted to expand further in the next decade to the alarming rate of money laundering and financial cybercrime.

From a telecommunications and media standpoint, mobile gaming represents nearly 50 per cent of today's gaming market. Gaming is one of the most exciting media segments, and the number of gamers today currently outnumbers the addition of European and African populations. With the rapidly growing African youth population, and explosion in smartphone usage, it has become so easy to engage in the cloud and mobile gaming for everyone, thereby firing youth participation in immersive gaming.

As Africa's trade strategies focus on tourism, financial services, and telecommunications, other pertinent trade in services (TiS) areas, its economic trajectory include (digital) broadcasting; e-learning; online retailing; air transport; hotel services; gaming; software (entertainment); information services; and digital health. For instance, Africans purchase consumables online from Alibaba or Amazon are part of TiS; or when Africans provide content on globally popular entertainment or social media platforms such as YouTube and Instagram.

5 Theoretical peeps into the symmetry of increasing FTA spaghettis

The dynamic effects of FTAs could be classified into three categories: (i) economies of scale due to access to a larger market, thereby allowing producers to become more efficient through greater specialisation, better equipment, and usage of byproducts; (ii) greater competition such that increased number of producers make collusion less likely and forces firms to become more efficient; and (iii) stimulus of investment because of an increased rate of return and ability to spread research and development costs, thereby making more significant levels of investment more likely. First, it is important to define FTAs, RTAs, and PTAs, as presented in Table 2.

Table 2: FTA, TAA, and RTA Definitions

RTA	Regional Trade Agreement (RTA) refers to an agreement between two or more countries to apply lower trade policy barriers to goods and services imported from the members than to those imported from third countries. Modern RTAs deploy increasingly complex intra-trade regulations such as standards, safeguard provisions, customs administration, etc.., and provide preferential regulatory framework for mutual services trade rules on investment, competition, digitalisation, environment, and labour.
PTA	Preferential Trade Arrangements (PTAs) are unilateral trade preferences such as Generalised System of Preferences (GSP) schemes, nonreciprocal preferential schemes for products from Least Developed Countries (LDCs) only, as well as other nonreciprocal schemes that have been granted a waiver by the General Council (such as AGOA or CARIBCAN).
FTA	Free Trade Area refers to a PTA for which barriers on trade between members are reduced or eliminated and may include use of discriminatory trade preferences. FTA members may impose a common external tariff (CET) for each product, a CET may be imposed with or without the continued use of internal customs controls.
CM	A Common Market (CM) is the deepest form of economic integration which allows the free movement of productive factors (labour and capital) as well as products (goods and services).
CU	A Custom Union (CU) is an FTA with a CET, in which internal customs controls have been eliminated, so that goods imported from third countries may circulate freely throughout the territory of the customs union.

Source: UDLAP, (2001)[38]

Africa currently comprises a mixture of different, unique and smaller RTAs and FTAs being implemented over a period. From an analytical perspective, the symmetry of deploying an increasing number of FTAs may imply fewer strategically combined opportunities. Imagine that Africa would like to manage six FTAs jointly or continentally, but it only has the socio-economic capacity to manage four successfully. By implication, this creates 15 possible FTA choices for the continent. If the continent expands its socio-economic possibilities frontiers due to the discovery and adoption of modern technologies, it turns out that the continental economy can only successfully manage five FTAs. This

38 UDLAP (2001), https://www.udlap.mx/in.tradeagreements/docs/SecoundSection/Second%20Section%20-%20Trade%20Agreements%20A%20Typology%20-%2001.pdf (accessed 16 August 2022)

automatically creates six possible FTA choices for the continent. What if the socio-economic capacities trajectory enlarges to contain its expected six FTAs? In many ways, policy experts can choose six FTAs out of six FTAs. Only one, which means picking all the FTAs, which appears to be the current situation that Africa finds itself with the increasing spaghetti bowls of RTAs and FTAs. Therefore, picking more FTAs offers Africa fewer possible FTA opportunities, especially as the global economy has yet to recover from the COVID-19 epidemic.

Reconstructing this analogy implies that instead of African governments interested in which new FTAs to implement (since implementation percentages have not been significantly impressive for most of the FTAs), Africa should instead focus on which of the existing FTAs to discontinue. Therefore, strategically implementing four FTAs out of six invariably is the same as choosing two FTAs left behind. Both cases will provide Africa with 15 possible FTA choices. The same analogy applies to implementing five FTAs out of six or choosing an FTA that will be left unimplemented, creating six possible FTA choices.

At this juncture, there are three main insightful inferences.

(1) The more FTA choices Africa makes, the harder it becomes to keep track of the previous FTA choices it has made.
(2) In other words, the more FTA choices that are made, the fewer FTA choices that are omitted.
(3) More intuitively, if Africa chooses 'X' many FTAs in as many ways as it picks 'Y' minus 'X' many FTAs, this is the same as omitting ('Y'-'X') many FTA choices.

For further explanation, inferences (1) and (2) are valid and necessary in general. In other words, the first inference states a reason why symmetry can be a valuable tool for African decision makers in this FTA context. The second inference reveals why African policy makers would like to apply symmetry logic in policy-making processes as the AfCFTA implementation unfolds. However, both first and second inferences are not sufficient reasons behind the symmetry of FTA choices. The third inference focuses on the symmetrical nature of FTA pathways concerning choices' similarities with forgone FTA opportunities.

This shows that the number of possible 'X' FTA choices is symmetric concerning 'Y' over 2. Furthermore, if

$$X > \frac{Y}{2}, then, (Y-2) > (X) X > \frac{Y}{2}, then, (Y-2) > (X)$$

applying symmetry to grasp a full understanding of the dynamics in the FTA landscape.

The African continent and its national governments are currently being confronted with a bouquet of regional and international FTA and RTA choices. Thus, it is relevant to ask how the digitalisation of trade relates to the symmetrical aspects of FTA choices for African governments. Furthermore, how long will it take every African government to explore every possible FTA in the menu strategically? To solve these questions, and in addition to honing its trade negotiation skills, the African government needs to have complete knowledge of the contents and far-reaching socio-economic implications of every FTA deal. For most African countries, socio-economic capacities are not strong enough to benefit maximally from these FTAs. However, digitalisation could be explored to enhance Africa's preparedness capacities for the future of FTAs and RTAs. A strategic way of tackling this dilemma is to think of the different parts of the FTA bouquet as separate entities profoundly and reflectively. For instance, the Democratic Republic of the Congo (DRC)'s national trade strategy comprises three global, regional, and national levels.

Furthermore, each TA position has different parts: an international TA with five aspects, a continental RTA with four parts, and a national trade agreement with three aspects. There are ways of choosing the best TA options for each of the three positions, thereby generating a different number of possible choices by simply multiplying all three TA options together. Invariably, five international RTAs times four continental RTAs times three national trade agreements equal 60 different and distinct TAs for DRC. In this digital age, it is prudent for DRC to explore several versions of TAs before deciding which version is the best. This is crucial for DRC because it shows the decisionmakers how many different RTA possibilities exist, despite the seemingly limited possibilities for every TA. Furthermore, it helps trade policy makers determine the appropriate amount of time it would take for individual TAs to be successfully implemented and completed. This implies a dire need for African policymakers to remove several of these TA options to tremendously decrease the investment of resources (human, financial, infrastructure, and so forth) that could have been allocated to a more socio-economically impactful and low-hanging community development fruit.

6 Conceptualising bleedingness within a universe of implementable FTAs

At this juncture, a good understanding of 'bleeding' will provide a firm conceptual grasp of the epistemic characteristics of African trade systems and the role of technology in its increasingly digitalised trade space. What is the mechanism that generates a 'bleeding phenomenon'? What are the implications? Moreover, would it be possible to mitigate the impacts of a bleeding trade? Answers to these and similar questions are presented in this sub-section.

Economics remains one of the most distinct disciplines in social sciences largely because most or all agents are assumed to have stable, well-defined preferences and make rational choices consistent with those preferences in markets that (eventually) clear. Rationality, being an economics theory assumption, rather than a demonstrated fact. According to Thaler, 'markets do not always operate with the trap-like efficiency we impute in them'.[39] Bleeding could result in African countries becoming trapped in a socio-economic quagmire, therefore resulting in trade without gain. However, a trader's bleed cannot occur if all trading actors are rational, so evidence of a trader's bleed in market setting would constitute an anomaly.

At the most basic level, bleeding is generated by nonlinear amplification of random socio-economic activities such that the outputs or outcomes do not change linearly. Instead, it depends on the derivate, and the relationship between the variables is convex rather than linear – the more convex the curve, the more amplification the random outcomes. By implication, convexity is the primary mechanism that generates bleeding. According to Taleb, convexities result in serious socio-economic fragilities.[40] This justifies the need to understand bleeding within the 'epistemic' context of leveraging it to predict selected variables and human behaviour based on the four forecasting quadrants posited by Nassim Taleb.[41] [42] [43] The forecasting potential of statistics is limited when research

39 RH Thaler 'Anomalies: The winner's curse' (1988) 2 *Journal of Economic Perspectives* 191-202.

40 NN Taleb *Fooled by randomness: The hidden role of chance in life and the markets* (2004) 24.

41 As above.

42 NN Taleb *The black swan: The impact of the highly improbable* (2007).

43 NN Taleb 'The fourth quadrant: A map of the limits of statistics' unpublished manuscript (2008), http://www.edge.org/3rd_culture/taleb08/taleb08_index.html (accessed 16 August 2022)

questions fall into the world of uncertainty with complex outcomes and unknown population distribution parameters in the tails.[44] When writing this chapter in 2020, the global trade and economic systems were on the brink of an economic recession mainly due to the pandemic. While a few economies are emerging unscathed, we believe that most other economies are experiencing bleeding due to the inadequate capacities of states to navigate tumultuous times.

Furthermore, bleeding trade could be understood from a post-trade agreement (TA) perspective. For instance, post-Brexit the UK still imports more from outside the European Union (EU) than within the bloc's single market, which it left in January 2021. These facts and historical information predict the present and explain why FTAs turn out the way they did. It might seem like a simple matter of observing and connecting the dots, but the challenge is that most of the time, the dots also have too many dots, thereby predicting the success of an FTA as nearly as difficult as predicting the future.

From an insightful angle, FTAs are seemingly great games in which the players are controlled by the random outcomes of a complex and dynamic system. It is a game that requires parties or countries to leverage their scientific inventions and discoveries across all sectors – health, manufacturing, agriculture, services, education, etc. However, no trade policy expert or organisation can connect all the dots due to the universe of dots in the global trade space because much other randomness occurs. Nevertheless, if these FTAs were not or had not been initiated, then the trade policy and negotiations landscape would or would not be as existentially dynamic as we know. For instance, making African countries agri-food transformation consistent with World Trade Organisation (WTO) standards requires a comprehensive overview of the agricultural sector perceived within the WTO and the Agreement on Agriculture and its pillars. There are quite a few approaches of agglomerating and critically assessing previous FTAs and endowing them with collective meaning understanding within the AfCFTA perspective. This helps to attach handles to the past FTAs while placing a spin on them as one connects them from the AfCFTA, thereby enhancing trade policy coherence towards community advancement and based on the assumption that AfCFTA implementation would turn on a singularly phenomenal socio-economic transformation for Africa.

44 NN Taleb & A Pilpel 'On the unfortunate problem of the no observability of the probability distribution' unpublished manuscript (2004), http://www.fooledbyrandomness.com/knowledge.pdf (accessed 16 August 2022)

Based on this background, Africa is on the cusp of FTA transformation in its approach, design, and implementation of trade policy and practice. If one gambles with the Ghanaian Cedis to win a succession of pesewas or risks a succession of pesewas to win Ghanaian Cedis?[45] In most economic decisions, there exists overwhelming evidence of the popularity of the first, a case of *fat tailor* leftward skew of return variability. In terms of Africa's century-old FTA experience, the number of its RTAs is increasing over time. There is a far more sizable decline in commodities prices in which Africa trades and exports to the rest of the world than would be expected by FTAs. For instance, the increasing dependence on a narrow range of export commodities has doubled the susceptibility of the Nigerian economy to shocks such as the COVID-19 pandemic. The Nigerian Budget Office forecasts an approximately 80 per cent reduction in government revenue due to the impact of the COVID-19 crisis.[46] More importantly, the fact has always remained that Africa's exports are significantly impacted as the economies of the buyer nations stagnate from the pandemic-related economic activities slowdown. NEPC shows the impact of the pandemic on agricultural exports – cocoa, sesame, and cashew – accounting for over 70 per cent of Nigeria's foreign earnings from agricultural exports in 2020.[47] Furthermore, African governments have made frantic efforts to diversify and enhance their export capacities. For instance, some of these interventions include export incentives, the creation of export processing zones, special economic zones, infrastructure development facilities, and numerous agency-based development initiatives in collaboration with development partners.

Nevertheless, most countries and regions tend to overlook the likelihood of these falling returns, especially if the trends in the negative changes are seemingly insignificant over a long period. The trade returns for most of these countries are such that when price shocks occur, trade returns are high, and vice versa, such that these trading countries have poor long-term memories in addition to lacking future risk discounting capacity. Thus, the fear of infrequent significant losses makes countries enamored with small, short-term trade gains. Of course, global trade regulatory organisations are aware of this, and they implement tools and instruments to foster the possibility of occasional significant gains. However, the asymmetrical

45 Taleb (n 40).

46 'Nigeria&#39 oil revenue falls by 80 per cent' *Africa News* (7 May 2020), https://www.africanews.com/2020/05/06/nigeria-s-oil-revenue-falls-by-80-percent/ (accessed 16 August 2022)

47 NEPC Impact Assessment and Policy Responses to the Coronavirus Pandemic on Agricultural Exports. Nigeria Export Promotion Council, (2020) (9 April 2020), https://nepc.gov.ng/cms/wp-content/uploads/2020/04/Covid-19-impact-assessment.pdf (accessed 19 August 2021)

insight is that some FTAs invest so much but receive meagre returns on this investment. The simulation studies for most of the FTAs, like the case of the AfCFTA, reveal ample evidence of socio-economic benefits to the poor and to the respective governments. However, most of the documents are significantly negatively skewed. Would African countries facing these scenarios of stochastic returns prefer negative skewness? Based on Africa's historical experience with FTAs and related trade agreements, would Africa prefer to 'bleed' (that is, undergo small but frequent losses) or 'blow up' (that is, take severe hits concentrated in short periods? In most cases, African countries and regions manage their trade returns to strategically manage more negative returns because global trade is lopsided towards the Global South, which is naturally uncompetitive primarily due to its insufficient trade-related knowledge and infrastructural deficit. Over time, Africa has been absorbing the pain of steady losses of FTAs, thereby seemingly bleeding its way to trade and economic collapse, which could be averted via blockchain-powered trade facilitation digitalisation.[48]

Responding to the advantage of these small gains from FTAs, regardless of occasional disastrous trade returns, it is advisable to adopt Nassim Taleb's argument on the randomness of returns, which may eventually result in *catastrophe trading*. Sustainable structures need to be mainstreamed in the AfCFTA to prevent Africa's economy from its increasing level of bleedingness. This requires Africa to further foresight for a long time, with potential annual trade losses, as well as the knowledge that one day, possibly several years down the road, their FTAs leadership's patience will pay off handsomely. However, the global trading system needs to be reregulated to make more African countries absorb the capacity to implement this strategy. Moreover, the implementation of such a strategy in the face of a significantly untapped export potential is critical due to Africa's innate biases against losses. Consequently, one of the options available to Africa is taking the purposefully painful but preparatory steps towards an unimaginable post-COVID-19 future of trade.

These heavy downturns are mostly driven by the contraction of 4,3 per cent and 8,0 per cent of Nigerian and South African economies, respectively. In addition to the adverse impact of the pandemic on SSA oil exporters such as Angola and Nigeria, other commodity exporters are being confronted by severe contractions. The combined impact of the global economic slowdown, the sharp decline in commodity prices, and

48 J Lim 'How digitalisation averted cross-border trade disaster in Asia - Tech Wire Asia' (2021), https://techwireasia.com/2021/07/how-digitalization-averted-cross-border-trade-disaster-in-asia/ (accessed 5 September 2021).

the rising costs of managing the COVID-19 outbreak pose debilitating shocks on African economies.

Expected asymmetric payoffs (E (P)):

(1) E(P) < 0; this is a disadvantageous FTA that should not be negotiated to avoid bleeding unless the country desires risk and bank on bleeding FTA.
(2) E(P) = 0; here is a fair deal in which the payoff is just right such that the amount invested equals the same expected streams of returns.
(3) E(P) > 0; here is a favourable FTA deal in which the country expects streams of bountiful returns in the future.

7 Harnessing platforms, tradetech, device economics and digitalisation's 5Ps

African countries, mainly low-income countries, remain underrepresented in digital trade talks, except Burkina Faso, which has joined the Joint Statement on Electronic Commerce discussions on rules for digital trade under the WTO, compared with 52 high-income countries. This non-inclusive nature of representation undermines the potential rules under discussion and risks, resulting in a one-size-fits-all approach due to the lack of voice of low-income countries in which their digital trade issues may remain untreated. Such issues may include difficulty applying rules that require heavy investment in regulatory institutions or are costly for MSMEs and the need for capacity building and technical assistance.

Digital-tech driven platforms are increasingly becoming the trading hub that improves users' market access, thereby shaping business models, transforming industries, influencing strategies, and enhancing states' effectiveness and capacities to deliver public policies efficiently. They also provide users with various social and technical boundary resources, such as application programming interfaces (APIs) that provide access to data, software development kits, and various templates and considerably lower usage costs. In addition, as the number of apps in mobile application markets increases, more innovative protocols are needed for platforms that significantly foster interoperability. For instance, technology platforms are new governments, and content moderation is the new law as private sector powers expand in our societies.[49] In the same vein, trade tech platforms such as Amazon, eBay and Alibaba enable domestic, national, and global trade as these platforms increasingly transform into innovative, automated

49 H Bloch-Wehba 'Content moderation as surveillance' (2022) 36 *Berkeley Technology Law Journal* (forthcoming), ttps://ssrn.com/abstract=3872915 (accessed 16 August 2022)

mechanisms for enforcing rules. However, public authorities will exert influence over platform content rules, thereby providing a louder voice to governments and leveraging social media platforms to detect, investigate, and prevent crime. For instance, mobile trade tech services and digital apps make access and outreach of trade facilitation beyond the confines of brick-and-mortar buildings – government and private sector physical offices. Trade facilitation-related applications provide users with 24-hour access to trade opportunities and personal trade facilitation delivery experience.

From a socio-economic reality viewpoint, a successful platform must attract and connect a combination of users, customers, service or product providers, advertisers, and other actors, who collectively form the platform's ecosystem. Furthermore, super apps are 'all-in-one' apps that offer users a range of functions, such as groceries, shopping, messaging, banking, ride-hailing, dietary guides, health awareness suggestions, and so forth. Super applications also remove the impediments undermining users' willingness to make intelligent decisions, as well as providing nontraditional banking insights and behavioural nudges to customers – for instance, combining strengths with Google to offer businesses with insights and technology needed to succeed, taking advantage of app promotion and engagement tools such as Google's App Campaigns, and collaborating with mobile measurement firms such as AppsFlyer to drive customer value as well as improve users' experience.

Thus, cross-platform applications exist when consumers, firms, and businesses use applications that operate on various platforms from different developers. For instance, if we have a duo-sided trade facilitation mobile cross-platform applications model that considers application manufacturers and intermediaries (platform producers and mobile operators), on the one hand, and consumers of the services via these applications, on the other. More specifically, the model comprises consumers who simultaneously subscribe to certain trade tech operators on the other hand, content providers who enter into agreements with platform manufacturers to obtain application development tools and mobile operators to ensure the operability of developed applications and, finally, the platform-software in which applications can be used.

An increasing number of platforms are focusing on developing more consumer-centric approaches. Given this, there is an increasing need for data and knowledge sharing between platforms and regulators to enhance regulators' awareness of consumer behaviour, desires, and expectations to inform public policies and regulatory systems that enhance consumers' trust in digital trade platforms. A blockchain-technology-supported platform

provides a higher value for customers than traditional platforms, thereby revealing the 'Matthew effect'[50] caused by the network effect that platform advantage (from adopting blockchain technology) or disadvantage (from not adopting blockchain technology) accumulates over time.[51]

As the speed and complexity of businesses accelerate in this digital age, entrepreneurial agility and flexibility depend on how fintech and trade tech platforms are deployed to maximise data availability.[52] This portends huge potential to completely transform how millions of people access finance, trade, and transact business. It is not surprising that the big five US tech giant companies – Google, Amazon, Facebook, Apple, and Microsoft (GAFAM) – experienced 27 percent net sales growth to $113 billion in the second quarter of 2021, partly offsetting a slowdown in its core e-commerce business with robust expansion in its cloud and advertising segments. By implication, the entire GAFAM group and e-commerce behemoth continue to profit from the pandemic's stimulating effect on online advertising, e-commerce, and consumer spending.

In China, Alipay and WeChat Pay have changed the nature of retail consumption and the future of trade facilitation. In addition, social media platforms and apps are increasingly crucial instruments for trade, entrepreneurship, commerce, and governance.[53] First, it is essential to note that not all data or information has the same value in the sense that an enterprise's 'crown jewels' are well worthwhile. This trade secret theft has resulted in corporate 'bring your device' policies. [54] [55]

50 'Matthew effect' basically is how advantages beget further advantages. From a sociological perspective, it is the cumulative advantage in which the rich get richer while losers keep losing if a regulatory framework is not implemented by the government. The explosive production and adoption of social media, with its good and bad sides, have enhanced cumulative implications of the 'Matthew effect'.

51 L Zhang & S Chen 'China's digital economy: Opportunities and risks' (2019) IMF Working Paper WP/19/16.

52 Z Kapron 'From digital payments to digital finance: How China's tech companies are redefining banking in Asia and soon Europe' (2018) 12 *Journal of Payments Strategy and Systems* 68-73, From digital payments to digital finance: How China's tech ...: Ingenta Connect (accessed 16 August 2021)

53 KLX Wong & AS Dobson 'We are just data: Exploring China's social credit system concerning digital platform rating cultures in Westernised democracies' (2019) 4 *Global Media and China* 220-232.

54 Economic Intelligence Unit (EIU) 'Open secrets? Guarding value in the intangible economy' (2021) The Economist Intelligence Unit.

55 A Haide 'Open secrets? Guarding value in the intangible economy' (2021) The Economist Intelligence Unit.

The economics of devices have accelerated the applicability and utilisation of digital platforms such that Amazon's broad consumer electronics products aimed at enhancing customers' delight include Kindle, Ring, Echo, Fire TV, Fire Tablet, and aero devices. These products or devices meet customers' diverse needs, such as entertainment, Alexa audio assistants, home security and WIFI access, and connections from multiple devices and supplemental subscription services. These trends result in increasing complexity of consumer electronics product portfolios and, at the same time, serve as impactful tools for improving operational productivities, pursuing innovative business models, elevating customer experiences, enhancing organisational efficiencies, and driving profitability, especially for micro, small and medium enterprises (MSMEs). However, digitalisation could extenuate the digital divide, such as 'winner-takes-all markets', for three reasons: (i) peculiar challenges confronting under resourced communities in accessing digital devices as well as internet services (with considerable bandwidth); (ii) political and socio-economic divides such that social media platforms such as Twitter, Facebook, Instagram, and so forth, are becoming increasingly more influential than national governments; (iii) inequity and inequalities between the haves and have-nots are perpetuated in a vicious circle through the use of digital platforms.[56]

Digitalisation's multidimensional and interdisciplinary space cuts across socio-economic, environmental, diplomatic, geopolitical, and communal boundaries. Digitalisation provides a collaborative platform for sharing, accessing, and sustaining over a million unique and robust trade tools, information, collections, experiences, and opportunities from a digital trade viewpoint. Digitalisation provides a unique trade ecosystem, and trade facilitation apps represent an intuitive interface that allows traders to easily access thousands of tools. Digitalisation also provides the space for exploring the usage and uniquely curating their favorite tools into personalised galleries, thereby promoting and sustaining digital trade research, education, knowledge, methods, innovations, models, learning, practice, partnerships, opportunities, and impact. [57] [58] The critical and interrelated digitalisation five Ps that would prepare Africa for the future of trade facilitation innovations are conceptualised in Figure 1.0.

56 B Adekunle & C Kajumba 'The nexus between Instagram and digital entrepreneurship' (2020) 21 *Journal of African Development* pp 14-40.

57 Lim (n 46).

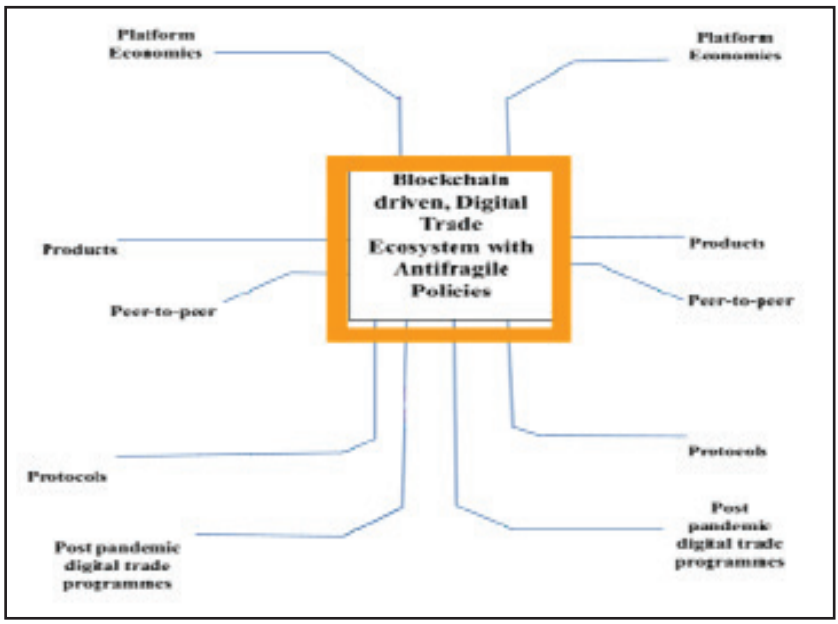
58 GOA Odularu & B Adekunle 'Digitalisation in the African context' (2021) 21 *Journal of African Development* pp 1-13.

Africa's smart and digital trade ecosystem's preparedness should depend on:

(1) Platform economics which leverages big data technologies and artificial intelligence to accelerate the inclusiveness and sustainability of digitalisation;
(2) Products and services (digital or electronic) through e-commerce platforms, cross-border e-commerce apps continually experience increasing engagements. Some of these engagements are recorded via online learning, e-communication, and news awareness social media platforms (Facebook, WhatsApp, WeChat).
(3) Peer-to-peer process to foster and enhance trust via blockchain technology. Connecting and interoperating differently through blockchain technology.
(4) Protocols provide security for access to blockchain technology security, decentralisation, scalability, reliability, usability, maturity, and governance.
(5) Post-pandemic safety net programs and policies (laws and regulations) to respond to both the number of users and the time spent online, mobile social networking, medical services, short video, and mobile games.

Trust, transparency, and fairness in all their pervasiveness are critical in today's trade, food, and health platforms, including manufacturing, trade, distribution, access, and other nodes of vaccine value or supply chain. In Africa's regional trade space, and when AfCFTA was introduced, fewer and more than half of the countries on the continent were reluctant to join. Astonishingly, the most significant economies – South Africa, Nigeria, Tanzania, and so forth – were skeptical and did not believe in AfCFTA partly due to trust issues. Consequently, and as shown in Figure 1, the 5Ps would constantly integrate trust, authenticity, and blockchain-enabled regulatory elements in trade, health, and food risk management policies, practices, tools, and frameworks in a legally agreeable manner. In addition, trade and industry ministries at the national levels should proactively implement rules for markets surrounding digital platforms, the challenges they face, and the dramatic rates at which these platforms are being transformed. The 5Ps would be beneficially impactful to trade expansion if there is an enforceable act on trust-enabled digital platforms (ATEDP).

Figure 1: The 5 Ps of Africa's digital trade ecosystem's preparedness



Source: Author's Design

Platforms and privacy protection will enhance the capacities of digital trade to foster sustainable development, driving equal opportunities, equal rules, and equal rights towards realising digitalisation potentials for Africa. This requires strict legislation and a rigorous understanding of local dynamics. Every variable should be incorporated into the dynamics of *in situ* analysis (prediction is difficult). Sustainable trade programmes should leverage digital platforms from partners in the industry, the public sector, and workable policies to collaborate.

More importantly, the 5Ps inform how Africa could strategically enhance its preparedness towards radically reshaping the quality of (digital) trade facilitation in the face of globally bleeding trade ecosystems and stark socio-economic inequalities. In more specific terms, Africa's trade facilitation preparedness will be driven by platform economics (digital) products, peer-to-peer processes, protocols, and post pandemic safety net programmes and policies (laws or regulations). As demand for digital commodities[59] remains high during and in the post-pandemic

59 Commodities such as online medical care, remote medical inquiry, online diagnosis, remote working in the healthcare industry, sports/fitness apps (as well as indoor fitness equipment purchase trend, online learning, e-communication adoption on health,

era, digitalisation's 5Ps could represent a bouquet of programmes for underserved households and small businesses via open-source, democratised, and decentralised blockchain-based tools.

Although some curious users could uncover even more innovative tools on mobile applications, there is an increasing need to create more awareness and educate underserved communities on navigating the apps for their maximum benefits. As digital trade facilitation space evolves, women-owned and other minority businesses should be supported in deploying mobile apps as lamplighters in the entrepreneurial ecosystem to help them navigate their paths more confidently and profitably in the 'dark' terrain they operate.

8 Digital-trusted networks, TradeTech, traceability, and interoperability: How to foster equitable trade outcomes within the AfCFTA

No technological innovations in the twenty-first century seem to surpass mobile applications and the rapidly evolving digital landscape, which comprises e-commerce, the online sharing economy, platforms, and other activities generated through them.[60] [61] It is driven by digital technologies such as the internet, mobile connectivity, cloud computing, big data, machine learning, artificial intelligence (AI), blockchain, Internet of Things (IoT), robotics, smart manufacturing, predictive and data analytics, and other new digital technologies.[62] [63]. For instance, if ICT production, digital technology, and other digital inputs are fused into its entire industries, the Chinese digital economy is estimated to account for approximately 30 per cent of its overall gross domestic product (GDP).[64] Digitisation has resulted in a drastic reduction in transaction costs – search costs, replication costs, communications costs, tracking costs, and verification costs – coupled with the restructuring of the supply of digital commodities in creative industries such as movies, music, and television. Another variant of digitalisation is digital currencies in digital form, which are primarily

finance (or business) news awareness channels via social media platforms (Facebook, WhatsApp, WeChat), safety consciousness (laundry sanitiser, antiseptic hand sanitisers, disinfectants, yoga mat sales, ventilators, and other health-related products), online recreation, etc.

60 IMF 'Measuring the digital economy (2018) 28 February Staff Report.

61 KIEP (n 26).

62 S Pedro 'COVID-19 pandemic: Shifting digital transformation to a high-speed gear' (2020) 37 *Information Systems Management* 260-266.

63 Odularu & Adekunle (n 56).

64 Zhang & Chen (n 49).

managed, stored and exchanged on digital computer systems, especially over the internet. Types of digital currencies are electronic currency, virtual currency, and cryptocurrencies. It is relevant to note that digital currency is a new, innovative, and crucial type of infrastructure economy related to a country's occupancy in the global economy. This infrastructure comprises the certification center, the management module, the big data analysis centre, and so forth. The relationship between sovereign digital currency and digital payment platforms is evident if we take digital RMB as an example. WeChat and Alipay are the financial infrastructures that serve as the wallet, while the digital RMB is the payment tool, which is the wallet's content. The economics of platforms and the rapid expansion in app development are primarily linked to how the platform provides have drastically lowered the costs of development and distribution over time.

In a peculiar food delivery space,[65] it would be rational for delivery platforms to operate without riders and drivers but rather adopt autonomous delivery vehicles, including drones, in response to how staff costs expand as platforms expand. Every percentage increase in autonomous food deliveries through drones or other devices could result in a slightly more than a percentage increase in company-side earnings and could cut delivery times. Keeping all sides of platforms happy is key to keeping the network effect flywheel going.

Based on the OECD's 'Roadmap Toward a Common Framework for Measuring the Digital Economy', digitalisation comprises four major scopes: (i) core scope, which focuses on the ICT sector and includes economic activities from producers of digital content, ICT goods, and services; (ii) narrow scope, which includes all emerging economic activities that are solely driven by digital technologies. It expands beyond ICT to include other elements such as business-offshoring processing, information technology outsourcing, and other activities in the gig economy (click-work, Upwork, platform economy (such as Airbnb, Uber, eBay, Alibaba, and so forth); (iii) broad scope covers all economic activities significantly enhanced by digital technologies; e-business (ICT-enabled business transactions, such as mobile money and other financial technologies) and its subsets, e-commerce, e-delivery services, use of digitally automated technologies across all economic sectors; and (iv) digital society extends beyond the three previous scopes to incorporate digitalised interactions and activities excluded from the GDP production

65 The top global food delivery platforms are Deliveroo, Delivery Hero, Door Dash, Swiggy, Uber Eats, Just Eat, Zomato, etc.

boundary, that is, zero priced digital services such as the use of public digital platforms.[66] [67] [68] [69] [70] [71]

According to the WTO, while traceability is ensured by an application of DNA markers, a public, permissionless, Ethereum blockchain, which allows for the running of smart contract, is used to increase trustworthiness of data as well as the connectivity, cost-efficiency, scalability, and transferability of the solution. Subsequently, the transfer of data from existing systems will be allowed through an application programming interface (API). Traceability and interoperability among supply chain stakeholders using global data standards foster trade facilitation. Interoperability is the result of business processes, systems, applications, and standards to identify, capture, and share. Supply chain collaboration thrives on standardisation; product traceability needs interoperability across the supply chain; to achieve interoperability, traceability systems need standards; and without standards, product traceability is complicated, expensive, and inaccurate. Standards, traceability, and blockchain technology are used here to enhance MSMEs' capacities to trade themselves out of poverty. Real-time shipment traceability data are integrated into inspection and quarantine systems while using commodity barcodes and batch numbers to foster cross-border trade, and African consumers are ready to pay a higher price for traceability.

The COVID-19 pandemic increased data traffic and heralded greater use of online platforms. The three leading platforms reported approximately 700 million daily users in March to April 2020, amounting to approximately one-tenth of the world's population. Zoom's average number of users jumped from 10 million in December 2019 to 300 million in April 2020; Cisco's WebEx recorded 324 million users in March 2020, doubling from January 2020; and Microsoft Teams had 75 million daily users in April 2020 (World Development Report, 2021). In other words, being homebound resulted in more use of online purchases, social media, video streaming, and online gaming and, therefore, generated massive

66 AUC/OECD, Africa's Development Dynamics Digital Transformation for Quality Jobs, (2021). AUC, Addis Ababa/OECD Publishing, Paris, https://doi.org/10.1787/0a5c9314-en (accessed 16 August 2021)

67 Odularu (n 31).

68 Odularu (n 32).

69 Odularu (n 33).

70 Odularu (n 34).

71 G Odularu, B Adetunji & A Odularu 'Conclusion and policy recommendations: Creating an enabling business ecosystem for fostering trade opportunities in the digital age' in G Odularu, M Hassan & M Babatunde (eds) *Fostering trade in Africa. Advances in African economic, social and political development* (2020) pp 213 - 218.

expansion in data traffic. When shelter at home was implemented across countries, German videoconferencing traffic on DE-CIX rose by 50 per cent, and gaming and social media traffic increased by 25 per cent.[72] However, the usage expansion has its digital divide dark side in which many people around the world have been excluded from online learning, telehealth, and social media platforms because they lack broadband access and computers, thereby underscoring the importance of excluded users.

Science and technology have been critical to the improvement of global trade and public well-being. For instance, TradeTech represents a set of technologies that enables global trade to become more efficient, inclusive and sustainable. It also plays a crucial role in easing the flow of goods across borders, thereby reducing trade costs and redefining the future of trade opportunities. As technology reshapes trade flows faster than trade rules and policies, Tradetech deploys technology, innovation, and software to support and digitally transform and modernise trade finance. Remarkably, as digital technology advances, so are global capabilities to extract valuable insights while building trust, privacy, and security into digital products and solutions. In the last decade, which is driven by the internet and data science, the rise of digital technology resulted in trillion megabytes of data being produced daily, thereby providing many opportunities to utilise this immense amount of data to derive insights and drive change. However, from a legal dimension, the potential benefits of big data and its scientific application come with the ethical stewardship of information and the trust that our clients and collaborators have in us to protect and secure their data from a personal privacy rights perspective. Thus, the fragilities across industries and geographical borders often result in unintentionally inequitable outcomes while hindering the pursuit of equity. In response to these challenges, ITFA, DNI, ENIGIO, DLT Ledgers, IMDA Trade Trust, and ICC digital standards initiatives with Minehub, TradeWaltz, and Tradelens implement new modern approaches that leverage unique properties of blockchain to digitise, decentralise, and foster trusted and interoperable trade and supply chains. Africa needs to accelerate the learning and adoption of these new approaches to enable industry, government, trade techs, fintech, and communities to deploy blockchains to produce value.

Harnessing the value of interactive data, combining the benefits of global standards, and blockchain technology efficiently solves businesses' trust, transparency, and security challenges. Extracting actionable knowledge from business network data enables businesses to efficiently

72 World Development Report Data for Better Lives (2021) World Development Report 2021: Data for Better Lives (worldbank.org)(accessed 16 August 2021)

build collaborative networks. This requires automating data exchange and securing supply systems with robust cryptography, blockchain technology, and decentralised networks and applying advanced AI and machine learning to power trade intelligence with actionable, noise-free data. A good example is the Navigation and Geocoding Technologies (Naveo) platform, which is used by over 300 corporate clients in Africa and the Indian Ocean region to track fleets by capturing its GPS locations, fuel tank levels, speed and engine status, among other sensitive vehicle-related information.

For instance, the digitalisation of the agri-food sector could be facilitated by deploying innovative tools, digital technologies (such as distributed ledger technologies (DLTs) and blockchain protocols), and intelligent solutions along the supply chains. While the role of data exchange between stakeholders cannot be overestimated in driving sustainable food systems, transparency and trust are crucial for well-performing and sustainable agri-food supply chains. However, in many food supply chains, both are lacking. Fostering trust in agri-food supply chains could be well understood by implementing blockchain technology to integrate data from supply chain actors, and relevant stakeholders can improve the traceability of commodities. For instance, an act on improving transparency in digital platforms towards ensuring that origin trial protocols are integrated into complex supply chains and enhancing deeper insights into the specificities of agri-food sectors and their users – including farmers, food producers and consumers. Thus, key stakeholders' data along the supply chain are integrated and verified to address the lack of interoperability, thereby creating an environment that provides additional value for the entire agri-food system, focusing on the traceability of products and their authenticity. Thermal sensors are installed on ships and vehicles to monitor refrigerators transporting foodstuffs and medicines to alert them to any sudden rise in temperature. By implementing and utilising origin trial protocols into complex supply chains proves the flexibility of their solution while at the same time gathering more profound insights into the specificities of agri-food sectors, as they mine data along food supply chains, from farms and distributors to markets, such as the condition of vehicles, fuel consumption, behaviour of drivers and road route optimisation recommendations.

To enhance traceability and foster transferable documents in electronic form towards accelerating e-commerce, digitising transferable documents is an essential but not sufficient step in trade digitalisation. The sufficient condition necessitates the functional recognition of electronic transferable documents as equivale to paper documents when trading nations engage in cross-border trade. In this regard, UNCITRAL adopted in 2017 the Model

Law on Electronic Transferable Records (MLETR)[73] as a technology-neutral method for (i) the singularity principle: identifying the electronic record as the electronic transferable record so that multiple claims of the performance of an obligation indicated in this record would be avoided; (ii) rendering that the electronic record is capable of the being subject to control from its creation until it ceases to have any effect or validity; and (iii) retaining the integrity of the electronic record. Thus, for AfCFTA member countries to seamlessly exchange electronic data and documents in a digital space, all information needs to be clearly articulated.

