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Why Regional Value Chains in Africa Need to go Digital

MICHELLE CHIVUNGA & ALISTAIR TEMPEST

African perspectives
Global insights

Abstract

After years of de-industrialisation and limited intra-regional trade, which have been serious constraints to inclusive growth and development, African countries have an opportunity to leverage the potential of the African Continental Free Trade Area to accelerate their industrialisation efforts and greatly improve their economic well-being. The aim of this free trade area is to prise open African markets through reductions in tariffs and non-tariff barriers and to allow regional value chains to emerge that will expose new product and market opportunities and minimise countries' dependency on foreign imports (and foreign aid).

Global value chains are typically characterised by complex production processes and extensive networks of companies (often with headquarters in developed countries) trading across multiple borders. Producers invariably have to compete with the best in the world, which requires excellent production and marketing capabilities as well as ample financial resources. Regional value chains enable producers and service providers in developing countries to experience the benefits thereof (access to raw materials and components, economies of scale in production, expanded market opportunities, technology and skills transfer, and so on) but on a more limited scale. The authors of this paper strongly advocate the development of African regional value chains as a prelude to more active global value chain participation by small and larger firms alike, as regional value chains allow African countries to capitalise on both import and export opportunities.

The key to well-functioning regional value chains is the use of digital technologies that improve information flows, enhance productivity and competitiveness, and streamline cross-border trade procedures. Many African countries lack the fundamental building blocks to build and sustain a modern, connected economy (from internet connectivity problems and out-of-touch education systems to an unattractive investment climate and a stifling regulatory environment). Added to this is the problem of high trade costs – the result of a poor transport and logistics environment and onerous customs procedures. All these problems need to be addressed at the policy level and through innovative and practical initiatives. Ultimately, whether regional value chains flourish or flounder is dependent on how well stakeholders collaborate with one another and turn their respective visions into viable blueprints for regional trade and development.

With reference to a number of case studies, the authors illustrate that value chains can have either positive or negative effects on African countries. Where African producers and service providers are confined to low-value-added activities (that deliver low returns), then Africa does not benefit to any significant degree. However, where African producers and service providers are involved in more value-added activities (that generate higher returns), then more benefits accrue to Africa.

Investing in Africa's future in the form of sound infrastructure and transport corridors, streamlined border procedures, knowledge and skills, and regulatory frameworks – all with

a strong digital flavour – requires substantial funding. With most African countries facing fiscal constraints (particularly in the wake of the devastation caused by COVID-19), it is essential that public-private partnerships are used as additional funding sources and that all stakeholders are consulted when negotiating trade rules and standards.

Why are regional supply chains so important to Africa?

On 1 January 2021, the African Continental Free Trade Area (AfCFTA) was launched.¹ The AfCFTA Secretariat was established in Ghana during 2020, but the objectives of the free trade area (FTA) had been formulated over many years leading up to its formal launch.

The overall aim of the AfCFTA is to re-industrialise Africa after more than a decade of de-industrialisation. Presently about 16–18% of the continent's trade is intra-African. This is very low compared to intra-regional trade in Asia (59%) and Europe (69%).² Igniting a renaissance of industrial and business activity in Africa is essential given the rapid growth of the continent's population.³ As the authors of this paper recently stated:⁴

Simply put, there is a need to focus on fundamentals: producing more of what Africa consumes, and consuming more of what Africa produces. This does not mean cutting Africa off from the outside world. However, it does mean focusing first and foremost on the African market, and other markets secondarily. It means the need to think about Africa more as a single common market to facilitate scaling and growth. Producing and consuming locally will facilitate the development of local supply chains that will offer small companies and countries opportunities to leverage their strengths and specializations and feed into large value-chain networks that create more value through production, processing and distribution. And it means raising the standards within African supply chains to enable African firms to produce world class industrial products.

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- 1 As at 7 July 2021, 37 countries had deposited their instruments of ratification (in order of date): Ghana, Kenya, Rwanda, Niger, Chad, Eswatini, Guinea, Côte d'Ivoire, Mali, Namibia, South Africa, Congo, Rep., Djibouti, Mauritania, Uganda, Senegal, Togo, Egypt, Ethiopia, Gambia, Sahrawi Arab Democratic Rep., Sierra Leone, Zimbabwe, Burkina Faso, São Tomé & Príncipe, Equatorial Guinea, Gabon, Mauritius, Central African Rep., Angola, Lesotho, Tunisia, Cameroon, Nigeria, Malawi, Zambia and Algeria. Parliamentary/Cabinet approval has been received for Seychelles and Burundi. Somalia is pending; An excellent source of information on developments in the AfCFTA is Tralac, <https://www.tralac.org/resources/infographic/13795-status-of-afcfta-ratification.html>.
 - 2 Dhruv Gandhi, 'Figures of the Week: Increasing Intra-regional Trade in Africa', Brookings, February 23, 2020, <https://www.brookings.edu/blog/africa-in-focus/2019/02/22/figures-of-the-week-increasing-intra-regional-trade-in-africa/>.
 - 3 Based on UN estimates, the population of Africa as of March 2021 was 1.363 billion, with a median age of 19.7 years.
 - 4 Michelle Chivunga and Alastair Tempest, 'Digital Disruption in Africa: Mapping Innovations for the AfCFTA in Post-COVID Times (Occasional Paper 317, South African Institute of International Affairs, Johannesburg, 2021, 41), <https://saiaa.org.za/research/digital-disruption-in-africa-mapping-innovations-for-the-afcfta-in-post-covid-times/>; CNBC Africa, 'Regional integration as a tool for wealth creation in Africa,' August 21, 2020, <https://www.cnbc.com/africa-press-office/2020/08/21/regional-integration-as-a-tool-for-wealth-creation-in-africa-by-khaled-sherif/>.

The challenge is to ensure that the value chains emerging from the implementation of the AfCFTA will benefit African enterprises. At present, many value-chain activities within the manufacturing sector in Africa are confined to procurement and, to some extent, outbound logistics. In other words, raw materials (minerals or agricultural produce) are procured in Africa and shipped unprocessed to third countries where they are manufactured, marketed and sold to the final consumer. This paper provides some classic examples of value chains in Africa, both of the positive and negative variety.

The interoperability of value chains will be one of the keys to healthy, vibrant economies and the delivery of positive, sustainable results under the AfCFTA. Interoperability, in the context of regional technology systems, standards and data sharing is necessary to facilitate trade across African regional value chains (AfRVCs). Recent events have highlighted the need to strengthen the current structure of value chains in Africa. Data show that in 2018, more than 82% of foods and more than 95% of medicines consumed in Africa came from outside the continent – mainly from the EU, India and Switzerland.⁵ However, COVID has disrupted the supply of these products, forcing some producing countries to curtail a large proportion of their production, prioritise supplies for local consumers and cut back on distribution in the face of a more restricted logistics climate.

This is a warning but also an opportunity for Africa to enhance its RVC networks. Ideally African governments should promote the manufacture of all strategically important products within the continent to ensure that, in future, external logistical problems or trade wars between the major trading powers do not adversely affect African economies. Realising this objective could help dissolve the present obstacles to value chain development on the continent.

Toyin Umesiri, a former buyer for the US retail giant, Walmart, who for a number of years specialised in sourcing products from Africa, compiled the following list of factors that in her experience affect Africa's supply-chain efficiency:⁶

Visibility: Much mystery surrounds what Africa has to offer global supply chains and where these resources are. Local players contributing to the process are like ghosts, largely unseen and unheard.

Transparency: The process of moving commodities along supply chains – including natural resources like diamonds and precious metals, and associated price mark-ups – is not transparent. Global buyers want traceability and transparency.

5 Karishma Banga et al., 'Boosting African Regional Value Chain Development in Response to COVID-19: The Catalysing Role of the AfCFTA', September 2020, <https://trade4devnews.enhancedif.org/en/op-ed/boosting-african-regional-value-chain-development-response-covid-19-catalysing-role-afcfta>. This is an example of the lack of sufficient COVID vaccines in Africa in the wake of an upsurge of infections in producing countries. That led to a call for intellectual property rights to be waived to allow the rapid production of vaccines on the continent – and the push-back against this proposal by some developed countries.

6 Adapted from Toyin Umesiri, '10 Reasons Why Africa is Disconnected from the Global Supply Chain!' May 2021, <https://www.nazaru.trade>.

Unorganised: Supply chains are broken because the African market is largely unorganised and there is no standardisation. A fully mature supply chain is reinforced with strong links, each player stepping up to perform their assigned role according to international standards.

Connectivity: If you are not connected to the global conversation, you cannot identify and leverage global opportunities.

Education: Local, regional and global markets call for different levels of education. Even if you are a winner in your local or national market, you need additional knowledge and skills to work and/or compete with regional and global players.

Legal structures: Informal trade is extremely prevalent in Africa. If trade is to become more professional, the formal trade environment must be underpinned by sound legal structures. Despite the challenges, formal trading activity in Africa is predicted to mature over the next 10 years.

Quality: Just as China was perceived to be a major source of low-quality products 30 years ago, Africa has earned this reputation as manufacturing operations continue to take root on the continent.

Exploitation: Exploitation has characterised much of Africa's history, which has given rise to (mis)trust issues in many business dealings. On the whole, Africans do not trust external players. While this may be understandable, businesses nevertheless need to move beyond such sensitivities and build trusting, long-term relationships if they wish to see an economic turnaround.

Limited investment: Since investment opportunities in the region are often obscure, they do not attract the right type of (or adequate) attention. Making the transition from dependency on foreign aid to robust foreign trade activity calls for investment dialogues and initiatives aimed at transforming Africa's economic climate and potential.

The last mile: Agriculture is the future of Africa. However, attempts to move products from farm to market are often constrained by the lack of critical value-chain elements, such as branding, marketing and distribution.

Studies have shown that several issues need to be addressed:⁷

First, policies are essential to promote value chains and increase their impact on development; second, value chains are diverse, and the variance between them has major economic and political implications; third, regional value chains appear to constitute a viable alternative to global ones (or, at least, are complementary

⁷ For example, see Scholvin Sören et al., *Value Chains in Sub-Saharan Africa* (Switzerland: Springer Nature, 2019), 1-9, <https://www.springer.com/gp/book/9783030062057>.

to them), promising better developmental outcomes for the Global South; fourth, political and socio-economic factors are important considerations for a complete assessment of value chains; fifth, cities and city regions are also crucial objects of study in seeking to achieve a comprehensive assessment of value chains.

Other aspects that need to be taken into account include the diverse nature of value chains; the effectiveness of policies in encouraging value-chain development and driving economic development; whether regional value chains are a more viable option than, or at least complementary to, global value chains; and how urban conditions and socio-economic factors impact regional value chains.

Another important consideration in value chains is logistics (and logistics costs). This was driven home when the mega container ship, the *Ever Given*, blocked traffic in the Suez Canal for almost a week in March 2021. The incident triggered increases in container freight rates, which had just started to settle down again after the all-time highs reached in 2020. Shipping rates are a major component of trade costs, since almost all manufactured goods – including clothes, medicines and processed food products – are shipped in containers. The impact on freight rates has been greatest on trade routes to developing regions where consumers and businesses can least afford higher prices for merchandise.

Currently, freight rates to West Africa and South America are higher than to any other major trading region. By early 2021, for example, freight rates from China to South America had jumped 443% compared to a 63% increase on the route between Asia and North America's east coast. This is partly because routes from China to countries in Africa and South America are longer, requiring more ships. Another factor is the lack of return cargo. South American and African countries import more manufactured goods than they export, and it is costly for carriers to return to China empty on long routes.⁸

As shipping rates have risen, so too have air cargo rates, often for the same reasons. The reduction in passenger flights has increased costs. The higher cost of both container freight and air cargo have put at risk the livelihoods of African e-merchants who engage in cross-border trade, particularly those who target Europe or North America.

Logistics experts point to the long and wasteful delays associated with intra-African customs clearance when rail or road transport is used.⁹ African countries need to invest in better transportation infrastructure and customs facilitation, which would ensure more efficient trade flows across Africa. For example, the limited capacity of African value chains has fuelled the practice of moving goods through international ports rather than improving

8 UNCTAD, 'Shipping During COVID-19: Why Container Freight Rates Have Surged', April 23, 2021, <https://unctad.org/news/shipping-during-covid-19-why-container-freight-rates-have-surged>. The rapid increase in freight costs is also a global issue; see, for example, 'Shipping crisis: I'm being quoted £10,000 for a £1,600 container,' Vivienne Nunis, *BBC News*, January 22, 2021, <https://www.bbc.com/news/business-55740063>.

9 *News24Wire*, 'African Free Trade Area Kicks Off, But with Reminders of Major Obstacles at Borders', January 4, 2021, <https://www.polity.org.za/article/african-free-trade-area-kicks-off-but-with-reminders-of-major-obstacles-at-borders-2021-01-04>

existing transportation networks across Africa, which would reduce both costs and delivery times.

Blockchain applications can also address most of the points raised by Ms Umesiri – in particular, the need for greater transparency in pricing, a more structured marketplace, greater connectivity between producers and buyers, guarantees of quality of African products, and greater trust between sellers and buyers. Blockchain can speed up the digitalisation of intra-regional trade and bring about more efficient trade facilitation practices. By automating customs procedures and using smart contracts to execute transactions, the blockages encountered in AfRVCs would be reduced and in some cases completely eliminated. The implementation of the Trade Facilitation Agreement (TFA), which utilises digital tools, can go a long way towards reducing costs and delays, thereby benefiting many businesses.¹⁰

| TABLE 1 EXPORT AND IMPORT TRADING TIMES | | | | | | |
|---|--|--|--|---|---|---|
| Economy | Ranking: Trading across borders (2020) | Export: Documentary compliance (hours) | Import: Documentary compliance (hours) | Export: Border process compliance (hours) | Import: Border process compliance (hours) | Notes |
| Eswatini | 35 | 2 | 4 | 2 | 3 | Top 5 rankings: Ease of cross-border trade |
| Lesotho | 40 | 1 | 1 | 4 | 5 | |
| Botswana | 55 | 18 | 3 | 5 | 4 | |
| Morocco | 58 | 26 | 26 | 6 | 57 | |
| Rwanda | 88 | 30 | 48 | 83 | 74 | |
| South Africa | 145 | 68 | 36 | 92 | 87 | Top 3 African economies |
| Egypt | 171 | 88 | 265 | 48 | 240 | |
| Nigeria | 179 | 74 | 120 | 128 | 242 | |
| Congo, Rep. | 183 | 120 | 208 | 276 | 397 | Bottom 5 rankings: Ease of cross-border trade |
| Liberia | 184 | 144 | 144 | 193 | 217 | |
| Sudan | 185 | 190 | 132 | 180 | 144 | |
| Cameroon | 186 | 66 | 163 | 202 | 271 | |
| Congo, Dem. Rep. | 187 | 192 | 174 | 296 | 336 | |

Source: Author's reconstruction based on World Bank data. <https://www.doingbusiness.org/en/custom-query>

¹⁰ For example, the work done by the TradeMark East Africa group on trade between the East African Community (EAC). The introduction of digitalised pre-clearance systems has reduced the cross-frontier transit time from an average of 6 hours to 15 minutes between most of the EAC member states, although delays returned under the pandemic.