8.1 Adapting the UNECE blockchain pilot for fostering traceability and due diligence: The C-4 case study

Some of the problems confronting the Cotton 4 (C-4) countries could be four-pronged: (i) creation of an enabling environment for engagement and collaboration of all upstream and downstream cotton value chain actors; (ii) lack of open source and inclusive capacity-building solutions for scaling micro and small medium enterprises in the cotton value chain, (iii) how to enhance identification and coding of key data toward assessing the sustainability performances of cotton processes, facilities and products; and (iv) lack of tailored policy interventions and ethical regulations that reference standards for cotton data interoperability and considering other evolving technologies such as AI, IoT, big data, and cloud computing.

Traceability, transparency, and due diligence in the African cotton industry are crucial for enhancing the environmental footprint and social impacts resulting from decades of unsustainable consumption and production practices. For instance, in 2020 UNECE launched a pilot project to develop a blockchain system for traceability and due diligence in the cotton value chain, thereby providing governments and enterprises with a set of tools to advance traceability, transparency and sustainability in this industry. Some of the set of sustainability indicators being traced include origin, content (organic and recycled), use of chemicals, compliance with due diligence requirements, products and materials (traceability assets), sustainability certificates, inspection reports, and business partners (shipping documents, delivery notes, invoices, and so forth).

73 Samples of countries and frameworks that have adopted MLETR include Kingdom of Bahrain, Singapore, Abu Dhabi Global Market, Law Commission of England and Wales, TradeTrust, Engigio, Fox***

9 Conclusion: Digital trade facilitation, United Nations Commission on International Trade Law (UNCITAL) Model Law on Electronic Transferable Records (MLETR), and overcoming a bleeding CFTA

One of the recurring trade facilitation hurdles confronting Africa is the digital infrastructure gaps across markets which are stubbornly resistant to legal interventions, especially in this digital age, where data flow deals, agreements, and regulations are at the heart of trade facilitation. As Africa's digital economy aims at widening trade facilitation and economic gains, product safety, public security, market competition, practical legislative tools, and regulatory policies must be deployed to fast-track global digitalisation. Preparing Africa to become a resilient and digitally-strong economy requires tightening regulatory frameworks, implementing anti-monopoly policies, and adopting industry-specific data security legislative instruments. These devices or smartphones, their apps, and their inbuilt Bluetooth, GPS, certification, traceability, cameras, and tech capabilities played strategic roles in constantly transmitting COVID-19-related information, improving traceability, fostering remote diagnosis and curbing the spread of the pandemic. For instance, in East Asia, where smartphones are ubiquitous and privacy sensitivity is trivial, smartphones were deployed to monitor household and community compliance with quarantine measures, lockdown requirements, exposure to infected people, and vaccination enforcement. More specifically, it was more expedient for China to create software to provide every individual with a personal scannable QR code that would reveal virus status, its nearly 100 per cent smartphone population and penetration, and ubiquitous OR codes. Thus, the adoption of contract-tracing and quarantine-monitoring apps was mandatory in China and South Korea, despite their different socio-economic and geopolitical systems, while digital tracing was not enforced in the US, resulting in minimal adoption. Similarly, smartphone techs have been deployed in other developed countries but in a much narrower sense due to privacy concerns.

To overcome bleedingness and AfCFTA needs such strategic-sector traceability initiatives: (i) block-verify and blockpharma, which help to fight counterfeit in pharmaceuticals; (ii) agridigital and agriledger, which help agricultural businesses to solve supply chain inefficiencies and track the origin of their products; (iii) Cardano, working with small winemakers to enable end-to-end supply chain traceability for organic wines; provenance, which asserts the sustainable provenance of foods, drinks, beauty and fashion; (iv) Minehub and minespider, which deploys

blockchain for traceability and responsibility mining and mineral supply chains; (v) ever ledge tracks the movement of diamonds from mines to shores.

It is pertinent to state that AfCFTA would avoid a bleeding trade phenomenon if it implements the United Nations Commission on International Trade Law (UNCITAL) Model Law on Electronic Transferable Records (MLETR)[74] as a basis towards achieving regulatory convergence on the continent. AfCFTA will realise its vision if it increasingly implements electronic transactions and documents (such as e-signatures, trust services, electronic transferable records, and e-contracts) and to coordinate regulatory approaches on emerging issues such as tokenisation while avoiding a regulatory framework. In a similar vein, the International Institute for the Unification of Private Law (UNIDROIT) Digital Assets and Private Law Project develops international standards to enable jurisdictions to take a common approach to level issues arising from the holding, transfer, use and the taking of security over digital assets. This UNIDROIT Project adopts a neutral approach while accommodating diverse types of assets and technologies, together with various legal cultures.

Even though digital platforms offer huge opportunities for MSMEs to access markets and development sales channels, it is pertinent to note that factors such as network effects and low marginal costs may transform digital platforms into monopolies and oligopolies. Thus, even though digital economy-related legislative and regulatory reforms in Africa have not been as rapid and advanced as those in the US, China and the UK, selected African countries are gradually catching up despite the rising digital divide between urban and rural areas. In view of this, an act on trust-enabled digital platforms (ATEDP) should be promulgated, enforced, and based on digital platform guidelines for measures to facilitate mutual understanding with platform users. These guidelines should stipulate: (i) direction of desirable measures; (ii) specific reference measures that specified digital platform providers should take to facilitate mutual understanding with their customers; in view of this, the ATEDP should (i) designate digital platform providers to disclose terms and conditions and other information, secure fairness in operating digital platforms, submit a yearly report on business operations performance, and self-

74 UNCITRAL MLEC and the United Nations Convention on the Use of Electronic Communications in International Contracts (Electronic Communications Convention) provides a standard approach to the legal validity of enforceability of contracts formed by the exchange of data messages. Or e-contracts or by the interaction of automated systems (or electronic agents) without human involvement (that is, automated or algorithmic contracts).

assessment; (ii) require the ministry[75] to review the business operations of the platform based on yearly reports and other information with the involvement of business users, consumers, academics, and so forth; and (iii) the government should encourage digital platform providers and their customers to facilitate mutual understanding.

Moreover, Africa's two significant efforts in creating a regional data protection regime are the African Union Convention on Cyber Security and Personal Data and article 15 of the AfCFTA. The AfCFTA Protocol on Trade in Services was modelled on the WTO's General Agreement on Trade in Services (GATS) article 15 (C)ii of Protocol on Trade in Services, which provides the following: privacy of individuals concerning the processing and dissemination of personal data and the protection on confidentiality of individual records and accounts. In addition, the AUC on Cyber Security and Personal Data Protection this convention is a comprehensive document covering electronic transactions, privacy, and cybersecurity (Malabo Convention) 2014. Furthermore, AfCFTA should incorporate specific data protection provisions to maintain international best practices in data protection. This would ensure that (i) Africa remains competitive in international trade, thereby increasing the number of member states and external trade partners; (ii) safe conduct is maintained during transactions involving personal data exchange; (iii) there are clear-cut data protection standards, ensuring that data flows within control and alongside rights.

As the African trade facilitation ecosystem evolves, its increasing number of public and private-driven platforms, such as trade finance, transportation or national single windows (NSWs) follow different rules and often operate in isolation. Thus, more efforts are required towards collaborative cross-jurisdictional and trans-sectional approaches while enabling continental flows of electronic data and documents.

Increasing understanding of data governance, laws, processes, and regulations (especially in Europe) requires that digital platform producers address many legal pathologies attributable to our seemingly opaque global trade, health and food systems. The realisation of this challenge as well as the structural, regulatory, and ethical instruments to overcome them are taking shape as digitalisation 5Ps are being intensively deployed to avoid a negative bleeding trade. However, the asymmetry

75 The government should develop systems and procedures for securing fairness, for settling and resolving complaints and disputes; appointment of administrators to manage communication within and outside the country, and other measures necessary for taking customers situations into consideration.

is seemingly deepening Africa's socio-economic susceptibilities. This asymmetry implies that Africa's trade capacities require an interplay between structural reforms, regulatory instruments, and platform actors (owners, users, designers, and so forth) and an epistemic openness to facts, opinions, figures, statements, and data. It is pertinent to note that Big FinTech's (BFT) Regulatory frameworks and regulatory 5Ps' initiatives provide digital financial services faster and more affordable.[76] They also create some risks to financial systems because of platform economics and tendencies towards market concentration and dominance, data misuse, and existing regulatory standards gaps. Thus, African policy makers should craft more customised digital technology, trade, and finance-related regulatory policies to foster sustainable trade and socio-economic development. For the future of AfCFTA, the sooner AfCFTA signatories align their regulatory approaches with new TradeTech applications, such as tokenisation or smart contracts based on autonomous systems, the greater the continent's digital trade regulatory anti-fragility.

In addition, the new digital economy rules (WTO e-commerce, BEPS, and so forth) call for multilateral cooperation and coordination rather than strategically balancing fairness and trade equity in a globally comprehensive manner. While less disruptive but rather transformed in this fourth industrial revolution and at this stage of the digitalisation transition, Africa's national digital trade and taxation rules should be sensitive to the needs of vulnerable populations and minority business variables such as gender, consumers, MSMEs, and digitalisation-latercomer countries. Its more minor distortionary nature will enable MSMEs to reap full benefits and leverage it to leapfrog to greater levels.[77] [78]

However, as the digital age deepens in the post pandemic world, Africa's national and regional governments should deploy more effective legislative and regulatory frameworks to make digital entrepreneurship and SMEs' participation in e-commerce platforms more competitive. In other words, monopoly control over data and scale affects gains distribution between firms operating on e-platforms. Calligaris, Criscuolo, and Marcolin (2018) show how digital sector firms in 26 OECD countries enjoy disproportionate market power and profitability such that firms

76 A Sergeev, AW Douglas & C Kuzi 'Policymakers, big FinTech's and the United Nations Sustainable Development Goals' (2021) The Dialogue on Global Digital Finance Governance Paper Series, Technical Paper 3.1, 2021, University of Hong Kong Faculty of Law Research Paper 2021/30, http://dx.doi.org/10.2139/ssrn.3870612 (accessed 21 August 2021).

77 International Trade Centre (n 4).

78 McKinsey & Company (n 3).

operating in 'digital intensive' service sectors enjoy a 2-3 per cent higher mark-up than firms operating in less digital intensive sectors.[79]

Based on the theses discussed in this chapter, digitalisation's 5Ps combination could create new growth opportunities and seismically bring back business (B3) initiatives in an accelerated manner while eliminating negative bleedingness. AfCFTA should collaborate strategically with African-led cloud systems towards deploying ground-breaking data tools in the trade facilitation innovation space. Data engineers provide trade innovation measures, data analytics, and data science capabilities to trade innovation teams and leaders across the continent, thereby providing comprehensive digital offerings, greater transparency, accountability, and deeper insights with better outcomes at lower costs. Furthermore, blockchain technology remains a potential enabler that decentralises trade and enhances trust among enterprises, businesses, and the world towards digitising trade and commodities supply chains. This will enhance Africa's preparedness for the future of evidence-based trade-facilitation policy processes as it strategically overcomes its inherent bleeding trade phenomenon. In other words, rather than calibrating the future of AfCFTA, trade policy making would benefit from positive bleeding trade by deploying 5Ps and blockchain technology toward maximising its digital-enabled trade ecosystem.[80] [81]

Africa's trade tech legislation prioritisation should consider trade facilitation technologies and digital trade tools for strengthening MSMEs' capacities to build back better, diversify the national/regional economic base, add value (especially local contents) to production and exports, promote sustained growth, and overcome COVID-19 shocks. In addition to assessing Africa's digital transformation, this chapter investigates how tradetech facilitation innovation could be enhanced by implementing how Africa can deploy 'non-bleeding' tools and strategies for upping its game in the post pandemic digital age. Thus, this chapter concludes that promoting intra and intercontinental regulatory harmonisation and cooperation is crucial for gearing Africa for the future of digital trade

79 S Calligaris, C Criscuolo & L Marcolin 'Mark-ups in the digital era' OECD Science, Technology, and Industry Working Papers (2018) 2018/10, Paris https://www.oecd-ilibrary.org/industry-and-services/mark-ups-in-the-digital-era_4efe2d25-en (accessed 21 August 2021).

80 See ch 1 (introduction) and ch 10 (conclusion). On the concept of 'positive accident', see Taleb (n 40). In addition, see Lim (n 46).

81 B Adekunle & G Filson 'Blockchain technology and asymmetric information in the food market' (2019) A selected paper presented at the IAABD 2019, 8-11 May 2019, Dar es Salaam, Tanzania.

agreements, sustainable trade facilitation innovation and the continental digital economy.

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6 Trade in services in West Africa: Intellectual property right and trade facilitation

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Abstract: As the twenty-first century progressively advances, services are increasingly becoming a paradigm for economic performance for countries and their organisations globally in the international markets. There are conceivable innate potentials for trade in services in West Africa, especially with the advent of the African Continental Free Trade Area (AfCFTA) economies, unlike their developed counterparts, are compelled to adhere to the requirements of the intellectual property guidelines because they have to model their intellectual property laws to provide norms. The exercise of IP rights has no protection for indigenous knowledge, thereby exasperating the well-being of developing countries in the context of West Africa, as the situation remains hamstrung over the years. The research work aimed at establishing how intellectual property relates to trade, competitive markets, industrial advancement, and economic growth. Since the efficiency of trade flow is strongly determined by the level of trade facilitation within the countries involved, regulatory efficiency in the form of IP rights is much required for the safekeeping of the creativity of the indigenous knowledge of entrepreneurs to maximally reap the best output returns in trade services. The research summed up that the West African story is pertinent as the region is resource full, with grassroots engagements through entrepreneurship activities in service trade and, if empowered by focus-driven IPRs, which in itself is a trade facilitator, the much-anticipated economic growth, hence economic fluidity is achievable.

1 Introduction

Successively, as the twenty-first century advances, services are increasingly becoming a paradigm for economic performance for countries and their

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organisations globally in the international markets.[1] The increasing visibility of services in domestic industries, alongside foreign investment, are principal elements for employment, economic growth, increase in income, education, and, consequently, poverty alleviation. The rate of increase in service trade is much faster than the trade in goods.[2] Developing economies have contributed to a greater proportion of this increase in service trade.[3] Also, returns obtainable from trade in services are regardless of the income level of a nation, as countries ranging from high-income through to low-income economies engage in it with possible positive prospects. However, opportunities abound even more for low-income and developing economies due to innate potentials that are available for investment as well as high expected return on investment.[4]

Quite a number of developing economies have a wide array of service trade. These trades range from transport services, support business services, banking, telecommunications, information technology, health services, tourism, entertainment, transportation and travel. The improvement in service trade is further enhanced by the declining overhead of information communication technology as well as improved accessibility of internet usage.[5] The growth trend could improve, thereby providing the opportunity for employment and skills acquisition essentially for the developing economies that possess gaps in both income and skills. The improved engagement creates the opportunity for trade in developing economies that would enable them to compete globally. Trade participation, hence, would improve domestic activities and, thereby, investment, creating an avenue for benefiting from the gains of globalisation.[6] At the moment, developed economies have a greater share of world trade in services,

1 United Nations Conference on Trade and Development (UNCTAD) (2021) Technology and Innovation Report: Catching Technological Waves Innovation with Equity, https://unctad.org/system/files/official-document/tir2020_en.pdf (accessed 20 July 2022)

2 WTO (2019). World Trade Report: The Future of Service Trade, https://www.wto.org/english/res_e/booksp_e/executive_summary_world_trade_report19_e.pdf (accessed 12 April 2021)

3 WTO (2015) World Trade Report 2015: Speeding Up Trade – Benefits and Challenges of Implementing the WTO Trade Facilitation Agreement. Geneva.

4 World Bank (2019) Trade in Services: Helping Countries Optimise Services in Trade, https://www.worldbank.org/en/topic/trade-in-services (accessed 13 August 2021)

5 African Development Bank (AfDB) (2012) The Transformational Use of Information and Communication Technologies in Africa. eTransform AFRICA, https://www.afdb.org/fileadmin/uploads/afdb/Documents/Publications/The_Transformational_Use_of_Information_and_Communication_Technologies_in_Africa.pdf (accessed 14 May, 2021)

6 World Bank (n 4)

with a proportion of 67 per cent in the export of total services in 2019,[7] as against 75 per cent in 2000 and 66 per cent in 2012.[8] It can be noted from this that the export potential of developing economies is gradually growing, as the proportion of service trade globally has increased from 23 per cent in 2000 to 33 per cent in 2019.[9]

Trade in services is premised on quite a number of domestic regulations that direct the accessibility and processes of the indigenous as well as the foreign investors. Regulations could assist the market to thrive and, contra wise, they could lead to market failure. Regulation is essential in aiding the performance of the service sector in countries as well as making them competitive globally. It improves the prospects of exports that are dearly required by developing economies for improved income levels and growth.[10] The implementation of trade facilitation is favourable for service trade. It is essentially germane for the involvement of developing economies in the global value chains and trade in goods as well as services. The developing economies, much more than the developed countries, derive more value from service trade participation due to the implementation of trade facilitation.[11]

There are conceivable innate potentials for trade in services in West Africa, especially with the advent of the African Continental Free Trade Area (AfCFTA). This free trade agreement in Africa, if supported by the essential workability of the contract, is expected to expand Intellectual Property (IP) rights.[12] Also, better engagement of the IP rights would improve trade service activities, hence facilitating trade in the region.

7 World Bank (n 4)

8 United Nations Conference on Trade and Development (UNCTAD) (2014) Trade and Development Report, https://unctad.org/system/files/official-document/tdr2014_en.pdf (accessed 14 May 2021)

9 P Karkare and others 'A system, not an error: Informal cross-border trade in West Africa' ECDPM Discussion Paper 300 (2021), https://ecdpm.org/wp-content/uploads/System-Not-Error-Informal-Cross-Border-Trade-West-AfricaECDPM-Discussion-Paper-300-2021.pdf (accessed 14 May 2022)

10 United Nations Conference on Trade and Development (UNCTAD) (2020) Key Statistics and Trend in International Trade, https://unctad.org/key-statistics-and-trends-international-trade-2020 (accessed 14 May 2021)

11 United Nations Conference on Trade and Development (UNCTAD) (2016) Trade Facilitation and Development: Driving Trade Competitiveness Border Agency Effectiveness, and Strengthened Governance, https://unctad.org/trade-facilitation-and-development-driving-trade-competitiveness-border agency (accessed 14 May 2021)

12 United Nations (2012) Trade Facilitation Implementation Guide: The Generic Approach to Trade Facilitation Implementation https://tfig.unece.org/contents/generic-approach-TFimplementation.htm (accessed 23 September 2022)

The fluidity of our world necessitates that rules are made[13] imposed, to improve procedures for organised outputs that are much required for developing regions, essentially West Africa, where remarkable change is highly desired economically[14]. Trade in services stimulates improved performance and activities in the agricultural sector, as well as in the manufacturing sectors. Quite a number of services are essential resources; this is because they act as intermediaries, hence providing for other sectors of the economy.[15] To a large extent, services have now become an essential feature in economic activity in addition to playing a critical part in infrastructural development, improved level of competition and, consequently, the facilitation of trade.[16]

2 The concept of trade in services

The concept of trade in services refers to the transaction and distribution of intangible goods, referred to as services, between a producer and the end-user.[17] The transaction that occurs between a producer and an end-user with legal agreements provisions in the exchange of non-corporeal goods is referred to as trade in services.

13 KE Maskus 'Globalisation and the economics of intellectual property rights: Dancing the dual distortion' Institute of International Economics (2000), https://www.piie.com/publications/chapters_preview/99/3iie2822.pdf (accessed 23 September 2022).

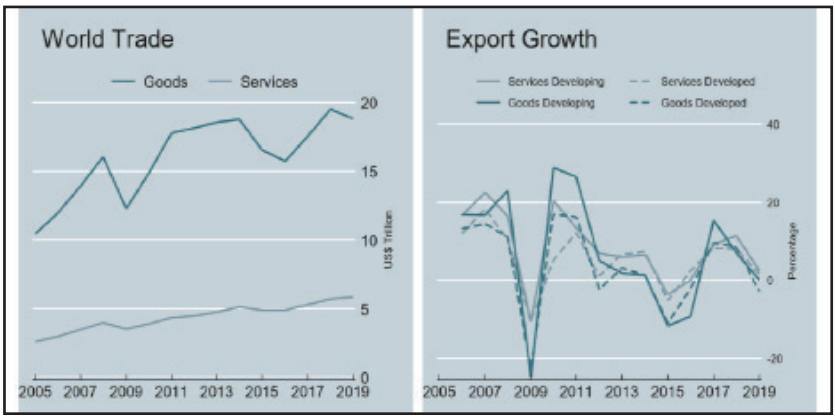
14 World Bank (n 4)

15 United Nations Conference on Trade and Development (UNCTAD) (n 8)

16 United Nations Conference on Trade and Development (UNCTAD) (n 8)

17 P Madden 'The figures of the week: International trade in services (2019) *Africa in Focus*, https://www.brookings.edu/blog/africa-in-focus/2019/06/06/figures-of-the-week-international-trade-in-services/ (accessed 16 May 2021).

Figure 1: Values and growth rates of world trade in goods and services

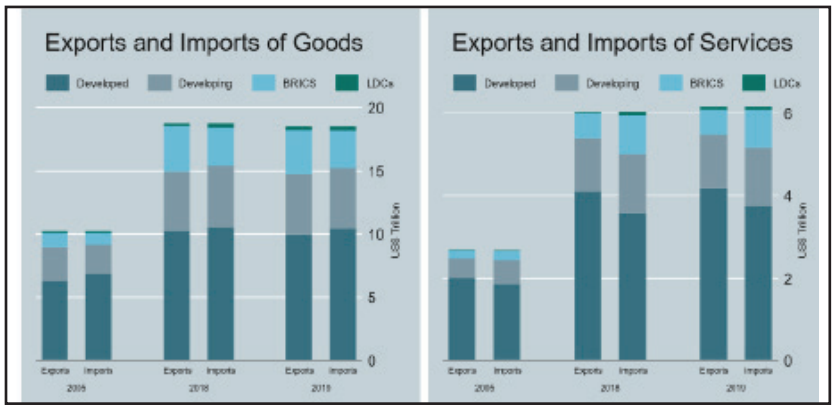


Source: UNCTAD Secretariat calculations based on COMTRADE and UNCTAD stat data

From Figure 1 it can be deduced that a clear difference is evident between trade in goods and trade in services. A greater proportion of trade, however, is accounted for from tangible goods, whereas service trade accounts for a lesser portion. Global trade in tangible goods rose radically over the past ten years, a rise from about US $10 trillion in 2005 to over US $18.5 trillion in 2014. Though there was a decline in 2016, it further increased to US $18.8 trillion in 2019. However, for trade in services, there has been a consistent increase between 2005 and 2019. There was a rise from about US $2.5 trillion to US $6 trillion.[18]

18 United Nations Conference on Trade and Development (UNCTAD) (n 8)

Figure 2: Value of trade in goods and services by region



Source: UNCTAD Secretariat calculations based on COMTRADE and UNCTADstat data

The developed economies over the years, as major producers in international markets, have had relative increases in trade volumes; they explain more than 50 per cent of total exports of goods and about 67 per cent of service exports. As illustrated in Figure 2a above, in 2019 developed economies' goods exports was about US $10.5 trillion, while Figure 2b reveals that service export amounted to about US $4.1 trillion. Also, goods exported for developing economies amounted to about US $8.5 trillion, while service export amounted to about US $2 trillion. Hence, it is evident that the contribution of developing economies to global service trade still remains minimal in spite of the relative increases in exports and imports for the countries over the past ten years.[19]

3 Level of trade in services in West Africa

Intra-regional trade in West Africa is considerably low, enormously informal and inadequately reported.[20] The introduction of the AfCFTA in 2019 was a notable head start for African countries to enhance service trade prospects, hence creating avenues to best maximise available potential and market to their advantage. This prospect through the authorised market entry was established basically for five major service sectors in 2020, namely, business advisory, communication, financial services, tourism and transportation.[21] The continental free trade area promises an increase in regional trade, a reduction of trade costs and a restructuring of border

19 United Nations Conference on Trade and Development (UNCTAD) (n 8)

20 P Karkare and others (n 9)

21 P Madden (n 17)

processes. If fully implemented, AfCFTA would assist African countries in boosting their opportunities in spite of projected economic volatility, which would assist in ushering in various types of ardent restructuring that are required for sustainable growth.[22]. However, the concerns of land border barriers and road blocks in West Africa and Africa as a whole make these expectations of the free trade zone a fallacy. The rationale of the Economic Community of West African States (ECOWAS) trade liberalisation scheme is to ensure trade facilitation within this Regional Economic Community (REC). However, quite a number of barriers still disrupt the free flow of intra-REC trade. These obstacles comprise incessant road blocks, unlawful mandatory payments, persistent provocation of traders as well as transporters, and inconsistent adjustment measures.[23]

In spite of the objectives of the AfCFTA to enhance service trade in the region and to boost intra-African trade by at least 53.2 per cent, the current situation depicts that quite a number of African countries are disturbingly not ready to execute their AfCFTA obligations. This is evidenced by several actions taken by the said countries. For instance, the Nigerian ban on the trade of every commodity from the countries that it is sharing land borders with, namely, Benin, Cameroon and Niger, effectually prohibits all import and export trade with its neighbouring countries.[24] [25]

The shutdown of the Nigerian border does not agree with the resolve of the free trade expectations, which aspires to build a domestic market with access to the flexible movement of people, investment, goods and services.[26] This also conflicts with the over 44 year-long commitment to the ECOWAS, which was initiated by Nigeria in 1975, a very potent initiative for the free trade agenda. The aim of establishing the domestic market and removal of tariffs, quotas, quantity restrictions, duties, and taxes imposed on trade among countries in the West African region is still far-fetched, and the free trade area remains a mirage.[27] [28]

22 World Bank (2020). African Continental Free Trade Area https://www.worldbank.org/en/topic/trade/publication/the-african-continental-free-trade-area (accessed 16 May 2022)

23 V Willemien (2019). 'The intra-Africa non-tariff barrier dilemma –The challenges facing AfCFTA approach' *Tralac Annual Conference* https://www.tralac.org/documents/events/tralac/2739-tralac-brief-the-intra-africa-ntb-dilemma-thechallenges-facing-the-afcfta-approach (accessed 24 June 2021)

24 World Bank (n 22)

25 Madden (n 17)

26 World Bank (n 22)

27 Madden (n 17)

28 World Bank (n 22)

The current condition of West Africa, as regards the facilitation of trade processes, poses a dilemma of a paradox of heterogeneity.[29] The countries in the regions are neither set for the engagement of the free trade obligations, nor are they remaining committed to the signed responsibility of the REC. These have even been aggravated by the required border closures at the occurrence of the pandemic in the region early in 2020 in order to contain the spread of the virus. Services sectors globally, West Africa not excluded, have been severely impacted by the COVID-19 pandemic. Service sectors, such as distribution, tourism and transportation, for example, have been affected due to the restrictions placed on mobility and social distancing rules enforced for the safety of public health. However, not only has service trade suffered from this impact, but also inputs for other trade mobility, which includes the connection of value chains and trade facilitation in goods, have also been adversely affected in the region hence, creating an extensive trade and economic effect.[30]

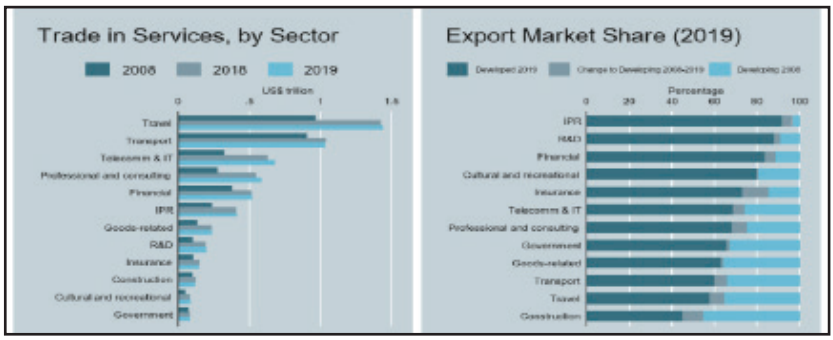
4 Trends of trade in services by sector

The developed economies are majorly service-oriented economies. This is due to the fact that the service sectors are the main producers of employment and income for these countries. The picture is rather different for developing economies as, even though there is relatively increasing engagement in service trade, the level of engagement for these countries is minimal compared to their developed counterparts. This is evidently revealed by the huge surpluses of invisible trade accounts of developed countries, in contrast to the enormous deficits for developing economies.

29 The paradox of heterogeneity as it concerns West African countries is as a result of their unpreparedness to follow through with the free trade requirements. Their lack of commitments evidenced by increased barriers created for free trade rather complicates the trade facilitations endeavour immensely, thereby creating the dilemma of more problems instead of solutions in the region as regards service trade.

30 World Trade Organisation 'Trade in services in the context of COVID-19' (2020), https://www.wto.org/english/tratop_e/covid19_e/services_report_e.pdf (accessed 25 July 2022)

Figure 3: Market share of trade in services of developing and developed countries by sector



Source: UNCTAD Secretariat calculations based on UNCTADstat data

Transportation service trade is a major service export of Africa. In reference to services, trade-in travel is at about US $1.5 trillion, representing the leading sector. This is closely followed by the transport sector, with US $1 trillion in 2019. There are other prominent sectors, namely, financial, professional, telecommunications and IT services, in no particular order. There has been a constant rise in the volume of trade across sectors.[31] Also, Figure 3b presents the market share of exports of various service sectors in country classifications of developed and developing economies between 2008 and 2019. It is obvious, though, that developed countries have a bigger share of service exports; the share of the export market is gradually moving to the benefit of developing countries across sectors.[32]

In the sub-Saharan Africa region, transport and travel explain for over 50 per cent of the entire region's service trade.[33] For the African region, transport and travel service provides the required support for export-oriented growth in the region, hence, enabling access within the region as well as enhancing value chains globally. Since it has been highlighted that transport service drives overall trade service, a fall in this sector would as well amount to an overall decline in trade services.[34] The trend of transportation and travel service for West Africa has shown a tremendous

31 United Nations Conference on Trade and Development (UNCTAD). (2019). Trade and Development Report: Financing a Global Green Deal https://unctad.org/system/files/official-document/tdr2019_en.pdf (accessed 25 July 2022)

32 United Nations Conference on Trade and Development (UNCTAD) (n 31)

33 World Bank (n 22)

34 M Ayoki 'Recent trends in Africa's service trade' Institute of Policy Research and Analysis Munich Personal RePEc Archive Paper 86430 (2018), https://mpra.ub.uni-muenchen.de/86430/ (accessed 14 May 2021)

increase over the years. In Nigeria, the transport and logistics supply chain sector is about the most impressive with regard to growth, despite the fact that it is still evolving. An impressive infrastructural facelift and better improvement of government policies in the business environment would improve its full potential, thereby boosting the performance of the sector.[35]

There have been initiatives, even from the private sector, to facilitate the free movement of goods and services in West Africa.[36] A case in point is the initiative of the Borderless Alliance, with strives to remove trade and transport barriers within countries in West Africa, hence boosting the movement of goods and services, thereby facilitating regional trade.[37] The activities of the organisation have impressive success stories, such as the reduction or removal of police checkpoints in countries such as Benin, Côte d'Ivoire, Niger, Togo and Ghana. This will no doubt encourage service trade, improve efficiency, as well as reduce costs.[38]

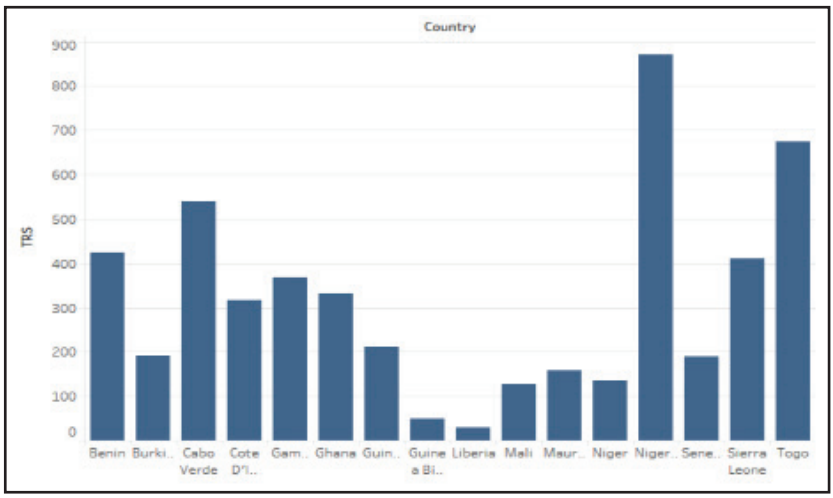
35 International Trade Centre (2020). African Market Trends in Technology Services: Country Profiles https://www.intracen.org/uploadedFiles/intracenorg/Content/Publications/African%20IT%20and%20BPO%20Marke%20%20Report_20201109_02.pdf (accessed 25 June 2021).

36 Madden (n 17).

37 USAID Borderless Alliance (2021), https://www.usaid.gov/news-information/fact-sheets/borderless-alliance (accessed 14 July 2022).

38 S Quainoo (2017). World Customs Organisation News https://mag.wcoomd.org/magazine/wco-news-84/mobilisingtrade-and-transport-operators-in-west-africa-to-break-down-non-tariff-barriers/ (accessed 13 May 2021).

Figure 4: Transport service per country in West Africa



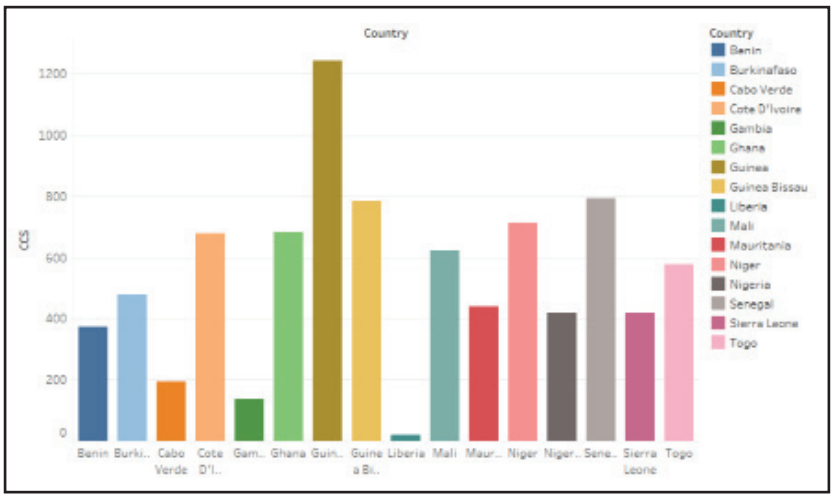
Source: Author's computation
Note: This chart gives the account of transport service per country in West Africa. Nigeria, as can be seen, has the highest sum, followed by Togo and then Cabo Verde, the country in the region with the least transport service volume is Liberia.

The telecommunication and IT service trade sector is another promising segment of service for the West African region. The National Bureau of Statistics provides information regarding the ICT sector growth in Nigeria of more than 10 per cent between 2015 and 2019. The engagement of the sector amounted to a 24 per cent contribution to Gross Domestic Product (GDP), making it the second highest after agriculture. The persistent increasing use of technology also shows in its value addition and the immense way it complements other sectors of service trade. The story is similar for Côte d'Ivoire as the sector contributes a whopping 13 per cent to GDP, as well as being a major driver of economic growth. This is evidenced by the income generated by the sector of US $585 million in 2018.[39] The World Bank data provided that Côte d'Ivoire had a US $100 million export of ICT services in 2017, and this accounted for about 10 per cent of service exports. For the country, the ICT service exports annually had increased beyond 10 per cent above what was obtained in the past four years, which is an indication of the budding prominence of these services economically, especially for a country with over two per cent growth rate annually.[40]

39 International Trade Centre (n 35).

40 International Trade Centre (n 35).

Figure 5: Computer communication and other services per West African countries



Source: Author's computation
Note: The chart gives an account of computer communication and other services per country in West Africa. Guinea, as can be seen, has the highest sum, followed by Senegal and closely by Guinea Bissau and Niger. The country in the region with the least telecommunications volume again in Liberia.

For Benin, data provided by the World Bank revealed ICT export service was US $29 million in 2016, a decline from US $77 million in 2013. The economic achievement of Benin depends heavily on Nigeria, as a huge chunk of over 50 per cent of the country's exports goes to Nigeria. Interestingly to note, however, is the fact that the decline in service exports generally, and ICT service exports, in particular, can be traced to the downturn and poor performance of the Nigerian economy. The country has great potential as it has the highest wireless penetration rate for the West African region, at a 99 per cent rate, much above the regional average of only 71 per cent.[41]

In Mali, internet penetration presumably was 13 per cent in 2017. Also, in spite of the fact that mobile phone usage was about 90 per cent of the population size, giving the country one of the largest mobile penetration, only about 27 per cent of mobile users accessed the internet. Mali is currently striving towards becoming an epicentre for ICT service development and outsourcing. The service sector market size for the country as of 2017 stood at US $934 147, evidencing the landlocked

41 International Trade Centre (n 35).

incapacitation of the country. This is explained by the reality that Mali only has the opportunity to use undersea fibre-optic cables by relating with other neighbouring countries, hence making wireless penetration rather low. Burkina Faso's service sector contribution to GDP composition stands at 38 per cent. The World Bank data provides total ICT service export as US $48 million. The ICT landscape for the country is still at the foundational level, as the development of the sector is still lagging behind in comparison to other budding sectors such as the agricultural and mining industry.[42]

The health service sector is another interesting sector viewed in the global picture. Telemedicine or remote medicine is not a new concept, but the recent global pandemic has proffered a significant impression on the possibilities for boosting the market of internet-based health services, which has potential consequences for trade. The COVID-19 pandemic motivated a rise in the use of telemedicine services. The rise can be quantified across countries; in China, for instance, an experience of three-digit growth rates was discovered between December 2019 and January 2020.[43] The number of remote medicine users was noted to have increased across regions; countries such as Australia, Indonesia, Singapore and also African countries recorded tangible increases.[44] This is one sector, unlike many others, that has encountered a positive impact from the global pandemic. Service providers, in order to cope, have to expand their processes to facilitate the benefits of their patients. Nigeria is expected to have a double-digit growth by 2026; other countries such as Benin, Burkina Faso, Cabo Verde and Ghana also documented a considerable increase in the use of telemedicine, mostly during the pandemic. Evidence of an increase in this service trade is an indication of an incessant increase in start-ups in the remote medicine landscape.[45]

The financial service industry also encountered substantial shifts due to the global pandemic and its impact on the global economy. The major responsibility of the financial service industry was clearly highlighted, particularly more during the pandemic, in order to support all other economic activities by creating stability in the markets and facilitating payment and creating money through the act of lending. Electronic

42 International Trade Centre (n 35).

43 World Trade Organisation (n 30).

44 World Trade Organisation (n 30).

45 Global System for Mobile Communications Association (2021). Health Systems, Digital Health, and COVID-19: Insights from Bangladesh, Myanmar, Pakistan, Benin, Nigeria, and Rwanda https://www.gsma.com/mobilefordevelopment/wp-content/uploads/2021/01/Health-Systems-DigitalHealthandCOVID-19.pdf (accessed 22 September 2022).

banking and e-payment platforms have also been the major financial service sector development and engagement during the pandemic and even becoming the new normal for the West African regions and also globally. The electronic aspect of financial services such as telemedicine has encountered a positive impact, increasing these service trade sectors and contributing to the resultant improvement of economic activities at large.[46]

5 The pandemic and Nigeria's event industry: The story as culled from *Guardian TV*

Nigerians like their parties popularly known as *owanbe*, but the current pandemic has affected the way we live, work and play, including the way we party in Nigeria. The industry is estimated to be worth over US $20 billion, with Lagos taking the hugest share, about 80 per cent of the market. However, it has suffered the worst hit since the COVID-19 lockdowns and bans on large gatherings. The players of the industry have felt the hit much since the industry thrives on gatherings of people for concerts, weddings, shows, annual general meetings, and so forth. In spite of the shut-downs in business, which meant no creative content, and income, most importantly, for quite a number of the players, what mattered first was the safety of their clients and themselves. The pandemic has caused the event industry to suffer a practical shutdown, a near-comatose situation with no end in sight. The alarming conditions were such that even after the lockdowns were eased, those that tried to cash in during the festive seasons had their shows cancelled by the government. The question players are asking is that, if people can go to school, religious houses, and the market, why can they not come for events? Many people have been thrown out of jobs as a result of this dragging issue in the industry. Even where events have gone virtual, with lesser manpower, interestingly, the events indeed are still no cheaper. From planners to decorators, food caterers to drink vendors, confectioners, security outfits to ushers, photographers, videographers, disc jockeys to music bands, masters of ceremony to comedians and to other support staff, the events and entertainment industry's long value chain in Nigeria now is in danger. The industry has been estimated to have lost about ₦1 trillion in 2020 which, if nothing decisive is done, would even be worse by the end of 2021. The 'no market, no job' syndrome really is dire for Nigeria because this invariably results in an increase in the level of poverty, particularly worsening living standards due to the ripple multiplier effect in the industry and, by extension, other related sectors. Despite all these discouraging barriers, the players that are innovative try avenues to open their market without flouting the COVID protocols. They

46 Global System for Mobile Communications Association (n 45).

create, for instance, outdoor events to desist from cramming crowds in an enclosed area. They also even go to the extent of having multiple room events to assist them in staying within the requirements of not more than a hundred people in a room. The only concern is how profitable these could be, considering the associated costs regarding survival remodelling. To make the condition worse, the Central Bank bailout fund for participants in the sector, which quite a number of participants eagerly desired to have, never saw the light of day. This could have brought about a facelift in the industry and recovery for many, but that again is another Nigerian syndrome: corruption that has eaten deep into the system, a strong deterrent to economic freedom for the painstaking entrepreneur and player in the industry. Conclusively, if the Nigerian event and entertainment industry, in the context of a trade service sample sector in Nigeria, is left in the struggle, then economic freedom is a mirage, and the sector, a weapon to facilitate trade, can only produce inefficiently. This will hamper improved economic activity, growth and development.

6 Fluid spaces

Structurally, fluidity could be referred to as the circumstances where marginal barriers exist. Though barriers are required and possibly unavoidable to a certain extent, barriers, in themselves, are essential as communication avenues primarily for the reduction of risk.[47] [48] The engagement of entrepreneurs, hence, in service trade is premised on the conversations that are risk-averting, basically expressed by guiding rules that provide controlled processes. In clear consideration of economic fluidity, barriers usually are expected to pose hindrances to economic advancement.[49] These said hindrances usually pursue minimal outcomes of risk, which usually have an adverse impact on the dynamism of growth-motivated entrepreneurship. As much as rules and frameworks are unavoidable, they are required in order to assist in the propagation of novel concepts and innovations.[50]

47 Global Economic Prospect (GEP) Transport Services: Reducing Barriers to Trade (2002), https://www.worldbank.org/content/dam/Worldbank/GEP/GEParchives/GEP2002/GEP2002Chap4.pdf (accessed 22 May 2021).

48 C Torres & J van Seters 'Overview to trade and barriers to trade in West Africa: Insight in political economy dynamics, with particular focus on agricultural and food trade' ECDPM Discussion Paper 195 (2016), https://www.tralac.org/images/docs/10274/overview-of-trade-and-barriers-to-trade-in-west-africa-insights-in-politicaleconomy-dynamics-agricultural-trade (accessed 22 May 2022).

49 CJ Schramm 'Entrepreneurial capitalism and the end of bureaucracy: Reforming the mutual dialog of risk aversion Paper presented at annual meeting of the American Economics Association, 6 January 2006, https://www.aeaweb.org/annual_mtg_papers/2006/0107_1015_0304.pdf (accessed 22 May 2022).

50 CJ Schramm (n 49).

Over the span of time, economic fluidity now seems even more alarming than the pathological kind. Though the spread of COVID-19 has not been entirely as devastating in Africa compared to other parts of the world, its impact on service trade, like other parts of the world, has brought about a downturn in volumes of trade.[51] The persistent incidences of lockdowns and border closures have generated setbacks in trading activities with regard to gainful productive engagements and trading within borders and among the countries.[52] Close to two years of the pandemic and its spread, lesser emphasis is being placed on location. The continuous spread of the disease globally has brought the world economy to its most intense and most integrated downturn to date.

Quite a number of service trade sectors, such as fast food and eateries, film and entertainment industries, health spas, recreation centres, transport, and travelling and other forms of services inclusive have all been worst hit. The lockdowns have evidently affected the movement of goods, but even more, it has restricted the cross-border movement of people; even the Davos 2021 World Economic Forum was rescheduled.[53] However, the need for a continuous decline in the restriction of movements cannot be overemphasised. Freedom of trade, constitutional rule of law, and property rights are essential requirements for economic freedom and growth in order to attain economic fluidity. It is worthy of mention, hence, that freedom of trade is a key element to economic fluidity.

These are the thoughts of[54] as he clearly posits in discussions on freedom of entrepreneurship as well as labour, revealing an emerging perception that micro-scale learning growth is primarily essential to economic fluidity. Entrepreneurship is a major driver of a free-market structure, as described by Schumpeter's Gales of Creative Destruction that entrepreneurs are accountable for promoting both advancement in technology as well as innovation.[55] [56] The expression, a fundamental impulse described by Schumpeter regarding the concept of the free-market structure of an economy, will be immobile if there is no tangible mobility

51 World Trade Organisation (n 30).

52 United Nations Conference on Trade and Development (UNCTAD) (n 10).

53 The Economist (2020), 'How has trade survived COVID-19: Better than during the global financial crisis? https://www.economist.com/finance-and-economics/2020/09/12/how-has-trade-survived-covid-19 (accessed 12 June 2022).

54 Schramm C.J. (2008). Economic Fluidity: A Crucial Dimension of Economic Freedom. *Index of Economic Freedom* https://thf_media.s3.amazonaws.com/index/pdf/2008/Index2008_Chapter1.pdf (accessed 14 May 2021).

55 JA Schumpeter *Capitalism, socialism and democracy* (1975) 83.

56 WJ Baumol 'Entrepreneurship: Productive, unproductive, and destructive' (1990) *Journal of Political Economy* 98, 893, 894.

of labour. Mobility of labour, according to him, is essential for effective entrepreneurial business freedom, hence economic fluidity.[57]

There exists dynamism in the context of service trade, and classical theory describes the outcome of movement from a closed economy to free trade as tangible economic gains. This is posited from the background of both specialisation and the allocation of resources effectively to produce economic gains.[58] Focused primarily on the key motivating advantage of trade. The dynamism of trade, according to him, is that export markets broaden the aggregate market for a country's entrepreneurs.[59] The concept of production is subject to increasing returns; the aggregate benefits from trade would likely surpass the fixed benefits if resources are efficiently utilised.[60]

Developing economies, like countries of the West African region, have low income and domestic capital.[61] If trade is not engaged in these economies, the required increase in returns for amassing domestic investment would be forfeited. This is because a close-knit relationship exists between increasing returns and capital accumulation.[62] However, if developing economies characterised by low income can trade, there is an opportunity for improving domestic investment and developing indigenous industries by fully engaging entrepreneurship freedom, as well as innovation beyond just the traditional production techniques.[63] Developing countries, essentially those in the West African region, can access protection of service brands for emerging entrepreneurs to assist them in gradual growth to the level they can sufficiently engage services on a large scale, develop resilience and compete in the global market.[64]

Driving service trade to accumulate economic gains requires a simplification of the barrier framework in order to facilitate trade, domestic investment and stimulate economic gains.[65] The economic fluidity theory as regards service trade and how it relates to an economy, essentially a

57 Schramm (n 54).

58 AP Thirlwall *Growth and development with special reference to developing economies* (2006).

59 Baumol (n 56).

60 Thirlwall (n 58).

61 FB Adegboye 'Foreign direct investment and economic development: Evidence from selected African countries' PhD thesis, Covenant University, Ota, Nigeria, 2014.

62 Adegboye (n 61).

63 Baumol (n 56).

64 Thirlwall (n 58).

65 SL Parente & EC Prescott 'Barriers to technology adoption and development' (1994) 102 *Journal of Political Economy* 298-318.

developing one, is the ability to reduce barriers and create an adjustment of their framework in a manner to determine economic growth.[66] Basically, whether from the level of an individual to an entrepreneur, corporate organisation, down to the government, economic fluidity simply is the capability of all concerned economic players to freely make decisions regarding business, entrepreneurship, or trade and critically begin creating service trade delivery in an innovative manner.[67]

7 Intellectual property rights

Intellectual property rights, as described by the World Trade Organisation, are the rights provided to people over the innovations created by deep thinking with baselines of originality.[68] These generally give the inventor an absolute right over the use of his or her innovation for a specified time frame. In their definition, a customary subdivision of intellectual property rights basically is in two forms: first, copyrights with regard to authors of scholarly artwork.[69] These works have the protection of copyright, minimally for 50 years subsequent to the death of the author. Second, industrial property could be with the characteristics of safeguarding unique signs, especially trademarks.[70] The safeguarding of such outstanding signs usually is motivated to encourage and guarantee reasonable competition as well as ensure customer protection. Hence, it is the protection that principally inspires innovation, design and technological creation with regard to the protection of patents, designs of industry, and trade secrets.[71] Also worthy of note is the fact that the development of economies relies mostly on the use of new knowledge and innovation to create value essentially in developing climes. The protection of these innovations and ideas hence is imperative for sustainability.[72]

66 DC North, JJ Wallis & BR Weingast 'A conceptual framework for interpreting recorded human history' National Bureau of Economic Research Working Paper 12795 (2006).

67 J Munkhammar 'The urgent need for labour freedom in Europe – and the world' *Index of Economic Freedom* Washington DC: The Heritage Foundation and Dow Jones & Company, Inc. (2007) 27–36.

68 World Trade Organisation 'What are intellectual property rights? TRIPS: Trade Topics' (2021), https://www.wto.org/english/tratop_e/trips_e/intel1_e.htm (accessed 13 August 2022).

69 GD Graff & PG Pardey 'Inventions and patenting in Africa: Empirical trends from 1970-2010' (2020) 23 *Journal of World Intellectual Property* 40-64

70 World Trade Organisation (n 68).

71 World Trade Organisation (n 68).

72 Graff & Pardey (n 69).

8 Patents, trademarks and copyrights: Differences and similarities in the African concept

Essentially, entrepreneurs should recognise that the majority of their products, wares, brands, innovations, and inventive works have protection by one of the three forms of intellectual property rights: copyright, patent or trademark. It is, however, imperative to be informed of the rights available for intellectual property before legal steps can then be taken to secure the rights.[73] [74]

8.1 Trademark

A trademark, also known as a service mark, is typically registered on an appellation, badge, catchphrase or slogan, which usually could be utilised in the differentiating of products of services for an entrepreneur from its rivals in the market.[75] These registered trademarks have protection provisions under the Trademarks Act 194 of 1993. Registration of trademarks would be done only for products as well as services without prior similar registration. The registration of the trademark ensures the record in the register and also necessitates a renewal every ten years and consistently forever.[76] Also, infringements on the trademark can be allayed by an application for a prohibition order to ensure they desist from doing so. Additionally, the trademark owner could claim damages for its use to recover any financial detriment suffered.[77]

8.2 Copyright

Copyrights, on the other hand, are sets of absolute rights accessible by the inventor of an innovative work.[78] The rights include the right to replicate, distribute, publicise, adapt, or import the work. The kind of work that may be covered with copyright are scholarly works, music, broadcasts,

73 A Truter 'Trademark, copyright, and patents – Basic differences and how to protect your intellectual property rights (2019), https://www.linkedin.com/pulse/trade-mark-copyright-patents-basic-differences-how-protect-truter/ (accessed 13 September 2021).

74 Graff & Pardey (n 69).

75 Copyright Alliance 'What is the difference between copyright, patent and trademarks?' (2021), https://copyrightalliance.org/faqs/difference-copyright-patent-trademark/ (accessed 14 May 2022).

76 A Webb 'The difference between copyrights, trademarks, and patents' *The New York Times* (2020), https://www.nytimes.com/article/copyrights-trademarks-patents.html (accessed 22 July 2022).

77 Truter (n 73).

78 Copyright Alliance (n 75).

soundtracks, artworks, and computer software packages. Copyright is not renewable and is ceded over a 50-year period, specifically depending on the nature of the work. However, copyrights are different from other kinds of intellectual property rights as they do not require physical registration because the copyrights exist automatically. [79] They are rather rights that are automatic, which the inventor of a work acquires the moment the prerequisites provided by the Copyright Act are attained; hence they are inexpensive on the whole, unlike trademarks.[80] A point worthy of note is that an entrepreneur who is an inventor cannot have a copyright on ideas; hence, no idea can be protected by copyright. In order to access copyright, the ideas need to be conveyed in a physical structure such as a book or an artwork before they can be protected.[81]

8.3 Patents

A patent is an absolute intellectual property right accorded to a creator of a new product, an innovative procedure or an invention in the form of a technological answer to a challenge. A patent could be given for an innovation that is an invention that is novel in its process indeed, which is not just an idea but essentially an innovation.[82] Also, the invention must be such that it is applicable in trade, agriculture, or in industry. A patent is similar in its operation to a trademark, as they require physical registration, which is not required in copyright. Hence, it is essential to register patents, as it precludes other entrepreneurs from replicating the innovation of the trader, or utilising, disseminating, importing or trading the product without the express consent of the patent owner, and, unlike trademarks and copyrights, it operates on the system of acknowledging the first inventor to process filling.[83] The registration process is done at a fee and a costlier procedure than the registration of a trademark.[84] Additionally, the period covered by the patent registration is lower than both the trademark and the copyright. It covers for only 20 years before elapsing, and it also is not renewable like the copyright. As in the case of trademarks, the unauthorised usage of a patented innovation could attract an order to claim damages.[85]

79 Webb (n 76).
80 Webb (n 76).
81 Truter (n 73).
82 Webb (n 76).
83 Webb (n 76).
84 Copyright Alliance (n 75).
85 Truter (n 73).

9 The African concept

The concept of intellectual property is inextricably associated with trade, competitiveness, and economic and industrial development.[86] The origin of the World Trade Organisation (WTO) in 1995 and the subsequent establishment of the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS) have created new concerns for African countries, especially regarding IP safety for the countries.[87] The TRIPS deal is the most all-embracing legal agreement regarding the guideline and safety of the various kinds of intellectual property. The agreement sets basic requirements for all countries that are WTO members, to which they are to abide.[88] The basic challenges with which African economies are faced, unlike their developed counterparts, are adhering to the requirements of the guidelines since they have to model their individual IP laws along with the requirements of TRIPS.[89]

The tactical initiation of technology has transformed the level of awareness and its usage. Usually, quite a number of these technological ideas are solely owned in sectors that affect vital human requirements, essentially in the health service sector. [90] The extension of property rights to these sectors would result in a hike in the costs of using such technologies and subsequently worsen the already huge technology gap between developed and developing countries.[91] Also worthy of note is the concept of indigenous knowledge, which has immense prospects for developing economies rather than their developed counterparts. Indigenous knowledge is an essential component in the innovation process in developing countries. This hence is a gain for developing countries, and the extent to which they explore these potentials would determine their

86 GM Sikoyo, E Nyukuri & HW Wakhunga 'Intellectual property right protection in Africa: Status laws, research and policy analysis in Ghana, Kenya, Nigeria, South Africa, and Uganda' Africa Centre of Technology Studies (ACTS) Ecopolicy Series 16 (2006), https://media.africaportal.org/documents/ecopolicy16_1.pdf (accessed 12 August 2021).

87 World Trade Organisation Agreement on Trade-Related Aspects of Intellectual Property Rights (unamended) (2021), https://www.wto.org/english/docs_e/legal_e/27-trips_01_e.htm (accessed 22 September 2022).

88 BA Lundvall and others 'National systems of production, innovation and competence building' (2002) 31 *Research Policy* 213-231, https://www.sciencedirect.com/science/article/abs/pii/S0048733301001378 (accessed 15 August 2022).

89 World Trade Organisation Agreement on Trade-Related Aspects of Intellectual Property Rights (n 87).

90 Sikoyo, Nyukuri & Wakhunga (n 86).

91 Lundvall and others (n 88).

industrial and economic development.[92] However, the exercise of IP rights has no protection for indigenous knowledge, thereby exasperating the well-being of developing countries in the context of West Africa.[93]

10 The West African example

Ghana had its patent structure initiated by the colonial regime, the Patents Ordinance 1 of 1899, which made the UK patent law valid to the colony. Successively, patents could only be certified in the UK and further approved in Ghana.[94] All through this period until the early 1990s, the Ghanaian re-approval system was enforced, however, excluding pharmaceutical products, as earlier patents on the health service sector were cancelled. Since 1992, however, for Ghana, the process of getting certification on patent first from the UK and a re-registration in Ghana was annulled by the enactment of the Patent Law, 1992, PNDCL.305A. Patents at the moment are directly obtainable in Ghana through the Patent Cooperation Treaty (PCT) provided by the World Intellectual Property Organisation (WIPO) and were also obtainable through the African Regional Intellectual Property Organisation (ARIPO).[95] The cumbersome nature of the re-registration process was such that in spite of the independence of the country, the indigenous innovation process, research and development was not stimulating, hence defeating the real motive of intellectual property rights safety.[96] [97]

The Nigerian story is even worse, as patent laws on IP remained virtually the same right through amalgamation in 1914, through its independence in 1960, and until the early 1970s.[98] The initiation *ab initio* of the executive patent institution for Nigeria was not structured to protect indigenous knowledge, innovation, or research and development. Rather, it was contrived for the safety of property rights in foreign investment

92 World Trade Organisation Part II – Standards concerning the availability, scope and use of intellectual property right (2021), https://www.wto.org/english/docs_e/legal_e/27-trips_04c_e.htm (accessed 15 September 2022).

93 Sikoyo, Nyukuri & Wakhunga (n 86).

94 Sikoyo, Nyukuri & Wakhunga (n 86).

95 Sikoyo, Nyukuri & Wakhunga (n 86).

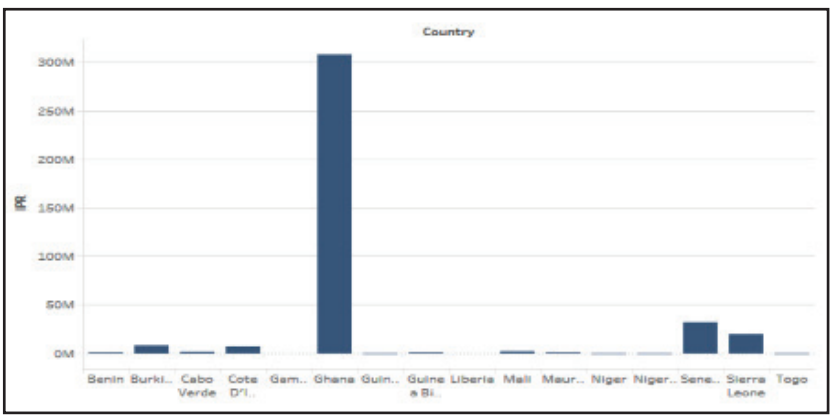
96 K Nnadozie 'Intellectual property protection in Africa: An assessment of the status of laws, research and policy analysis on intellectual property rights in Nigeria and Ghana' (2004) 8-9.

97 B Mould-Iddrisu 'Copyright protection and the journalist' in K Karikari & K Kumando (eds) *The law and the media in Ghana* (2000) p 220.

98 F Olubanwo & O Oguntuase 'Strengthening intellectual property rights and protection in Nigeria' (2019), https://www.mondaq.com/nigeria/trademark/788714/strengthening-intellectual-property-rights-and-protection-innigeria (accessed 12 May 2021).

and technology pertinent to the exploration of both mineral and human resources in the colony.[99] Even the repeal provision in 1970 was only a model to nationalise registration of patents in the country, with no tangible policy justification for research, industrial or economic development. This is evidence hence that countries in West Africa and Africa alike are not sufficiently equipped and prepared to maximise the provision of IP rights, which indeed is a dilemma for developing economies.[100]

Figure 6: Sum of IPR per West African country

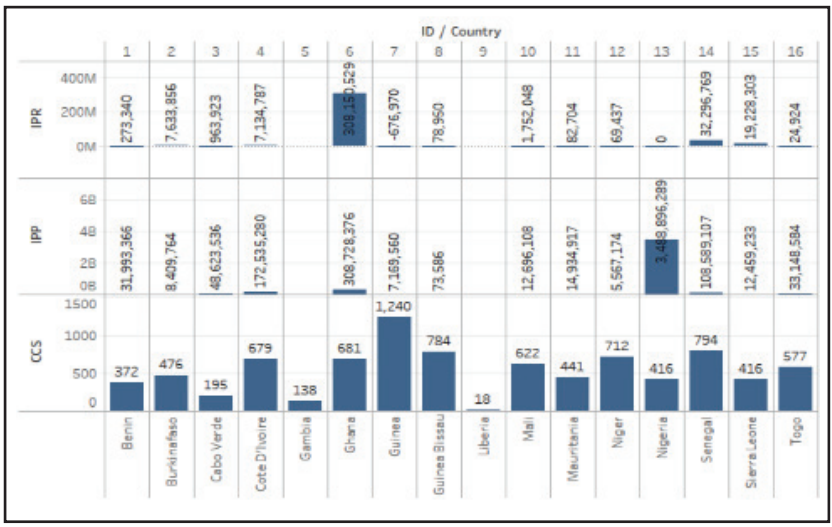


Source: Author's computation
Note: This chart gives the account of intellectual property rights receipt per country in West Africa. Ghana, as can be seen, is the sole outlier in the pack, with the highest and most intimidating sum, followed far behind by Senegal and then Sierra Leone, the countries in the region with the least IPR receipt volume are Benin, Guinea, Guinea Bissau, Mauritania, Niger, Nigeria, and Togo.

99 Olubanwo & Oguntuase (n 98).

100 Sikoyo, Nyukuri & Wakhunga (n 86).

Figure 7: Sums of IPRs receipt, telecommunications, and IPRs payments per country in West Africa



Source: Author's computation

Note: This chart gives the account of Intellectual Property Rights receipts per country in West Africa. Ghana, as can be seen, is the sole outlier in the pack. For the IPRs payment, Nigeria is the outlier of the pack. In the case of telecommunication service, Guinea led the pack, closely followed by Senegal.

11 Infringement of intellectual property rights: The challenges of non-corporeal goods

In spite of the several feats towards the reinforcement of IP laws and safety in Nigeria, threats are still imminent. The prevalent forms of infringement are counterfeiting; piracy; illegal use and insensitive competition.[101] [102] These conducts disrupt the sole rights of IP owners to earn the gains of their innovations, as a result, hampering the progress and growth of intellectualism, invention and entrepreneurial creativity.[103] [104] The persistent violation of IP rights has adverse effects on the whole economy also because it hinders effective domestic as well as foreign investments

101 D Harrington 'Intellectual property rights can be Nigeria's new oil discovery' The Alvin Report (2021), https://thealvinreport.com/intellectual-property-rights-can-be-nigerias-new-oil-discovery/ (accessed 14 July 2022)

102 IA Olubiyi 'A comparative analysis of copyright enforcement provisions in Nigeria: Maximizing the current legal regime' (2014) 5 *African Journal Online*89-104.

103 Harrington (n 101).

104 Olubiyi (n 102).

and obstructs the creation of jobs, hence resulting in the fall of tax income to the government, as well as giving the country a bad image.[105]

Infringement on copyright is the main concern to IP rights and development in Nigeria. This violation is mostly manifested in the following forms: piracy of published books; Information and Communications Technology (ICT); and entertainment and film. Nigeria is classified among the countries with the highest incidences of piracy, with rates ranging from 82 per cent to 83 per cent over a period of five years between 2007 and 2012.[106] The situation has not improved much over the years, with implications that have a dire impact on indigenous entrepreneurs as well as foreign investors. Furthermore, due to the fragile condition of IP laws in Nigeria, piracy in the entertainment sector, has been at a dismal cost for the country.[107] Data provided by the National Bureau of Statistics (NBS) shows that the Nigerian film industry, Nollywood, which is accountable for about 1.5 per cent of the country's GDP, is the country's second biggest sector regarding job creation, following closely after agriculture. The film sector is not operating maximally, and in spite of volumes of piracy infringement, Nollywood alone churns in about US $600 million yearly. How impactful could the sector be if the concerns of infringement on copyrights are addressed? It would indeed position the service trade sector at a vantage point to station itself as a crucial agitator in the non-oil sector, which is strongly required for economic diversification in Nigeria.[108]

12 Decided cases on intellectual property rights in West Africa

It is expedient that entrepreneurs know the rights available for them to protect their creativity in service trade and their innovations too. Decided cases in West Africa are evidence of this, and a number of these are provided in this part. The first case worth mentioning is the case of an entrepreneur with the idea of creating an educational television quiz programme to be contested by Nigerian university students. He approached the National Universities Commission (NUC) to endorse the show tagged 'University Challenge' (the 'UC Show'). However, rather than endorsing the programme, the NUC approved a similar show, 'Zain Africa Challenge' (the 'ZAC Show') which was sponsored by Zain, a telecommunications network operator. The entrepreneur claimed that the ZAC Show was an infringement of its intellectual property in the UC Show and relied on

105 Olubanwo & Oguntuase (n 98).

106 Harrington (n 101).

107 Olubanwo & Oguntuase (n 98).

108 Olubanwo & Oguntuase (n 98).

its registration of the proposal document for the UC Show ('UC Show Proposal') with the Nigerian Copyright Commission (NCC) as evidence of its exclusive copyright ownership.

It indeed was found that there were factual similarities between both shows, which infringed the entrepreneur's copyright. Consequently, both the NUC and Zain were held liable for infringement of the entrepreneur's copyright in the UC Show, particularly the right of reproduction and adaptation, and on 6 May 2020 significant damages were awarded to the entrepreneur in the sum of ₦703000000. This judgment is significant, not just because of the quantum of damages awarded, but its communication of the strong message that intellectual property rights are recognised in Nigeria, and the courts are willing to support their enforcement.

Another case, also in 2020, was the case of copyright infringement dispute between Onyeka Onwenu and digital music distribution company iRoking. The Nigerian musician and actress have sued the online music distribution platform over alleged copyright infringement following an expired contract. According to Onwenu, the online platform blatantly disregarded the lapse of their two-year contract and continued to profit from sales of her music. It was ruled that by continuing to display her music, the music company was liable for copyright infringement and had awarded damages to the musician.

In a different case, punitive damages were awarded to the collective management organisation Musical Copyright Society Nigeria (MCSN) against Nigeria's largest cable TV provider Multichoice. The latter sued MCSN, arguing that the collective management organisation was not licensed by a National Certified Counsellor (NCC) and, therefore, Multichoice was not obliged to pay royalties for copyright-protected material used in TV programming. It was decided that an NCC licence was not prejudicial to the protection of copyright, with the ruling upheld. Finally, the Copyright Society of Nigeria was prohibited from distributing royalties to its members as a 'general distribution' and considered that such practice was deemed to be contrary to the provisions of the management organisation's memorandum and articles of association. It was decided that the distribution of a fixed amount to each member as royalties, irrespective of whether such members' works earned any royalties, was illegal.

13 Entertainment in Nigeria: A case study of sampling, cover and republishing of creators' work on YouTube and TikTok

In the US landmark case on copyright infringement between Grand Upright Music and Warner Bros Records, the ruling began with the biblical quote of 'thou shall not steal'. The decision forever changed the attitude of hip-hop artistes to sampling.

Music sampling basically is integrating a part from a previous recording in a song into an entirely new song. Sampling could include 'taking a portion of the drums or guitar rift and could range to using an entire chorus or an entire verse from a song'.[109] It might involve repeating a sampled section repeatedly to form a twist or even innovative manipulations where the tempo or pitch of the original sample is altered.[110] There are many legal restraints against sampling. The legal dispute in this regard is that it does not encourage inventions. However, it has been argued that there are no entirely new songs, and the potential of sampling is its ability to popularise an already existing song.[111]

Social media platforms supply channels of interconnection for several purposes, but music fans have reconsidered it as a medium of accessing their favourite influencers as well as their contemporaries. What is noteworthy is that even music authors consider it as a means of increasing the influence of their songs, basically generating a market position on these applications.

The striking hit of Lil Nas X's 2019 single 'Old town road' was one of the largest impacts of social media recognition with profitable productivity as the trap-country song, hence, becoming the most enduring 'Billboard Top 100 number 1 song' in the index profile after propelling up on TikTok. The absolute variety that the app possesses and its connection to music enable it to unmask new music to the world and, literarily, innovate cool

109 K Cornell 'Music sampling: Breaking down the basics' (2016), https://www.tunecore.com/blog/2016/08/musicsampling-breaking-down-the-basics.html (accessed 25 October 2021).

110 Cornell (n 109).

111 'Untangling the knotty world of hip-hop copyright' *FACT Magazine* (2016), https://www.factmag.com/2016/06/25/sampling-hip-hop-copyright/ (accessed 12 May 2021).

stuff.[112] TikTok has had a vivid impact on the art of music in Nigeria. However, in Nigeria there is insufficient infrastructure to precisely monitor, calculate trades and quantify profitable achievement in West Africa. Hence, authors are left to depend on the popularity of tracks in the public space as the standard of their success.[113]

In 2020, TikTok remained unrelentingly daring in the race that has prompted the extent of its coverage. This made it the emerging forum of the year and, by extension, a negotiator for determining what is trendy. Amazingly, people of all ages make use of the application to create videos that propel conversations centred around culture.[114] Severally, TikTok has emerged as an influencer for song breaks in Nigeria by making it boom, as well as improving popularity. A very good example is the Mavin rapper, Ladipoe, emerging as one of the most talented artistes in Nigeria in 2020; essentially, his collaboration with pop star Simi thrust him to prominence and recognition.[115]

The song 'Know you', with its remarkable chorus, coupled with the duet piece on TikTok, amplified its charm, particularly for the video makers. The artist Ladipoe noted that the prominent discussion regarding the song, especially the duet, stuck out the most on TikTok, with it clocking 10 million views. Also, Simi cashed into the influence of TikTok to earn another blockbuster in her first solo track released in 2020.[116] The natural context of the song appeased the likes of her audience, making the video circulating in a meteoric fashion. The song 'Duduke' came with a challenge that emerged with over 46 million views. Also, Kizz Daniel, in his song 'Ada', started a challenge requiring participants to present an easy but creative dance. The challenge had over 11 million views in less than two months since it started, making it one of the most-liked songs. This is an indication that social media culture can vividly transect with the popularity of music, virtually determining how widespread the reach of songs can be.[117]

YouTube has even made sampling much easier by introducing the YouTube Shorts in Nigeria on 14 July 14 2021. YouTube Shorts is the

112 'How TikTok is helping to break Nigerian hit songs in 2020' *Vanguard* (2020), https://www.vanguardngr.com/2020/08/how-tiktok-is-helping-to-break-nigerian-hit-songs-in- 2020/ (accessed 12 May 2021).

113 Vanguard (n 112).

114 Vanguard (n 112).

115 Vanguard (n 112).

116 Vanguard (n 112).

117 Vanguard (n 112).

company's new short-form video experience that lets users create short, fun videos with their mobile phones. This is rather similar to what is already obtained on Instagram reels and TikTok. There is so much competition on these social media platforms to increase the volume of users and activity. YouTube Shorts provides creation tools, such as a multi-segment camera to string multiple video clips together and the ability to record with music, control speed settings, and more. In addition, one can add text to specific points in one's video, automatically add captions to your Short, record up to 60 seconds with the Shorts camera, add clips from your phone's gallery to add to your recordings made with the Shorts camera, and add basic filters to colour correct your Shorts.[118]

Also, there is an audio sampling feature in the YouTube Shorts. The creators will also have the option to sample audio not only from other Shorts but also from videos all across YouTube; that is billions of videos, if you can imagine. This means that you can take your favourite influencer's music video and recreate it or put your own swirl on it with no concern about copyright. However, original authors definitely could decide to opt out if they do not want their work remixed. For instance, from a sound bite of Burna's latest hit on a Shorts video you heard, you can easily find the full song, watch the music video, or learn more about the African Giant, all on YouTube. The cherry-on-top feature that will encourage usage is the reward system monetisation for content creators, to the tune of US $100 million in the YouTube Shorts Fund.[119]

13.1 Sampling and copyright infringement and the paradox of antifragility

Sampling without permission can infringe copyright. The procedure for procuring authorisation for a sample is regarded as *clearance.* However, this could be complicated and costly. There are two basic components provided in the rights of a song; the first is a composition which includes the lyrics and the melody.[120] Second, is the sound recording, which is the audio recording. The copyrights of sound recordings are held by the recording artists and their record labels, whereas the compositions are held by the composers and the publishers. Since sampling is costly, artists

118 C Egwuogu 'Move over TikTok, YouTube shorts is in Nigeria' Techcabal (2021), https://techcabal.com/2021/07/13/move-over-tiktok-youtube-shorts-is-in-nigeria/ (accessed 15 October 2022).

119 Egwuogu (n 118).

120 S Gibson & D Walters 'Recreating samples' (2003), http://www.soundonsound.com/ (accessed 12 June 2021).

would opt for intricate recordings. Producers, hence, would prefer creating a recording instead of sampling in order to avoid legal issues. [121]

The Nigerian story regarding sampling is replete with insistent rise essentially in the music industry. For instance, the 'Nwa Baby' release of Flavour, a Nigerian music artist, was a sample of 'Ashawo'. Also, Flavour sampled another song, 'Sawale', released in the 1960s by Rex Lawson. Similarly, Davido, another Nigerian music artist, sampled Lagbaja's '*Gra Gra', and he also sampled '*Abra Cadabra's '*Dun Talking'***in his song 'Fall'**. *Likewise,* Wizkid, another Nigerian music artist, sampled 'Johnny' by Yemi Alade in his song '*Caro*'. The Nigerian music artist with the highest sampling of his songs is Fela Anikulapo Kuti, as quite a number of upcoming artists got their inspiration from the Afrobeat star. Music artists in Nigeria and abroad have sampled Fela's songs. Wizkid sampled his 'Lady' song in his own song '*Jaiye Jaiye'. Also,* Oritsefemi sampled Fela's 'Confusion break bones' in his own song '*Double Wahala'. Likewise,* Burna Boy sampled Fela's 'Sorrow, tears and blood' in his song 'Ye'. Wizkid similarly sampled the legend's 'Shakara' in his song '*Sweet Love'*.[122]

However, the surprising thing about sampling in the Nigerian music industry is that in spite of its predominance, no report of one single sampling with regard to suits on copyright infringement has been heard in the country. The absence of cases in spite of the vivid occurrence hence sends a signal about the level of cognisance for Nigerian music artists. It seems that the obvious medium for addressing infringements is somewhat limited to social media platforms.[123] A good example is the sampling issue between Tekno in this song 'Jogodo' and the sampled song, 'Pologo' by Mad Melon and Mountain Black. The indictment regarding copyright infringement was practically done via Instagram. Likewise, Ciara's song 'Freak me' sampled Tiwa Savage's 'Before Nko' without permission, and the issue was also sorted on Twitter by the artist appreciating the original owner, thanking her for being an inspiration.

Sound recording is the initial attraction of a progression of sound that can be audibly observed as well as *produced.*[124] With regard to a musical

121 Gibson & Walters (n 120).

122 S Machunga '*10 famous artistes who sampled the music of Nigerian icon, Fela Kuti'* (2016) https://lifestyle.thecable.ng/fela-anikulapo-kuti-music-sample/ (accessed 12 June 2021).

123 UrbanCentralMag '*Sampling in the Nigerian music industry* (2017).

124 Copyright Act, Laws of the Federation of Nigeria (2010) https://lawsofnigeria.placng.org/laws/copyright.pdf (accessed 15 July 2022).

work, an author is an artist whose name the recording bears[125] the sound recording copyright has existed for 50 years.[126] The copyright in a sound recording is the absolute right to curtail the '*imitation of the entire or a sizeable part of the recording either in its initial format or in any other format clearly imitative of the initial sound'. The sampling of music basically* involves the imitation, hence, of a sizeable portion of an earlier recording. Simply put, if a portion of a song is familiar sufficiently to be imitative of another, then it is an 'imitation', and the author has absolute copyright, as well as the record label.[127]

Finally, *'a musical work shall not be ineligible for copyright by reason only that the making of the work or the doing of any act in relation to the work involves an infringement of copyright in some other work'.*[128] This means that unlicensed sampling does not deny the defaulting song of copyright. For instance, if artiste A samples artiste B's hit and artiste A is further sampled by artiste C, artiste A can initiate a suit for infringement as he is protected.

If the Nigerian copyright law expressly states that *any modification of the work is tantamount to an infringement on the copyright of the artist, h*ence, an adaptation *of a previous work from one field of work to the other that involves the modification of work in the same field to make it apposite for another condition that is distinct could also be termed as a copyright infringement, likewise musical* sampling. Also, valuable to note is the fact that even if sampling is on an unlicensed work, it remains an infringement on the copyright of the original work. The most implausible instance is this paradox of Antifragility:

> Burna Boy, a Nigerian music artist, is now Africa's leading legend. His hit release 'African Giant' earned him a worldwide fan base, including the United States' past president, Barack Obama. Burna Boy has been able to put these together through his universal panache of Afrobeat which is a huge combination of excitement, originality, and a mixture of music which has continuously amused music fans.

However, it is puzzling that the singer owes his hits to his exceptional mode of sample collection and his universal mode of music selections that cuts across several musical styles. For instance, his song 'Kilometre' has a total of ten songs as inspiration. The same goes for his song 'Ye'; it was inspired by '*Sorrow tears and blood'* by Fela Kuti. 'Giddem', another of

125 Copyright Act, Laws (n 124).

126 Copyright Act, Laws (n 124).

127 Copyright Act, Laws (n 124).

128 Copyright Act, Laws (n 124).

Burna Boy's songs, is sampled from 'Fabulous' and Tamia's 'Into you'. His song '*Wombolomo*' liberally sampled Angélique Kidjo's '*Wombo Lombo*'. His '*Ph City Vibration*' sampled '*Spanish Town Rockin*' by Chronixx. Also, '*Anybody'* sampled the tenacious '*Little money'* by another Nigerian music artist, '9ice'. Likewise, in '*Pull up*', he sampled the Roland Corporation's '*169 Aaaah!',* a covered voice loop from Nelly and Kelly's '*Dilemma'. This was also applied in his song 'Boom Boom Boom' which sampled 'Lady' by Fela Kuti.*

Indeed, Burna Boy has worked, so to say, depending much on sampling. 'Plenty song' is a sampling mixture of Michael Jackson's '*Human Nature',* created in the African context. The song '*Fa So LaTi Do'* samples the *'Poison'* by Bell Biv DeVoe with impeccable amazement. Also, he sampled the Jackson 5's 'I want you back' in his song 'Gum body'. In spite of the enormous sense of sampling used by Burna Boy, ranging from music, content and style, the artist has seemed to hit stardom faster than many of the other artists that were sampled. Evidenced by his fandom, followers on his social media handles, and level of streams, sometimes amassing as much as about a hundred million streams on YouTube for some of his songs. The infringement is ordinarily supposed to record eras of distress, but rather for the artist, he has experienced huge benefits; this seems like a paradox of antifragility. According to the context exposition by,[129] some things just benefit in the face of seeming disorder. The musical artist simply increased in capability and output and thrived in spite of the seeming shocks, laws, mistakes, faults, and failures. Could one term him 'The black swan'?