Digitalising customs documentation and automating various processes would dramatically streamline the movement of goods and accompanying service provision across value chains, both locally and across international borders. As Table 1 illustrates, documentary and border-process compliance in the export and import cycles is very time-consuming, complex and costly, and beyond the reach of many micro, small and medium enterprises (MSMEs). Digitalisation – using a mix of technologies such as artificial intelligence (AI), the Internet of Things (IoT) and blockchain smart contracts – removes much of the bureaucracy, reduces costs, and speeds up importing and exporting processes. The benefits from these technologies converge into positive outcomes for importers and exporters alike.

RVCs need to be considered within a broad industrialisation/trade context. This requires pan-African engagement, involving politicians, government officials, business and civil society stakeholders, academics and other opinion formers. Concentrating on just one or a few elements of the value chain is inadequate and would lead to sub-optimal trade performance. What is required is a comprehensive industrial/trade strategy that provides a clear roadmap for using digital tools and ecommerce as catalysts to drive RVC activity in support of the AfCFTA.

Digital transformation, RVCs and the AfCFTA

Digital transformation is a term that is frequently used in connection with the Fourth Industrial Revolution (4IR). The term relates to changes experienced by organisations, industries or ecosystems through the integration of smart digital technology.¹¹ Digitalisation, which includes the representation of physical objects in digital format, is usually the initial stage of digital transformation. Here information owned by an organisation is turned into digital objects – for example, digitalising letters of credit (LCs) and other trade documentation to allow for more efficient and cost-effective sharing of documents among RVC participants. The use of cloud storage and distributed ledger technology (DLT) applications, such as blockchain, to manage and secure data helps businesses and governments collect and process data more effectively. Through collaborative efforts across DLT-enabled networks, it is possible to begin closing data gaps and breaking down data silos.

The next stage starts when the digitisation process has occurred. It becomes apparent when many aspects of life start changing with the emergence of new technologies and communication media.¹² During this stage, organisations no longer simply digitalise data and information; they also automate processes by adopting technologies such as the IoT, machine learning, 3D printing and blockchain. Not surprisingly, digital transformation is synonymous with innovation because it is strongly linked to the use of emergent technologies.

11 I-SCOOP, 'Digital Transformation: Online Guide to Digital Transformation,' 2021, <https://www.i-scoop.eu/digital-transformation/>.

12 UNESCO, Fundamental Principles of Digitization of Documentary Heritage, http://www.unesco.org/new/fileadmin/MULTIMEDIA/HQ/CI/CI/pdf/mow/digitization_guidelines_for_web.pdf; Brennen J. Scott and Daniel Kreiss, 'Digitalization,' *The International Encyclopaedia of Communication Theory and Philosophy* 1-11 (2016).

Blockchain makes use of 'tamper-resistant', distributed digital ledgers which dramatically increase the level of trust between commercial parties.¹³ In supply chain management, the use of distributed systems reinforced with advanced cryptography makes such systems resilient and sustainable.¹⁴ Supply chain systems become more resilient because they no longer have to rely so heavily on intermediaries, they are secured against privacy leaks and hacking, they are procedurally more streamlined and they are more cost-efficient.

In the context of digital transformation, a value chain undergoes several transformative phases. One of the phases involves the adoption of AI technology supported by the IoT and cloud services. This phase creates a self-thinking supply chain that has automation and prediction capabilities.¹⁵ The use of AI also greatly enhances the supply chain risk management process in terms of the ability to identify, assess and respond to immediate or potential risks.¹⁶ There is also increased use of emergent technologies aimed at creating more sustainable supply chains, such as 3D printing, which can be used both for major construction projects and for the production of small items, such as spare parts. At present, many producers are reluctant to transform their spare parts production process by using 3D printers. This is partly because of concerns about how to protect the company's intellectual property (IP), but also because of a lack of quality control of items 'printed' on a 3D printer. However, once these concerns are properly addressed, 3D printing will become a perfect tool to introduce new manufacturing capabilities to Africa, boost productivity (no more time wasted in waiting for spare parts), reduce costs, and stimulate employment and the transfer of skills.

Blockchain has the potential to create a sustainable supply chain system once the blockchain technology matures and there is better integration between stakeholders. With blockchain, the tracking of goods such as agricultural produce or pharmaceuticals and vaccines helps to prove the origin, authenticity and quality of these perishable goods, thus reassuring buyers and helping to make the value chains more sustainable. However, it should be borne in mind that digital transformation is not just about the technologies that are used; nor is it purely reliant on technology adoption. Rather, the focus should be on how to determine the right digital transformation framework and strategy mix and how to find an operational model that is well received both by internal and external players in the value chain.

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- 13 Agustina Calatayud, John Mangan and Martin Christopher, 'The Self-thinking Supply Chain,' *Supply Chain Management: An International Journal* (2019); Dylan Yaga et al., 'Blockchain Technology Overview,' *arXiv preprint arXiv:1906.11078* (2019); Karl Wüst and Arthur Gervais, 'Do You Need a Blockchain?' In 2018 Crypto Valley Conference on Blockchain Technology (CVCBT), *IEEE* (2018): 45-54.
- 14 Hokey Min, 'Blockchain Technology for Enhancing Supply Chain Resilience,' *Business Horizons* 62, no. 1 (2019): 35-45; Sara Saberi et al., 'Blockchain Technology and its Relationships to Sustainable Supply Chain Management,' *International Journal of Production Research* 57, no. 7 (2019): 2117-2135; Min, 'Blockchain Technology for Enhancing Supply Chain Resilience,' Saberi et al., 'Blockchain Technology and its Relationships to Sustainable Supply Chain Management.'
- 15 Calatayud, Mangan and Christopher, 'The Self-thinking Supply Chain.'
- 16 George Baryannis et al., 'Supply Chain Risk Management and Artificial Intelligence: State of the Art and Future Research Directions,' *International Journal of Production Research* 57, no. 7 (2019): 2179-2202.

There are various examples of blockchain technology used in value chains in Africa. One is Dorae, a blockchain company that sources/tracks raw materials, such as cobalt in the Democratic Republic of Congo. Using blockchain for tracking purposes helps to build more trust in the value chain and provides assurances about ethical cobalt sourcing, while also calling out child labour practices, tax avoidance, environmental abuse and exploitation of local producers. Another example is the Ethiopian government's collaboration with Cardano, a fintech group that deploys blockchain technology across agricultural value chains to track coffee distribution with the objective of improving visibility, competitiveness and profitability across these value chains. Coffee is a significant contributor to Ethiopia's export revenue.¹⁷

Digital transformation requires organisations to embrace changes, such as the right culture, policies, processes and resources. If these organisations digitalise and take advantage of the holistic digital transformation experience within their own operations, they could indirectly boost the efficacy of RVCs. For example, a corporation like IBM and the R3 blockchain group have been working with many enterprises, helping them with their digital transformation. The use of blockchain by enterprises is a growing trend across global value chains (GVCs), aimed at improving access to trade finance, boosting efficiency gains, eliminating fraud and increasing profitability. This is a particular advantage for small businesses that typically struggle to access finance and have minimal budgets to spend on comprehensive compliance and customer relations. With more tailored support and the ability to take a technological leap forward, MSMEs would be well placed to help Africa's industrialisation, competitiveness and economic growth drives – both in the immediate aftermath of COVID and well into the future.

With advances made in blockchain and AI, many business functions will become automated, requiring affected job holders to reskill in 4IR-responsive disciplines and/or be redeployed into other areas to ensure their continued employability. The growing use of emergent technology solutions will heighten demand for people-centred, soft skills to complement the digital skills that are needed to enhance productivity across value chains. Investing in training and human capital development will encourage inclusivity at various stages of these value chains.