However, the efficacy of these cases is mind-boggling from the Nigerian perspective as well as what obtains in other countries in West Africa. This is because the legal way out is scarcely pursued to concerns of unlicenced musical sampling. The farthest any author has gone regarding a sampling issue is a bare Instagram post, which is where it fizzles out. Conversely, the concern is whether this is an issue with the obliviousness of the copyright laws or rather the disheartening disposition to court procedures. Or could it be that from the Nigerian viewpoint, music sampling is not harmful? Could it be that imposing incorporeal rights is viewed as pointlessly obstructive?

We could possibly reflect on the favourite saying of Jim Jarmusch, an American film director, in his words: 'Nothing is original; steal from anywhere that resonates with inspiration or fuels your imagination. Originality is non-existent.'

129 NN Taleb *Antifragile: Things that gain from disorder* (2012).

14 Trade facilitation

Trade facilitation amendments usually enhance the effectiveness of trade in a country and the efficiency of border task forces. Furthermore, they could explicitly assist in advancing development objectives that would strengthen regulation, as well as formalise the non-formal sector. Trade liberalisation through lesser excise duties and quotas, excellent transportation connections, the soundness of logistics services and the efficiency of border coordination all determine developing functions that define the flow of international trade within economies.[130]

The Agreement on Trade Facilitation can only provide wholesome well-being if the developing countries are in a situation to truly apply the provisions in the Agreement.[131] The irony, however, is that the developing economies need more practical support than their developed counterparts. They also seem to be characterised most times with limited proportions of trade; this also is an indication that investment returns for the facilitation amendments may hence be lesser than for countries with higher trade.[132] A common feature also with developing economies is that they often have a lower rate of capacity to absorb an all-inclusive technical assistance structure, such as the institutional policies which require an implementation to enhance the facilitation of trade.[133]

The discussion regarding whether trade facilitation is enhanced through the engagement and performances of small and medium-sized enterprises as grassroots entrepreneurs, as an integral part of the global value chain, is germane.[134] The grassroots engagement is more profound to the enhancement in the performance of logistics for goods and services. The link between service trade, regulations and guidelines that enhance trade provides a nexus for better performance for economies, essentially developing ones.[135] Surprisingly, entrepreneurs account for over 95 per cent of traders and service providers, yet they cover only a small proportion of international trade.[136] In spite of all these limitations, entrepreneurs are still encumbered with greater regulatory challenges to international trade.

130 United Nations Conference on Trade and Development (UNCTAD) (n 11).

131 United Nations (n 12).

132 United Nations Conference on Trade and Development (UNCTAD) (n 10).

133 United Nations Conference on Trade and Development (UNCTAD) (n 11).

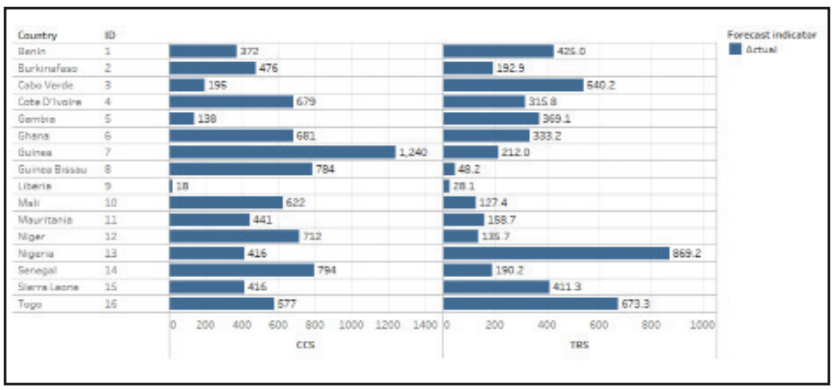
134 United Nations (n 12).

135 BM Hoekman & B Shepherd (2012) 'Who profits from trade facilitation initiatives?' European University Institute Working Paper 2013/49 (2012).

136 World Trade Organisation (n 3).

These concerns must be overcome in order to enhance their performance and, hence, improve trade facilitation and sustainable growth in the economy.[137]

Figure 8: Telecommunication service and trade facilitation for West African countries



Source: Author's computation
Note: This chart gives an account of telecommunication service and transport services per country in West Africa. Guinea, as can be seen, has the highest in the pack for telecommunications, while the country in the region with the least volume is Liberia. In the case of transport services, Nigeria is the obvious outlier, while Liberia again has the least volume in the region.

15 World trade facilitation agreement: The West African context

There are immense opportunities available to economies as they engage in trading activities. Provisions have been put in place in the world trade facilitation agreement to boost trading activities within countries. The expectation for countries, hence, is that in planning for the implementation of their agreement provisions, sufficient input is required with a particular focus on development strategies.[138] Developing countries have immense prospects to promote precise trade facilitation measures across the provision of several categories for implementation. Provisions range from financial assistance establishment of national committees on trade facilitation, all in the bid to ensure the efficient implementation of all of the provisions through improved collaboration among stakeholders.[139]

137 Hoekman & Shepherd (n 135).

138 World Trade Organisation (n 68).

139 United Nations Conference on Trade and Development (UNCTAD) (n 11).

The Economic Community of West African States (ECOWAS) was instituted 46 years ago to promote economic trade, cooperation and self-reliance among member states. Ever since, international trade has had a considerable influence on economic development and well-being globally.[140] The prospect of international trade needs to be employed for economic development in West Africa.[141] The region's trade prospects can be portrayed by its young and growing population and its abundance of natural resources. Also, the required political structure is often found lagging or inefficiently executed. Hence, the opportunities available in trade, essentially for intra-regional trade, cannot be completely employed. The reason for these is not far-fetched, as trade in the region has been typified by huge operation costs, custom levies, non-harmonised trade regulations, and non-tariff restrictions to trade the likes of measurable barriers.[142] [143] Even traders within the region are faced with coinciding and repeated reporting requirements, which are time inefficient, uncreative and difficult to comprehend. These have made trade both within and outside of the region considerably low in spite of the obvious resource endowment in the region.[144] A well-organised trade facilitation plan could lessen these associated costs and, thereby, help boost the trade volume in West Africa.[145]

A number of programmes and collaborations have been harnessed to improve the level of trade facilitation in the West African region.[146] The Trade Facilitation West Africa Programme (TFWA), a collaboration programme financed by the European Union (EU) and the German Federal Ministry for Economic Cooperation and Development, aims to improve the level of trade facilitation in the region.[147] The programme works together with the ECOWAS Commission to establish trade-improving procedures. It supports the progress of the efficient establishment of regional guidelines and mechanisms of trade facilitation in order to

140 World Bank (n 22).

141 M Meyn 'Trade facilitation in West Africa: Promoting trade in West Africa II (WATIP II) (GIZ) GmbH (2019) https://www.giz.de/en/worldwide/80051.html (accessed 12 August 2022)

142 United Nations (n 12).

143 Meyn (n 141).

144 World Trade Organisation (n 87).

145 Meyn (n 141).

146 B Rippel 'Why trade facilitation is important for Africa?' (2011), http://documents.worldbank.org/curated/en/2011/11/15757410/trade-facilitation-important-africa (accessed 12 August 2022).

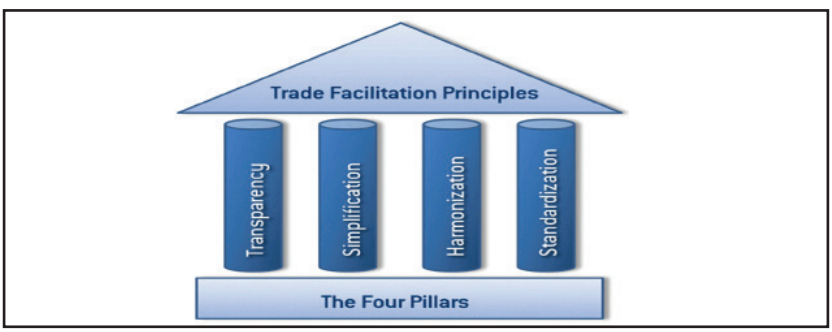
147 Meyn (n 141).

eliminate barriers and improve trade.[148] Also, it promotes efficient transport and automated data transmission to improve required capacity and, hence, improve trade. Furthermore, the programme gives support to the regional community to enter into dynamic discourse with the private sector in order to tackle trade-discrete challenges and enhance the capacity of private players in the trade facilitation process.[149]

16 Trade facilitation principles and pillars

Trade facilitation is a critical element for international trade effectiveness and the economic development of countries.[150] This is a result of its influence on competitiveness and integration of the market. Over the years, it has attained visibility in the international political plan, which climaxed in the summation of the Agreement on Trade Facilitation at the WTO and the extensive international technical assistance programmes for developing as well as transition economies.[151] Both the government and the private sector stand to derive benefits from trade facilitation. The government derives trade tax and duties, while traders will benefit in terms of certainty, efficiency in operation, and lesser operational costs. Trade facilitation mechanisms could essentially assist developing economies with delayed and inefficient trade processes to improve their mechanisms and processes.[152]

Figure 9: The four pillars of trade facilitation



Source: National Board of Trade, Sweden

148 D Sakyi, I Bonuedi & EE Osei Opoku 'Trade facilitation and social welfare in Africa' (2018) 5 *Journal of African Trade* 35-53.

149 Meyn (n 141).

150 World Trade Organisation (n 68).

151 World Trade Organisation (n 92).

152 United Nations (n 12).

The principles of trade facilitation can be described within the context of the four pillars highlighted above. Transparency within the government enhances clarity and accountability of a government's and administration's actions. It entails the disclosure of information in a way that the public can readily access and use it. Information provided here is in the context of rules, guidelines and executive resolutions of general application, financial plans, acquisition choices and seminars.[153] There is a need to ensure that all forms of information are well communicated, with sufficient timing and inclusiveness for all stakeholders in the law-making process.[154] Simplification, on the other hand, is necessary for eliminating all excessive components and repetitions in trade regulations, procedures and techniques. Harmonisation is a pillar that is much required, as it assists in aligning domestic processes, procedures and documentation in line with universal resolutions, principles and standards.[155] For the West African region that requires the easy flow of the regional integration process, harmonisation is much required. Standardisation, which is the fourth pillar, depicts the process of creating set-ups for procedures and techniques, documentation and information in forms globally decided by several stakeholders. Standards are thereby utilised for aligning, consequently, harmonising the procedures and techniques.[156]

17 The nexus

17.1 Importance of intellectual property rights on service trade enhancement

Intellectual property is heterogeneously related to trade, competitive market, industrial advancement and economic growth. The establishment of the WTO in 1995 and the subsequent creation of the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS) have engendered new issues for developing economies, especially with regard to IP protection in these countries.[157] The agreement is the most inclusive in the form of protection as well as regulation, providing the required guidelines for every country's conformity. This conformity concern,

153 United Nations (n 12).

154 Ayoki (n 34).

155 United Nations Conference on Trade and Development (UNCTAD) (n 10).

156 United Nations (n 12).

157 World Trade Organisation Intellectual Property: Protection and Enforcement (2021), https://www.wto.org/english/thewto_e/whatis_e/tif_e/agrm7_e.htm (accessed 25 November 2022).

therefore, applies to all West African countries, as they are required to formulate their IP laws in accordance with TRIPS provisions.[158]

It has been said that indigenous knowledge is more productive in developing economies than it is in developed climes. The particular knowledge tagged indigenous is related to creativity and invention, which are an output of the engagement of entrepreneurs in service sector trade. Since developing economies in West Africa, for one, require creativity and the sale of the same innovations in the form of services to evolve from low-income to middle and high-income economies, IP rights are much required for the safekeeping of their creativity in order to maximally reap best output returns.[159] [160] IPRs, in their present context, do not protect indigenous knowledge because it is not suitable for the originality benchmarks. However, under the TRIPS agreement, there is more elasticity to empower developing economies to establish unique structures of IP protection beneficial for maximising their reserve of indigenous knowledge to prevent loss of profits in the course of exploiting their trade in services as it relates to their creativity.[161]

Intellectual property rights empower private contributions through the entrepreneurship of resourcefully beneficial knowledge, thereby providing entrepreneurs with the required output for participation in service trade from their reserves of indigenous knowledge.[162] The protection of innovative works of authorship and ideas helps entrepreneurs gainfully benefit from service trade. When gains are aggregated, it yields development in the service industry, which is a grassroots requirement for sustainable economic development in the West African region.[163] Also, the right to reproduce the same work, display and present the original work resides with the author, and these will assist consumers in being convinced about their choice service, hence dedicated to their selected brand.[164] For countries in West Africa to thoroughly utilise IPRs, alongside technological changes and economic growth characterising the IP regimes, it is essential that every country in the region endorse IP laws and guidelines that connect property protection to other requirements of

158 World Trade Organisation (n 87).

159 United Nations Conference on Trade and Development (UNCTAD) (n 11).

160 World Trade Organisation (n 87).

161 World Trade Organisation (n 157).

162 United Nations Conference on Trade and Development (UNCTAD) (n 11).

163 United Nations Conference on Trade and Development (UNCTAD) (n 10).

164 World Trade Organisation (n 157).

the country ranging from trade, domestic sector growth, and economic development.[165]

17.2 Essence of facilitation of service trade

Trade across borders is now personified by the current trend of the international economy, as it guarantees the flow of goods and services from one country to the other. However, we deduced from the literature that the efficiency of this flow is strongly determined by the level of trade facilitation within the countries involved.[166] [167] [168] [169] [170] [171] Especially for developing economies, such as those in West Africa, trade facilitation is a vital trade policy due to the structural market and interaction failures arising from information asymmetry, and thus, the essential need to resolve them.[172] [173]This market failure is more likely to affect trade in developing economies unfavourably; therefore, without trade facilitation by governments, even the diverse market prospects created through trade agreements would not be attainable. The likely possibilities would be unutilised opportunities because trade agreements that are intricately specified would make trade engagements dismal.[174]

Generally, trade facilitation consists of all provisions focused on eliminating the barriers to trade through transport effectiveness and lower transaction costs related to trade movements. Other efforts regarding

165 United Nations Conference on Trade and Development (UNCTAD) (n 11).

166 JS Wilson, CL Mann, & T Otsuki, 'Trade facilitation and economic development: A new approach to quantifying the impact' (2003) 17 *World Bank Economic Review* 367-389.

167 A Portugal-Perez & JS Wilson 'Trade facilitation in Africa: Why reform matters' (2009)8 *World Trade Review* 379 416.

168 KK Mbekeani 'Infrastructure, trade expansion and regional integration: Global experience and lessons for Africa' (2010) 19 *Journal of African Economies* i88-i113.

169 A Portugal-Perez & JS Wilson 'Export performance and trade facilitation reform: Hard and soft infrastructure' (2012) 40 *World Development* 1295-1307.

170 B Hoekman, LW Senbet & W Simbanegavi 'Integrating African markets: The way forward' (2017) 26 *Journal of African Economies* ii3-ii11.

171 D Sakyi & SK Afesorgbor 'The effect of trade facilitation on trade performance in Africa' (2019) 6 *Journal of African Trade* 1-15.

172 M Yakop & PAG van Bergeijk 'Economic diplomacy, trade and developing countries' (2011) 4 *Cambridge Journal of Regions, Economy and Society* 253-267.

173 G Filson & B Adekunle 'Understanding Halal food market: Resolving asymmetric information' (2020) 5 *Food Ethics* 1-2.

174 SK Afesorgbor 'Economic diplomacy in Africa: The impact of regional integration versus bilateral diplomacy on bilateral trade' in PAG van Bergeijk and SJV Moons (eds) *Research handbook on economic diplomacy: Bilateral relations in a context of geopolitical change* (2018) 326-346.

barrier mitigation include proficiency of customs officials, transparency, financial services, business principles, internet, telecommunications and compliance with regional as well as international guidelines.[175] [176] [177] [178] [179] [180] [181] [182]

Hence, trade facilitation basically proffers pathways to assuage the limitation created by barriers to service trade, as well as improve transport effectiveness, proficient custom services, seamless services regarding payments and insurance from financial services, telecommunications, and so forth.[183] [184]

What is worthy of note is that trade facilitation from prior studies is attainable through service trade. Service trade is a medium of facilitating trade; hence for trade facilitation to be maximally attained for diverse economies, service trade has to be engaged in the best possible way. This will improve trading activities, domestic industrial growth, economic development, and improved livelihood for the citizens in the West African region.[185]

17.3 Economic freedom, growth, and fluidity

Economic freedom can be described in the context of rules and regulations in terms of requirements, the likes as trade freedom, tax obligations, legal acceptability, and more. These issues may be evaluated in accordance with their impact on economic freedom and accumulated into a distinct point that permits an evaluation.[186] Trade freedom, which is of particular focus,

175 C Buyonge & I Kireeva 'Trade facilitation in Africa: Challenges and possible solutions' (2008) 2 *World Customs Journal* 41-54.

176 C Freund & N Rocha 'What constrains Africa's exports?' (2011) 25 *World Bank Economic Review* 361-386.

177 E Moïsé, T Orliac & P Minor 'Trade facilitation indicators: The impact on trade costs' OECD Publishing, Château de la Muette, Paris, OECD Trade Policy Working Paper 118 (2011).

178 B Narayanan, S Sharma & M Razzaque 'Trade facilitation in the Commonwealth: An economic analysis' (2016) 10 *Margin: The Journal of Applied Economic Research* 305-336.

179 Sakyi & Afesorgbor (n 171).

180 Rippel, B 'Why trade facilitation is important for Africa?' (2011), http://documents.worldbank.org/curated/en/2011/11/15757410/trade-facilitation-important-africa.

181 Portugal-Perez & Wilson (n 167).

182 Sakyi, Bonuedi & Osei Opoku (n 148).

183 Narayanan, Sharma & Razzaque (n 178).

184 Sakyi, Bonuedi & Osei Opoku (n 148).

185 Sakyi & Afesorgbor (n 171).

186 W Kenton Index of Economic Freedom (2021), https://www.investopedia.com/

can be categorised under the market openness domain, and it has the greatest weight in determining economic freedom alongside other factors such as government size, regulatory efficiency, and the rule of law.[187] This infers that trade freedom has a great impact on determining economic freedom; therefore, the extent of engagement in trade determines the extent of economic freedom attainable.[188]

Following also from the precision of [189], his thoughts on freedom of entrepreneurship as well as labour with regards to trade in services have exposed an evolving opinion that domestic grassroots inclined growth are largely critical to economic fluidity. Entrepreneurs who are also huge participants in service trade are the main promoters of a free-market structure, as described by Schumpeter's Gale of Creative Destruction; entrepreneurs are accountable for promoting both advancement in technology as well as innovation.[190] [191] The said innovations are also referred to as indigenous knowledge, which are ingenious creations from the entrepreneurs as they create services to be traded.[192]

IP rights, which are forms of regulatory efficiency, are much required for the safekeeping of the creativity of the indigenous knowledge of entrepreneurs in order to maximally reap the best output returns.[193] Hence, developing countries of West Africa are required to tailor IPRs in line with the TRIPs regulation in such ways that would best protect indigenous knowledge in order to attain effective entrepreneurial business freedom, hence economic fluidity. The principal focus of the dynamism in the context of service trade, as it assists entrepreneurship resource allocation, is directed towards attaining tangible economic gains. The West African story is pertinent as the region is resource full, with grassroots engagements through entrepreneurship activities in service trade, empowered by focus-driven IPRs, which in itself is a trade facilitator alongside economic growth, hence economic fluidity.

terms/i/index-of-economic-freedom.asp (accessed 12 November 2022).

187 I Dialga & T Vallee 'The index of economic freedom: Methodological matter' HAL Archives; al-01178202 (2015), https://www.researchgate.net/deref/https%3A%2F%2Fhal.archives-ouvertes.fr%2Fhal-01178202 (accessed 12 November 2022).

188 Dialga & Vallee (n 187).

189 Schramm (n 54).

190 Schumpeter (n 55).

191 Baumol (n 56).

192 World Trade Organisation (n 92).

193 United Nations Conference on Trade and Development (UNCTAD) (n 11).

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7 Women digital entrepreneurship, Trade, and the new equation

Iraoya A Okhale and Gbadebo Odularu***

Abstract: The coronavirus (COVID-19) pandemic has fundamentally impacted choices and decisions across households, communities, and economies such that entrepreneurs, especially women, need to continually adapt to survive. Through virtually multi-situated research methods based on the 'new equation', this chapter investigates the link between women entrepreneurship, digitalisation, and cross-border trade in Africa. Based on the research findings, digitalisation could serve as an effective enabler in providing many potential benefits to women entrepreneurs in the context of the COVID-19 pandemic as well as the ongoing continental free trade agreement – AfCFTA. Consequently, an increasing number of women enterprises should leverage digital tools to reduce information asymmetry, thereby enhancing women's entrepreneurial capacities across all socio-economic sectors. As policy makers are attempting to accelerate post-COVID-19 socio-economic recovery for the enterprises to emerge stronger, this study proposes other workable policies towards overcoming digital entrepreneurial challenges among women.

Key words: women; entrepreneurs; digitalisation; cybersecurity; AfCFTA; new equation; Africa

1 Introduction

As the COVID-19 pandemic evolves globally, it accelerates the digitalisation of trade at a pace scarcely imaginable a few years ago. Consequently, lockdowns, movement restrictions and social distancing policies have led to the adoption of digital channels, thereby increasing the share of digital trade on total trade while transforming domestic and cross-border e-commerce. Africa experiences increasing trends in digital access, digital infrastructures, and digital entrepreneurship. Furthermore, the continent's capacities to transact and manage intra and inter-continental commerce

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improve, and existing and new businesses switch to digital platforms for innovative solutions. In terms of digital entrepreneurship, Africa is experiencing a 'leapfrog', with hundreds of millions of dollars invested in digital hubs.[1] More micro, small and medium enterprises (MSMEs) are transacting online than ever before and are expanding their businesses through digitised value chains. This has empowered local entrepreneurs, especially in Nigeria, Egypt, South Africa and Kenya, which account for 60 per cent of digital entrepreneurial activities in Africa.[2]

Women-owned and managed MSMEs are being hit hardest by the social and economic perils of the pandemic. They are faced with myriad pandemic-induced challenges, from a substantial decline in the demand for goods and services and a reduction in revenue to the temporary closure of businesses and lack of funds and liquidity. This is all on top of the anxiety about the health and well-being of their employees, their inability to pay employees' salaries and their inability to maintain commitment with their suppliers. For instance, the survey by ITC revealed that about 64 per cent of women entrepreneurs declared that their business operations had been strongly affected by the COVID-19 pandemic, while more than 90 per cent experienced a significant decrease in sales. In addition, as of September 2020, about 60 per cent of women-owned enterprises in Ghana had gone out of business due to the pandemic. The survey by WEConnect International (2020) also reveals that more than 80 per cent of women entrepreneurs in Nigeria reported a significant decrease in sales during the first quarter of 2020.

Given that digitisation remains one of the most viable pathways to economic recovery from the pandemic, women entrepreneurs' path to economic liberation in Africa could be steeper by the increased need to reskill, upskill and go digital. Despite the ubiquitous benefits of digitisation, women entrepreneurs in Africa lag the men in the adoption of digital technologies. The gender digital divide disproportionately affects women, with a gender gap of 37 per cent in mobile internet usage.[3] Moreover, Africa has a wide and widening gender gap in digital financial inclusion. World Bank statistics show that North Africa has the largest gender gap, about 18 per cent, in digital financial inclusion, while only 37 per cent of

1 N Friederici, M Wahome & M Graham *Digital entrepreneurship in Africa: How a continent is escaping silicon valley's long shadow* (2020).

2 UNCTAD 'Digital Economy Report' (2019), https://unctad.org/system/files/official-document/der2019_en.pdf (accessed 5 May 2021).

3 W Robert 'Mobile connectivity in sub-Saharan Africa: 4G and 3G connections overtake 2G for the first time' (2020), https://www.gsma.com/mobilefordevelopment/blog/mobile-connectivity-in-sub-saharan-africa-4g-and-3g-connections-overtake-2g-for-the-first-time/ (accessed 4 May 2021).

women in sub-Saharan Africa have a bank account, compared with 48 per cent of men.[4] The COVID-19 pandemic is a catalyst for change of this negative narrative, particularly through the new forms of entrepreneurship ushered in by the digital revolution.

Despite the surge in digital entrepreneurship in Africa, several bottlenecks facing the sector include a lack of skilled digital developers, data scientists and designers; a lack of venture capital; and poor access to finance. This limits the capacity of digital entrepreneurs to grow exponentially and compete internationally. Thus, this study leverages the current research gap to advance the frontiers of knowledge on women's digital entrepreneurship and cross-border trade within the context of the African Continental Free Trade Area (AfCFTA). As negotiations and implementations of the AfCFTA agreement intensify, a clear understanding of its potential impact on women will contribute to more equitable gains for women and their households.

Based on this background, this study's aims are articulated as follows:

- examining the digital entrepreneurial challenges faced by women based on gender, free trade agreement and digitalisation diagnostics in Africa;
- discussing the conceptual framework on how the digital divide, COVID-19, AfCFTA, and gender equity contribute to across-the-border entrepreneurial policies in Africa;
- leveraging the 'new equation' to recommend legal and trade innovation policy interventions for fostering invisible digital cross-border trade among women entrepreneurs in Africa.

This study will be organised based on this outline: In addition to the first part, which introduces the research and its objectives, the second part discusses the research methodology. The third part focuses on a brief review of the literature as well as the study background. Part 4 presents the systemic influencers and challenges of women's digital entrepreneurship, while the final part is the conclusion, policy recommendation and areas of future research.

2 Methodology

This chapter employs a combination of primary and secondary data. It adopts a mixed methodology comprising desk reviews and quantitative

4 H Morsy 'Access to finance: Why aren't women leaning in?' (2020) *Finance and Development* 52-53.

analysis of secondary data, which is complemented by insightful data from key informant interviews. The review of relevant literature on gender, trade and digitalisation was embarked upon to identify the knowledge gap and rightly situate our study to fill the identified gap. The key informant interview involved subject specialists and well-informed trade experts, which were selected based on their scholarly work and affiliations. Participation in the focus group discussion was voluntary, and an ethical protocol was designed to protect the confidentiality of the key informants. A carefully-targeted number of five focus group discussions were conducted with 73 participants. The participants spread across Nigeria, Ghana, Senegal, Tanzania and Madagascar. The focus group discussion was standardised in terms of group composition, such as gender, state and non-state actors, academia, civil society organisations (CSOs) and non-governmental organisations (NGOs), recruitment strategy, hybrid forums, such as face-to-face, phone calls and online on Zoom, and moderation style. Content and ethnographic analysis were used to analyse the data. Based on this background, a novel paradigm – the new equation – was deployed to provide novel perspectives for fostering gendered entrepreneurship in the face of increasing regional and global digitalisation.

In addition, multiple data sources were adopted in this study to analyse the impact of COVID-19-related business challenges faced by women entrepreneurs in Africa. The study obtained and analysed data from Mobile Accord Inc (GeoPoll), which is a telephone survey focused on the ongoing effect of COVID-19 in sub-Saharan Africa. The study was conducted by GeoPoll[5] in March 2021 in Côte d'Ivoire, the Democratic Republic of the Congo (DRC), Kenya, Mozambique, Nigeria and South Africa. The sample size is nationally representative by age, gender and location; our analysis focused on the gender dimension, particularly the effects on women. In addition, we did a case study analysis of Nigeria using primary data from our field survey and data from WeConnect International.[6]

3 Insights on gender, free trade agreement and digitalisation in Africa

There is a growing inquiry into the pathways by which gender is affected by trade policies and digital entrepreneurship.[7] This is based on the

5 https://www.geopoll.com/ (accessed 1 March 2021)

6 https://www.windstreamenterprise.com/we-connect/. (accessed 14 April 2021)

7 T Besedeš, SH Lee & T Yang 'Trade liberalisation and gender gaps in local labour market outcomes: Dimensions of adjustment in the United States' (2021) 183 *Journal of Economic Behaviour and Organisation* 574-588.

understanding that trade is not gender-neutral,[8] meaning that men and women may be affected in different ways by trade policies.[9]

Based on evidence from trade liberalisation between China and Brazil, Benguria and Ederington[10] found that trade liberalisation affects gender inequality through employment, as trade increases the share of female workers in higher-paying jobs in Brazil. Kis-Katos, Pieters and Sparrow[11] analysed the gender-specific effects of trade liberalisation on labour employment in Indonesia. The authors show that female employment increased in regions that were more exposed to input tariff reductions, and this led to a relative growth in women-intensive enterprises. However, some studies have shown that trade liberalisation can widen the gender wage gap if women are disadvantaged in terms of capital and skills.[12] Pieters argued that the pro-competitive effects of trade liberalisation could induce firms' investment in digitalisation. Such digital upgrading could improve employment opportunities for women as jobs become less physically demanding.

Despite the fast-growing digital connectivity in Africa, particularly mobile internet connectivity, the adoption of digital technologies has not been equitable across the gender and urban-rural divide. Moreover, meaningful usage and not just connectivity remain the bane of digitisation in sub-Saharan Africa. In Southern Africa, for instance, the share of the population that lives within coverage zones of a mobile broadband network but remains unconnected to mobile internet is 49 per cent, while the share is 46 per cent in Western Africa and 36 per cent in Central Africa.[13] This usage gap is particularly high, about 60 per cent, in Eastern Africa despite the low coverage gap of 20 per cent. Women are disproportionately affected by this coverage gap, with a gender gap of 37 per cent in mobile internet usage.

8 J Pieters 'Trade liberalisation and gender inequality: Can free-trade policies help to reduce gender inequalities in employment and wages? (2015) *IZA: Journal of Labour and Development* 114.

9 S Ben Yahmed & P Bombarda 'Gender, informal employment and trade liberalisation in Mexico' (2020) 34 *The World Bank Economic Review* 259-283.

10 F Benguria & J Ederington 'Decomposing the effect of trade on the gender wage gap' in SSRN 2907094 https://dx.doi.org/10.2139/ssrn.2907094 (accessed 27 April 2020).

11 K Kis-Katos, J Pieters & R Sparrow 'Globalisation and social change: Gender-specific effects of trade liberalisation in Indonesia' (2018) 66 *IMF Economic Review* 763-793.

12 EA Bøler, B Javorcik & KH Ulltveit-Moe 'Working across time zones: Exporters and the gender wage gap' (2018) 111 *Journal of International Economics* 122-133.

13 Robert (n 3).

Women often have less access to digital technologies than boys and men. Global statistics show that internet access rates are higher for men than for women.[14] The likelihood of men having access to the internet is 21 per cent higher than the likelihood of women having access to the internet. This likelihood is about 52 per cent in the least-developed countries.[15] A recent report by GSMA shows that sub-Saharan Africa has a gender digital divide of 37 per cent in mobile internet use and a gender gap of 13 per cent in mobile phone ownership. This implies that sub-Saharan Africa has one of the widest gender digital divides in the world except for the Asia region.

Moreover, girls in Africa are five times less likely to choose a career in technology, and women are also less likely to occupy leadership positions in the ICT industry.[16] Africa also has a wide and widening gender gap in digital financial inclusion. World Bank statistics reveal that North Africa has the largest gender gap, about 18 per cent, in digital financial inclusion, while only 37 per cent of women in sub-Saharan Africa have a bank account, compared with 48 per cent of men. Women are faced with peculiar challenges that contribute to the widening gender digital divide in Africa.

The survey by GSMA reveals many of the challenges that women identified as limiting factors to their digital empowerment. Some of the challenges identified from selected African countries are presented in Table 1. Table 1 shows that the top barriers to mobile internet use among women in Africa centre around affordability, literacy and skills, perceived relevance, concerns about safety and security, and the challenge of accessibility. A closer look at these barriers shows that affordability remains the major barrier to accessing the internet by women entrepreneurs in Africa, particularly in Uganda.

Although it has been projected that the adoption of smartphones in sub-Saharan Africa will grow from 44 per cent in 2019 to 65 per cent of total connections in 2025 'due to the increasing number of low-cost devices and financing schemes', such growth may be male-driven and

14 UN 'Taking stock: Data and evidence on gender digital equality' (2019), https://www.empowerwomen.org/en/resources/documents/2019/10/taking-stock-data-and-evidence-on-gender-equality-in-digital-access-skills-and-leadership-30202054?lang=en (accessed 20 March 2021).

15 Web Foundation 'Why the web needs to work for women and girls' (2020), https://webfoundation.org/2020/03/web-birthday-31/ (accessed 15 April 2021).

16 M Chisiza 'No woman left behind: The gender digital divide' (2017) Analysis, South Africa Institute of International Affairs (SAIIA), http://www. saiia. org. za/opinion-analysis/no-woman-left-behind-the-gender-digital-divide (accessed 3 April 2021).

gender-imbalanced.[17] The affordability of smartphones remains one of the topmost barriers to internet access in Uganda, and affordability is also a major challenge to internet uptake and use in Kenya, Nigeria, South Africa and Rwanda.[18] Moreover, Table 1 illustrates that many of the women interviewed do not know how to access the internet on a mobile phone, while 36 per cent of the respondents in Senegal identified reading/writing difficulties as a top barrier to internet adoption. This finding is in line with the assertion that literacy rates in Africa are significantly below the world average.[19]

In addition, some of the women are concerned about exposure to strangers on the internet, while others are worried about the security of their information on the internet. Challenges of network coverage, family approval and slow internet connectivity were further identified as accessibility barriers to the internet. The COVID-19 pandemic has re-echoed these challenges faced by women in access to the internet and unveiled the vulnerabilities of lack of digital entrepreneurial skills. Consequently, the lockdown measures meant the total closure of businesses for many women-owned or managed enterprises.

4 Results and discussions

4.1 Impact of COVID-19 pandemic-induced challenges on SMEs owned or managed by women

4.1.1 Decreased income

The COVID-19 pandemic and the economic shutdown due to preventive measures led to a significant decrease in the income of women entrepreneurs, as evidenced by 44 per cent of the respondents (see Figure 1). About 20 per cent of the respondents reported that their income decreased somewhat, while only 9 per cent experienced a little increase in their income. Most of these income losses were due to business closures or experiencing reduced operating hours. However, these income losses were not experienced equally. Women entrepreneurs operating in Kenya had the highest rates of income loss compared to other selected African countries, as reflected in Table 2.

17 RM Singh & J Said 'Harnessing digital technology for Africa's economic recovery and transformation' (2020) *Tony Blair Institute for Global Change.*

18 A Gilward 'Internet use barriers and user strategies: Perspectives from Kenya, Nigeria, South Africa and Rwanda' (2017) *New York: Mozilla Foundation.*

19 J Tasamba 'African countries push for higher literacy' (2019), https://www.aa.com.tr/en/africa/african-countries-push-for-higher-literacy/1618099 (accessed 1 June 2021).

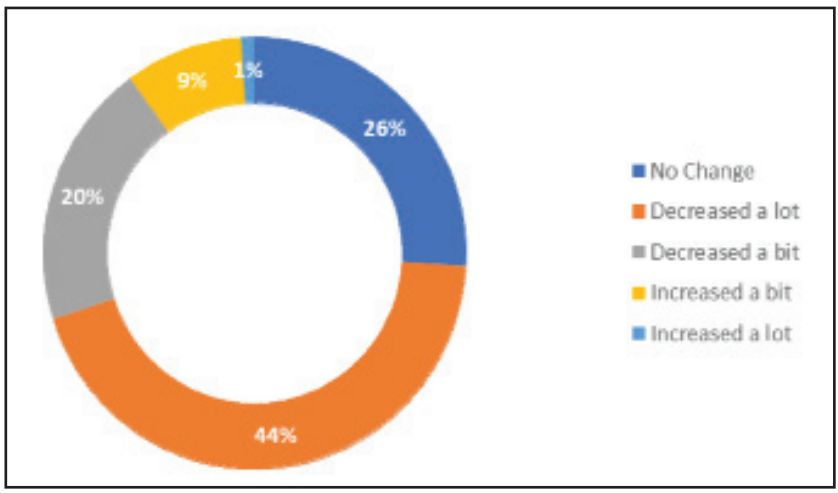
Table 1: Top barriers to mobile internet use

ACCESSIBILITY	Slow connection/ cannot do what I want	1%	0%	4%	4%	1%	1%	3%
	The family does	6%	1%	0%	3%	1%	1%	1%
	Network coverage	4%	4%	0%	1%	7%	4%	2%
SAFETY AND SECURITY	Information security	8%	1%	3%	4%	3%	11%	2%
	Strangers contacting me	1%	6%	2%	1%	4%	5%	4%
	Harmful content (self/ family)	3%	5%	4%	2%	5%	7%	2%
RELEVANCE	Insufficient content in the	1%	3%	0%	1%	2%	1%	3%
	The internet is not relevant to me	9%	11%	1%	11%	0%	16%	3%
LITERACY AND SKILLS	Reading/ writing difficulties	21%	8%	14%	27%	36%	1%	9%
	Do not know how to access the internet on a mobile	2%	9%	17%	5%	3%	5%	2%
AFFORDABILITY	Data Cost	0%	3%	4%	5%	1%	17%	7%
	Handset Cost	24%	30%	28%	23%	18%	15%	42%
	Country	**Algeria**	**Kenya**	**Mozam-bique**	**Nigeria**	**Senegal**	**South Africa**	**Uganda**

Source: GSMA

Similar findings by United Nations (UN)[20] and International Labour Organisation (ILO)[21] reveal that COVID-19 led to 'massive' income and productivity losses. Our findings also concur with the findings of Oxfam international,[22] namely, that the COVID-19 pandemic is having a harsher income impact on women.

Figure 1: Effect on income, aggregate



Source: Authors computation

Table 2: Effects of COVID-19 on income across countries

	Democratic Republic of the Congo (DRC)	**Ivory Coast (Côte d'Ivoire)**	**Kenya**	**Mozam-bique**	**Nigeria**	**South Africa**	**Total**
No change	6	5	2	3	4	6	26
Decreased a lot	6	7	11	6	7	7	44
Decreased a bit	5	4	2	2	4	3	20

20 https://news.un.org/en/story/2021/01/1082852#:~:text=Job%20losses%20or%20reduced% 20working,the%202009%20global%20financial%20crisis. (accessed 20 April 2021).

21 https://www.ilo.org/wcmsp5/groups/public/---dgreports/---dcomm/documents/briefingnote/wcms_767028.pdf (accessed 20 April 2021)

22 Oxfarm International 'COVID-19 cost women globally over $800 billion in lost income in one year' (2021), https://www.oxfam.org/en/press-releases/covid-19-cost-women-globally-over-800-billion-lost-income-one-year (accessed 28 May 2021).

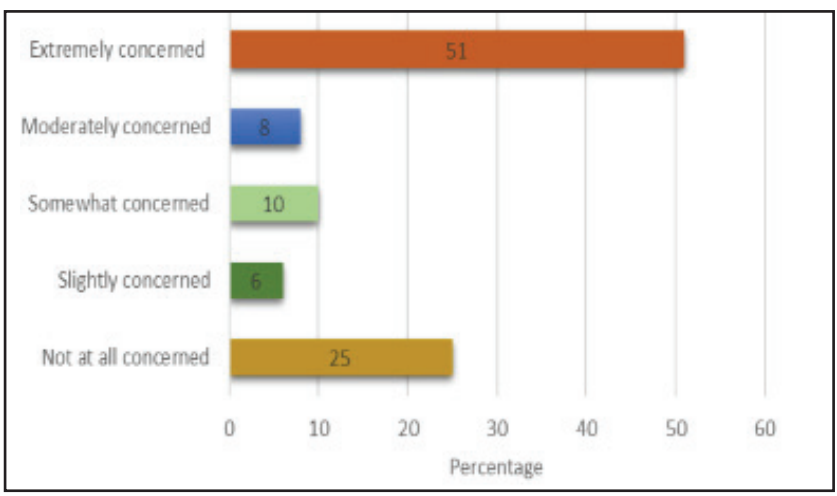
Increased a bit	3	1	1	1	2	1	9
Increased a lot	0	0	0	1	0	0	1

Source: Authors computation

4.1.2 Heightened financial fragility

The surveyed women entrepreneurs also expressed concerns over their financial fragility. Figure 2 shows that the majority, about 51 per cent, of the women business owners/managers ranked their ability to pay basic business expenses as an extreme concern. In addition, 8 per cent and 10 per cent of the respondents expressed moderate and somewhat concerns, respectively, over their financial fragility. These numbers could be a disquieting sign that women in business in Africa may have a harder time recovering from the COVID-19-induced economic shock.