Investing in education, especially that geared towards building proficiency in emergent technologies and the digital economy, should be a top priority for African countries. Indeed, it should be part of any long-term plan related to post-COVID economic recovery. Skills development efforts – with digital trade and trade facilitation being overarching themes – should focus on helping SMEs to identify optimal ways to expand their markets, become more efficient and quality-driven producers, source raw materials at competitive prices, and be ready to compete in regional and global markets.

¹⁷ 'Coffee is the major source of foreign currency in Ethiopia and it contributes more than 35% of the total export earnings of the country' (MoARD, 2009), as cited in Tadese Gebreyesus, 'Determinants of Coffee Export Performance in Ethiopia,' *Journal of Economics and Sustainable Development* 6, no. 5 (2015): 147-158.

Teaching students, from secondary school upwards, how the digital economy works (and not just focus on coding and cloud computing) must be a priority for African governments. This requires both urban and rural schools to be equipped with the appropriate technology. School children will be able to explore a wide range of new careers and in the process help their parents to appreciate ongoing developments in the information and communication technology (ICT) sphere. The education sector itself needs to be tech-savvy to ensure high levels of cyber safety within schools. In this regard, it is critical that any training proposed for or provided to school children must be accompanied by strong cybersecurity and data protection measures, and that awareness is created of the benefits and risks associated with the digital economy.

Tertiary-level education should prepare young people for the future, while university-led research initiatives should help position African scholars as leaders in technology-driven fields, such as fintech.¹⁸ This will require universities to act more quickly and be far more flexible in the selection of their curriculae. Furthermore, more digitally focused education should encourage women, the youth and entrepreneurs from rural areas to participate in the digital economy.

If RVCs are to be successfully developed in Africa on the basis of digital transformation, two key requirements need to be met: the first is infrastructure and human capital, and the second is connectivity and collaboration. Unlike in the past when poor or missing connectivity and unequally distributed infrastructure were very noticeable, the 4IR era has started to drive greater technological inclusivity by facilitating greater connectivity and more rapid technological advances.¹⁹ A recent UNCTAD paper highlighted the glaring gap between rates of internet penetration in the developed world and the developing world. The International Financial Corporation and Google, in turn, produced a paper in 2020 which estimated that for every 10% increase in internet coverage, countries would add 2% to their GDP.²⁰

The involvement of multiple stakeholders and the quality of their collaborative efforts are a key factor driving RVC success. Yet it has been argued that these constitute formidable challenges in a cross-border context.²¹ Although it may sound straightforward, collaboration in cross-border activities presents distinct challenges, especially in terms of how to create mutually agreeable standards, how to balance automated processes and human intervention, and how to ensure that stakeholders have the same or a compatible vision.²²

18 During the AUC debate on its draft Ecommerce Strategy from July 27-28, 2021, Education for All (EFA) proposed the establishment of an observatory of African universities offering ecommerce-related programmes for the purpose of sharing information and research.

19 Calatayud, Mangan and Christopher 'The Self-thinking Supply Chain.'

20 Google and the International Financial Corporation, 'e-Conomy Africa 2020: Africa's \$180 Billion Internet Economy Future' (Washington DC: IFC, 2020), https://www.ifc.org/wps/wcm/connect/publications_ext_content/ifc_external_publication_site/publications_listing_page/google-e-conomy.

21 Shuchih Chang and Yichian Chen, 'When Blockchain Meets Supply Chain: A Systematic Literature Review on Current Development and Potential Applications,' *IEEE Access* 8 (2020): 62478–62494.

22 Raphael Preindl, Konstantinos Nikolopoulos and Konstantia Litsiou, 'Transformation Strategies for the Supply Chain: The Impact of Industry 4.0 and Digital Transformation,' *Supply Chain Forum: An International Journal* 21, no. 1 (2000): 26–34.

If these issues are not satisfactorily and harmoniously addressed, digitalisation attempts will not be optimal and value-chain efficiency could be sacrificed.

The AfCFTA will strengthen regional cooperation and digital collaboration across the continent. The countries that have signed the AfCFTA agreement have committed to reducing 90% of their tariffs on traded goods within five years (10 years for the less-developed countries).²³ This will be achieved mainly through the preferential trade terms mechanism (81% of products are already traded under preferential terms).²⁴ Digitalisation will be one of the keys to the successful implementation of the AfCFTA – automating various stages of production, facilitating more efficient and inclusive cross-border trade, and allowing more flexible and cheaper payment models. As noted previously, the overall aim of the AfCFTA is to re-industrialise Africa after more than a decade of de-industrialisation. A key element in this process will be the prioritisation of ‘made-in-Africa’ rules of origin. If it is underpinned by digital transformation, the AfCFTA should in time earn the confidence of all stakeholders, from regional and global market participants to the global investment community.

RVCs and MSMEs

Micro, small and medium enterprises make up between 70% and 80% of businesses in Africa, employing 70% of the population. They are therefore ideally placed to be key economic actors in African RVCs. However, to truly transform Africa’s RVCs, MSMEs need to produce competitively priced, quality goods and services that fit the open and transparent RVC mould. To reap the benefits of digitalised RVCs, it is important that MSMEs have the right tools and capacity.

Women-led businesses across Africa are multiplying and their presence in AfRVCs is also increasing. However, women-led MSMEs face more acute barriers to cross-border trade than men, including limited access to finance and market data, limited digital skills, a lack of access to GVCs and gender-specific challenges in exporting across national and regional borders. The changes provided for under the AfCFTA present a significant opportunity for women-led businesses to take advantage of the tools in the digital economy and digitalised value chains to tackle some of these gender-based barriers. Many women operate in the informal and agri-business environment and could utilise technologies such as AI, the IoT and blockchain to optimise their agri-business supply chains.

23 ‘... much work remains as critical parts of the agreement have yet to be completed – including countries’ schedules of tariff concessions and services commitments, rules of origin, investment, intellectual property, competition, and a possible protocol on e-commerce.’ Landry Signe and Colette van der Ven, ‘Keys to success for the AfCFTA negotiations,’ May, 2019, <https://www.brookings.edu/research/keys-to-success-for-the-afcfta-negotiations/>.

24 Franck Kuwonu, ‘Africa’s Free Trade Area Opens for Business’, January, 2021, <https://www.un.org/africarenewal/magazine/january-2021/AfCFTA-africa-now-open-business>; Sing Zhang, ‘AfCFTA: A More Integrated Africa in the Global Supply Chain’, 2021, <https://market-insights.upply.com/en/afcfta-a-more-integrated-africa-in-the-global-supply-chain>; Franck Kuwonu, ‘Africa’s Free Trade Area Opens for Business.’

It should be emphasised that the AfCFTA provides a vehicle for boosting MSME competitiveness and connectivity, and – using digitalised products and services – a route to more visible and more accessible RVCs across Africa. One of the surest ways of creating robust and sustainable RVCs in Africa is through the development of ecommerce (buying and selling online). Digital commerce is the penultimate step in a product’s value chain, moving from the initial research and development, through its manufacture or creation, to the marketing and sales effort, and finally consumption.

The COVID pandemic has acted as a strong stimulant to ecommerce throughout the continent and helped develop trust in the process. According to a Deloitte report on South Africa’s digital commerce:²⁵

The South African e-commerce market was estimated to be \$3bn in net sales in 2019 and growing by a compound annual growth rate (CAGR) of 13% on average (2019–24). Over the next five years, e-commerce revenues are expected to grow by a CAGR of more than 9%, continuing on the robust growth path seen in recent years. As seen in other markets, COVID has acted as a catalyst for e-commerce in South Africa and growth could accelerate significantly as consumers migrate from in-store shopping to online alternatives. With a 37% e-commerce penetration, approximately 22 million consumers shopped online in 2020. This number is expected to grow by 44% to 32 million users by 2024.