Figure 2: Concern on paying expenses



Source: Authors computation

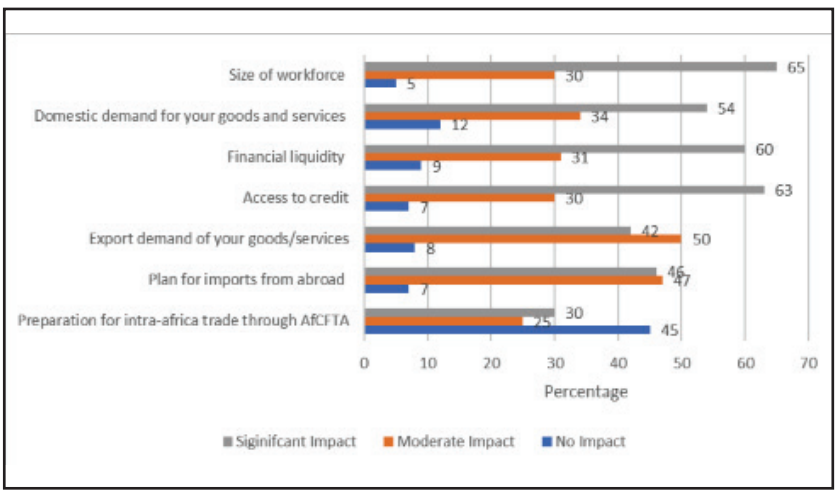
4.1.3 Exacerbated pre-existing challenges and preparations for AfCFTA

The rapid spread of COVID-19 and the measures taken by global and regional governments to contain it have exacerbated pre-existing challenges faced by women-owned/managed enterprises, with a consequent effect on their preparations for AfCFTA. Results of our analysis (see Figure 3) show that the COVID-19 pandemic has impacted women-owned/managed businesses by reducing domestic and export demand for their goods and

services. About 54 per cent of the respondents experienced a significant domestic demand shock, while about 42 per cent of the respondents experienced a significant export demand shock.

Moreover, most of the respondents, about 60 per cent, have experienced a significant impact of the pandemic on their financial liquidity. This suggests that many of the women business owners/managers may have experienced a sharp decline in their firm's cash flow, which could consequently push solvent but liquid businesses into bankruptcy.

Figure 3: Effect on pre-existing challenges and on preparation for AfCFTA



Source: Authors computation

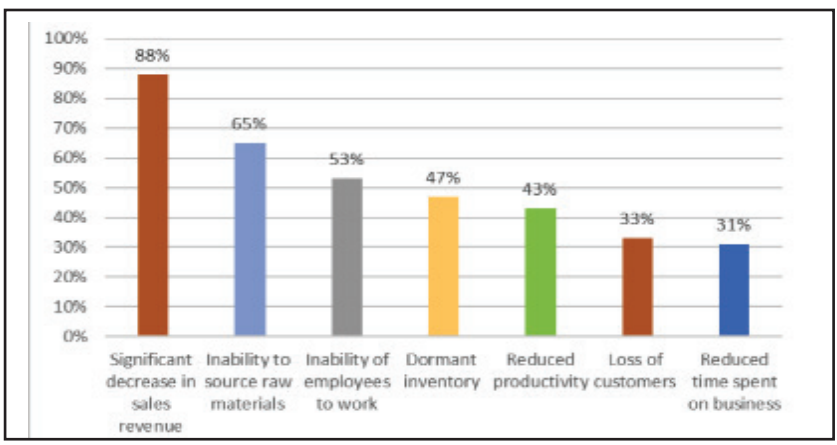
4.1.4 Effect on business activities

Given that the COVID-19 pandemic resulted in an economic lockdown and social distancing, it consequently undermined women-owned or managed SMEs' capacities to operate and generate revenues, among other challenges faced. Figure 4 reveals that most of the SMEs, about 88 per cent, experienced a significant decrease in sales revenue; the majority were unable to source raw materials; and many of their employees could not work productively. In addition, 47 per cent of the SMEs had dormant inventory, which implies tied-up capital and loss of opportunity to invest. Reduced productivity is another setback experienced by about 43 per cent of the entrepreneurs, while 33 per cent of the respondents reported the

loss of customers, and 31 per cent experienced reduced time spent on business. Our findings are in line with many empirical findings.[23][24][25]

Our findings concur with the findings of Connor and others,[26] which show that the COVID-19 pandemic is already exacerbating women's caregiver responsibilities, thereby reducing the time committed to their enterprises. Similar findings by Foucault and Galasso[27] show that women stopped working and trading more than men during the pandemic in various countries. Our findings imply that the spread of the COVID-19 pandemic had a devastating impact on women entrepreneurs, which has led to heightened concern among women business owners or managers. Such impacts risk rolling back the meagre gains made in women's entrepreneurship participation, limiting women's economic empowerment and deepening gender inequality and poverty.

Figure 4: Effects on business activities



Source: Authors computation

23 G Odularu 'Building businesses back better amid COVID-19 pandemic in Africa' (2020) KIEP Visiting Scholars' Opinion Paper.

24 McKinsey and Company 'Seven charts that show COVID-19's impact on women's employment'(2021), https://www.mckinsey.com/featured-insights/diversity-and-inclusion/seven-charts-that-show-covid-19s-impact-on-womens-employment (accessed 27 May 2021).

25 UN Women 'COVID-19 and its economic toll on women: The story behind the numbers' (2020), https://www.unwomen.org/en/news/stories/2020/9/feature-covid-19-economic-impacts-on-women (accessed 27 May 2021).

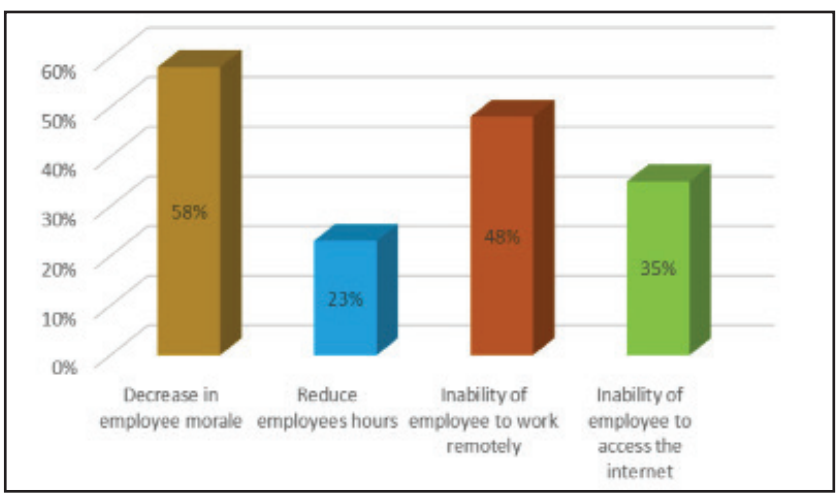
26 J Connor and others 'Health risks and outcomes that disproportionately affect women during the COVID-19 pandemic: A review' (2020) *Social Science and Medicine* 113364.

27 M Foucault & V Galasso 'Working after COVID-19: Cross-country evidence from real-time survey data (No 9)' (2020) Sciences Po.

4.1.5 Impact on employees

The survey results presented in Figure 5 further show that employees of women-owned or managed small businesses were also affected by the COVID-19 pandemic. A majority, about 58 per cent of women business owners or managers, reported that the pandemic led to a reduction in the morale of their employees, while employees of 48 per cent of these women could not work remotely. The pandemic has highlighted the inability of employees to access the internet and work remotely. Consequently, the trade and revenue of these women-owned/managed businesses are disrupted, and their employees risk job losses.

Figure 5 Impact on employees



Source: Authors computation

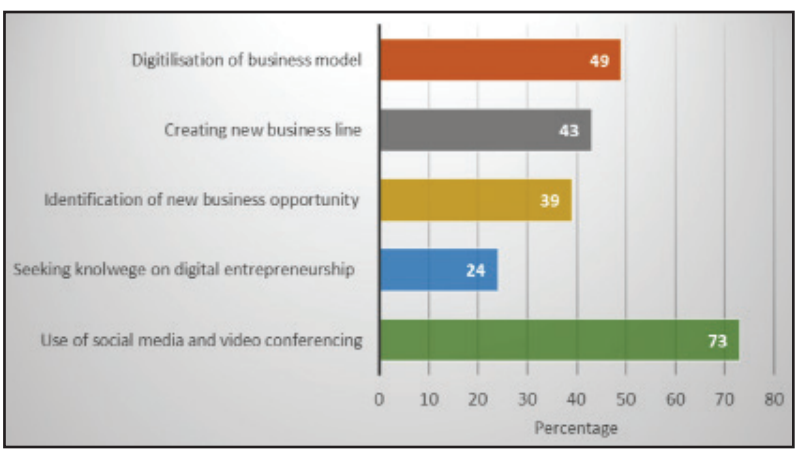
4.1.6 Mitigation measures

The COVID-19 pandemic is compelling women business owners/managers to rethink their businesses where the traditional physical presence and the in-person setting are the norms. Consequently, many women entrepreneurs are beginning to realise the need to be innovative and digitalise their business operations with online ordering, payment and delivering their products and services. Figure 6 shows that 49 per cent of the respondents have adopted digital entrepreneurship by digitalising their business model. Digitalisation is key in keeping these enterprises afloat and surviving the economic shock induced by the pandemic. In addition, 43 per cent of the women business owners/managers are diversifying their enterprises and creating new business lines in response to customers'

needs and demands, while 39 per cent have been able to identify new business opportunities amid the pandemic. The analysis further reveals that about 24 per cent of the respondents realised their lack of knowledge about digital entrepreneurship and have begun to search for such pertinent knowledge to remodel their businesses and cushion the effects of the pandemic.

Moreover, Figure 6 shows that social medial and video conferencing have taken a key role in the digital transition of women-owned or managed businesses in Africa. This suggests that many women entrepreneurs are applying social media to mitigate the adverse effects of the pandemic on their businesses. It also suggests that more women find the social networking platform appealing to transact their businesses. Our findings concur with that of Salam, Imtiaz and Burhan,[28] which reported increased usage of social media marketing among SMEs during the COVID-19 crisis. Our findings also suggest that the COVID-19 pandemic provides an opportunity for women-owned or managed businesses to accelerate their digitalisation efforts by using simple and more advanced digital technologies.

Figure 6: Mitigation measures



Source: Authors computation

28 MT Salam, H Imtiaz & M Burhan 'The perceptions of SME retailers towards the usage of social media marketing amid COVID-19 crisis' (2021) *Journal of Entrepreneurship in Emerging Economies.* [13(4), 588-605.]

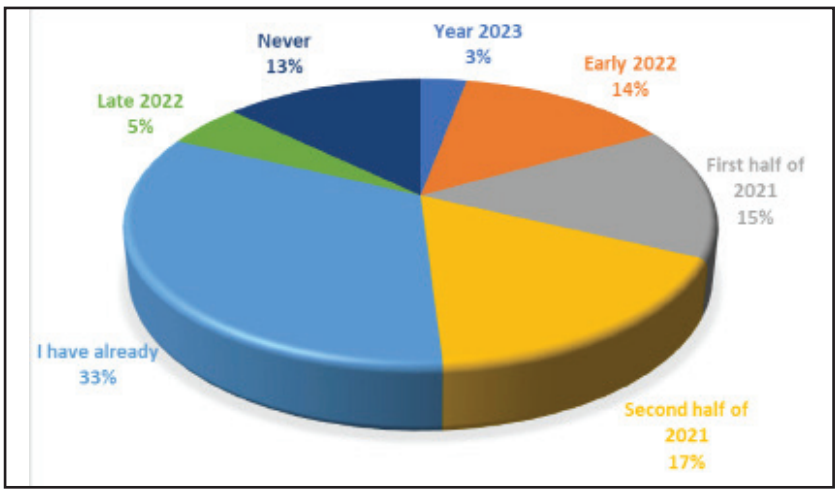
4.1.7 Return to normal

The survey by GeoPoll elicited women business owners' or managers' beliefs about the future of their businesses, allowing us to analyse their expectations on business recovery. Figure 7 shows that only 33 per cent of the respondents have experienced a return to normal in their businesses, while 15 per cent expect their businesses to return to normal by the first half of 2021. However, 14 per cent of the respondents noted their businesses would not return to normal until early 2022 while, unfortunately, 13 per cent of the respondents reported that their businesses would never recover from the impact of the pandemic. This implies that a number of women business owners will not be able to re-engineer their businesses and navigate through the pandemic.

The severe effects of the COVID-19 pandemic on women-owned or managed enterprises and the uncertainty surrounding the recovery raise fears that a large number of women in trade, particularly small-scale cross-border traders, would fail. Given the clear gendered implications of the COVID-19 crisis, our findings indicate the need for regional and national COVID-19 recovery efforts and policy response to prioritise and reach the most vulnerable women business owners/managers.

Moreover, given that digitalisation is critical to the 'new normal' and directly linked to improvement in business performance, African regional and national governments need to assist entrepreneurs, particularly women entrepreneurs, in overcoming hurdles in their digitalisation journey so that they can maximise the benefits of digitalisation. Given this premise, the AfCFTA provides an avenue to pursue a gender-sensitive post-COVID-19 economic recovery in Africa.

Figure 7: Expected period of business returning to normal.



Source: Authors computation

4.2 Gender inclusion in free trade agreement: The African case (AfCFTA)

Gender-related provisions such as gender mainstreaming are increasingly becoming a norm in regional trade agreements. Many African regional economic communities (RECs) have expressed gender considerations in their trade agreements, with about 20 different gender-related provisions found in their establishing treaty. For example, the East Africa Community (EAC) treaty, which entered into force on 7 July 2000, acknowledges that women play a key role in the economic, social, and political development of the region. Article 5(e) of the Treaty articulates issues of mainstreaming gender into all EAC legislation, policies, programmes and projects, while articles 121 and 122 emphasise the role of women in socio-economic development in the partner states. The EAC regional Gender and Community Development Strategic Plan and the 4th EAC Development Strategy (2011-2016) provide guidelines for mainstreaming gender in EAC policies and programmes. Member states are mandated by the treaty to enact, coordinate and harmonise appropriate policies that are key to the promotion of equal opportunities and gender equality.[29] The parties are also required to frame holistic policies that improve women's economic

29 UNCTAD 'Trade and gender nexus in the context of regional integration: A comparative assessment of the East African Community (EAC) and the Southern Common Market (MERCOSUR)'(2019).

and social conditions within the economic community. Other efforts of EAC at mainstreaming gender in regional development include a draft regional strategy on promoting women in socio-economic development and women in business.

Similarly, the Southern African Development Community (SADC) treaty commits its member states to promote policies and laws that have provisions for the empowerment of women and give equal opportunities to women in terms of access to, control of, and benefit from, productive resources. This SADC commitment not to discriminate against anyone on the ground of gender, among other grounds, is documented in SADC treaty article 6(2). The SADC Protocol on Gender and Development was signed and adopted in 2008, entered into force in 2013, and was revised in 2016. The protocol aims to integrate and mainstream gender issues into the SADC Programme of Action and Community Building initiatives in the pursuit of sustainable development of the SADC region. The Revised SADC Protocol on Gender and Development aligns with SDG 5 and provides for the empowerment of women, the elimination of discrimination against women, the elimination of gender inequalities and marginalisation of women, and the promotion of gender equality and equity through gender-responsive policies.

Gender mainstreaming also features in the Economic Community of West African States (ECOWAS) Treaty. Specifically, article 63 of the ECOWAS Revised Treaty empowers the member states to legislate, harmonise, coordinate, and establish appropriate policies and mechanisms for the economic empowerment of women and enhance the social and cultural conditions of women.[30] In addition, the 2015 Supplementary Act on Equality of Rights between Women and Men for Sustainable Development in the ECOWAS mandates all ECOWAS member states to promote gender equality and equity in all sectors through appropriate policy and legislative formulation. Other gender-related provisions in ECOWAS include the ECOWAS policy for gender mainstreaming in energy access; the ECOWAS women, peace and security plan of action; and the ECOWAS Gender and Elections Strategic Framework and Action plan. The gender mainstreaming efforts of the African RECs show that Africa considers the interests of men and women with a view to achieving gender equality through regional accords.

30 ECOWAS 'ECOWAS plan of action on gender and trade 2015' (2015), https://www.ccdg.ecowas.int/wp-content/uploads/Plan-of-Action_Gender-and-Trade.pdf (accessed 29 April 2021).

Unlike the African RECs with many gender-related provisions in their treaties, the AfCFTA has only two gender-related provisions. One gender-related provision is stipulated in its Preamble, and another is stipulated in its list of general objectives. Although the AfCFTA framework agreement does not have a specific chapter on gender and trade, it does reference the importance of gender equality in the light of intra-African trade. Specifically, article 3(e) states 'promote and attain sustainable and inclusive socio-economic development, gender equality and structural transformation of the State Parties'. Article 4 of the Protocol on the Free Movement of Persons provides that 'States Parties shall not discriminate against nationals of another Member State entering, residing, or established in their territory, on the basis of their … sex'.

In addition, in article 27(2)(d) of the Protocol on Trade in Services, state parties are required to 'improve the export of both formal and informal service suppliers' with particular attention to micro, small and medium-sized, women and youth service suppliers. This implies that state parties are required to improve the export capacity of women entrepreneurs and ensure that women are not left behind in the process of African trade liberalisation.

The discretion of the states is central to the implementation of these gender-related provisions in AfCFTA.[31] In 2019 the United Nations Economic Commission for Africa (UNECA) gave support to 15 African countries to develop national AfCFTA implementation strategies. Through this process, states are expected to develop gender-responsive policies and context-specific interventions to promote women's empowerment in the AfCFTA. Moreover, it is expected that parties will address gender-specific constraints, particularly in agriculture, manufacturing, and services, and identify potential economic opportunities to catalyse women's empowerment in the AfCFTA.[32] Advancing gender equality is key to achieving the unparalleled opportunities inherent in the AfCFTA.

4.3 Can AfCFTA bridge the gender digital entrepreneurship divide?

In order to formally assess Africa's preparedness for AfCFTA and the current digital entrepreneurship among women, this study adopts the

31 Laperle_Forget Gender-responsiveness in trade agreements – How does the AfCFTA fare? (2021), https://www.tralac.org/blog/article/15141-gender-responsiveness-in-trade-agreements-how-does-the-afcfta-fare.html (accessed 28 April 2021).

32 B Nadira 'A "business unusual" approach for gender equality under the AfCFTA' (2020) 9 *Great Insights.* [1-8 page number]

framework of political, economic, social, technology, ecological and legal (PESTEL) analysis. The threats, as captured in Figure 8, have been further aggravated by the broad socio-economic and political impact of the COVID-19 pandemic. However, investments in new technologies enable remote working, enhance women's digital entrepreneurship capacities, and foster green finance for women enterprises within the global trade agreements (WTO) as well as the AfCFTA. Key informant interviews (KIIs) were conducted with a trade expert panel to triangulate our findings and strengthen the reliability of our results. The expert panel engaged in the focus group discussions included African trade experts, past and present leaders of business membership organisations (BMOs) across Africa, erudite and well-published scholars, and state and non-state actors. For instance, in the words of a key informant, Dr John Isemede, an international trade expert and a former director-general of the Nigerian Association of Chamber of Commerce Industry Mines and Agriculture (NACCIMA), '[g]iven the infrastructural decadence in Africa and Nigeria in particular, we are not prepared for AfCFTA. Nigeria ports are not configured to handle exports. We do not have silos or cold rooms. As such, we cannot even export vegetables.'

Figure 8: PESTEL analysis for digital entrepreneurship within invisible cross-border trade

OPPORTUNITIES		**THREATS**
Global trade agreements (WTO) and AfCFTA with well-mainstreamed women's role	**P**	Major continental antitrust and regulatory reforms
Digital entrepreneurship national policies, programmes, cooperatives, and initiatives for women	**E**	Fragile and landlocked opportunities.
Highly trained, educated, and skilled women workforce	**S**	Workforce disruption due to lack of diversity
Innovative, mobile, and new technologies (cloud, AI, Machine Learning), research and infrastructure	**T**	Digital substitution, e.g., Robots
Green Finance and Climate Smart Economies	**E**	Social media and protest pressure
Trust, reputation, and blockchain for contract enforcement and implementation	**L**	Information Asymmetry in women-owned enterprises.

Source: Authors computation

Moreover, African women face many peculiar barriers to their participation in regional trade and digital entrepreneurship. These barriers include resource constraints, regulatory barriers, cultural biases, and information asymmetry. These prevailing barriers may prevent women from fully benefiting from opportunities offered by AfCFTA.

4.3.1 Resource constraint

Many intrahousehold resource allocation practices in Africa restrict women's right to own economic resources and assets, access to new technology, education and training, and power over economic decision making that impact their productivity and well-being. Prevailing low access to productive resources experienced by women in many African countries tends to limit their participation in regional trade and digital entrepreneurship. For instance, in Uganda, women make up 80 per cent of the agricultural labour force; only seven per cent of these women own their land and sell only 11 per cent of the cash crops.[33] Also, in Burundi, as in many other African countries, women do not have a right to land inheritance. Privately-owned non-state land is governed by customary law that transfers land rights from father to son, meaning that women and girls are excluded from land ownership. Although Burundian women produce the bulk of food crops, they do not have the decision-making power over the use of the harvested food crops.[34]

In Africa, generally, women contribute 60 to 80 per cent of the labour force in agriculture, which is the most vital economic sector of sub-Saharan Africa, but own less than 2 per cent of agricultural land.[35] Empirical evidence suggests that when women have control over a larger share of economic resources, agricultural productivity rises.[36] This finding is substantiated by trade experts engaged in the focus group discussion. In the words of a key informant, a trade expert and BMO leader from Nigeria, 'women suffer from lack of access to finance and digital solutions that address inefficiencies.

33 C Klaa 'Role of African women in development and economic life: Reality and challenges' (2020) 4 *International Journal of Inspiration and Resilience Economy* 1-9.

34 N Nintunze & S Bigirimana 'Analysis of cultural barriers to women's economic empowerment in Burundi' (2021) *Search for Common Ground / USAID.*

35 Klaa (n 33).

36 M Hallward-Driemeier & T Hasan *Empowering women: Legal rights and economic opportunities in Africa* (World Bank Publications 2012).

Based on evidence from the changes in Ethiopian laws in 2000, Hallward-Driemeier and Hasan[37] also noted that positive changes in family law can strengthen women's empowerment. As opined by a trade expert, past president of a BMO in Nigeria, in the key informant interview, 'Africa, particularly women, are not adequately prepared for AfCFTA … We are in a country with foreign policy but no foreign policy strategy. Our foreign policy is not tied to trade.' Another key informant from Ghana added that 'women are disproportionately marginalised in access to economic resources in Africa'. The lack of ownership and control over economic resources, such as land, credit, capital, and other means of production, is a clear indicator of the abuse of women's social and economic rights in Africa. In addition to these barriers, African women are also severely restricted in their participation in trade and digital entrepreneurship by many regulatory barriers and cultural biases that do not serve the interests of women.

4.3.2 Cultural biases

African women face discrimination in all social and economic spheres due to cultural biases and social norms that are entrenched within African cultural ideologies. Dominant cultural practices in Africa, such as the patriarchal family system and child marriages, hamper women's economic empowerment. For instance, the patriarchal family system dominant in Northern Nigeria restricts the participation of women in conflict resolutions and peace dialogues, economic empowerment, and access to education. A common saying in Burundi – *Umurundikazi n'uwoguteka* – implies that the Burundian woman is designed for cooking. Women entrepreneurs and traders that travel far from their households for business activities are perceived as loose and immoral.[38] In addition, certain myths in many African rural communities dictate that certain activities are reserved for men, thereby infringing on the rights of women, and promoting inequality as well as discrimination based on stereotypes.

4.3.3 Information asymmetry

The lack of accurate, reliable and up-to-date information is a major obstacle to the participation of African women in regional trade and digital entrepreneurship. This was the submission of a trade expert panel from Nigeria, Ghana, Senegal, Tanzania and Madagascar interviewed

37 N Nintunze & S Bigirimana 'Analysis of cultural barriers to women's economic empowerment in Burundi' (2021) *Search for Common Ground/USAID.*

38 N Nintunze & S Bigirimana 'Analysis of cultural barriers to women's economic empowerment in Burundi' (2021) *Search for Common Ground/USAID.*

in the focus group discussions. The trade experts concluded that the pace of participation of women in the intra-Africa trade is hampered by information asymmetry. This includes a lack of accurate and timely information on prevailing market prices, commodity and trade statistics, and weather updates. Linguistic, cultural and spatial barriers also create information asymmetries between existing and new buyers and sellers, which impede intra-African trade.

Moreover, asymmetric information hinders African women from accessing credit facilities due to challenges of adverse selection before the credit facility is granted and moral hazards after the credit facility is granted between the women and financial institutions, particularly microfinance banks. Due to information asymmetry, the creditworthiness of clients is the most frequently cited reason for the rejections of letters of credit.[39] Financial institutions often are not able to appraise the creditworthiness of firms due to asymmetric information on the credit histories of the firms. The lack of clear understanding of the activities of African women in trade and the inability of financial institutions to differentiate between good credit risks and negative credit risks impact negatively on credit facilities for women in trade. This jeopardises the chances of increased participation of women in intra-African trade. Overcoming information asymmetry, therefore, is critical in accessing trade finance for the facilitation of intra-Africa trade.

4.3.4 How AfCFTA can promote gender empowerment

Better prospects for women in small-scale cross-border trade (WSSCBT)

One basic feature of intra-African trade is small-scale cross-border trade (SSCBT), constituting about 40 per cent of the total regional trade. Agricultural commodities and clothes are the bulk of goods traded by women in small-scale cross-border trade (WSSCBT), while small-scale cross-border trade in staple foods constitutes about 30 per cent of total trade in the West African region. In the words of one key informant, '[o]ver 90 per cent of players in the African markets are micro, small, and medium enterprises (MSMEs) which are mostly women, and they contribute 65 per cent to the GDP in most African countries' (National Coordinator, Association of Nigerian Women Business Network). This suggests that SSCBT contributes substantially to the African economy and contributes significantly to fighting the scourge of food insecurity in Africa by linking agricultural markets across borders.

39 O Gajigo and others 'The trade finance market in Africa' (2015) 6 *African Development Bank, Africa Economic Brief* 301-317.

Small-scale cross-border trade is perceived by some authors and institutions as informal and unregistered businesses with no official records and evades statutory border formalities such as customs clearance.[40] UNCTAD defined ICBT as 'trade between neighbouring countries conducted by vulnerable, small, unregistered traders' who take advantage of proximity to move produce between markets that are close to the border. The informality is linked with the status of the unregistered trader, not necessarily to the trade itself. However, the World Bank put this trade in a better perspective by adopting the term small-scale cross-border trade, which could stimulate a change in the negative perceptions associated with informal cross-border trade.

Moreover, available country-specific statistics show that the value of ICBT exceeds the value of formal cross-border trade. Rwanda's informal trade with its four neighbouring countries, Uganda, Burundi, Tanzania and the DRC, in 2011 was 51 per cent higher than it is for formal trade with these countries. Similarly, the value of Uganda's informal trade with five of its neighbouring countries, Kenya, the DRC, Tanzania, Rwanda and South Sudan, in 2006 was estimated at 86 per cent per cent higher than the value of its official trade with these neighbouring countries.

Small-scale cross-border trade is a women-intensive sector that provides income and employment opportunities, especially for women in fragile communities of Africa. Women are most actively involved in SSCBT, representing about 70 per cent of Southern Africa's informal cross-border traders and 60 per cent of West and Central Africa's informal traders.[41] Women in small scale cross-border trade are faced with many constraints, including gender biases in access to productive and financial resources; high transaction costs; illiteracy and ignorance of trade rules; difficulties in obtaining trade permits and documents; poor awareness of customs procedures; information asymmetry; underrepresentation in trader networks; lengthy clearance processes; poor border conditions; and gender-based harassment when crossing the border.

By leveraging AfCFTA, innovative solutions could be provided for the challenges experienced by women in small-scale cross-border trade. The preferential trade regimes adopted by the AfCFTA have the potential to facilitate small-scale cross-border traders and the bulk of African smallholder farmers into larger value chains. This is in line with

40 J Afrika & G Ajumbo 'Informal cross border trade in Africa: Implications and policy recommendations' (2012) 3 *Africa Economic Brief* 1-13.

41 N Nintunze & S Bigirimana 'Analysis of cultural barriers to women's economic empowerment in Burundi' (2021) *Search for Common Ground/USAID.*

the 2014 Malabo Declaration that emphasised the need for preferential trade regimes that facilitate the integration of women into regional value chains, which is critical to boosting intra-Africa trade. In addition, under the AfCFTA annexe 6 Technical Barriers to Trade (TBT) and annexe 7 Sanitary and Phytosanitary Measures (SPS) of the Protocol on Trade in Goods, provisions are made for the harmonisation of standards between states, thereby simplifying trade facilitation between the states. This is a potential opportunity for women that are faced with difficulties in the application of standards to overcome such challenges and gain access to new markets while providing quality products and services.

The effectiveness of AfCFTA in empowering women in small-scale cross-border trade will be rooted in the effective implantation of these streamlined trade regimes beyond that of individual RECs. For instance, lessons can be learnt from inherent weaknesses in the implementation of the COMESA and EAC simplified trade regimes. Under the COMESA and EAC simplified trade regimes, eligible goods traded on a small scale are exempted from customs duties and enjoy simpler documentation processes. It is aimed at simplifying trade procedures at the borders and encouraging SSCBT to formalise its operations. However, findings by UNCTAD show that the benefits of the regional simplified trade regimes to small-scale cross-border traders are minimal and below their expectations. Many reasons identified for this failure include asymmetric information about simplified trade regimes, high transaction costs, a low threshold value of consignments, and prevailing 'administrative burden'. The simplified trade regimes of AfCFTA can change this narrative and uplift the hope of SSCBT by appropriate tailoring of the simplified trade regimes to the specific needs of women in small-scale cross-border trade and promoting one-stop-border-posts (OSBPs) across Africa's RECs.

Better employment opportunities for women through AfCFTA-induced economic growth

Social norms, discrimination against women, and educational imbalances between men and women exacerbate gender-based employment segregation in Africa. For example, women in East Africa spend most of their working hours on unpaid domestic work, including caring for children, aged parents and sick relatives.[42] AfCFTA can offer solutions to gender-based employment segregation through a structural transformation in terms of production and induced changes in employment patterns and income. AfCFTA-induced growth in exports and imports could push

42 N Nintunze & S Bigirimana 'Analysis of cultural barriers to women's economic empowerment in Burundi' (2021) *Search for Common Ground/USAID.*

productivity growth upward while helping to create better-skilled and higher-paying jobs for women.

This research adopts Ansoff's Growth Matrix[43] on how women could benefit maximally from regional digital entrepreneurship (see Figure 9). More contextually, the matrix provides a better understanding of the risks inherent in growing digital cross-border enterprises, especially among women and in this digital age. It comprises four strategies, namely, (i) market penetration, which focuses on increasing sales of existing products to an existing market; (ii) product development, which focuses on introducing new products to an existing market; (iii) market development strategy, which focuses on entering a new market using existing products; and (iv) diversification strategy, which focuses on entering a new market with the introduction of new products.

Figure 9: Ansoff's Growth Matrix: How women could benefit maximally from regional digital entrepreneurship

	Existing product/ services	**New product/services**
Existing Market	Market penetration	Product Development
	Digital entrepreneurship development and diversification	Corporate diversification
New Market	Market development	Diversification
	Regional market penetration and consolidation	Product or services development and diversification

The effective implementation of the AfCFTA agreement could reduce unemployment in Africa through AfCFTA and induce economic growth from increased trade between the African states and increased investment in technology. While some sectors, such as export-oriented production sectors, may benefit from African trade liberalisation, others, such as import-competing production sectors, may lose from AfCFTA. Given the predominance of women in Agri-food and services sectors and working in small and medium-sized enterprises, women may not gain from AfCFTA

43 Ansoff matrix was developed by applied mathematician and business manager H Igor Ansoff and was published in the *Harvard Business Review* in 1957.

as much as men. According to the World Bank analysis, AfCFTA has the potential to contribute to closing the gender wage gap with an increase in unskilled work for women and a 10 per cent increase in wages. For instance, employment is expected to increase significantly, and output is expected to expand in agriculture and agro-processing sectors, which disproportionately employ women.

5 The new equation: Trade-related and legal policy recommendations

Mathematically, one plus one equals two. Right, and very simple. In addition, we live in a world of polar opposites, but multiple variables can be true and equivalent at the same time. Apparently, the relationship between women's digital entrepreneurship, digitalisation, the COVID-19 pandemic, 'snobalisation', AfCFTA, cross-border trade, cybercrime, legal framework, economic regulations, culture, and competition policy is not simple. Thus, the question is, what happens if we assess women's digital entrepreneurship and hidden cross-border trade nexus or remap their correlations from this entirely new perspective? Could this new dimension generate greater understanding and more realistic and impactful policy recommendations based on continental FTAs' experiences, trust, ethnographic research, increasing trends in businesses' strategic adoption of digital technologies, virtual reality, enhanced customers' experience, and historical antecedents? By implication, this research adopts a systems equation methodology that keeps exploring innovative solutions for the dynamic challenges confronting women digital entrepreneurs. As captured in Figure 10 and applied in this concluding part, the 'new equation' simply is an 'outside-the-box' and unconventional approach to recommending innovative solutions to gendered digital entrepreneurship challenges towards more sustainable future business and FTAs models for women.

5.1 Game-changing trade innovation solutions for bracing women digital entrepreneurship for the post-COVID-19 world

The continentally-coordinated AfCFTA approach will foster digital trade and entrepreneurship among women. For instance, the provision of article 27 of the AfCFTA Protocol on Trade in Services mandates the African government to harness resources to promote the export capacity of women in trade and support in building the digital skills of SMEs and women entrepreneurs, which is a crucial lever for women's empowerment. The economic empowerment of African women and the intra-African trade have a symbiotic relationship, 'as effective regulation of the latter could support the former'.

5.1.1 Promote STEM and equal education for girls

(1) Given that trade liberalisation induces technological upgrading for increased competition, the African government should support women's empowerment with higher education and advanced digital skills. Sadly, only 3,7 per cent of African schools teach cybersecurity as a subject.[44] Higher education, particularly in STEM fields, can give women access to new opportunities for digital entrepreneurship. Women can also be supported with affordable and secure broadband internet access and web-based online platforms to access digital entrepreneurship skills.

(2) The foundation of having women in tech is having girls in science, technology, engineering and mathematics (STEM). The enrolment of women and girls in STEM courses is much lower than their male counterparts in Africa. According to the World Economic Forum, women are continually underrepresented among STEM graduates. Equal STEM education for girls and women empowers them with transferable skills needed to thrive in the new digital-driven global economy and future of work. Therefore, it is important to promote STEM education for girls in the learning system by intensifying awareness campaigns on the importance of STEM education for girls and women.

(3) Tackling the STEM gender bias requires holistic and inclusive public-private partnerships such as that between the Rwandan government and Starlight, which is a woman-and-girls youth-led organisation in Rwanda addressing gender inequality in STEM. Another pacesetting initiative that should spread across Africa is the African Girls Can Code Initiative (AGCCI), a flagship project of the International Telecommunication Union (ITU) in partnership with United Nations Women and the African Union Commission.

5.1.2 Encourage digital skills acquisition for African women

Most women in sub-Saharan Africa lack the skills to effectively use technology and digital tools, take advantage of the internet and harness legitimate online opportunities.[45] Digital skills, not just connectivity, drive women's empowerment. This implies that empowering young girls and women with appropriate digital skills is equally as important as increasing their access to the internet. Such empowerment will help girls and women to thrive in a COVID-19 world in which digital skills are prized, given that over 90 per cent of future jobs require digital skills.[46] African governments

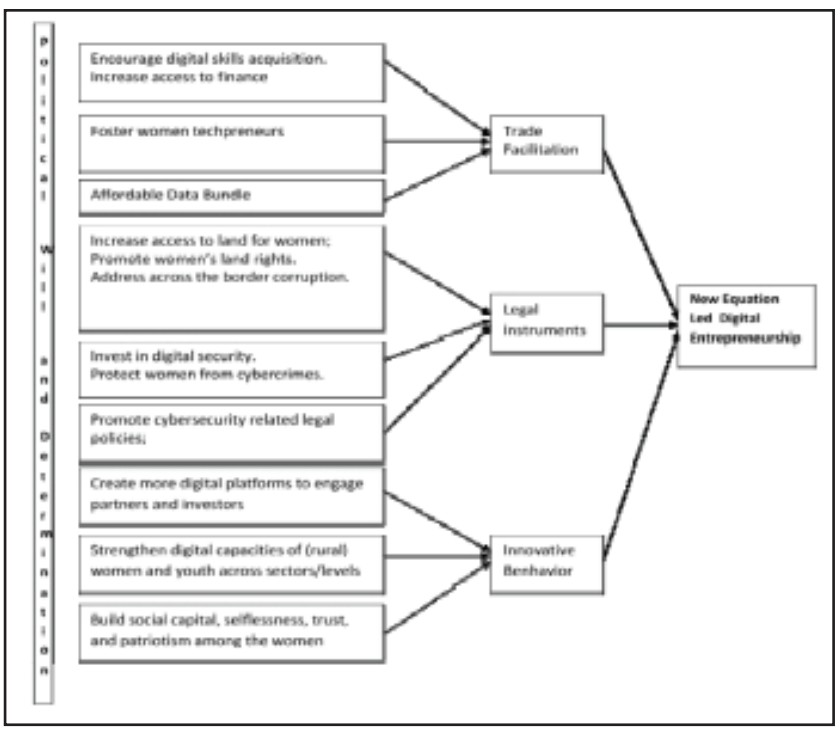
44 A Collard & A Oichoe 'Tomorrow's cyber heroines' (2021), https://www.knowbe4.com/hubfs/TomorrowsCyberHeroines.pdf (accessed 14 April 2021).

45 Robert (n 3).

46 M Phumzile 'Reshaping the future: Women, girls, and tech for development' (2018) Emerging Trends | ICT4SDG | SDG5.

can promote digital skills acquisition for girls and women by prioritising education in ICT subjects. Pacesetting Initiatives such as the African Girls Can Code Initiative (AGCCI) in Ethiopia, which aims to empower 2 000 girls and women between the ages of 17 and 20 years with skills in computer programming, design, and coding, should be replicated in other African countries.

Figure 10: New equation-led women digital entrepreneurship



Source: Authors' design and adapted from: Odularu, GOA 'An economic development strategy for West Africa: Lessons and policy directions' doctoral thesis, University of Sunderland, 2013.

5.1.3 Empower women to be developers of digital tech and creators of digital content

The development of software and the creation of digital content has become key asset for digital transformation, particularly in a COVID-19 world.[47] Given the low participation of women and girls in developing

47 OECD 'Bridging the Digital Gender Divide' (2018), https://www.oecd.org/digital/bridging-the-digital-gender-divide.pdf (accessed 15 April 2021).

digital tech, they will achieve only half of the patented inventions within the five largest intellectual property offices (IP5) by 2080.[48] Male dominance in the digital tech development sector influences the useability and the kind of issues that technology is used to solve. Pre-existing inequalities may be worsened if girls and women are not empowered to create digital tools and online content.

5.1.4 Improve internet service quality and availability

Many African countries lag in the bottom 8 per cent globally in terms of internet quality and speed.[49] Many factors contribute to this lag, while poor electricity supply is one of the most significant obstacles to providing improved internet services in Africa. This obstacle constrains the empowerment of women in small-scale cross-border trade and the expansion of the digital economy for small and medium-sized enterprises, especially in rural areas. Higher internet speed could boost the effectiveness of AfCFTA in promoting economic growth[50] through improved social inclusion, financial inclusion, and expanded businesses and services. Improved internet service quality and availability in sub-Saharan Africa will open digital entrepreneurship services such as e-health, e-education, e-commerce, and social media, especially for WSSCBT. Moreover, improved internet service quality and speed could enable women and girls in business to access new market opportunities offered by AfCFTA and expand their businesses while taking advantage of the intra-Africa trade liberalisation.

The onus lies on the African government and financial institutions, particularly the central banks, to develop strategies to protect consumers and build more secure, sustainable and gender-responsive financial systems. Existing initiatives, such as the United Nations Capital Development Fund (UNCDF) Africa Policy Accelerator, and the Alliance for Financial Inclusion (AFI), should be scaled up. These initiatives assist African financial regulators in their design of regulatory frameworks that secure emerging payment and digital identification technologies and advance African women's financial inclusion. Another key policy measure that the African government could pursue to support women's digital empowerment is securing data privacy and data ownership rights.

48 As above.

49 E van der Merwe 'Connectivity now: Why internet access in Africa is more vital than ever' (2020), https://www.mandelarhodes.org/ideas/connectivity-now-why-internet-access-in-africa-more-vital-than-ever/ (accessed 24 March 2021).

50 M Tuerk 'Africa is the next frontier for the internet' (2020), https://www.forbes.com/sites/miriamtuerk/2020/06/09/africa-is-the-next-frontier-for-the-internet/?sh=660f598c4900 (accessed 29 March 2021).

This will foster the development of digital infrastructure and enhance the interactions between agents and users in the digital marketplace.

5.1.5 Make data bundle affordable, particularly for women

A recent survey of 45 African countries by the Alliance for Affordable Internet shows that only ten countries meet the standard of affordable internet, defined as paying 2 per cent or less than the average monthly income for one gigabyte of data. The high cost of ICT devices and data bundles is a bigger challenge for girls and women because the average wage for women workers is 'generally lower than men's in all countries and for all levels of education and age groups'. This predicament is worse in sub-Saharan Africa, where nine out of ten employed women are in the informal and low-paid sectors. Such a gender pay gap implies that women face higher costs to access and use the internet. Maximising the novel economic and social opportunities of AfCFTA in a COVID-19 world will only happen when we work to make the data bundle affordable for all, especially for girls and women.

5.1.6 Increase access to finance for women-owned businesses

Despite the importance of finance in boosting women's entrepreneurship, about 80 per cent of women-owned businesses lack access to business finance from formal financial institutions, which is estimated as the US $42 billion gender gap in access to finance. Overcoming this financial challenge faced by women entrepreneurs in growing their businesses requires innovative financing driven by private-public partnerships. This is critical to strengthening existing products and introducing new products and services tailored to women-owned businesses. Regional initiatives such as the African Development Bank's Affirmative Finance Action for Women in Africa (AFAWA) programme are a scalable financing model that should be replicated in all African countries seeking to increase the opportunities for women-owned enterprises.

Moreover, non-financial barriers that limit women's access to finance should also be addressed. For instance, given that creditworthiness is the major asset for most women, many women self-select out of the credit market due to information asymmetry. They are disadvantaged by asymmetric information about their credit history, and financial institutions are limited by a lack of information sharing between institutions. In addition, the gap in property rights, which limits women's access to assets in inheritance and control over assets, has implications for access to finance. Women need better access to education, gender-sensitive financial infrastructures, removal of cultural barriers that limits interest in women,

and provision of national identities, which often are pre-conditions for access to business finance from formal financial institutions.

5.2 Legislative frameworks for preparing women's digital entrepreneurship for the future

Legal tools play effective roles in fostering online businesses and facilitating e-commerce, especially in the dire need to accelerate transactions during the COVID-19 pandemic emergency.

5.2.1 Improve access to land for women and promote women's land rights

Given that land is a significant business asset and a critical foundation for economic development, improving access to land and securing land rights for women is crucial to women's economic empowerment. Despite existing gender-related land reforms in Africa, such as the African Union (AU) Protocol to the African Charter on Human and Peoples' Rights on the Rights of Women in Africa (African Women's Protocol), women's land rights in Africa remain a major challenge. Improving gender equity in land governance and strengthening women's land rights in Africa require more workable and innovative legal tools. More importantly, African governments and land administrators should assist women in business in Africa with a simplified process of land formalisation documentation. The prohibitive costs of land formalisation, which disproportionately affects women, should be reviewed and reduced. Rent-seeking behaviour and discriminatory gender practices in customary land tenure systems in Africa should be addressed through legal reforms and gender mainstreaming in the land administration system. Such reform could promote women's empowerment and increase women's participation in digital entrepreneurship in agricultural products. As Africa makes frantic efforts to enhance financial inclusion and sustainable development, there are still considerable risks, including 'digitally-enabled fraud' associated with women entrepreneurship. Apart from government support in providing the enabling environment for women's digital empowerment, the digital empowerment of women entrepreneurs can also be achieved through complimentary individual and collective voices by the women involved in a trade.

5.2.2 Address corruption risks and practices at borders

African trade borders are fraught with corrupt practices that manifest themselves mostly in coercive bribery, sexual harassment and violence, particularly against women in small-scale cross-border trade. Beyond corruption in customs and border officials, many other factors border

crimes and corrupt practices against women in trade. These factors include under-staffed and under-resourced border services; the abuse of discretionary powers on the admissibility of imports and exports; and shady regulatory framework 'that provide traders with incentives to bribe'. These challenges could be addressed through institutional reforms that involve state and non-state actors. Civil organisations that promote gender sensitivity in trade and women traders' associations also have a role to play. They should drive advocacy and dialogue between women in trade and border government authorities to improve border conditions and curb corrupt practices.

5.2.3 Promote cybersecurity policies, invest in digital security, and protect women from cybercrimes

Women account for only 9 per cent of the cybersecurity workforce in Africa. Such a lack of African women in cybersecurity increases their risks of cybercrimes.[51] Thus, women entrepreneurs should step up their presence in the cybersecurity industry to address the acute shortage of skilled cybersecurity workforce in Africa and make the digital space safe for women entrepreneurs. Furthermore, women entrepreneurs could complement government efforts at promoting cybersecurity policies by keeping private things private and away from online consumers, keeping track of their digital privacy settings, and reviewing digital content before posting. While women-owned businesses could benefit maximally from improved efficiencies of digitalisation, it is not without risks. As COVID-19 increases digital entrepreneurship, it increases the economic value of data, which attracts more cybercriminals that steal and sell business data for financial gains. Women-owned businesses in Africa, with limited digital skills and fewer resources for cybersecurity, are more prone to cyberattacks. The need to protect these women against cybercrimes cannot be overemphasised. African regional and national governments can promote digital security for women-owned businesses through capacity building on digital security, certification schemes, data governance and proper enforcement of data protection regulations. In addition, as women entrepreneurs in Africa go digital, it is critical for them to invest in digital security and integrate digital security risk management into their business models. Women should also embrace cost-effective practices such as using multifactor authentication, keeping track of their digital privacy settings, keeping private things private and away from online consumers, and reviewing digital content before

51 K Nir 'The lack of women in cybersecurity leaves the online world at greater risk' (2020), https://theconversation.com/the-lack-of-women-in-cybersecurity-leaves-the-online-world-at-greater-risk-136654 (accessed 14 April 2020).

posting. The predominance of men in cybersecurity also leaves women in trade at greater risk of cybercrimes. More African women should also be empowered to work in the cybersecurity industry. Giving equal opportunity to women and girls in cybersecurity requires a public-private partnership involving governments, non-profit organisations, telecom firms, and professional and trade associations that could solve the problem in the long run.[52] Moreover, discriminatory gendered practices, including cyberbullying, sexual harassment, threatening messages, and sharing of private images without consent, are on the increase online across digital platforms, thus making the internet an unsafe space for women and girl entrepreneurs.[53] There is a need for effective enforcement of laws to charge and prosecute perpetrators of online gender-based violence, while law enforcement agents need to brace up to tackle the increasing online threats against gendered entrepreneurship.

5.2.4 Better digital entrepreneurial opportunities within the African Continental Free Trade Agreement

COVID-19 pandemic evidence from developing countries shows that women have been particularly exploited by export-oriented industries because women's labour force generally is less unionised. This makes women more vulnerable to lower wages and substandard labour conditions due to lower bargaining. Women need to be more unionised both in the formal and informal sectors. The power of women's collective voices could advocate better digital entrepreneurial opportunities within the AfCFTA space. Access to digital tools would enhance women entrepreneurs to step up and break the barrier of traditional gender roles through networking and self-economic empowerment.

5.3 Areas of future research

This chapter broadens the literature on digital entrepreneurship prospects of women in Africa and provides key insights into its nexus with the AfCFTA. The challenges faced by women in their pursuit of digital entrepreneurship were clearly discussed, and policy implications were identified.

In this post-COVID-19 pandemic world, which requires the creation and protection of business value, it is critical that women's digital entrepreneurship remains incomplete without a cybersecurity strategy that is based on digital trust. This requires strategically switching and

52 As above.

53 Web Foundation (n 15).

adopting more innovative and advanced technologies to turn the tables on cybercrime. Such cybersecurity technology is Zero Trust. Some of the future research agenda will investigate these questions: What cloud security and other cybersecurity technologies are available and affordable to women MSMEs? How soon would women digital entrepreneurs switch from static, inherently insecure systems to a more dynamic, secured, nimble and integrated cloud system?

This study can be built upon further research by using historical data from third-party digital service firms to analyse how women digital entrepreneurs utilise the services of these firms, particularly social media platforms. Differences in the adoption of digital entrepreneurship during the COVID-19 pandemic and post-COVID-19 crises can be analysed. In addition, historical revenue data of women-owned or managed enterprises can be analysed to assess their performance compared to traditional physical or in-person entrepreneurship models.

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8

Trade facilitation: Understanding the political economy of non-tariff barriers in sub-Saharan Africa

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Abstract: In sub-Saharan Africa, high trade costs stifle trade flows and the region's economic potential. To reduce these costs and increase trade worldwide, the World Trade Organisation initiated the trade facilitation agreement to enhance trade facilitation (TF) – standardisation and harmonisation of trade processes – in all member states. Through the use of inductive reasoning, direct and participant observations, interviews, spatial and location analysis, content analysis and secondary data analysis, this chapter presents a political and economic analysis of TF and non-tariff barriers in SSA. We present a simple economic trade facilitation model that posits that TF is a public good problem and should have a shared cost. Furthermore, the implementation of TF usually is affected by principal-agent problems. Based on our assessment of TF in SSA, we have the impression that the success of TF requires continuous policy reform, improvements in border management, and infrastructural development.

Key words: trade facilitation; non-tariff barriers; single window; one stop border post or joint border post; border; sub-Saharan Africa.

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1 Introduction

> Roads going backwards and not forward, telegraph posts being broken, west lending that couldn't be paid back, politicians preferring to kill rather than accept election results.[1]

Trade facilitation reduces the transaction costs associated with intra-regional trade in sub-Saharan African (SSA). The importance of trade to economic development in SSA notwithstanding, there are obstacles that deter the efficient and effective movement of goods and services, such as non-tariff barriers (NTBs), that are imminent along all the trade corridors on the continent. There is a need to prescribe policies that will make the implementation of trade facilitation agreement (TFA) concepts such as harmonisation of procedures, single electronic window, and automation doable to resolve the challenges of trade facilitation in SSA.

In our political and economic analysis of trade facilitation (TF), we employed a poly-ocular strategy using a pluralist approach to understand and examine the NTBs in SSA and how they can be resolved. The study period is from 2004 to 2014. We used both qualitative and quantitative approaches, which allowed us to triangulate our results. We did participant observation, direct observation, interviews with key informants, spatial and location analysis via Google maps, and content analysis of archival data, such as videos and text – these were analysed for authorship, authenticity and meaning, and secondary data analysis from sources such as the World Bank, transparency international and other relevant agencies. This blend of approaches allowed us to present an interdisciplinary theory of trade facilitation based on the inductive approach of economic theory development.

2 Trade facilitation

Since the reduction of tariffs, over the course of the past few decades, there has been an increased focus on trade facilitation and the reduction of red tape and other non-tariff trade barriers.[2] Trade facilitation is expected to reduce the impact of NTBs. There are various definitions of trade facilitation; for instance, the United Nations (UN) Centre for

1 G Greene *Journey without maps: A travel book* (William Heinemann 1950); H Hawksley 'Dancing with the devil' (2009) *BBC Our World*, http://youtu.be/MyZ6Tv5Smxw (accessed 31 July 2014).

2 A Grainger 'Trade facilitation: A conceptual review' (2011) 45 *Journal of World Trade*, 39-62; World Trade Organisation 'Trade facilitation' (2014), http://wto.org/english/tratop_e/tradfa_e/tradfa_e.htm (accessed 30 November 2014).

Trade Facilitation and Electronic Business defines trade facilitation as 'the simplification, standardisation and harmonisation of procedures and associated information flows required to move goods from seller to buyer and to make payment'.[3] Trade facilitation is also a set of policies, customs, techniques, and appropriate border management that facilitate the movement of goods and services.[4] Trade facilitation is very important as it creates an enabling environment for foreign direct investment,[5] empowers countries through the development of capacity and improvement of the economic situation,[6] and is believed to be able to 'boost exports not only by directly cutting transaction costs but also indirectly through providing cheaper access to production inputs to be transformed domestically and then possibly re-exported'.[7]

In order to encourage trade facilitation efforts in all the member states, the WTO's Trade Facilitation Agreement (TFA) was developed. The TFA encourages the speed and efficiency of customs systems through the cooperation of stakeholders and the promotion of capacity building and the use of internet technologies (IT).[8] The TFA has been in negotiation for most of the last decade since the Doha Round in 2008.[9] At the Bali conference in December 2013, 159 countries agreed to the TFA to reform how trade is made and to reduce red tape.[10] India refused to support the TFA in July 2014, which halted the entire initiative since the agreement must be adopted by all WTO members.[11] India wanted its concerns over

3 Grainger (n 2) 20.

4 E Bizumuremyi 'Making trade easier: Trade facilitation negotiations at the WTO' (Video file) 15 June 2012, http://wto.org/english/tratop_e/tradfa_e/tradfa_e.htm August 2014 (accessed 31 August 2014).

5 AA Hamid 'Making trade easier: Trade facilitation negotiations at the WTO' (Video file) 15 June 2012, http://wto.org/english/tratop_e/tradfa_e/tradfa_e.htm (accessed 31 August 2014).

6 S Jackson 'Making trade easier: Trade facilitation negotiations at the WTO' (Video file) 15 June 2012, http://wto.org/english/tratop_e/tradfa_e/tradfa_e.htm August 2014. (accessed 31 August 2014).

7 United Nations Economic Commission for Africa 'Trade and investment in the age of lighting' (Video file) 24 July 2014, https://www.youtube.com/watch?v=sOqDFnp540s&feature=youtu.be (accessed 31 August 2014).

8 World Trade Organisation 'Trade facilitation' (2014), http://wto.org/english/tratop_e/tradfa_e/tradfa_e.htm (accessed 30 November 2014).

9 A Ayres 'India: Tough talk and the Bali trade facilitation agreement' 30 July 2014, http://www.forbes.com/sites/alyssaayres/2014/07/30/india-tough-talk-and-the-bali-trade-facilitation-agreement-2/ accessed 31 August 2014).

10 D Matanda 'Trade and investment in the age of lighting' (Video file) 24 July 2014, https://www.youtube.com/watch?v=sOqDFnp540s&feature=youtu.be (accessed 31 August 2014).

11 Ayres (n 9).

food subsidies and food stockpiles addressed prior to agreeing to the global trade agreement.[12] These concerns largely involve the agreement's limits on India's subsidies meant to support poor farmers while allowing the United States to provide hundreds of billions of dollars in subsidies to its agricultural sector.[13] The Indian government takes the stance that it is trying to protect its citizens and ensure food security.[14]

Trade facilitation reforms, improved regulatory framework, and basic transport and communication are needed because African trade performance is still below expectations.[15] Trade facilitation reforms, especially the investment in physical infrastructure and regulatory reform to improve the business environment, improve export performance of developing countries.[16] Hard and soft infrastructure, such as an efficient clearance process, the ability to track and trade consignments and timeliness of shipments at the expected delivery time, should be complementary with physical infrastructure. However, physical infrastructure has the greatest impact on export growth.[17] Automation and the use of a single window improve TF by reducing transaction costs, corruption and unnecessary bureaucratic structures that arise as a result of NTBs.

Trade facilitation and NTBs are connected. NTBs are 'restrictions that result from prohibitions, conditions, or specific market requirements that make importation or exportation of products difficult and/or costly'.[18] There are eight different categories of NTBs: (i) government participation in trade and restrictive practices tolerated by governments, such as laws, regulations, policies, and so forth; (ii) customs and administrative entry procedures; (iii) technical barriers to trade; (iv) sanitary and phytosanitary (SPS) measures; (v) specific limitations, for example, licensing requirements, quotas, taxes, and so forth; (vi) charges on imports, for example, border taxes, administrative fees, and special supplementary duties; (vii) other

12 MK Mishra 'Know what is WTO's trade facilitation agreement and why India is opposing it' 5 August 2014, http://news.oneindia.in/feature/why-modi-government-is-up-arms-against-wto-s-trade-facilitat-1489740.html (accessed 31 August 2014).

13 As above.

14 As above.

15 T Iwanow & C Kirkpatrick 'Trade facilitation, regulatory quality and export performance' (2007) 19 *Journal of International Development* 735-753.

16 A Portugal-Perez & JS Wilson 'Export performance and trade facilitation reform: Hard and soft infrastructure' (2012) 40 *World Development* 1295-1307.

17 As above; L Marti, R Puertas & L García 'Relevance of trade facilitation in emerging countries' exports' (2014) 23 *Journal of International Trade and Economic Development* 202-222.

18 Non-Tariff Barriers (nd) 'Non-tariff barriers', http://www.tradebarriers.org/ntb/non_tariff_barriers (accessed 31 August 2014).

procedural problems for example, corruption, discrimination, and lengthy procedures.[19]

The reduction of NTBs will increase trade facilitation and enhance economic activities. Facilitating trade involves more than the reduction of tariffs and non-tariff trade barriers; it involves appropriate government policies, regulations, foreign direct investment, automation and harmonisation of processed and procedures.[20]

3 Reducing non-tariff barriers

African countries have goods to trade, and their economic growth rates have continued to increase.[21] There is a potential for Africa to make money through trade; however, high trade costs deter the possibility of Africa reaching its potential.[22] It is a challenge to trade across borders in Africa because of the high transport costs incurred due to delays at the borders, an added cost that is usually transferred to consumers in terms of expensive products.[23] If Africa is to grow, develop, and have a sustainable competitive advantage, there is a need for more than the current 10 per cent intra-African trade.[24] This is achievable only if NTBs are reduced, especially at Africa's land borders.[25] NTBs are obstacles, and when they are reduced, it allows for competition between businesses in the marketplace and reduces the prices of consumer goods, which can increase the quality of life for the average person.[26] Red tape in administrative processes associated with

19 Non-Tariff Barriers (nd) 'Non-tariff barriers categories', http://www.tradebarriers.org/ntb/categories (accessed 31 August 2014).

20 M Engman 'The economic impact of trade facilitation' (2005) in OECD (ed) *Overcoming border bottlenecks: The costs and benefits of trade facilitation* (2005) 81-112.

21 F Mangeni 'Trade and investment in the age of lighting' (Video file) 24 July 2014, https://www.youtube.com/watch?v=sOqDFnp540s&feature=youtu.be (accessed 31 August 2014).

22 World Bank 'Let Africa trade with Africa' (Video file) 1 February 2012, https://www.youtube.com/watch?v=4f9aZrWdnFc (accessed 31 August 2014).

23 E Mwencha 'Let Africa trade with Africa' (Video file) 1 February 2012, https://www.youtube.com/watch?v=4f9aZrWdnFc (accessed 31 August 2014).

24 M Mkwezalamaba 'Let Africa trade with Africa' (Video file) 1 February 2012, https://www.youtube.com/watch?v=4f9aZrWdnFc (accessed 31 August 2014); J Ping 'Let Africa trade with Africa' (Video file) 1 February 2012, https://www.youtube.com/watch?v=4f9aZrWdnFc (accessed 31 August 2014).

25 Bizumuremyi (n 4).

26 V Hove 'Technology and innovation for trade: Reducing trade barriers in Africa' (Video file) 2 May 2013, https://www.youtube.com/watch?v=HAKuYKlmItA (accessed 31 August 2014).

trade harms poor producers the most,[27] so trade facilitation is especially beneficial for small and medium-sized businesses[28] as this is very important in the case of African countries.

Non-tariff trade barriers can include informal payments and transportation delays, all of which contribute to the increasing costs of traded goods.[29] It can take minutes to cross borders in some areas, but in other areas it can take days and upwards of a month, even between neighbouring countries.[30] Recognising and reporting non-tariff trade barriers is a method that has been used to help solve the issue of NTBs. The website tradebarriers.org is a platform that takes complaints about the NTB issues at borders in Africa in the Common Market for Eastern and Southern Africa (COMESA), the East African Community (EAC) the and Southern African Development Community (SADC) regions and steps are being taken to reduce identified NTBs to encourage trade within the region and globally.[31]

Furthermore, standardising procedures and increased use of information and communication technology (ICT) are popular ways to facilitate trade. IT solutions to reduce NTBs include a single electronic window, online filing and posting of the necessary information on the border agency website to harmonisation procedures. Furthermore, the elimination of duplication of procedures increases efficiency and reduces the cost associated with trade in SSA.[32]

One of the solutions to reduce NTBs and enhance border efficiency is single window operations. Single window involves 'standardised information and documents with a single-entry point to fulfil all import, export, and transit-related regulatory requirements'.[33] At a single border

27 E Moise-Leeman 'Making trade easier: Trade facilitation negotiations at the WTO' (Video file) 15 June 2012, http://wto.org/english/tratop_e/tradfa_e/tradfa_e.htm (accessed 31 August 2014).

28 E Sperisen-Yurt 'Making trade easier: Trade facilitation negotiations at the WTO' (Video file) 15 June 2012, http://wto.org/english/tratop_e/tradfa_e/tradfa_e.htm August 2014 (accessed 31 August 2014).

29 C Chaitezvi 'Trade facilitation in Eastern and Southern Africa' (Video file) 21 November 2012, https://www.youtube.com/watch?v=SAROYLubrzI (accessed 31 August 2014).

30 S Szelekovszky 'Making trade easier: Trade facilitation negotiations at the WTO' (Video file) 15 June 2012, http://wto.org/english/tratop_e/tradfa_e/tradfa_e.htm (accessed 31 August 2014).

31 Non-Tariff Barriers (n18).

32 Moise-Leeman (n 27).

33 Grainger (n 2).

entry point, there are standardised, and usually electronic, forms for imports and exports.[34] Creating single windows is complex because there are legal, procedural and administrative issues that should be addressed before the information technology can be implemented and used effectively.[35] This is doable with the development of a multifunctional system and approaches, such as public-private partnerships, that will make the project acceptable to all stakeholders and encourages cost-sharing.[36]

A few countries have started working towards the implementation of a single window in SSA. For example, Ghana initiated a single window operation in 2002 following concerns over slow and expensive border procedures and a desire to encourage trade and investment in the region.[37] There was a standardisation of information through a 'single administrative document for all customs regimes',[38] although the implementation is not fully functional and automated. Moreover, some stakeholders have some concerns about whether it truly is a single window. Benefits that Ghana has experienced from its single window include 'faster clearance times; more transparent and predictable processes; less bureaucracy; improved staff working conditions through upgraded infrastructure; a substantial increase in customs revenue; more professionalism; a substantial increase in government revenue'.[39] In the first year, import revenue grew by almost 50 per cent.[40] However, there are challenges that are associated with implementing a single window system in Ghana, including infrastructural limitations, ensuring cooperation with users, the development of 'complementary electronic systems for other trade-related agencies', and other challenges.[41] Apparently, we cannot assert that Ghana has truly implemented an efficient single window.

One-stop border posts (OSBPs) or joint border posts are another popular solution. An example of this is the Chirundu border between Zambia and Zimbabwe. Kwegyer Msimuko, an assistant commissioner

34 World Customs Organisation 'Single window information store' (2014), http://www.wcoomd.org/en/topics/facilitation/activities-and-programmes/single-window/single-window.aspx (accessed 31 October 2014).

35 As above.

36 World Customs Organisation '"Single window" for trade and customs transactions: Ghana's experience' 22 January 2009, http://www.wcoomd.org/en/topics/facilitation/activities-and-programmes/single-window/~/media/F0A44374C07A41AE989A5739EEE168E3.ashx (accessed 31 October 2014).

37 As above.

38 As above.

39 As above.

40 As above.

41 As above.

of the Zambia Revenue Authority at the Chirundu one-stop border post, indicates that with the OSBP, there is easy synchronisation and flows through the border. Since the traffic only stops once for the country they are entering, the time is greatly reduced. After the implementation of the OSBPs, trucks are electronically scanned, which takes much less time.[42] Furthermore, The African Union (AU) border programme (AUBP), a programme that was initiated in 2007 with the goal of having all borders in Africa delimited and demarcated by 2017,[43] has made progress. The AUBP has three pillars – cooperation and coordination; capacity building; and community involvement – that are required to maximise Africa's full potential.[44] A few of the AUBP successes include (a) a significant economic boom in Mozambique and Tanzania since the two countries signed an agreement that led to investment at the border; increased border stability led to more investment, improved infrastructure and a reduction in the travel time by land;[45] (b) the AUBP has helped Senegal and Mali with their border agreements; the two countries are said to be 'of the same people', and citizens of each country work across the border, but trucks crossing the border can cause traffic issues and may take a long time to cross depending on the types of goods they are carrying;[46] (c) in the Democratic Republic of the Congo (DRC) and Rwanda, citizens move back and forth to make a living; there is a programme in place that allows trading women to cross the border for free, which has increased the mobility of women.[47]

As important as the OSBP is, inadequate provision or lack of infrastructure is another form of NTB to trade. Senegal and Mali have eliminated tariff barriers and, with the support of the private sector, there have been efforts to increase the connection between the countries through paved roads and ports,[48] as it is observed in other borders on the continent. The challenge in SSA not necessarily is the lack of infrastructure but the lack of adequate maintenance in places where it is available.

42 Mangeni (n 21).

43 African Union Peace and Security Department 'African Union border programme: From barriers to bridges' (Video file) 6 June 2014, https://www.youtube.com/watch?v=78gzTDVsiN8 (accessed 31 August 2014).

44 As above.

45 As above.

46 As above.

47 As above.

48 World Bank (n 22).

Moving forward, the TFA is a large undertaking that requires government stability and funding.[49] There needs to be an investment in infrastructure and capacity to make trade facilitation work.[50] For every dollar spent on speeding up borders, US $70 are gained economy-wide.[51] Even though the TFA creates an enabling environment for countries with limited capacity,[52] collaboration is required between the private and public sectors to reduce NTBs.[53] SSA countries need to support the TFA with the development of workable and desirable policies. This is important because if Africa makes efforts to facilitate trade through the TFA, it signals its willingness to trade within SSA and globally to business worldwide.[54]

4 A simple trade facilitation model

We present an economic framework that explains the relevance of trade facilitation to cross-border trade and development in SSA. We begin our inductive theory building with the impression that the provision of infrastructure, workable institutions and efficient trade procedures such as TF are public goods. This assumption becomes more complex when two or more countries will benefit and the exclusion of a non-cooperative country is impossible once the procedures that will facilitate trade are enhanced by investment from cooperative countries and external donors – required because investment may be huge for SSA countries because of their economic base. In our analysis, we assume that trade facilitation is a positive externality. Even though countries have different preferences, macro-economic stability and resource base, there is a need for intra-regional agreements that should precede continental agreements on the ease of movement of goods and services through harmonisation and simplification of procedures.

Trade facilitation is a public good problem because all players are interested in the benefits though their level of interest and capability, small versus large countries, to benefit may be different. The benefits of the

49 J Nalunga 'Trade and investment in the age of lighting' (Video file) 24 July 2014, https://www.youtube.com/watch?v=sOqDFnp540s&feature=youtu.be (accessed 31 August 2014).

50 Hamid (n 5).

51 Jackson (n 6).

52 A Kamanga 'Trade and investment in the age of lighting' (Video file) 24 July 2014, https://www.youtube.com/watch?v=sOqDFnp540s&feature=youtu.be (accessed 31 August 2014).

53 Hove (n 26); World Bank (n 22).

54 D Njinkeu 'Trade and investment in the age of lighting' (Video file) 24 July 2014, https://www.youtube.com/watch?v=sOqDFnp540s&feature=youtu.be (accessed 31 August 2014).

implementation of TF should not exclude any player/stakeholder in the region or continent. There should be a mechanism for the redistribution of income for a local industry that is affected by a surge in imports from exporting countries to whom the benefits of trade facilitation may be skewed. Perceived or past benefits or losses may also affect the willingness of parties to contribute to the TF. Investment in TF should be cost-shared because it is a public good, but the value attached – non-exporting countries or small countries may not see the long-term benefits – may differ, and there is a possibility for the free-rider problem. A small country may decide to benefit from TF without necessarily contributing to TF.

Since TF will reduce transaction costs, it should also be Pareto efficient through joint decision making such as harmonisation of procedures, joint border posts, and so forth. In this model, TF will only be desirable if truth-telling is seen as a dominant strategy by all stakeholders and there is no hidden information; for example, all customs information should be posted on websites and should be easily accessible via the internet. Automation of processes and procedures will serve as an incentive for innovation and empower agents representing the government or the private sector players in international trade. Automation and TF, in general, are expensive in terms of infrastructure and capacity building for African governments. In other words, donor agencies and Western countries should contribute to the enhancement of TF, while the African government should make side payments in terms of maintenance and payment of appropriate salaries to the employees of the government agencies related to trade.

Apart from donor support for TF, regional leadership is required for directing and motivating the small countries that will not necessarily benefit from TF to support the initiative. For example, suppose we intend to construct a joint border post between countries A and B. If both countries agree in advance to contribute US $5 million to the project but A, an exporting country, is willing to pay US $10 million, assuming there is a way to measure A's inherent value for the implementation of TF. Thus, the implementation of the joint border post presents a net value of US $5 million for A. In other words, country A is the pivotal country because truth-telling is a dominant strategy for this country. The country's bid will lead to the provision of the TF. This is an indication that in the implementation of TF, they should have a leading country that creates incentives for the other countries in the region to participate in TF.

In the preceding paragraphs, we have suggested that TF is a public good and should be provided by the government with the support of developed countries, while the beneficiaries also contribute side payments as agreed by the stakeholders under the direction of the leader, such as

an exporting country. Even if the problem of public good, free rider and distribution of positive externality is addressed, TF can also encounter the principal-agent problem. To address this, we adapted the Klirtgaard approach.

In our TF principal-agent problem, the principal is the government, while the agent is the government revenue collection agency, such as the customs administration. Customs interact with customs clearing and forwarding agents, travellers, importers and exporters on behalf of the government. As expected, there is a conflict between the customs agents' interest and the country's interest, and for adequate protection of the border, this conflict should be reduced through the alignment of expectations by reduction of face-to-face interaction via automation and little or no use of discretion, monopoly power, when all players are aware of duties, contrabands and all other information related to trade through the posting of the necessary information on a functioning website of the customs agency.

The agent may become corrupt while trying to advance his or her interest if the cost associated with the activity is less than the benefit (C < B), especially when there is the opportunity to exercise discretion on what is not contraband and the tariff or import duty regime. The cost is negligible because the chance of being caught is negligible, and the benefit of taking bribes is huge and difficult to resist. This type of arrangement creates a platform for routine, fraudulent and criminal corruption.[55] Corruption flourishes when agents have monopoly power over clients or discretionary power, and there is little or no accountability,[56] as seen in some government agencies related to trade in most SSA countries.

Administrative monopoly power is possible for customs agencies because they are usually the only organisation in charge of border control and duty administration.[57] The environment of a single government body coupled with constant change in the complex and dynamic trade environment allows for discretionary power on the parts of the SSA border agents because information about different aspects of import and export controls is not readily available since there is no website and is dated when

55 I Hors 'Fighting corruption in customs administration: What can we learn from recent experiences?' (2001) OECD Development Centre Working Paper 175, www.oecd-ilibrary.org/content/workingpaper/023783627741 (accessed 16 August 2014); D Ndonga 'Managing the risk of corruption in customs through single window systems' (2013) 7 *World Customs Journal* 23-37.

56 R Klitgaard *Controlling corruption* (1988).

57 G McLinden 'Integrity in customs' in L de Wulf & J Sokol (eds) *Customs modernisation handbook* (2005) 67-90.

available. In other words, a border agent decides the classification of a particular product, not necessarily right, depending on the type of bribes offered by the trader or personal relationship. A system that is fraught with discretion and inappropriate use of monopoly will definitely have little or no accountability mechanism in place. This might be a reflection of society in terms of the lack of capacity or infrastructure to induce professionalism.

Since the structure of customs in some SSA countries encourages corruption, the system requires a radical re-engineering to remove monopoly power, undue use of discretion and limited accountability. Customs officers should be trained or re-trained and selected for job-specific skills, and make the cost of corrupt practices huge in order to alter attitudes toward corruption.[58] The above strategies can easily be achieved through the use of a single window because it reduces face-to-face interaction between the agents and clients – an incentive for corrupt practices.

As posited in our simple model, TF will be facilitated with joint border posts, automation through the use of information and communication technologies, and a single window. SSA countries should start at the national level and then implement regionally. Finally, since TF is a public good, policy makers should take cognisance of the role of the economics of self-interest and the broad social concern of voters and politicians[59] as they develop policies that will support TF in SSA.

5 Analysis

5.1 Logistic performance index

The World Bank's Logistics Performance Index (LPI) can be used as an indicator of trade facilitation at the country level.[60] The Overall LPI score ranges from 1 (lowest) to 5 (highest) and is made up of several components: 'a country's logistics based on the efficiency of the customs clearance process, quality of trade- and transport-related infrastructure, ease of arranging competitively priced shipments, quality of logistics services, ability to track and trace consignments, and frequency with which shipments reach the consignee within the scheduled time'.[61]

58 As above; Klitgaard (n 56); Ndonga (n 55).

59 RE Baldwin 'The political economy of trade policy' (1989) 3 *Journal of Economic Perspectives* 119-135.

60 Marti and others (n 17) 202-222.

61 World Bank 'Logistics performance index: Overall' (2014), http://data.worldbank.org/indicator/LP.LPI.OVRL.XQ?page=1 (accessed 31 August 2014).

In SSA, South Africa had the highest LPI rating, while Sierra Leone was the lowest. We analysed three data points (2007, 2010, and 2012) for some countries – based on data availability in SSA. We also compared the SSA LPIs with US and China (see Appendix – Table A). South Africa had the highest score for all three available years, the only country in sub-Saharan Africa to have a rating of more than 3. Its LPI rating is comparable to China and the US. Most of the countries in SSA have LPI ratings of less than 3. Missing data was a problem when observing trends in some countries. The LPI averages for 2007, 2010, and 2012 were 2,34, 2,43 and 2,44, respectively. In West Africa, Nigeria's LPI declined, although not significantly, while Benin and Ghana seem to be getting better (see Figure 1). In the case of EAC, Kenya witnessed a decline while Tanzania is improving in trade facilitation (see Figure 2).

Figure 1: LPI for selected ECOWAS countries

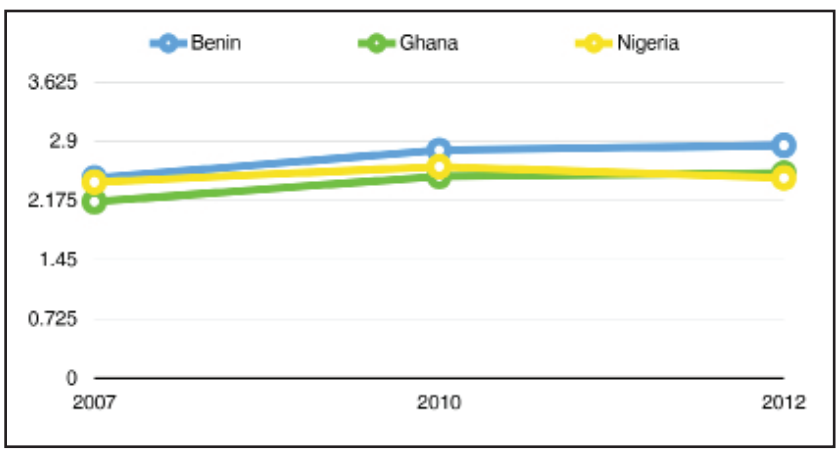
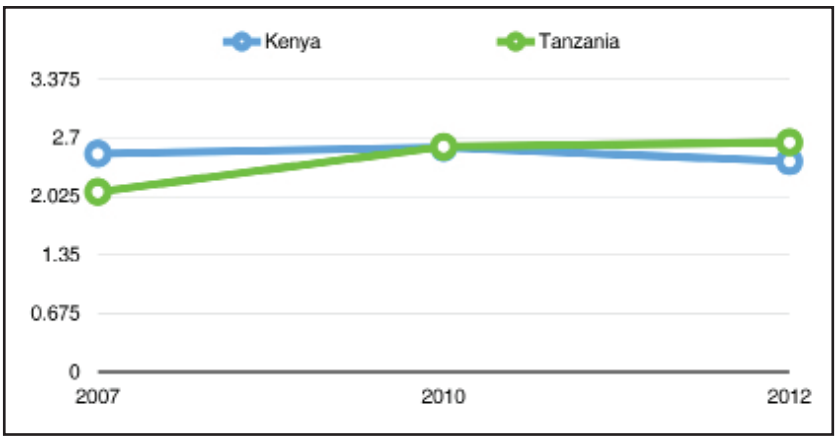
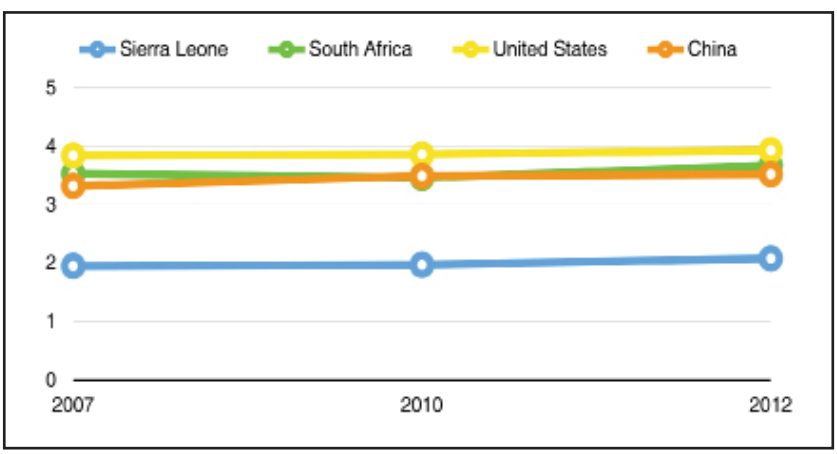


Figure 2: LPI for selected EAC countries



A comparison of South Africa (highest LPI) and Sierra Leone (lowest LPI) indicates most African countries need to improve their LPI if they want to initiate intra-regional and international trade. South Africa is the only country that seems to be at the same level as China, though behind the LPI of the US (see Figure 3). The implication of the LPI figures of countries in SSA is that it is difficult to facilitate trade within the region.