MSMEs have embraced ecommerce as one of the few ways to attract business during the pandemic, and they have done this using a wide range of e-marketplaces (also known as e-platforms), including social media platforms such as Facebook Marketplace and consumer-to-consumer platforms such as OLX and eBay. The draft African Union (AU) Ecommerce Strategy calls on African policy makers to recognise the important role of e-marketplaces in driving regional value chains.²⁶

The potential of marketplaces to contribute to regional integration efforts is very important. B2B cross-border trade involving businesses discovering, interacting, and transacting with cross-border suppliers and buyers may lead to an organic shift to greater regional integration and meaningful regional trade. Marketplaces operating cross-border are well placed to contribute to this because more than any other mechanism, they help to bring large pools of cross-border buyers and suppliers together, leading to B2B buyer-supplier engagement.

In addition, as the AU Digital Transformation Strategy 2020–2030 explains, at present MSMEs are relatively limited in their ability to expand beyond their present national markets. However, by taking advantage of the steady reduction of tariffs and non-tariff

25 Deloitte, ‘Digital Commerce Acceleration, Increased Online Purchases Present New Opportunities for Digital Commerce Players,’ February, 2021, 5. The data referred to in this quote came from Statista’s South African Report, 2020, <https://www.statista.com/outlook/dmo/ecommerce/south-africa#market-arpu>.

26 African Union Commission, Africa Ecommerce Strategy, Version 1.0 (25-2-2021), 65.

barriers (NTBs), provided for under the AfCFTA, they will be able to achieve economies of scale and extend their footprint into other national marketplaces. This is already happening in member states of the East African Community (EAC) and the Common Market for Eastern and Southern Africa (COMESA).²⁷ The same process can be seen in other regions underpinned by FTAs, such as the EU and Mercosur, where MSMEs, previously confined to their national market, have been able to expand and grow within a much larger, unrestricted trade area.²⁸

As we have seen, there are a number of factors hampering cross-border ecommerce in Africa, making it difficult to establish digitally powered value chains. These factors include weak transport, telecommunications and power infrastructures – aspects that have similarly put a damper on traditional (offline) cross-border trade on the continent. As mentioned earlier in this paper, blockchain can be used to effect pre-clearance and to identify stumbling blocks in the transactional process.²⁹

The role of data and interoperable payment systems in boosting cross-border trade

The AfCFTA also recognises that regulatory issues play a part in discouraging cross-border trade in Africa. In this regard, major barriers include national regulations hampering the use of foreign currencies. This reduces the attractiveness of cross-border digital commerce. Online customers far prefer to pay in their own currency and, moreover, do not like their shopping experience to be interrupted by currency converters. Integrated, cross-border payment, clearing and settlement systems are needed to support trade transactions in the AfCFTA and to lend weight to AfRVCs. Some are already in place, such as the Flutterwave/ PayPal collaboration. There are several others. The African Export-Import Bank is working on a solution, while the Smart Africa alliance has other projects in motion. Whereas the AfCFTA has a mandate to reduce NTBs in Africa, it is not clear whether its mandate extends to dismantling central bank regulations on payments and remittances in foreign currencies.

Payment solutions should recognise specific payment services (such as open banking, e-payments and payment gateways) and ease restrictions on remittances in foreign currencies. Payment solutions should also overcome one of the most challenging aspects of cross-border trade in Africa: currency fluctuations.³⁰ Moreover, as traders are usually forced to use international currencies such as the US dollar, more attention should be

27 Alastair Tempest, 'The Digital Economy and Ecommerce in Africa: Drivers for the African Free Trade Area' (Special Report, South African Institute of International Affairs, Johannesburg, 2020), <https://saiia.org.za/research/the-digital-economy-and-e-commerce-in-africa-drivers-for-the-african-free-trade-area/>.

28 It will be interesting to study the reverse effect in the UK in the aftermath of 'Brexit' in January 2021, where the UK withdrew from the EU Single Market, thereby potentially rendering its businesses less able to compete on a level playing field.

29 Tempest and Chivunga, 'Digital Disruption in Africa'.

30 In August 2003, the Association of African Central Bank's governors announced that the association would work towards the creation of an African single currency and common central bank by 2021. However, attempts to introduce a single currency, including a plan by the ECOWAS member states to introduce a new currency to replace the Central African franc, have so far floundered.

directed at exploring new financing and payment options, including central bank digital currencies (CBDC).

The Global Policy House (GPH) has led the way in researching and promoting the use of digital currencies within the context of AfRVCs. Work is under way to explore the significance of data infrastructure interoperability in cross-border trade to determine the potential of CBDC in promoting greater access to liquidity and financial inclusion in Africa. It is paramount that AfRVCs are supported by robust payment infrastructure and free flowing data flows, but the latter must offer security to the different participants within AfRVCs and not compromise their right to privacy.

To ensure that AfRVCs produce real benefits, policy makers and decision makers should consider how to build robust financial-data architecture and utilise available digital tools to manage data securely, which is critical for achieving transparent and seamless trade supply chains. To this end, some countries are exploring a 'sandbox' approach whereby governments, fintechs and other relevant entities engage through the regulatory sandbox to jointly explore potential regulatory models and important developments in the industry. This collaborative approach helps all stakeholders to keep pace with fintech developments.

While African data sovereignty needs to be supported, the authors of this paper suggest that a pan-African approach to data localisation be explored.³¹ Blockchain and cyber-proof systems can be used for this purpose as they allow for the validation of data and ensure data security. This method could convince member countries to store their local data securely in a pan-African cloud.

Another area of growing concern is cybersecurity and how to avoid cybercrime. Greater cooperation between AU member states to combat cyber-crimes and promote the use of appropriate technologies is essential. So, too, is skilling cybersecurity experts through ongoing training and development.

Supporting the implementation of the AfCFTA through digital RVCs

Both positive and negative value chains exist in Africa. With the launch of the AfCFTA, there is great scope to develop more RVCs that will produce positive outcomes. Of the many examples that exist, a handful have been selected in this paper for illustrative purposes.

A positive trend that has been witnessed is the establishment of 'farmer-to-retailer' and 'farmer-to-table' businesses in some countries. Similarly, Africa has seen a number of farmer-to-retailer ecommerce businesses spring up over the last few years, with COVID

31 Data sovereignty concerns the rules that govern both personal and non-personal data. It is essential that governments, businesses and citizens are well-informed about the manner in which data are regulated and protected as well as the rules for data processing to prevent abuse and protect all concerned. Data localisation rules relate to where personal and non-personal data generated in a country or region must be stored (usually on servers or in the cloud). National restrictions on data localisation are a form of NTB. However, the creation of an Africa-wide cloud supported by cloud-based localisation rules would be similar to the model adopted by the EU.

lockdowns fuelling this trend. Examples of such businesses are Twiga (Kenya), MaxAB (Egypt) and Agriple (Nigeria).