Figure 3: Comparison of SSA countries with China and the USA

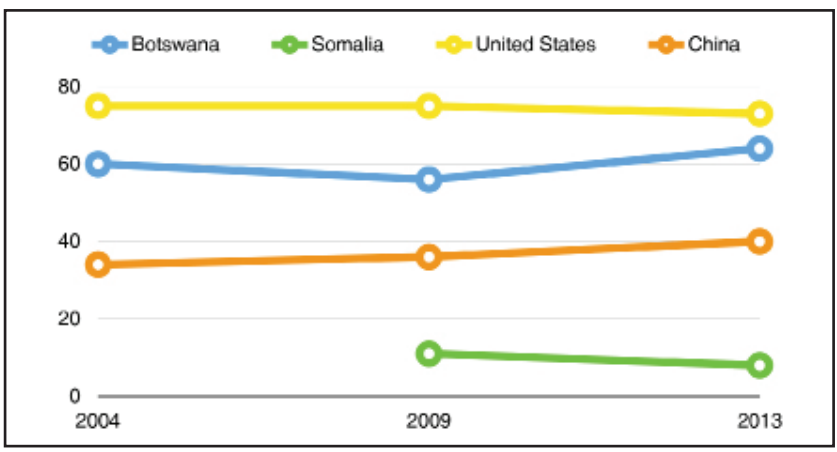


5.2 Corruption

We collected three data points (2004, 2009, and 2013) on corruption indexes based on international transparency reports. The 2004 and 2009 data were on a scale of 10 instead of 100. In order to have consistency,

we multiplied each score by ten so it could be easily compared to the 2013 data. In 2004, the score ranged from 16 to 60, and the average was 28,6 based on 31 countries with available data. In 2009, we had 48 countries with data, and the average was 28,4. The range was between 11 and 56. The final year in this analysis, 2013, had the highest number of countries, 49, with available data. The range and average scores were 8-64 and 32,1, respectively. The countries are ordered based on their scores in 2013, from highest to lowest CPI scores. Approximately 90 per cent of countries in SSA in 2013 had a CPI score below 50.[62] Botswana had the highest CPI score for each of the three observed years. On average, SSA countries were less corrupt in 2013 than in the previous two years. For the years 2009 and 2013, Somalia had the lowest CPI scores in SSA, while Botswana was the best throughout (see Appendix – Table B).

Figure 4: Corruption index SSA, China and USA



Good governance can help reduce the challenges of corruption in SSA, as seen with the performance of Botswana. It is also pertinent to note that agents or civil servants will not be willing to collect bribes if they are well paid and they have social security and other fringe benefits attached to their work. A UNDP pilot project with a five years duration of salary top-up or bonus, at times up to US $2 000, as done in Sierra Leone for certain employees, especially those in the presidency, is not sustainable

62 Transparency International Corruption perception index 2013: Results (2013), http://cpi.transparency.org/cpi2013/results/ (accessed 31 August 2014).

and may create rent-seeking and salary disparity among employees rather than reduce corruption.

5.3 Infrastructure

5.3.1 Information and communication technology (ICT)

Fixed-telephone subscriptions in the selected countries were low and, on average, decreased from 2005 to 2012, including in the USA and China (see Table 1). On the other hand, mobile-cellular telephone subscriptions increased exponentially, with the vast majority of the population in the selected countries having subscriptions to mobile telephone services. Countries such as Ghana, Zimbabwe and Benin have comparable numbers to the United States and China.

The proportion of households with computers and internet access is slowly increasing.

Table 1: Information and Communications Technology Access

	Fixed-telephone subscriptions (per 100 people)		**Mobile-cellular telephone subscriptions (per 100 people)**		**Fixed (wired)-broadband subscriptions (per 100 people)**		**Households with a computer (per cent)**		**Households with Internet access at home (per cent)**	
	2005	**2012**	**2005**	**2012**	**2005**	**2012**	**2005**	**2012**	**2005**	**2012**
Kenya	0.8	0.6	12.9	71.2	0	0.1	2.6	10.8	1.2	11.5
Tanzania	0.4	0.4	7.6	57	0	0	2.1	3.2	0.5	3.3
Nigeria	0.9	0.2	13.3	66.8	0	0	4	11.4	2	9.1
Ghana	1.5	1.1	13.4	101	0	0.3	2	13.8	0.2	11
Benin	0.9	1.6	7.3	83.7	0	0.1	1.6	4.2	0	2.4
Zambia	0.8	0.6	8.3	74.8	0	0.1	1.4	3.1	0.1	2.8
Zimbabwe	2.6	2.2	5.1	91.9	0.1	0.5	2	6.5	0.9	4.9

South Africa	9.8	7.7	70.4	130.6	0.3	2.1	13	23.6	3	25.5
United States	58.7	44.4	68.3	95.4	17.2	28.3	67.1	79.3	58.1	75
China	26.6	20.2	29.8	80.8	2.8	12.7	25	40.9	11	37.4

Source: World Bank (2014). The little data book on information and communication technology, http://data.worldbank.org/sites/default/files/little_date_book_ict_2014.pdf

5.3.2 Airline and maritime services

The SSA airline services are growing, but there is room for improvement (see Appendix - Tables C and D). Arik Air, a private airline in Nigeria, had a growth in the number of passengers between the years 2012 and 2013 from 2 315 247 passengers to 2 745 400 passengers.[63] Since the start of its operations in 2006, Arik air has carried over 13 471 414 passengers.[64]

In June 2014 Kenya Airlines' fleet expanded to include a second Boeing 787 Dreamliner, and the company expects to acquire another four of the same model by the end of 2014.[65] Ethiopian Airlines has an annual growth target of approximately 25 per cent, which it has met or exceeded since 2010.[66] The registered carrier departure from the most important departure points in SSA as compared with China and USA is presented in Table 2.

Table 2: Air transport: Registered carrier departures worldwide, condensed table

	2004	**2009**	**2013**
Ethiopia	29546	44154	65911

63 CAPA Centre for Aviation 'Arik Air records 18.6 per cent increase in passenger traffic in 2013' (2014), http://centreforaviation.com/members/direct-news/arik-air-records-186-increase-in-passenger-traffic-in-2013-150815 (accessed 31 August 2014).

64 As above.

65 Kenya Airways 'Kenya airways receives second Dreamliner' 21 June 2014, http://www.kenya-airways.com/Global/About_Kenya_Airways/News/Kenya_Airways_receives_second_Dreamliner/?dis=y (accessed 31 August 2014).

66 Star Alliance 'Member airline information: Ethiopian airlines' (2014), http://www.staralliianceemployees.com/about-staralliance/member-airlines.html?tx_mprefguide_pi1%5BshowUid%5D=34&cHash=fb9d8b5dba021f674a67e5865bb94117 (accessed 31 August 2014).

Kenya	26218	33593	74205
Nigeria	8254	16851	51904
South Africa	133222	151292	185963
United States	9566226	9182363	9734073
China	1209900	2140124	3073450

Source: World Bank (2014). Air transport, registered carrier departures worldwide. Retrieved from http://data.worldbank.org/indicator/IS.AIR.DPRT/countries

As seen in Table 2, for all three years, South Africa had the highest number of departures. However, the number of South African departures was considerably lower than the number of departures in the USA or China. The four countries in the table had the highest number of departures in SSA. There is generally an increasing number of departures in SSA. In 2006, for 26 countries, an average of 13 717,7 departures per country was estimated. The number increased to 15 550,5 for 24 countries in 2009 and an average of 17 052,9 departures per country for 37 countries in 2013.

The maritime sector in SSA is weak or underdeveloped. There is little or no intra-regional trade using the sea-ports. For example, there are a few regional shipping companies in Central and West Africa; less than 10 per cent of trade within this region is by sea, even though it is cheaper to transport through this medium.[67] A new initiative, Sealink Promotion Limited, is underway that will move freight and passengers across the region in three phases: Phase 1 – Dakar (Senegal) to Freetown (Sierra Leone) with stops at Banjul, Bissau and Conakry; Phase 2 – Cotonou (Benin) to Libreville (Gabon) with stops at Calabar and Douala; and Phase 3 (freight only) – Libreville (Gabon) to Dakar (Senegal) with stops at Douala, Lagos, Lomé, Tema, Abidjan, Monrovia, and Conakry.[68] This initiative will resolve the present challenge of first shipping to Europe from country A in the region before it is shipped back to country B instead of directly from A to B if there is a regional maritime shipping company, shipping infrastructure and legislation. The success of this project will

67 Borderless 'ECOWAS Trade Facilitation and Protocol. Borderless conference enabling growth' Conference Report. Sheraton Hotel, Ikeja, Lagos, Nigeria, 26-28 February 2014, http://borderlesswa.com/2014%20BORDERLESS%20CONFERENCE%20REPORT.pdf. (accessed 3 August 2014).

68 As above.

depend on the willingness of all stakeholders, the availability of technical and financial partners and the regional capacity to develop an appropriate legal framework that will define freight and passenger cabotage.

The situation of ports along the Economic Community of West African States (ECOWAS) region has improved, but government and stakeholders should implement innovative ideas that are based on economic instead of political reasons. For example, the Apapa Wharf (Nigeria) needs to operate 24 hours per day to reduce the ugly face of demurrage. Tin Can and Ikorodu terminals should be more involved with the processing of containers, multiple government and customs agents should be harmonised, clearance days should be further reduced, and there should be a single examination of containers. This can easily be achieved with automation, such as scanners. The structure of the port is not also well defined in terms of elements such as regulation, the landlord (technical) and port operation.[69] A well-functioning port should have a strategic plan that is not prone to substance and participation error. In other words, all imports, exports, and regulatory agencies' activities should be done in a one-stop shop, a single window, with a well-defined structure that was not in place as of 2013.[70] As we posit in our model, TF, including port management, is a public good and should preferably be managed by the government, as seen in Canada, where the ports are managed by autonomous government agencies such as the Montreal Port Authority. If any SSA or Nigerian government wants to privatise or cede (concession) the activities at the seaport, the management of traffic, tariffs, workers and infrastructure in terms of regulation, landlord and operation should be well-defined with a legislative act.[71] The worst case scenario should be a public-private partnership.

5.3.3 Road network and related challenges

It is a challenge to analyse the road network in SSA because many countries in SSA do not have available data. We analysed the road using data points over three years for selected countries: Seychelles, Mauritania, Kenya and Burkina Faso. These were the only countries with data available for all three observed years. In 2004, on average, 23,4 per cent of roads in SSA were paved, and 28,8 per cent of roads were paved on average in

69 L Amiwero 'Port reform in Nigeria has not been too successful' (Video file) 18 June 2013, https://www.youtube.com/watch?v=xjjXN1GSHJU (Part 1); https://www.youtube.com/watch?v=qk1LP9q8WE0 (Part 2); https://www.youtube.com/watch?v=bDUtuc7AE3E (Part 3); https://www.youtube.com/watch?v=EKQ8wDquiAU (Part 4) (accessed 31 August 2014).

70 As above.

71 As above.

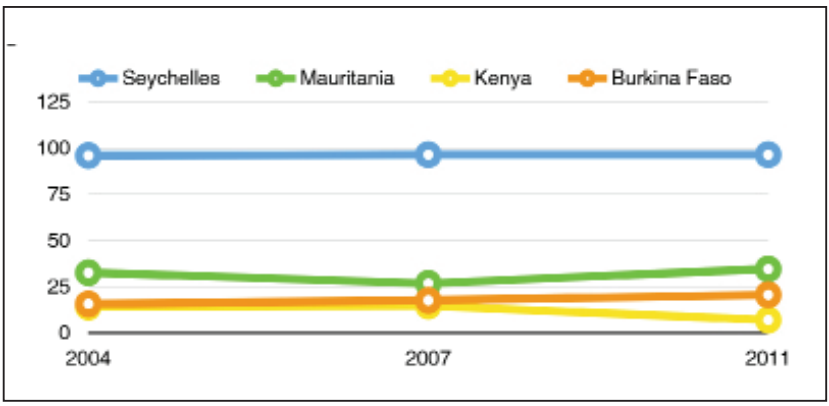
2007. The countries with the highest proportion of paved roads include Mauritius and Seychelles. A comparison with China and USA indicates that most of SSA still lags behind in the provision of good road networks (see Table 3 and Figure 5). The link roads in SSA are not good and can easily cause delays and increase the transaction cost of doing business across borders. For example, the 227,5 mile railway constructed by the government of Sierra Leone between 1895 and 1916 during the colonial era from Freetown to Pendembu became dilapidated in the 1970s during the government of Siaka Stevens, so the only way to move goods to the east and thus Liberia and Guekedougou (Guinea) is through a very difficult road network that affects trade negatively. The relatively good road in the area is the road between Freetown (Sierra Leone) and Conakry (Guinea).

Table 3: Roads paved as a percentage of total roads

	2004	**2007**	**2011**
Burkina Faso	15.7	17.6	20.6
Kenya	14.1	14.6	7
Mauritania	32.6	26.8	34.6
Seychelles	96	96.5	96.5
United States	64.5	65.1	
China	47.9	49.6	63.7

Source: World Bank (2014). Roads, paved (per cent of total roads). Retrieved from http://data.worldbank.org/indicator/IS.ROD.PAVE.ZS?page=1

Figure 5: Paved roads in selected SSA countries



Apart from the inadequate road network, there are other challenges with travelling in SSA via the roads. These include the high number of unnecessary controls per kilometre; undefined and illegal controls and checks; illegal payments such as bribes – very rampant in Mali and Côte d'Ivoire; and unnecessary delays.[72] A survey of various corridors (Tema-Ouagadougou; Ouagadougou-Bamako (via Koury); Ouagadougou-Bamako (via Herenakono); Lomé-Ouagadougou; Dakar-Bamako; Abidjan-Ouagadougou; Abidjan-Bamako) by UEMOA or USAID or Borderless indicates that on average that Dakar-Bamako had an average delay of five hours per stop, and the fastest is the Bamako-Abidjan route that was less than an hour. Bribes can be reduced if drivers have road-worthy trucks through the availability of appropriate financing for truckers along all the trade corridors in SSA. It will always be beneficial to work towards the removal of all unnecessary stops along the trade routes. ICT should be used to monitor and implement appropriate trade practices instead of face-to-face interaction that encourages corruption – the agent will always use his or her discretion and exercise monopoly power.

TF also requires well-demarcated and delineated borders. This usually is not the case in SSA, with several border crossings that are not controlled by government officials. The more than 1 600 kilometre land boundary between Nigeria and Cameroun is not well defined, and the movement between West and Central Africa by road is a major challenge. The southern crossing between Nigeria and Cameroun is so poor that even customs will advise you not to take the risk. The only alternative is to

72 USAID-UEMOA '24th Road Governance Report (2nd Quarter 2013)' (2014), http://borderlesswa.com/sites/default/files/resources/jun14/24th%20IRTG%20report.pdf (accessed 31 July 2014).

take a ferry from Calabar (Nigeria) to Limbe and Douala in Cameroun, and this is a trip that occurs only twice a week. The northern crossing would have been better, but it is impassable because of the insurgency by Boko Haram. Assuming there was no insurgency, both passengers and goods could be easily transported from Dikwa via Kousseri road to Cameroon and Chad (Ndjamena). It is not advisable to travel by road from Ndjamena to Khartoum because of several challenges, including bad roads, bandits and the instability in Darfur. Even within ECOWAS, there is no major road between Côte d'Ivoire and Liberia; the only option is to pass through Guinea using Ganta (Liberia)-Youmou (Guinea) or Quardu Bondi (Liberia)-Macenta (Guinea). Alternatively, goods and passengers can pass through Danane (Côte d'Ivoire) to Lola (Guinea) to Yarmein (Liberia). In the case of Guinea-Sierra Leone, it can be via Kailahun (Moa River), Guekedougou, Kabala (Sierra Leone) to Faranah (Guinea) with infrequent taxis, and from Kindia (Guinea) to Bombali (Sierra Leone). Although difficult to pass through, there are also routes between Liberia and Sierra Leone (Kailahun-Foya, Gendema-Bo). Based on the examples above, it may be deduced that it is difficult to move goods and passengers within SSA. The question that arises is whether it is possible to facilitate trade when people and goods cannot move easily across borders on the continent.

6 Solutions

6.1 Simple rules and alignment of procedures

SSA countries should harmonise procedures across borders. The first is to make the procedure simple and then align within regions and thereafter make it continental. The alignment should be backed with appropriate legal and institutional frameworks. Examples are the ECOWAS Trade Liberalisation Scheme (ETLS) which intends to improve customs duty on raw materials; Inter State Road Transit (ISRT) which will facilitate transit procedures for landlocked countries; and Common External Tariff (CET) adopted by ECOWAS in 2013 for implementation in January 2015.[73] These are good ideas that will aid TF if the member states are willing to support the initiative. Programmes can be good on paper but difficult to implement because of different macro-economic stability and expected benefits from the alignment of procedures. A regional leader, exporting country, should lead the initiative and create a safety net for the small countries or net importers. Small countries such as Sierra Leone and Liberia will only benefit from ETLS if there is an appropriate and effective institutional framework, commitment of regional and international

73 Borderless (n 67).

players, desirable and workable memorandum of understanding (MOU) and a blueprint for development that strategises how the government will support small and medium enterprises through entrepreneurial programs and capacity development.

Capacity is still lacking in terms of experts who can document issues related to trade and disseminate information appropriately. Sea transport is not really well-defined, and regional shipping lines will be required to align the procedures in the maritime sector. In terms of passing through land borders, there is some progress. For example, there is the Common Market for Eastern and Southern Africa (COMESA) yellow card, a regional third-party motor vehicle insurance that gives third-party liability and medical insurance for the driver and passengers. This is a harmonised insurance that is presently accepted in 12 COMESA countries. Although it is a good idea, it is not in place in all member countries. In 2014 the yellow card cost 4 054 Ksh for a Toyota Camry for month coverage to Tanzania. The yellow card still did not solve the other processes, such as car registration with Kenya police, log book submission with the Kenya Revenue Authority and stamping of passport (Kenyan immigration). The same process was repeated on the Tanzania side.[74] All these processes can be compressed through simple rules and alignment of procedures.[75]

6.2 Standardisation of documents and electronic data requirements

The standardisation of documents through a national and later regional single window will resolve the challenges of bureaucracy, corruption and delays in processing trade documents. The capacity of customs should also be enhanced in terms of electronic data management for risk management and appropriate revenue generation. For example, the Philippines' implementation of the ASYCUDA, electronic payment system, and automated customs operating systems reduced corruption in the Philippines bureau of customs.[76] The introduction of a single window

74 Field trip: 2012 and 2014.

75 There are improvements with the help of TradeMark East Africa at some borders. However, what is operating still is not a fully-fledged harmonisation as compared with developed countries.

76 Ndonga (n 55).

in Georgia also harmonised the lodgment of trade-related papers at a window instead of different government agencies.[77]

6.3 Automation

We examined the implication of automation using the northern corridor from the port of Mombasa through the Malaba border (Kenya and Uganda), Gatuna border (Uganda and Rwanda), Burundi and part of Congo. The distance from Mombasa to Uganda is around 1 200 kilometres, and the weighbridges along the route cause serious delays of up to two hours, although the officials along the route will assert that trucks do not spend more than two minutes. The delays and corruption along this route can be reduced by automation and the installation of cameras to capture the plate numbers of trucks. For example, the weighbridges along the Canadian 401 (Windsor to Quebec) are automated and very efficient. In the case of Mariakani, Kenya, along the Northern corridor – Kenya to Uganda, the weighbridges used to give different measurements, which is a structure that encourages bribery and corruption because of the lack of maintenance[78], but it is now better because of automation. Automation has improved the activities at the northern corridor; Mombasa port witnessed an upgrade and decongestion, weighbridges are now digital, and Mombasa to Malaba, which used to be an average of ten days in 2010, is now possible in two days in 2014.[79] The OSBP construction and automation is still in progress, although harmonisation of rules and regulation remains a problem along this corridor because of a lack of political will, Mombasa Community Port Charter notwithstanding, and education of politicians on the importance of TF.

The impact of automation is glaring in Georgia. The implementation of an automated risk management system that catalogues importers into risk categories by the customs agency led to a situation where low risk enables authorised economic operators (AEO) to be appointed, and they

77 World Bank 'Fighting corruption in public services: chronicling Georgia's reforms' (2012) World Bank, Washington, DC.

78 TradeMark East Africa 'Truck driver's tale' (Video file) 10 February 2011, https://www.youtube.com/watch?v=n3eWnLs2m8o (accessed 31 August 2014).

79 TradeMark East Africa 'Tales of a truck driver part 2' (Video file) 10 June 2014, https://www.youtube.com/watch?v=iy7pXM5zpG4 (accessed 31 August 2014).

do not need to go through physical inspection that is usually prone to corruption and delays.[80]

6.4 Avoidance of duplication: One-stop border post and joint border post

The introduction of the joint border post (JBP) or one-stop border post (OSBP) across SSA is welcome, but the implementation should be context-specific and handled with care. Borders across SSA are not homogenous, and the signing of a memorandum of understanding between countries should give leeway to the prevailing landscape. The border between South Africa and Namibia (Noordoewer), the Vioolsdrift border control, is not the same in terms of economic activities and the number of people migrating across the border as compared with the Nigeria and Benin Republic (Seme-Krake) – a border between two countries that differs in terms of language and economic activities. Furthermore, the Oshikango border post (Oshikango, Owamboland, Namibia), the crossing between Namibia and Angola, cannot be compared with the Tunduma border (Tanzania and Zambia) in terms of infrastructure and organisation.

The JBP in West Africa is a novel idea on paper, but its workability, in reality, is fraught with challenges. Akuna-Noepe (Ghana-Togo) JBP construction started in 2008 will hopefully have been completed in 2014, not necessarily with the required infrastructure – was commissioned in 2018, not to even mention the Seme-Krake (Nigeria-Benin), Malanville (Benin-Niger), Noe-Elubo (Ghana-Ivory Coast), Paga-Dakola (Ghana-Burkina Faso), HillaCondji-SanveeCondji (Benin-Togo) which are at different levels of conception or construction. Even in the East Africa region where there is extensive donor funding to encourage OSBP, our field trip in 2014 through the Namanga border (Kenya-Tanzania) and Taveta-Holili border indicates that building was completed on one side but activities still remain *status quo* because there is a need for legislative approval and the signing of MoU by both governments. [81]

80 Ndonga (n 55).

81 Buildings are now completed in some OSBP projects, but goods and passengers still need to be processed by both countries. According to Helen Oriaro, 14 OSBPs are fully operational in 2023 in the East Africa region. These are not at the level of, for example, Detroit/Windsor or Fort Erie borders between the US and Canada. A fully-integrated OSBP where clearance is given by the country of entry is difficult in these countries because of sovereignty and trust issues, different customs systems, and revenue allocation.

7 Recommendations and conclusion

- Roaming should be enhanced in SSA. This is possible because MTN and Airtel operate in several countries in SSA. Public-private partnerships should be enhanced in terms of access to ICT.
- E-deposit should be encouraged for business owners across borders. This will allow small business holders to take pictures of their cheques and deposit them in their banks no matter where they are in Africa.
- Small businesses should be able to receive and process the payment on their cell phones through an innovative payment such as SQUARE, which is used in the US by small businesses and by cab drivers in US and Canada.
- There should be better harmonisation and integration of policy that guide the activities of indigenous financial institutions, Stanbic Bank, Guaranty Trust Bank – GTB, and ECOBANK, in SSA. This will help with financial integration and improved trade-in services.
- An SSA TF BOX, a collaboration suite within the subsystems in a country or regionally, and a secured cloud storage that serves as a collaboration suite that aids information and file sharing should be initiated. Files should also be easily synchronised with the computers of all the stakeholders. This structure is different from the Automated System for Customs Data (ASYCUDA).
- Capacity building on the various components of TF should be enhanced in all countries. Customs officers, customs agents, immigration officers, cargo movers and container shippers should all be adequately educated about trade on the proper use of information technology, global dimensions of management, trade concepts and entrepreneurship related to locus of control and perceived self-efficacy.
- Issuance of visas at the point of entry and regional issuance of visas by countries under the same economic integration, such as seen in the Schengen states and the recently-started East Africa Tourist Visa that will allow a foreigner to visit Kenya, Uganda and Rwanda simultaneously with a single visa.
- There is a need for a provision of well-maintained road networks along the coast of SSA, most especially in the ECOWAS region, where there is no coastal road that links Lagos with Dakar. The journey becomes a complicated and lengthy journey after Abidjan (Côte d'Ivoire).
- In order for automation and JBP or OSBP with ICT infrastructure to work productively, border regions should have cross-country agreements in terms of reliable power generation, preferably via alternative power generation and solar energy, in places where the national grid is not reliable or non-existent.

- An analysis of the political economy will be incomplete without addressing the empowerment of unemployed youth who can easily make the borders and trade routes impassable as a result of their expression of grievances through activities such as Boko Haram (Northeastern Nigeria, Cameroun and Chad) and Al-Aqeada or Islamic Maghreb (Mali). Most of the time, idle youth with a lack of opportunity are involved. Some of them have no skills that will allow them to engage in any reasonable activity other than rent-seeking. The government of countries in SSA should make a concerted effort to pull Talibes (in Senegal), Alimajiri (Northern Nigeria), and other structures in SSA that create child destitutes on the continent out of the streets. There should be mass literacy programmes, and education should be free and compulsory for the first ten years of a child's life. If a future is not planned for these disadvantaged children in SSA, the so-called 'Continental Free Trade Area' will face serious challenges.
- The creation or development of any initiative is not as difficult as maintenance. Most of the SSA countries are aware of what will facilitate trade, but the political will for continuous improvement is absent. To address this, we recommend a Trade Facilitation Monitoring and Evaluation Unit (TFME) that will serve regional blocs. This unit should be backed up with the required legal and financial support necessary for the implementation of its responsibilities in terms of ensuring that member states abide by the TFA as stipulated by the WTO.
- There should be social security such as pensions, life insurance, group retirement plans, and extended health insurance for players such as truck drivers, customs officers, civil associates with trade facilitation and freight forwarders.
- TF will be enhanced if countries in SSA implement appropriate documentation and employees of customs have the capability to collect data that will enhance trade, fees on goods and services are posted on agencies website – common external tariff (CET) and other exceptions should be well stated on the website, harmonisation of standards in terms of acceptance of testing methods done in another country within a bloc by the importing country. Furthermore, bribes and delays in customs procedures should be reduced through the use of ICT and automation. There should also be marketing agreements across borders. This will be easy if activities such as packaging, labelling, branding, and rule of origin are consistent and standardised.
- Capacity building is important to TF. It is presently a challenge to find experts who can address the concept of TF and implement it successfully in SSA. In other words, stakeholders should support the training of staff members of agencies and organisations associated with trade. The training should include the use of simple software such

as Excel and Microsoft office, a collaboration suite such as the Box and other TF-related applications. Agents and stakeholders should attend workshops on TF legal framework and updated knowledge on the enforcement of fees and charges. Adequate exposure is required to world geography, the economics of insurance, international business such as global management, and management of international business, trade concepts such as cabotage, cost-insurance-and freight (CIF), cargo, contrabands, border risk management, shipping container, and so forth, and operations management such as queueing model, logistics, and supply chain management. Moreover, SSA trade-related organisations should be learning organisation that exposes employees to regional and international exchanges.

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World Customs Organisation '"Single window" for trade and customs transactions: Ghana's experience' 22 January 2009, http://www.wcoomd.org/en/topics/facilitation/activities-and-programmes/single-window/~/media/F0A44374C07A41AE989A5739EEE168E3.ashx (accessed 31 October 2014)

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Appendix

Table A: Logistics performance index: Overall for SSA from 1=low to 5=high

	2007	2010	2012
Angola	2.48	2.25	2.28
Benin	2.45	2.79	2.85
Burkina Faso	2.24	2.23	2.32
Cameroon	2.49	2.55	2.53
Chad	1.98	2.49	2.03
Comoros	2.48	2.45	2.14
Côte d'Ivoire	2.36	2.53	2.73
Djibouti	1.94	2.39	1.8
Eritrea	2.19	1.7	2.11
Ethiopia	2.33	2.41	2.24
Gabon	2.1	2.41	2.34
The Gambia	2.52	2.49	2.46
Ghana	2.16	2.47	2.51
Guinea	2.71	2.6	2.48
Guinea-Bissau	2.28	2.1	2.6
Kenya	2.52	2.59	2.43
Liberia	2.31	2.38	2.45
Madagascar	2.24	2.66	2.72

Mauritius	2.13	2.72	2.82
Namibia	2.16	2.02	2.65
Niger	1.97	2.54	2.69
Nigeria	2.4	2.59	2.45
Rwanda	1.77	2.04	2.27
Senegal	2.37	2.86	2.49
Sierra Leone	1.95	1.97	2.08
South Africa	3.53	3.46	3.67
Sudan	2.71	2.21	2.1
Tanzania	2.08	2.6	2.65
Togo	2.25	2.6	2.58
United States	3.84	3.86	3.93
China	3.32	3.49	3.52

Source: World Bank (2014). Logistics performance index: Overall. Retrieved from http://data.worldbank.org/indicator/LP.LPI.OVRL.XQ?page=1

Table B: Corruption perceptions index 2004, 2009, 2013 for SSA

Country	**2004**	**2009**	**2013**
Botswana	60	56	64
Seychelles	44	48	54
Mauritius	41	54	52
Namibia	41	45	48

Ghana	36	39	46
South Africa	46	47	42
Senegal	30	30	41
Zambia	26	30	38
Malawi	28	33	37
Benin	32	29	36
Gabon	33	29	34
Niger	22	29	34
Ethiopia	23	27	33
Tanzania	28	26	33
Mozambique	28	25	30
Sierra Leone	23	22	30
The Gambia	28	29	28
Madagascar	31	30	28
Mali	32	28	28
Côte d'Ivoire	20	21	27
Kenya	21	22	27
Uganda	26	25	26
Cameroon	21	22	25
Nigeria	16	25	25
Angola	20	19	23

Congo Republic	23	19	22
DRC	20	19	22
Zimbabwe	23	22	21
Eritrea	26	26	20
Chad	17	16	19
Sudan	22	15	11
Somalia		11	8
United States	75	75	73
China	34	36	40

Sources: Transparency International (2013). Corruption perception index 2013: Results. Retrieved from http://cpi.transparency.org/cpi2013/results/
Transparency International. (2009). Corruption perceptions index 2009: Research. Retrieved from http://www.transparency.org/research/cpi/cpi_2009
Transparency International. (2004). Corruption perceptions index 2004: Research. Retrieved from http://www.transparency.org/research/cpi/cpi_2004

Table C: SSA airlines

	Fleet Size	**Number of employees**	**Passengers per Year (millions)**	**Number of scheduled destinations**	**Daily departures**
South African Airways	52	9454	7	39	153
Ethiopian Airlines	64	7801	6	90	200
Arik Air	25		2.7	30	

Kenya Airways	47				

Table D: Air transport: Registered carrier departures worldwide

	2004	**2009**	**2013**
Angola	4849	3236	14570
Botswana	7885	6142	9204
Burkina Faso	1415	1433	3249
Cameroon	10337	9501	5641
Cape Verde	16612	11560	8174
Ethiopia	29546	44154	65911
Gabon	8342	5423	1460
Kenya	26218	33593	74205
Madagascar	18016	9566	9451
Malawi	5290	4376	1648
Mauritania	1686	1114	2924
Mauritius	14791	11144	12079
Mozambique	8585	11260	15619
Namibia	6137	5439	9089
Nigeria	8254	16851	51904
Senegal	6166	0	7174
Seychelles	19281	11238	14592

Sierra Leone	156	186	0
South Africa	133222	151292	185963
Sudan	8435	7178	10121
Tanzania	6441	21088	32208
Uganda	302	359	8123
Zimbabwe	4269	5937	11305
United States	9566226	9182363	9734073
China	1209900	2140124	3073450

Source: World Bank (2014). Air transport, registered carrier departures worldwide. Retrieved from http://data.worldbank.org/indicator/IS.AIR.DPRT/countries

9 The conclusion: Vaccine inequity, and ethically anti-fragile competition laws

Gbadebo Odularu and Bamidele Adekunle***

Abstract: In wrapping up this timely discussion on post-COVID-19 trade facilitation-related issues in Africa, this chapter analyses the relationships between opacity and food authenticity, which concern African countries where the value chain is long and dependent on imported processed foods. A more equitable distribution of COVID-19 vaccines could have prevented significant deaths in selected African countries. In addition, we highlight some crucial trade challenges and policy recommendations based on the thesis presented in the previous chapters. Finally, this concluding chapter presents an appropriately anti-fragile competition framework that will be ethically desirable to the future of Africa's trade facilitation.

Key words: digitalisation; platonicity; fragility; opacity; authenticity; bleeding trade; COVID-19 pandemic; TRIPS; ethically anti-fragile competition laws; entrepreneurship

1 The context

As COVID-19 vaccination programmes were scaled in selected African countries, 2021 and 2022 increasingly recorded remarkable progress in vaccinating populations against the coronavirus. Consequently, African economies reopened by lifting quarantine requirements for people who have received vaccinations. Amidst African economies re-opening, and as a US-COVID-19 vaccinated traveller to a few West African countries in 2021, the free flow of passengers and goods across the airports could

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We thank the Forum for Agricultural Research in Africa (FARA), Ghana; Trade Policy Training Centre in Africa (TRAPCA), Tanzania; and United Nations Economic Commission for Africa (UNECA), Ethiopia; for the decade-long (2008-2019) opportunity granted to us to travel to selected African countries to experience and discuss trade facilitation and cross-border issues.
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have been more a-platonic.[1] For instance, according to the United Nations (UN) Conference on Trade and Investment (UNCTAD) estimates, the world experienced an approximately 30 to 40 per cent decline in foreign direct investment inflows in 2020, while the OAG Aviation data showed a 70 per cent reduction in international air passenger capacity, thereby undermining the cross-border travel and tourism revenue and jobs generating capabilities of the global economy.

In Africa, trade agreements and legal frameworks have yet to keep pace with technological transformation and the pharmaceutical discovery of medical products. The systemic tension between competition law and the scientific revolution partly explains this ever-widening legal enforcement-market access gap. At the same time, the tumultuous nature of the COVID-19 pandemic has compounded the anti-competition behaviour and fragility of Africa's trade system. These imperfections relating to health, food, labour and trade market are evident in African countries' inequitable access to COVID-19 vaccines, reflecting unwanted societal biases that portend severe repercussions when unsupervised high-level socio-economic data are deployed.

Although the discriminatory consequences of vaccine inequity in Africa have been fairly researched, the broad aim of this chapter is to discuss vaccine inequities from Africa's trade facilitation standpoint. Taking policy lessons from health, food and trade sectors, it concludes with ethically anti-fragile policy interventions for overcoming the relationships between opacity and sectoral authenticity, undermining African countries 'characteristically long, untraceable, and uncertain commodities value chains'.

Structurally, this chapter is organised so that part 2 critically evaluates vaccine access and inequity within the context of Africa's vaccination status and the COVID-19 pandemic landscape. Part 3 articulates the challenges and solutions hidden in the oligopolistic nature of vaccines markets. Part 3.1 discusses the effectiveness of the current Common Market for Eastern and Southern Africa (COMESA) competition framework in addressing critical competition issues relating to new and emerging threats in vaccine access: trade, and food authenticity. Part 4 discusses the 'vaxxed' versus the 'unvaxxed' and the economics of factor and commodity markets. Part 5 analyses the nexus between fragility and food authenticity based on

1 G Odularu 'The introduction: Pandemic preparedness and a-platonic policies for transforming Africa's agri-food systems' in GOA Odularu (ed) *Agricultural transformation in Africa. Advances in African economic, social and political development* (Springer 2023).

research by Taleb and Douady.[2] Part 6 expatiates on bleeding trade and its African Continental Free Trade Area (AfCFTA) implications for micro, small and medium-scale enterprises (MSMEs), while part 7 presents digitalisation and entrepreneurship landscape for enhancing MSMEs trade facilitation capacities in this digital age. Finally, part 8 focuses on ethically anti-fragile towards shaping a desirable future for trade facilitation.

Both descriptive statistical techniques as well as doctrinal research methods are deployed in this study, while descriptive statistical methods analyse the growth in selected vaccine equity indicators and business facilitation measures in food, trade and health industries. The doctrinal research approach to this study focuses on a review of relevant literature on the oligopolistic nature of vaccines markets, as well as the economics of factor and commodity markets.

2 Lowest vaccination rate in the world. Cases of vaccine access and inequity

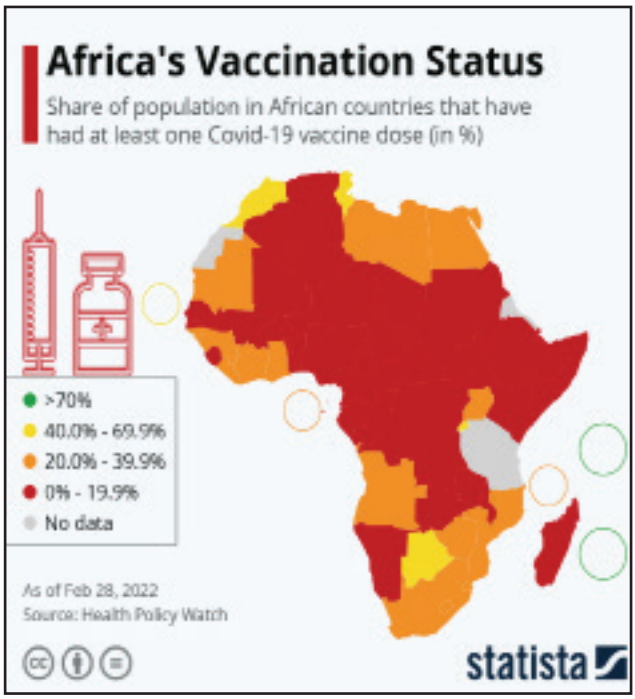
According to Statista,[3] an excellent review of Africa's vaccination status shows that more than half of the African countries, predominantly in the centre of the continent, have vaccination rates of less than 20 per cent[4] (see Figure 1). Approximately 19,8 per cent of Africa's population was fully vaccinated against the coronavirus as of 11 July 2022, making Africa's vaccination rate far lower than the global average. Although its share of population fully vaccinated against the COVID-19 pandemic has been rising over time, approximately 540 million vaccine doses have been administered in Africa since the beginning of the vaccination campaign in 2021 (see Figure 2 and Figure 3). More specifically, Figure 3 shows the population of fully-vaccinated Africans by country as of 13 April 2022. Seychelles presents the highest COVID-19 vaccinated rate at 81 per cent, followed by Mauritius at 76,2 per cent, while Zimbabwe barely records 23 per cent, and only 0,1 per cent of Burundians have been vaccinated against COVID-19.

2 NN Taleb & R Douady 'Mathematical definition, mapping, and detection of (anti) fragility' (2013) 13 *Quant Finance*1677-1689.

3 Statista (2022), Coronavirus cases by country in Africa 2022 | Statista (accessed 28 July 2022).

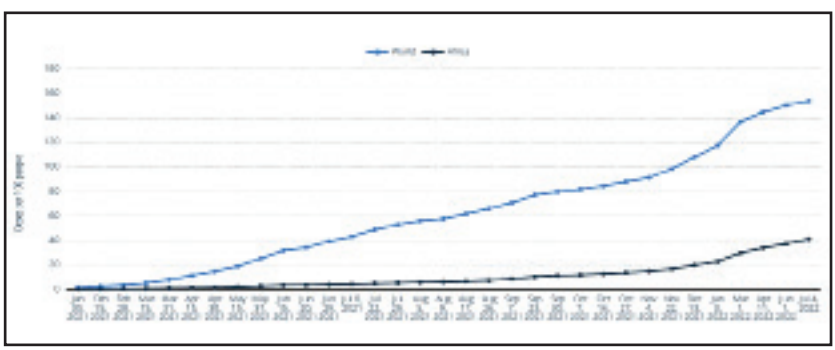
4 M Armstrong 'Africa's vaccination status' (2022), https://www-statista-com.vmiezproxy.vmi.edu/chart/26956/africa-covid-vaccination-share (accessed 28 July 2022).