The founders of Twiga recognised that the value chain for foodstuffs linking farmers in the rural areas with Nairobi city was rendered less efficient by the presence of middlemen who added to the time and cost involved in distribution. A system that allows direct deliveries from the farmer to the wholesale market or retailer means lower costs and ensures that the produce is always fresh. Furthermore, Twiga provides farmers with advice from agriscientists on growing cycles and crop maximisation to ensure that seasonal produce is staggered to alleviate gluts in the market. In this way, a whole strawberry crop, for example, will not swamp the market over a short period). During COVID lockdowns, Twiga introduced farm-to-home deliveries. In a similar fashion, Agriple in Nigeria delivers directly from the farm to the table.³²

There is a limit to the number of farmers that can contribute to Twiga's value chain. Twiga operates within a 200–300 km radius of the cities it serves and cannot extend much beyond that because of the lack of good transport infrastructure in the region. Moreover, Twiga's reach is reduced during the rainy season. This raises an important question about the African market in general. Presently about half the 1.368 billion people living in Africa are urbanised. Every year a steady stream of people from the rural areas arrive in the towns and cities, swelling the already considerable numbers there. Unless appropriate steps are taken to address this problem, unregulated flows of people from rural to urban areas will simply continue, contributing to rising urban squalor and unemployment.

Both chocolate and coffee production in Africa are examples of negative value chains as far as the continent is concerned. Dr Rob Davies, South Africa's former trade minister, pointed out in a recent speech that a key structural problem in most African economies was a 'weak productive base' characterised by low productivity and productive activities dominated by either subsistence farming or export-orientated primary product production. He said:³³

A study by KPMG in 2014, for example, found that Africa produced and exported coffee to the value of \$6 billion. But that this – through roasting, blending, packaging, branding, etc – was sold abroad in final products fetching \$100 billion. In other words, 94 per cent of the value chain of a primary product produced on this continent was captured abroad.

Another 'negative value chain' for Africa is the production of chocolate. Africa is the largest global producer of cocoa beans. Côte d'Ivoire and Ghana are the top cocoa-producing

32 International Trade Centre, Making B2B Ecommerce Work in Africa: Twiga, A New Distribution Model, May 21, 2020, <https://ecomconnect.org/news/283899>; <https://www.maxab.io/>; <https://agriple.com/>.

33 Emmanuel K. Dogbevi, 'Africa Exported \$6b Worth of Coffee But After Processing, Final Products Sold for \$100b Abroad,' *Ghana Business News*, March 25, 2021; Quote from the annual Adebayo Adedeji Memorial Lecture, 'Towards a Developmental Approach to the African Continental Free Trade Area (AfCFTA)' by Rob Davies, Addis Ababa, March 21, 2021, <https://www.ghanabusinessnews.com/2021/03/25/africa-exported-6b-worth-of-coffee-but-after-processing-final-products-sold-for-100b-abroad/>.

countries, with Nigeria and Cameroon in fourth and fifth places, respectively. Currently the vast majority of the beans produced are exported directly for processing by chocolate manufacturers around the world. The only processes taking place in Africa are the growing, harvesting, de-husking, drying and transporting of the beans to ports for export. The chocolate manufacturers abroad benefit from all the other links in the value chain.

In 2020, the president of Ghana, Nana Addo Dankwa Akufo-Addo, announced that export licences for the export of cocoa beans to Switzerland would no longer be awarded. This followed an argument with Mars and Hershey in the US about the payment of a living wage to farmers.³⁴ President Akufo-Addo has frequently spoken about the need to process Ghana's agri-produce within the country rather than export it to manufacturers in Europe or the US. If the Ghanaian government is able to stay the course and develop a local manufacturing capability, chocolate production in that country will become a positive regional value chain.

Another potentially positive value chain involves semiconductors. Recently, in an interview with Pat Gelsinger, CEO of Intel, the BBC commentator pointed out that:³⁵

... the majority of processors are currently manufactured in the region, with Taiwan's TSMC and South Korea's Samsung the dominant players. US-based Intel plans to set up a new division to make chips for other companies based on their own designs.

Mr Gelsinger replied:

Having 80% of all supply in Asia simply isn't a palatable manner for the world to have its view of the most critical technology... Every smartphone, every telemedicine, every remote worker, every remote education, every autonomous vehicle, every aspect of humanity is becoming more digital ... the world needs a more balanced supply chain to accomplish that.

Although no African country yet features in the global top 10 silica-producing countries, two African countries are in the top 10 copper-producing countries and one of them, Zambia, also produces silica. One of two value-chain scenarios will unfold over the next few years: either Zambia will export both copper and silica to established semiconductor producers outside Africa or (signalling a more farsighted approach) producers of processors will be invited to invest in the development of manufacturing operations in Africa. This would ensure both skills transfer and the employment of a considerable number of the local workforce, thus helping to satisfy the objectives of the AfCFTA. This latter approach could also make Africa a more attractive location for the manufacture of ICT products such as smartphones, personal computers and other devices.

34 Face2Face, 'Why Ghana Will No Longer Sell Cocoa to Switzerland', *NII NTREH*, March 15, 2021, <https://face2faceafrica.com/article/why-ghana-will-no-longer-sell-cocoa-to-switzerland>; See also <https://www.aljazeera.com/program/featured-documentaries/2020/7/26/chocolates-heart-of-darkness-child-labour-in-ivory-coast>.

35 'Intel Chief Pat Gelsinger: Too Many Chips Made in Asia,' Leo Kelion, *BBC News*, London, March 24, 2021, <https://www.bbc.com/news/technology-56512430>.

Case studies

| CASE STUDY 1 | |
|----------------------------------|---|
| Theme | B2B technology-enabled food distribution platform |
| Name of organisation | Twiga |
| Year | 2014 |
| Source | https://twiga.com |
| The Problem | |
| Problem | The supply chain from the farmers in the rural areas to the retailers was complicated by the presence of middlemen who added to the time and cost involved. |
| The Solution/Product | |
| Proposed Solution/Product | <p>Supplier</p> <ul style="list-style-type: none"> • A supplier signs up. • Twiga issues an order and specifies the required items and date of delivery. • Twiga receives and weighs a supplier's produce and issues a receipt. • The supplier receives payment within 24 hours. <p>Twiga marketplace</p> <ul style="list-style-type: none"> • All fresh produce is collected at the Twiga centres. • The produce is processed, packed, graded and dispatched to over 100 sales outlets. <p>Vendors</p> <ul style="list-style-type: none"> • A vendor signs up. • Twiga's representative visits the vendor and registers them on the system. • The vendor places an order. • Twiga delivers products as per the order. |
| The Result | |
| Result/Impact | <p>Benefits for suppliers</p> <ul style="list-style-type: none"> • Broader market • Fair and transparent pricing • Farming advice • Third-party financing <p>Benefits for vendors</p> <ul style="list-style-type: none"> • Competitive prices • Quality assurance • Free delivery • Food safety through easy tracking • Third-party financing <p>AfCFTA</p> <p>Supply and demand would expand because Twiga can source foods from suppliers in countries that have production advantages; foods would then be distributed to vendors/retailers in various countries.</p> |
| Quotes | <p><i>'Bananas from Twiga Foods are attracting our customers'</i></p> <p>Florence Ahondo, vendor, Nairobi-West</p> |

| CASE STUDY 2 | |
|----------------------------------|--|
| Theme | The first truly African-made smartphone |
| Name of organisation | Mara Phones |
| Year | 2019 |
| Source | https://maraphones.com |
| The Problem | |
| Problem | Mara Phones' devices are produced locally and are being popularised as 'proudly African' smartphones. However, their manufacturing locations are heavily dependent on the ease of doing business and government cooperation. Currently the market for smartphones in Africa is still dominated by corporations from outside Africa, such as Samsung, Huawei, Apple, Oppo, Xiaomi, among others. |
| The Solution/Product | |
| Proposed Solution/Product | Mara Phones offers the first truly African-made smartphone which is both highly affordable and of excellent quality. Currently they have a factory in Rwanda that serves East and Central Africa and a Durban facility that serves the southern part of the continent. They are also planning a third facility that will target North and West African countries which are currently served by Mara Phones' existing facilities. |
| The Result | |
| Result/Impact | <p>AfCFTA</p> <p>The facilitation of trade between African countries through policy harmonisation and fewer trade barriers will stimulate commerce and social reform by enhancing the competitiveness of African products and services, such as Mara Phones. Less-restricted intra-regional trade will drive the growth of manufacturing companies on the continent, leading to job creation, the retention of talent and enhanced prosperity. The successful implementation of the AfCFTA will also be a catalyst for the emergence of robust value chains and clusters in the ICT industry in Africa, prompting the sourcing of components and raw materials from African countries rather than from outside the continent.</p> |
| Quotes | <p><i>'The African Continental Free Trade Agreement will be a catalyst for exponential growth and change on our continent. It will ease intra-country trading, mobilise expansion through collaborations and enable job creation. The AfCFTA is a scaffold for local manufactures and service providers and a huge leap towards a self-sustaining Africa'</i></p> <p>Ashish J. Thakkar, CEO, Mara Phones</p> |

Too good a crisis to waste: COVID and its impact on the AfCFTA and RVCs

Within the context of an envisaged industrial renaissance in Africa, the question has been asked: will digitalisation act as a vehicle for fostering competitiveness among AfCFTA member countries? If it fails to produce such an outcome, then the millions of young people leaving school or tertiary institutions each year will not have worthwhile jobs to go to. Such a situation is not sustainable and will create a social and political powder keg which the next generation will have to deal with.

A number of African countries have published national strategies which recognise the importance of harnessing the benefits of the digital economy. In South Africa's Presidential Commission on the Fourth Industrial Revolution strategy paper, it was stated:³⁶

If South Africa does not respond rapidly to the opportunities presented by the 4IR to propel its economy and society, it will potentially suffer irrecoverable economic harm and struggle to ever catch up to the rest of the world economically and technologically.

The dire warning highlighted in the above extract raises many questions about how to ensure that appropriate digital technologies are identified and adopted. As in any 'revolution', there is a temptation to fall back on reactionism. Because technological advances have been accelerating so rapidly, we are not witnessing a steady 'evolution' which might be easier to adapt to. The challenge, it is asserted in the South African strategy paper, is to seize available opportunities now and not wait for a future that will continue to produce new and disruptive innovations. The trick will be to avoid introducing reactive regulatory solutions that are not futureproof and/or that simply entrench traditional barriers to trade.

With the implementation of the AfCFTA, there is no better time than now to create and/or strengthen RVCs to enhance intra-regional trade across Africa. Several studies point to the dominance of regional clusters in supply networks.³⁷ This shows the complementarity of resources and products produced in countries within a particular region. The proximity and similarity of countries play an important role here. In the African context, duplicating what China did in the 90s (ie, pursuing GVCs directly) is unlikely to deliver the same benefits. According to Wiegert and El Dahshan,³⁸ choosing to go the GVC route will have two negative consequences. The first is that it will create unhealthy rivalry among African countries to be the most competitive bidder in terms of price, quality or service provision. The second is that it will give rise to a high level of uncertainty because lower-skilled workers could easily be replaced by autonomous systems in factories. RVCs, in contrast, help to mitigate these risks by leveraging the complementarity between African countries in the entire production system: from the supply of raw materials, to production and to the commercialisation process. Interlinkages across Africa need to be boosted to support the development of RVCs that encourage economic development in African countries.

Africa must also take advantage of the fact that COVID accelerated digitalisation in various sectors to lay the foundation for resilient AfRVCs. The strategies to be pursued should accommodate digital transformation in regional production chains and trade so that the continent can become more competitive and independent in the production of essential

36 Department of Communications and Digital Technologies, PC4IR Strategic Implementation Plan, as presented to industry, April 22, 2021. Not all such national strategies are formulated under the 4IR banner; some refer to the digital economy, some to the future of ICT.

37 European Parliamentary Research Service, 'Global and Regional Value Chains: Opportunities for European SMEs' Internationalization and Growth,' (ERPS, European Union, 2019), [https://www.europarl.europa.eu/RegData/etudes/BRIE/2019/635520/EPRS_BRI\(2019\)635520_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/BRIE/2019/635520/EPRS_BRI(2019)635520_EN.pdf).

38 Wiegert and El Dahshan, 'Regional Value Chains,' (Yale Global, London, February 26, 2019), <https://oxcon.co/rvc-africa/>.

goods. A supply crisis such as that caused by the COVID pandemic should be avoided – for example, during the height of the crisis, many African countries failed to procure adequate supplies of personal protective equipment (PPE), foodstuffs and other goods because they had come to rely too heavily on imported products from outside Africa.

COVID certainly fuelled innovation in Africa. Global supply problems, for example, prompted many African companies to transform so that they could remain viable, such as the U-Mask made in South Africa, a ventilator made in Nigeria and a COVID rapid test kit made in Ghana.³⁹ This momentum should be maintained to expand the production base in Africa and to strengthen it through intra-African collaboration and sharing of economic benefits. The fact that COVID led to an increase in digital literacy can also be seen as a positive side effect.

Rules needed to promote regional prosperity

When it comes to the implementation of the AfCFTA, the agreed regulations must provide for the enhanced prosperity of *all* member countries. This includes ensuring that the benefits arising from African rules of origin outweigh the loss of revenue from the dropping of tariffs and other trade administration fees. A key challenge is that the competitive conditions in each member country vary. Therefore, as African countries adopt the free trade agreement, different rules will need to be applied, which extend beyond the elimination of tariffs and trade administration fees. For example, rules are needed to prevent countries that impose very low import duties from accumulating imported goods and then re-exporting the goods tariff-free, or alternatively, importing parts and then assembling and exporting the finished goods, which leads to unhealthy competition.

As the AU recognises, it is also essential to establish rules related to consumer protection, privacy protection, and IP rights protection because currently not all member countries have such rules in place. These rules should be well-informed and robust, and should recognise the rights of citizens and businesses of all shapes and sizes.⁴⁰ Another important guiding principle is that without a ‘court-of-justice’ mechanism, which would cover any AfCFTA-related dispute between any of the member countries, it will be difficult to resolve trade disputes in a fair and even manner.⁴¹ Linked to this is the need for a transparent dispute-resolution framework.

To ensure that the AfCFTA delivers broad regional benefits, it is recommended that working groups comprising key stakeholders be set up under the auspices of the AfCFTA Secretariat

39 Karishma Banga et al., ‘Boosting African Regional Value Chain Development in Response to COVID-19.’

40 Importantly, they need to be drafted by Africans, not by foreigners who base their assumptions on models that are suitable for Europe or North America. An often-quoted example is the EU’s General Data Protection Regulation (GDPR), which was implemented by the EU in 2016 as the direct result of its own failure to follow its earlier data privacy rules (the EU Data Protection Directive of 1995). The EU has subsequently pushed the GDPR onto African countries as the only model to follow.

41 Many RECs have judicial systems to resolve disputes between member states. An overarching solution is required to ensure mutual recognition within the AfCFTA.

and within regional economic communities (RECs), and, if possible, at the national level. Also recommended is the staging of annual digital conventions covering issues such as cross-border ecommerce, non-tariff barriers, consumer protection, data privacy, cybersecurity, IP laws, and emerging technologies such as blockchain, AI and the IoT. These events could also serve as AfCFTA ambassadorial gatherings to promote the benefits of free trade agreements and a collaborative digital transformation strategy for Africa, supported by 'Brand Africa' and 'Made in Africa' initiatives.