Figure 1: Africa's vaccination status



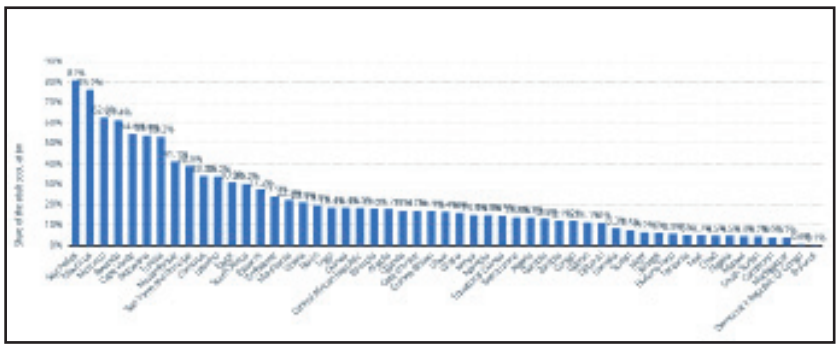
Source: Statista

Figure 2: Coronavirus (COVID-19) vaccination rate in Africa compared to the world from 30 January 2021 to 4 July 2022 (in doses per 100 people)



Source: OWID

Figure 3: Share of population fully vaccinated against the coronavirus (COVID-19) in Africa as of 13 April 2022, by country



Sources: Various sources, OWID

More specifically, while Seychelles boasts of 208 doses per 100 people as of 24 July 2022, South Africa, the most affected country in Africa, records a vaccination rate of approximately 62 per 100 population. The question about Africa's access to vaccines relates to how Africa obtains vaccines. African countries are both purchasing new doses, and receiving vaccine donations from China, the United Arab Emirates, India and Russia; intra-African solidarity instances where Senegal donated vaccines to The Gambia, and Algeria shared some vaccines with Tunisia. The G7 leaders pledged one billion vaccine doses for poorer countries; the affluent nations have benefited the most from vaccine access and distribution. The UN-led Vaccines Global Access (COVAX) provided Oxford/AstraZeneca and Pfizer/BioNTech doses to some African countries, such that Africa received nearly 270 million doses as of January 2022.[5] For instance, the COVID-19 vaccines saved 7,4 million lives in Africa and other low to middle-income countries participating in COVAX,[6] resulting in vaccine inequity due to a disproportionately higher number of deaths prevented by vaccination in high-income nations compared to African countries.

As Africa's trade, food and health systems evolved during the coronavirus pandemic, the continental economy also grappled with its pre-COVID-19 challenges, such as poor health infrastructure, high user fees, high rates of comorbidity indicators, poor sanitation, large

5 Statista (n 3).

6 COVAS is the global initiative that provides people around the world equitable access to COVID-19 vaccines. See R Goldberg 'Vaccine damage schemes in the US and UK reappraised: Making them fit for purpose in the light of COVID-19' (2022) *Legal Studies* 1-24.

refugee population, poor governance, and corruption, to name but a few constraints. Two French doctors expressed how vaccine trials should occur in Africa because there are 'no masks, no treatments, no ICUs' and 'they are highly exposed, and they do not protect themselves'. However, the reality strayed far from the science and expert opinion, such that the number of COVID-19 cases on the continent remained low in absolute and proportional terms. For some West African countries that the Ebola virus has impacted, there were still experienced personnel to respond to COVID, thus minimising the spread. Rwanda and Senegal responded innovatively to treat and perform contact tracing. In addition, the African Union (AU) coordinated with other regional partners to establish the African Medical Supplies Platform – a virtual marketplace where governments can directly purchase essential medical supplies. The People's Vaccine Alliance – a coalition of governments and actors from the Global South – demanded that the publicly-funded COVID vaccine be considered a public good because wealthier countries, which comprise only 14 per cent of the global population, have purchased 53 per cent of the promising coronavirus vaccine. In response, the Global South countries have requested that the World Trade Organisation (WTO) suspend trade-related aspects of intellectual property rights (TRIPS) to ensure that all countries have access to the requisite health resources for controlling the virus. This is even more important for the availability of medicines for chronic diseases and necessary vaccines as we interact as a global village in this century.

Moreover, the COVID-19 COVAX, an initiative managed by the Coalition for Epidemic Preparedness Innovations (CEPI), the vaccine alliance (Gavi), the World Health Organisation (WHO), and the delivery partner, the United Nations Children's Fund (UNICEF), performed below expectations. Some policy makers alluded to the presence of vaccine apartheid in the global inoculation against COVID-19. Moreover, the strict implementation of intellectual property rights has transformed the knowledge associated with the development of vaccines and the patented ingredients – biologics, active ingredients, and chemicals – from non-rival and non-excludable goods to non-rival but excludable goods (see the second chapter on the economics of IPRs). This leads to highly-concentrated markets, as observed in oligopolies.

The COVID-19 pandemic raised African leadership's awareness about the continental imperative to develop its vaccines against current and future outbreaks of emerging infectious diseases. Based on the fact that deploying a single economic theory is hard because privacy, oligopoly, vaccines, consumer protection and other competition policy issues of economic relevance arise in widely diverse contexts, this chapter analyses the relationship between opacity and food authenticity, the Trade-Related

Aspects of Intellectual Property (TRIPS) agreement and its role in vaccine manufacturing and distribution, as well as the ethically anti-fragile competition law framework for maximising Africa's trade facilitation innovation policy agenda with reference to vaccines and other related medical commodities.

With the government's limited resources to detect export market cartels' abuse, prosecution becomes ineffective. Empirical findings have revealed that competition regulations still lag technological development and Moreso in the management of digital platforms. As competition legislation at the national and regional levels in Africa is obsolete, spectacular artificial intelligence (AI) expansion remains a game changer for Africa's trade expansion and socio-economic transformation. However, AI misuse and unintended consequences from deploying AI raise several ethical implications. For instance, AI approaches to digital trade facilitation can expose markets to novel sources of risks, including increasingly complex and sophisticated forms of digital market manipulation. Whenever such market manipulation passes undetected, it ultimately jeopardises markets' safety and integrity, thus impairing trade facilitation, investors' protection, and confidence.

3 The economics and oligopolistic nature of vaccines market: Challenges and solutions

As vaccines continue to play a crucial role in preventing infectious diseases in the twenty-first century, they have further proven their effectiveness in protecting the public from one of the deadliest epidemics in the twenty-first century.[7] Given the importance of trade in supplying necessary health resources for combating the pandemic, it is crucial to examine the oligopolistic nature of the trade market. Head and Spencer, in their extensive review of the use of the oligopolistic market in explaining trade, indicate that it was popular in the 1990s.[8] Nevertheless, monopolistic competition became the desired model in the 2000s because it accommodates firm heterogeneity. Recent advances have made it clear that there is still a need to use oligopolies to explain trade. International trade is often highly concentrated with only a few large players even when

7 Goldberg (n 6).

8 K Head & BJ Spencer 'Oligopoly in international trade: Rise, fall, and resurgence' (2017) 50 *Canadian Journal of Economics* 1414-1444.

the market has the characteristics of monopolistic competition.[9] [10] The assumption of an oligopolistic market will enhance the analysis of other aspects of trade apart from tariffs and subsidies.[11] These aspects include intellectual property and handling a pandemic such as COVID-19.

The understanding of the oligopolistic nature of international trade is visible in the aviation, telecommunication and banking sectors in Africa and globally. Adekunle, in his essay 'Iatrogenic: The dilemma of ingenuity', indicates that it is easy for companies that have cooperated through an alliance, for example, the SkyTeam Alliance, to reroute, move baggage and passengers through codeshare agreements, making international cargo delivery and travel seamless.[12] He further states that models such as the Sweezy model explain rigidity, while the Chamberlin model explains interdependency and tacit collusion in the aviation industry. Moreover, the reason why North American airlines do not provide food on flights – even those that are more than six hours long, charge $25 for baggage check-in with no repercussions, and if you want in-flight entertainment, you better have the appropriate application on your device – is because there are few players, and the routes are not competitive.[13] African countries need a good understanding of the oligopolistic market to make connectivity accessible and affordable. Much needs to be learned from the Middle East and Asian airlines.

Increasing international cooperation on vaccine access has resulted in reopening businesses, public freedom restoration, and a COVID-19 passport for international travel, especially as such proof is increasingly required during the early stage of curbing the spread of COVID-19. Digital proof of vaccination will expedite access to an event, being more trustworthy than mere verbal confirmation. COVID-19 is a natural disruptor that prompts beneficial innovations. Had the world not experienced COVID, it would not have embarked on the rapid development of biological tools such as messenger RNA (mRNA) platforms within a mere two years.

9 B Adekunle & G Filson 'Blockchain technology and asymmetric information in the food market' A selected paper presented at the IAABD 2019, 8-11 May 2019, Dar es Salaam, Tanzania.

10 J Clapp 'Mega-mergers on the menu: Corporate concentration and the politics of sustainability in the global food system' (2018) 18 *Glob Environmental Politics* 12-33.

11 Head & Spencer (n 8).

12 B Adekunle *Iatrogenic: The dilemma of ingenuity*. (2020).

13 As above.

3.1 COVID-19's status and regulatory responsiveness to exports cartels

COVID-19 adversely affected socio-economic transformation in Africa, with most specific impact on South Africa, which experienced the sharpest -7 per cent decline in gross domestic product (GDP), followed by Central Africa at -2,7 per cent. Since the pandemic occurred when the global oil prices drop, Nigeria, Africa's leading oil and gas exporter, witnessed a considerable decrease in crude oil export in 2020. Furthermore, Africa lost over 12 million jobs in its travel, tourism and creative sector, such that the number of Africans living in extreme poverty increased by approximately 30 million in 2020.

As digitalisation deepens in Africa, understanding the markets requires good attention to markets' structural conditions, number of firms, product homogeneity, and degree of concentration, multimarket contacts, entry barriers, and the likelihood of collusive behaviour. Its continental applicability and economic implications, since the economics of oligopolistic firms theorise that in a repeated interaction, explicit and binding agreements are not required to attain equilibrium outcomes in which firms gain supra-competitive profits. From an anti-competition perspective and in implementing AfCFTA, it is crucial to understand whether current antitrust laws could provide the legal framework to curb firms' capacity to coper and behave tacitly towards undermining competition and harming consumers. From digital platform and trade facilitation standpoints, Apple, Google, Samsung and Huawei smartphone operating systems are major players in oligopolistic industries. Thus, many antitrust cases and legal challenges are designed to curb the anti-competitive behaviour exhibited by oligopolistic firms. Digitalisation is rapidly changing the telecoms, airlines, broadcasting, health services, video games, entertainment, filmmaking, services, and e-commerce landscape as companies consolidate through mergers and acquisitions in Africa. Pro-competition policies have strategic roles to play in fuelling the future of digital experience as more African economies attract more clients by building a solid data foundation.

The COMESA Competition Commission cooperates with member states' national competition authorities to enforce the codified set of COMESA Competition Regulations and the COMESA Competition Rules, particularly in investigating competition cases. The cooperation is guided by the Commission's signed cooperation framework agreements with national competition authorities, which also articulates areas of common interests, including information exchange facilitation relating to investigation of competition cases and national competition laws

harmonisation engagements as well as effective enforcement of the Regulations in the Common Market.

South Africa's Competition Tribunal describes export cartels as a 'cynical policy which allows firms to do in someone else's backyard what they could not do at home'. Its competition policy provides possible grounds for granting exemptions on any restrictive business practices. Section 3(b)(i) of the 1998 Competition Act provides that maintenance or promotional exports as one of the possible grounds for granting an exemption for a restrictive agreement or practice. Although the US antitrust policy exempts hard core export cartels from law enforcement due to its harm to foreign consumers, and not domestic consumers, export cartels increase export costs and limit the quantity of imports, forcing consumers to pay artificially higher and non-competitive prices. Most African countries except South Africa are characterised by MSMEs and infant industries that are more likely to suffer harm from export cartels than larger firms with highly diverse industrial bases. Furthermore, most sub-Saharan African firms are price takers with little or no control over prices set by export cartels. For instance, Jenny found that export cartels originate and operate in an exporting nation and exert negative externalities, creating deadweight loss.

The objectives of article II of the Draft AfCFTA Protocol on Competition Policy aim to enhance competitive processes, consumer welfare and efficiency when fully implemented. Within the COMESA competition regulatory framework, the COMESA Competition Commission enforces competition regulation among its member states, the East African Community (EAC) operates the EAC Competition Authority for its territory, and the Southern African Development Community (SADC) implements a cooperation framework for dealing with competition matters, although a fully-fledged authority to deal with anti-competitive business practices such as cartels is highly needed. Like the WTO, the Tripartite Free Trade Area (TFTA) does not operate a competition policy framework. However, its member states invoke their respective regional economic blocks to deal with cross-border competition issues such as export cartels.

Perceiving cartels as non-trade barriers that influence who trade what and by how much, most cartels are dominated by the same group of multinationals operating in different countries. Within the SADC sub-region of the COMESA region, the enforcement of anti-cartel regulations and competition policies is crucial at the national and regional levels to undermine cross-border cartels, especially among regional multi-national corporations (RMNCs), which operate throughout Southern Africa. In

other words, South African RMNCs cartels pose significant challenges for trade facilitation in the SADC region. Despite the enactment of national and regional competition laws, cross-border cartels continue to undermine Africa's trade facilitation efforts and adversely impact labour productivity, regional integration, free movement of goods in the CFTA, barriers to market entry, and gains from trade. Cartels in Malawi, South Africa and other SADC countries raised consumer prices by an estimated average of 49 per cent.

Export cartels in Southern Africa have evolved and are complex to regulate, detect and prosecute. AI agencies further exacerbate these well-known competition law enforcement issues of market conduct rules. As digital platforms and technological advancement interact more broadly, their unregulated growth should be checked with appropriate regulations on data privacy while supporting smaller competitors and checking CEOs' unnecessary ambitions. COMESA and AfCFTA competition authorities[14] are undermined due to the absence of coordinated competition law frameworks, statutory exemptions regarding certain anti-competitive conduct, weak enforcement mechanisms, and government policies that encourage cartels unintentionally.[15][16] In view of this, the COMESA competition regulator should leverage the African Competition Forum (ACF), International Competition Network (ICH); Organisation for Economic Co-operation and Development (OECD) and UNCTAD competition enforcement experiences.

4 Economics of factor market and commodity market: Face masks and the '(un)vaxxed'

The production or use of a product can benefit or harm another group of entities.[17] A typical example of a beneficial or positive externality is the Salk and Sabine polio inoculations.[18] Furthermore, mass vaccination benefits both vaccinated and unvaccinated because of the implications of positive externalities. There is an indirect beneficial effect for the unvaccinated because the vaccinated will reduce the transmission of the

14 WW Nkosi & WH Boshoff 'Characteristics of prosecuted cartels and cartel enforcement in South Africa' (2022) *Review of Industrial Organisation*.

15 As above.

16 T Ndhlovu 'Regulation of export cartels in South African competition law and Southern African Development Community' dissertation, University of Pretoria, 2019.

17 M Connolly 'Public goods, externalities, and international relations' (1970) 78 *Journal of Political Economy* 279-290.

18 As above.

disease even when infected. Oligopoly, the cost of producing vaccines, and an unwillingness to share knowledge and technology for the development of vaccines may delay the provision of vaccines globally and reduce global trade because both movements across borders and production will continue to be restricted by COVID-prevention protocols. Protective trade policy should also be discouraged, such as the export ban implemented by the European Union (EU) to curtail the export of COVID-19 vaccines to certain countries.

The development of vaccines can curtail the spread of the COVID-19 pandemic and other diseases. The few players involved in this process include a Pfizer and BioNTech collaboration, an AstraZeneca and Oxford alliance, and Moderna, among others. This indicates that the market for vaccines is oligopolistic. The demand for vaccines can be explained using oligopolistic models – Stackelberg, Chamberlin, Sweezy, or Price leadership. These companies can also form a cartel concerning market sharing and production if it is desirable for their profit margin or enforced by government to positively favour the international beneficiaries who, in the case of COVID-19, cannot wait to witness the end of the pandemic that has stifled international trade.

The trade landscape has also changed due to the need to produce protective gear in massive quantities that were not required before the pandemic. A typical example is the use of face masks. Face mask guidelines and safety restrictions have increased without significant economic growth. As a result, there is an increase in the demand for complements and a decrease in the demand for substitutes. This translates to a movement of the factors of production to the production of face masks, thus affecting the distribution of the factors of production in the input or factor market.[19] On the externality issue, the face mask also has a positive externality. It contributes to public health because it reduces the spread of COVID-19 and any other airborne diseases. If inoculation is well implemented and people use face masks during an epidemic or pandemic, it will protect the populace, contribute to public health, guarantee economic activity, and ensure international trade. To strengthen the positive impact of inoculation and the use of face masks, the hampered accessibility to vaccines created by TRIPS coupled with the monopoly exhibited by Big Pharma should be addressed. Otherwise, international trade may be stifled. Moreover, the littering of the environment with face masks should be discouraged by policies that create incentives for better environmental management while using the masks and related goods. In addition, as of August 2021, the global community is being confronted by

19 Adekunle (n 12).

a fourth wave of rapidly-spreading coronavirus infections, primarily due to the highly-contagious Delta variant.[20] In this context, understanding the relational dynamics between faith-belief system, trust, inequity, and vaccine hesitancy can enhance the effectiveness of policy making in stemming the spread of the virus and reducing socio-economic hardships and unrest being experienced in Africa's large economies, such as South Africa and Nigeria.[21]

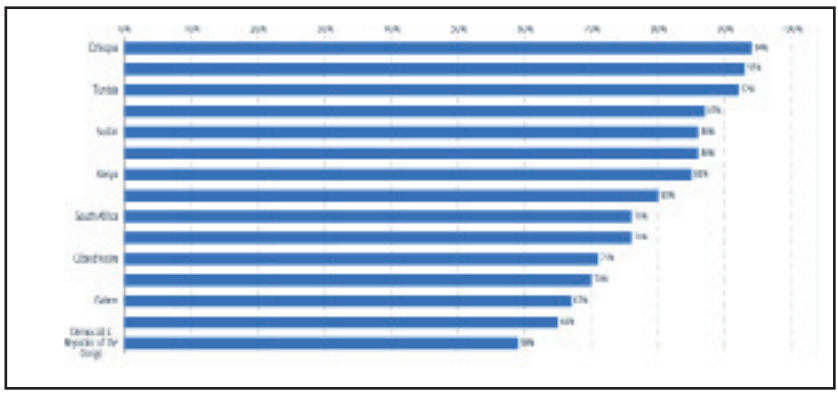
Fear and vaccine hesitancy are usually high among vulnerable communities. Despite a full-scale vaccination push as well as widespread evidence that the 'unvaxxed' make up an overwhelming majority of the hospitalised, a few outliers could exist in a COVID-19 hot spot. For instance, the Missourian Lake of the Ozarks region is made up of hundreds of educated and mask-less people with one of the lowest vaccination rates, despite the overstretched capacity of its hospitals, as the Delta variant took hold in 2021. Despite having recorded 600 000 coronavirus-related deaths in the US in 2021, there are still cases of people not only fundamentally forgoing masks but recklessly forgoing vaccinations in the face of the deadly Delta variant.

According to the December 2020 Statista survey on the willingness of Africans to take a COVID-19 vaccine, Ethiopia ranked first in terms of the share of population – 94 per cent – willing to accept a COVID-18 vaccine, compared to the Democratic Republic of the Congo (DRC), where only 59 per cent of the population would have taken a COVID-19 vaccine (see Figure 4). By implication, most of the 'vaxxed' are very important and high-level government officials, as well as their associates and family members. In a global effort to bring cross-border travel and tourism back better, the global systems require an approach for identifying and monitoring the 'vaxxed' and 'unvaxxed' towards tourism and travel sectors' recovery. Thus, the EU deployed an electronic sanitary pass system that will enable swift verification of the vaccination status of citizens across all EU member countries, thereby enabling safe and seamless movement of people across borders. As of September 2021, lessons from the EU digital COVID certificate are being discussed to explore innovative, comprehensive, cloud web-based, decentralised, and mutually-recognisable certification systems across different countries worldwide.

20 The Delta variant spreads quicker and more efficiently than the first COVID-19 variant and can infect fully-vaccinated people although their symptoms appear milder.

21 The 31 July *Economist* special edition on coronavirus coverage discusses middle-income countries' experiences where the rich, government leaders, and well-connected receive medical treatments, and vaccinations, while the poor continue to suffer from the socio-economic challenges that smoldered long before COVID-19 arrived.

Figure 4: Share of people willing to accept a coronavirus (COVID-19) vaccine in Africa as of December 2020, by country



Source: Africa CDC

On the other hand, there is an alarmingly increasing number of 'unvaxxed' among Africa's vulnerable, educated, and highly religious communities. A 2022 published *Nature* article on 'Limited cross-variant immunity from SARS-CoV-2 Omicron without vaccination' notes that 'in unvaccinated people, infection with the Omicron variant of SARS-CoV-2 provides little long-term immunity against other variants'. In other words, the Omicron variant induces only a weak immune response, and this response is weak in the vaccinated individuals, but helps strengthen overall protection against a variety of COVID-19 strains. However, in those without prior vaccination, the immune response fails to confer broad, robust protection against other strains.

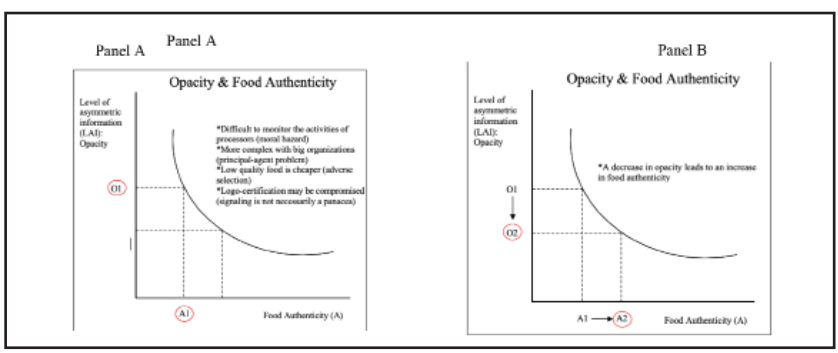
A decentralised and publicly-democratised blockchain ledger could restore and enhance trust among the 'unvaxxed' and, given its priceless characteristics, maintain trust in the event of professional indemnity litigation and insurance claims negotiation. Despite blockchain's promising future to offer solutions, a few challenges remain before Africa's industries and sectors can efficiently deploy blockchain technologies. Some of these challenges include (i) *technical challenges*: 90 per cent of blockchain-based supply chain projects will stall by 2023 due to technological concerns, poor cost efficiency, and high energy consumption; (ii) *regulatory challenges*: from a legislative standpoint, merging the current complex legal frameworks with across-the-borders rights of ownership and possession governance will pose challenges; and (iii) *building digital capacity challenges*: blockchain systems capacity building is complex, difficult to track, and costly to investigate. For instance, blockchain applications for responsible business conduct in the mineral value chains of Burkina Faso, the Republic of the

Congo, Mali, and Niger suggest that blockchain technologies can only complement and not substitute for an in-person verification.

5 Fragility and food authenticity

On the one hand, global food market fraud is expected to represent approximately $30 to $40 billion in 2021.[22] On the other hand, globalised trade is characterised by uncertainties, randomness, volatility, and risk because of continuous change and its ability to create disturbances that ensure that the market is always in a state of equilibrating tendencies but not in a state of equilibrium.[23] Based on this premise, trade is always fragile, and a typical example of this is manifested in the disruption created since 2020 by the COVID-19 pandemic. Taleb and Douady[24] state that '*fragility* is related to how a system *suffers* from the variability of its environment beyond a certain preset threshold (when the threshold is *K*, it is called *K*-fragility), while *antifragility* refers to when it *benefits* from this variability'. To be antifragile is to be more than resilient and to thrive under challenges. This is possible when redundancy, with its optionality attribute, is emphasised instead of efficiency. One of the ways to make trade antifragile is the creation of symmetry in trade by reducing opacity. See Figure 5 for further explanation.

Figure 5: The relationship between opacity and food authenticity



Source: Adekunle and Filson (2019)

22 'The real costs of food fraud' – The Real Cost of Food Fraud (tracegains.com), 2021.

23 I Kirzner 'Entrepreneurial discovery and the competitive market process: An Austrian approach' (1997) 35 *Journal of Economic Literature* 60-85.

24 Taleb & Douady (n 2).

As presented in the figure above,[25] opacity and food authenticity are inversely related. The higher the level of asymmetric information in the market, the opaquer the products in the market are and the less authentic they are. This relationship implies a need to ensure information symmetry in the production of goods and their movement across borders. Otherwise, it will lead to adverse selection, moral hazard, principal-agent problems, and a compromised labelling system that translates to a situation where signaling is not necessarily a panacea. Some of these challenges can be resolved by technologically backed traceability and crypto labelling. Furthermore, major food players may be forced to adopt blockchain technology to meet consumers' traceability and accountability needs and reduce the increasingly alarming cases of food-related illnesses and allergic reactions.

6 Bleeding trade, AfCFTA, and implications for micro, small and medium enterprises

Bleeding[26] is generated by non-linear amplification of random socio-economic activities such that its outcomes depend on the derivative, where the relationship between the variables is convex rather than linear. This convexity is the primary mechanism that generates either negative or positive bleeding across diverse spheres. Furthermore, convexities result in fundamental socio-economic fragilities, which justify the need to understand bleeding within the 'epistemic' context of leveraging it to predict selected variables and human behaviour based on the four forecasting quadrants posited by Taleb.[27][28][29]

The pertinent question at this juncture is: How could the current state policies and AfCFTA be made less bleeding by building effective trade institutions and making trade expenditure more impactful? As many African businesses, especially MSMEs, struggle to navigate the increasing complexities of the international trade landscape, bleeding trade undermines sustainable development trajectories.[30] Africa could overcome its trade bleedingness by strengthening its trade-related institutions and

25 Adekunle & Filson (n 9).

26 See ch 5 for a detailed discussion on 'bleeding'.

27 NN Taleb 'Bleed or blowup? Why do we prefer asymmetric payoffs?' (2004) 5 *Journal of Behavioural Finance* 2-7.

28 NN Taleb *Black swan: The impact of the highly improbable* (2007).

29 NN Taleb 'The fourth quadrant: A map of the limits of statistics' unpublished manuscript (2008), http://www.edge.org/3rd_culture/taleb08/taleb08_index.html (accessed 28 July 2022).

30 Taleb (n 27).

making them more inclusive, thereby innovatively implementing a set of trade policies that foster the welfare of its citizens. In other words, bleeding trade is an endemic trap that is difficult to escape, especially in a post pandemic era, where the International Monetary Fund (IMF) predicted that Africa would be unable to catch up with its pre-pandemic growth rates. Escaping extreme trade bleedingness requires inclusive trade institutions, political will, and preparation for the new challenges of bleeding trade.

Inclusive trade, digital trade and market access policies are effective 'anti-bleeding interventions that AfCFTA needs to implement. Strong trade institutions reduce socio-economic and political uncertainties and bleedingness that engenders optimal allocation of innovations, thereby fostering economic cooperation, growth, and trade expansion.[3132] In the absence of a 'bleeding trade' perspective on the role of African governments to leverage AfCFTA for realising sustainable development in Africa, for instance, a wide range of currently-implemented policies result in market failures or positive bleeding that need to be encouraged. However, leakages in positive bleeding are prevalent, and more innovative research efforts are required to articulate appropriate anti-bleeding policy tools to effectively enhance trade facilitation institutions and foster trade efficiencies.

As an author who is interested in enhancing Africa's preparedness for AfCFTA's post-pandemic future, proposing positive bleeding trade strategies is one strategic pathway forward. Thus, there is an increasing need to support clients in responding to strategic challenges and opportunities around the rapidly unpredictable global trade policy arena. According to EY, trade strategy helps clients – corporate organisations, investors, governments – identify and mitigate disruption to international trade, whether arising from Brexit, the US-China trade wars, emerging trade tech issues such as data management, privacy, and sustainability. Markey-Towler develops the idea of antifragile knowledge and the psychological attributes necessary to benefit from radical uncertainty.[33]

31 D Acemoglu, S Johnson & JA Robinson 'The colonial origins of comparative development: An empirical investigation' (2001) 91 *American Economic Review* 1369-1401.

32 D Acemoglu, S Johnson & JA Robinson 'Institutions as a fundamental cause of long-run growth' in P Aghion & S Durlauf (eds) *Handbook of economic growth* (2005) 385-472.

33 B Markey-Towler 'Antifragility, the black swan and psychology: A psychological theory of adaptability in evolutionary socio-economic systems' (2018), https://ssrn.com/abstract=3130038 or http://dx.doi.org/10.2139/ssrn.3130038 (accessed 28 July 2022).

For instance, over the last ten decades,[34] major national and regional economic, trade, and market access programs have transformed into regional integration blocs in Africa. Although there are still free trade agreements (FTAs) silos and huge gaps between major trade and market systems across African national borders, low-resourced countries look to establish regional trade programmes for resources, assistance, education, support, and cap-and-trade replacement. Trade-related, historical data may serve as a poor guide to the future magnitude of AfCFTA-related risks.[35] However, quickly deploying continental free trade agreements (CFTAs) as a socio-economic recovery instrument comes with a plethora of ubiquitous risks. That said, rethinking the AfCFTA's vision, mission, programmes, and assumptions is crucial within the concept of a 'bleeding trade'. By implication, African trade policy stakeholders often struggle with the randomness of the practice and workability of free trade agreements and policies, ignoring what would have happened had those free trade agreements not been made. First, AfCFTA in the public interest should emerge from a broad range of community and stakeholder groups. In other words, it should be easily understandable to every African in the supply chain and in the remotest community. Otherwise, the implementation of AfCFTA might appear superficially beneficial to all. More importantly, AfCFTA and its legal parameters should cast a wider net to overcome challenges via community development interventions, organisational structures, and technological innovations. Could CFTA be the solution to reducing poverty, accelerating post-COVID-19 socio-economic transformation, and facilitating cross-border paperless trade? There seem to be multiple layers of uncertainty and a significant 'bleeding trade' phenomenon in Africa's post pandemic socio-economic trajectory!

7 Digital technology, entrepreneurship and small businesses

The use of technology has transformed our day-to-day activities, and the future belongs to the people who can explore new frontiers enabled through advances in digital technology. To remain relevant in the global trade landscape, there is a need for proactive behaviour where a technology that is new today may become old tomorrow, where a digital health model can

34 The Southern African Customs Union (SACU), an African regional economic organisation, is the world's oldest customs union, founded in 1910, and comprises Botswana, Eswatini, Lesotho, Namibia and South Africa.

35 The AfCFTA Secretariat Chief of Staff, Silver Ojakol, noted that economic integration is not an event but a process being established as the world's largest free trade area since the World Trade Organisation (WTO)'s launch. In view of this, AfCFTA will not happen overnight, because most of its success depends on what is implemented next, and where efforts should be focused.

show that an unpreventable virus today can become preventable tomorrow, or where 'unvaxxed' today transitions to become 'vaxxed' tomorrow.[36] Furthermore, it is crucial to understand the role of social media in digital entrepreneurship because the global economy is now knowledge-based. To explain the role of social media in economic development, scholars[37] proposed that collaboration through shared ideas with Instagram users is positively related to the successful initiation of digital entrepreneurship, that market analysis through the use of Instagram's unique followers is positively related to the successful pursuit of digital entrepreneurship, and that advertisement, promotion, and marketing using Instagram is positively associated with the successful pursuit of digital entrepreneurship. Business implementation through Instagram's loyal customers and influencers is positively related to a successful pursuit of digital entrepreneurship. Since social media such as Instagram enhances entrepreneurship, it is essential to strengthen this structure because entrepreneurship is about the discovery of new opportunities,[38] about creation and destruction,[39] about a function of personal characteristics such as perceived self-efficacy, locus of control and personal agency beliefs[40] and about other strategic, innovative tendencies. If the nexus between digitalisation and entrepreneurship is well established, inclusive socio-political participation, regional integration, and economic development visions are promoted.[41] Entrepreneurs can produce efficiently, provide access to digital markets, and avoid weak transportation and logistics infrastructure with appropriate digital tools, social media platforms, and skill sets. In addition, entrepreneurial and digitally savvy Africans are deploying digital technologies and fast-growing business models to establish digitally innovative solutions to meet the booming consumer demand.[42] [43] [44] For some examples, Kenya's Lori

36 GOA Odularu & B Adekunle 'Digitalisation in the African context' (2020) 21 *Journal of African Development*, https://scholarlypublishingcollective.org/psup/african-development/article-abstract/21/1/1/262414/Understanding-Digitalization-in-the-African?redirectedFrom=fulltext (accessed 28 July 2022).

37 B Adekunle & C Kajumba 'The nexus between Instagram and digital entrepreneurship' (2020) 21 *Journal of African Development*.

38 Kirzner (n 23).

39 J Schumpeter *The theory of economic development* (1934).

40 DA Harper *Foundations of entrepreneurship and economic development* (2003).

41 Adekunle & Kajumba (n 37).

42 AUC/OECD 'Africa's development dynamics digital transformation for quality jobs' (2021) AUC, Addis Ababa/OECD Publishing, Paris, https://doi.org/10.1787/0a5c9314-en. (accessed 28 July 2022).

43 International Trade Centre (ITC) 'COVID-19: The great lockdown and its impact on small businesses' (2020) SME Competitiveness Outlook Report, 2020, https://www.intracen.org/SMEOutlook/ (accessed 28 July 2022).

44 McKinsey & Company 'How the COVID-19 crisis may affect electronic payments

Systems, an all-in-all logistics platform; Ghana's AgroCenta, a supply chain and financial inclusion platform; Nigeria's OPay,[45] an agent banking that provides individuals with a point-of-sale machine and underlying software, so they act as banks and ATMs, is the fastest African start-up to cross $1 billion in value; and Nigeria's Kobo360, a start-up founded in 2017 that raised US $30 million to link Nigerian farmers to the global market, as well as to transform the domestic transport and logistics sector.

The COVID-19 crisis considerably crippled cross-border trade, with wide-ranging and long-lasting effects on all WTO member states. In addition to the obstacles that a global pandemic creates, markets were also confronted by the volatile geopolitical environment of Brexit and the 2016-2020 US President Trump administration. However, the pandemic has underscored the increasing need for trade technology and trade finance system interoperability, which facilitate the exchange of commodities electronically, a reduction in physical contact, and digital trade across all sectors, as well as more critically, across all supply chains of essential commodities, such as food, medicine, and vaccines, in Africa and the entire world. Digitalisation of trade across borders will enhance the development of a single window, a one-stop border, automation, and publication and harmonisation of processes and procedures, thereby ushering in a new era of efficiency and sustainability in the comprehensiveness and depth of innovations in African trade facilitation. It is pertinent for Africa to leverage China's Belt and Road Initiatives as one of the effective pathways for improving internal trade infrastructure in several African countries.

In this increasingly digital-enabled trade environment, the government should provide effective legislation support to entrepreneurs (especially youth, women and the vulnerable) to register, defend and protect their copyrights, brands, patents, industrial designs, trade secrets, and trademarks (see chapter 7 on women's digital entrepreneurship). Evidence-based regulatory interventions will make it easier for start-ups and firms to obtain financing, drive job growth, spur innovation, and accelerate sustainable development.[46]

in Africa' (2020), https://www.mckinsey.com/~/media/McKinsey/Industries/Financial %20Services/Our %20Insights/How %20the %20COVID %2019 %20crisis %20may %20affect %20electronic %20payments %20in %20Africa/How-the-COVID-19-crisis-may-affect-electronic %20payments-in-Africa.pdf (accessed 28 July 2022).

45 OPay aims to dominate African fintech by providing a super app for peer-to-peer payments, transportation, food, asset management, and even instant messaging.

46 G Odularu & P Alege 'Trade facilitation capacity needs' (2019), Palgrave Pivot, Cham. https://link.springer.com/book/10.1007/978-3-030-05946-0 (accessed 28 July 2022).

8 Ethically anti-fragile competition laws for shaping trade facilitation innovation: Futurity, desirability and workability

Regulatory struggle to manage the increasing role of digital platforms for trade facilitation is a phenomenon that has always been present in the African economy. In other words, as technology innovations increase at geometric progression, competition regulatory reforms and lawmakers' capabilities to safely regulate digitally disruptive platforms become crucial.

While the pandemic has considerably disrupted governments and businesses in the face of data consumption trends and endemic digital divides, it is also an opportunity to successfully transform enterprises in the new normal. This requires intelligent and agile automation and digitalisation that empowers a remote workforce and other virtual frontiers both productively and securely. Cybersecurity capacity for intellectual property protection is critical to realise both an AfCFTA vision and a future of innovation in African trade facilitation and bio-economy. Artificial intelligence (AI) is a crucial part of modern trade facilitation given its trade and diplomacy, game-changing capacity for handling large volumes of trade data and for making collaborative, complex decisions that support continental-wide, regulated, and regionally transformative trade systems. There is a need for a simulation-based framework for identifying, assessing, and mitigating systemic cyber insecurity. Furthermore, there is a need for a center for cybersecurity education and research focused on securing trade facilitation systems that will serve as a holistic framework that utilises multimodal sensor data to detect and mitigate trade systems failures using deep learning technologies and emerging wireless communication techniques. In addition to driving a quantum shift in digitalisation and cybersecurity, COVID-19 reflects the fundamental relationship between education, health, and other assets, such as skills acquisition, because all are amenable to market failures, such as moral hazard or imperfect and asymmetric information. The rolling out of online learning from primary to tertiary levels has become the new normal, especially with increasing demand for micro-credential courses and online learning mixed with traditional face-to-face teaching.

As more sectors of the African economy need to digitally facilitate trade, artificial intelligence remains a game changer for delivering several efficiency gains in an unprecedentedly risky landscape.

Sustainable competitive advantage by African countries can be achieved only when trade is facilitated in an organised business environment with

legal instruments that are ethically developed. Despite the complexity of its realisation, which requires political decisions, practical actions, science, and implementation capacities, the pursuit of a sustainable AfCFTA is of great interest to Africans and their region-wide nations. However, most of its ongoing trade strategies are seemingly unsustainable, intrinsically fragile, environmentally unsound, economically inadequate, socially incorrect, and ethically unacceptable, thereby assuming a bleeding characteristic. By implication, future research should focus on deploying ethically developed legal instruments and trade facilitation innovations to enhance Africa's future preparedness. Such a research proposal requires one to systemically measure and understand the amount of 'bleeding' in its national and regional trade, as well as its socio-economic programmes. This research will address the FTA-related challenges confronting Africa by (i) leveraging more nimble adaptation of existing data to build evidence on what works; (ii) promoting a culture of open data and reproducible analytics for designing and implementing better and faster analytics; and (iii) focusing on data for goals and on systematic country diagnostics with good analytical work based on excellent judgment and statistical advisory capacities. This will contribute to supporting the African global vision to build up its digital economy for every African while contending with the scourges of cross-border landlockedness, fragility, and conflict.[47] [48] [49] [50] [51] Moreover, the government should provide ethically antifragile competition policies and legislative tools that are appropriately responsible for 'data' market regulations. In this regard, selected African national and continental organisations could deploy the OECD Competition Assessment Toolkit to eliminate anti-competitive barriers in a digitally dynamic ecosystem.

47 G Odularu, B Adetunji & A Odularu 'Conclusion and policy recommendations: Creating an enabling business ecosystem for fostering trade opportunities in the digital age' in G Odularu, M Hassan & M Babatunde (eds) *Fostering trade in Africa. Advances in African economic, social and political development* (2020) https://doi-org-443.webvpn.jnu.edu.cn/10.1007/978-3-030-36632-2_10 (accessed 28 July 2022).

48 G Odularu 'The primer: Bracing Nigerian trading ecosystem for the future' in G Odularu (ed) *Strategic policy options for bracing Nigeria for the future of trade* (2020) https://doi.org/10.1007/978-3-030-34552-5_1 (accessed 28 July 2022).

49 G Odularu 'Conclusion and policy recommendations' in Odularu (n 28).

50 G Odularu 'Digital pathways for fostering post-COVID-19' (2020), https://www.afronomicslaw.org/2020/07/18/digital-pathways-for-fostering-post-covid-19-trade-outcomes/?fbclid=IwAR2FOS9d9U6epp8ItvrqhRlJkfmevHPbITuPmdaXRqt0ed9X12oYEH6U5Fk (accessed 28 July 2022).

51 G Odularu 'Building businesses back better amid COVID-19 pandemic in Africa' in 'Crisis and fragility: Economic impact of COVID-19 and policy responses' KIEP Visiting Scholars' Opinion Paper (2020) | Visiting Scholars' Research Activities | KIEP Visiting Scholars (accessed 28 July 2022).

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