Conclusion

Empowering MSMEs to scale up

The four main areas to focus on in developing MSMEs in the digital age within the context of the AfCFTA are: (i) improving communication and transportation infrastructure to support production and distribution systems; (ii) developing digital skills to enhance productivity and expand market access; (iii) introducing a financial and investment system to support an innovative digital ecosystem in Africa; and (iv) strengthening regional collaboration to improve the competitiveness of goods and services at the global level.

One of the main obstacles to trade in Africa is the lack of transport infrastructure. As the AU has recognised, a long-term, post-COVID strategy is needed to build the necessary integrated logistics infrastructure supported by technologies such as blockchain, AI, cloud computing and/or 3D printing. The appropriate use of these technologies will help to ensure more effective and efficient production and distribution processes. It will also provide traction for cross-border supply chains. To develop the market, MSMEs need to be encouraged and capacitated to adopt ecommerce, but the availability of affordable internet/data access in Africa is still limited and is thus a constraint. It is widely acknowledged that governments must continue to look for innovative solutions to this problem. As has been outlined in this paper, Africa should use the power of mobile technology to re-energise its industrialisation and trade efforts, especially through the AfCFTA, and catch up with other developing regions.

Both public and private funding is needed to drive Africa's digital economy and create a conducive environment for start-ups and MSMEs. It is well known that Africa lacks sufficient private equity trade finance (including factoring and short-term debt). Digital financing packages and investment packages should therefore be improved and diversified to assist more MSMEs across Africa to upscale and extend their market reach. This in turn will help to create a robust pan-African business environment and make local and regional value chains more competitive, viable and inclusive. However, without greater investment in digital capacity-building and trade facilitation, the continent will fail to upskill or reskill Africa's expanding population. Such investment, in the authors' view, would be most effective if it is heavily geared towards preparing the youth, women and MSMEs for the changing business and trading environment.

The application of blockchain is one of the ways in which to create a trusted environment for ecommerce merchants, particularly in the case of B2B sales and payment systems. The application of customs duties and sales tax need to be carefully considered in relation to ecommerce and transparent regulations and procedures introduced, failing which buyers and sellers may be put off following the ecommerce route. The introduction of trustmarks on e-shops is essential to guarantee a consumer-friendly level of trust, supported by various alternative dispute-resolution options. Countries' exchange control regulations can act as NTBs and should thereby be regularly scrutinised to ensure that they are not abused.

The authors of this paper propose the use of blockchain-based smart contracts to overcome actual and potential cross-border trade constraints in Africa. The use of smart contracts allows instant settlement because the payment process occurs when the trigger conditions have been met. The smart contract model also streamlines the administrative process. For example, it replaces (and is a vast improvement on) physical LCs that currently take about three weeks to prepare (eg, those from East Africa).

Once an entrepreneur grows, they should expand their reach from the local to the national and then (logically) to the regional before going global. This is the core objective of the AfCFTA – to create a pan-African market. At present, many African entrepreneurs go straight from their national market to the global market, missing out on possible regional or continental expansion possibilities. In the global market, they find themselves up against hardened competitors and, unless they have unique offerings (like Flutterwave in terms of payment systems), they are easy prey for takeovers or disappear altogether. Initiatives such as AfriLabs, a pan-African grouping of innovation hubs, play a vital role in guiding MSMEs to collaborate with regional partners at each stage of the production process, thereby building competitiveness and the type of product quality that will enable them to withstand global competition.

Recommendations

It is through the development and expansion of RVCs in Africa, underpinned by appropriate technologies, that the AfCFTA will become an instrument of change on the continent. Much needs to be done, however, to bring this to fruition. As the AfCFTA paves the way for the dismantling of tariff and non-tariff barriers over the next years, national governments have a key role to play in ensuring that new non-tariff barriers do not obscure the already complex trade landscape. All major stakeholders on the continent will need to expend considerable effort in creating a favourable trade and investment climate, while working to achieve the specific objectives of the AfCFTA.

The authors believe that the continent will one day become an agile and highly regarded trading bloc replete with well-functioning RVCs and prosperous populations. The AfCFTA, given its impressive vision and immense potential, should be the game changer that Africa needs.

To this end, the authors conclude with the following recommendations:

- Use digitalisation as a means to foster competitiveness and productivity and improve transparency across AfRVCs.
- Take advantage of the accelerating pace of digitalisation (which has been fuelled by the COVID pandemic) to enhance and expand production in various sectors across RVCs.
- Formulate clear and well-informed rules and harmonise standards to facilitate more (and more efficient) cross-border trade and establish a clear dispute-resolution framework for regional and/or continent-wide application.
- Set up working groups and task forces under the auspices of the AfCFTA Secretariat, RECs and national governments, with appointed AfCFTA/RVC ambassadors to drive key aspects of digital transformation, trade facilitation and RVC preparedness.
- Formulate (at the national level) a comprehensive national trade strategy that provides a clear roadmap for optimising RVCs, using digital tools and ecommerce as catalysts to boost communication and market expansion.
- Enhance interoperability of systems, standards and data security within RVCs to facilitate trade across African RVCs.
- Work towards implementing new financial solutions, including open banking, central bank digital currencies and user-friendly, cross-border e-payment systems.
- Empower MSMEs (especially women-led businesses) to reach their trade potential, post-COVID, by opening up more avenues to finance and providing more tailored training and support, geared to building Africa's industrial and trade capacity.
- Formulate and implement investment policies that will encourage MSMEs to take the technological leaps needed to accelerate Africa's economic growth, industrialisation and competitiveness in the post-COVID recovery period and beyond.

Authors

Michelle Chivunga

is the founder and CEO of Global Policy House – a diaspora investment, digital economy and blockchain solutions business exploring emerging technologies in the context of emerging markets, trade, enterprise and sustainable development. Often referred to as a young thought leader and investor in the Blockchain and Finance space, Michelle has been recognised as one of the ‘Top 10 Women in Blockchain in Africa’; and one of ‘Top 40 Global Fellows for Fintech4Good’ working with the UN and others. She is a Senior Adviser to several governments including the Government of Bermuda, the African Union, British Blockchain and global institutions. In addition, Michelle is the African regional lead for the International Chamber of Commerce, UK, and Ambassador for the World Union of Small Medium Enterprises. In these and numerous other capacities, Michelle works across borders to source financing and evaluate the impact of emerging technology for different segments, helping to educate through executive education programmes designed to equip professionals in how to leverage digital tools and helping to build capacity, bring new digital solutions and drive forward inclusive and sustainable development.

Dr Alastair Tempest

is the CEO of Ecommerce Forum Africa and CEO of the Ecommerce Forum South Africa. He has served as the President of the South African Institute of Interactive Marketing and COO of the Direct Marketing Association of South Africa. Previously he served as the Director-General of the European Advertising Tripartite; was a Director at Reader’s Digest and was Director-General of the Federation of European Direct & Interactive Marketing in Brussels. He chaired the Self-Regulatory and Consumer Protection working party of the Global Dialogue on Ecommerce and was a member of the International Chamber of Commerce’s Marketing and Telecoms commission for 30 years. He has a BA (Hons) from the University of York, an MA from the College of Europe Bruges and read for his PhD at the University of Ghent.

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Cover image

Workers produce face masks at KICOTEC in Kitui, Kenya April 7 2020: KICOTEC garment factory is currently the main producer of face masks and PPE gear in Kenya with 24hr non-stop production. 400 employees manufacture more than 30,000 protective face masks per day and provide protective gear to hospitals, health workers and individuals all over the East African nation (Luis Tato/AFP via Getty Images)

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Jan Smuts House, East Campus, University of the Witwatersrand
PO Box 31596, Braamfontein 2017, Johannesburg, South Africa
Tel +27 (0)11 339-2021 · Fax +27 (0)11 339-2154
www.saiia.org.za · info@saiia.org.za