

INDUSTRIALISING AFRICA

**Promise of
the New
Manufacturing
Destination**



**Kenya's
EPZ Post-
Covid Surge:
An Economic
Tailwind**

**AFCFTA
Roars to life
ushering in a
Bright Future for
Africa**



Showcase partnership with East Africa and Africa at large



ENERGY SERVICES

KAM in conjunction with the Ministry Of Energy and Petroleum Development established the Centre for Energy Efficiency and Conservation (CEEC) in 2006. The Centre runs energy efficiency and conservation programs designed to help companies identify energy wastage, determine saving potential and give recommendation on measures to be implemented.

Key Products

Energy Audits

CEEC offers subsidized energy auditing services with the support from the government of Kenya (Ministry of Energy and Petroleum Development) and the Danish International Development Agency (DANIDA). The Centre runs an energy audit programme which is open to all companies doing business in Kenya who are interested in reducing their energy consumption. CEEC will audit your facility and give recommendations that can save your enterprise an average of 20% of your energy budget.

Specialized Training

The Centre offers Energy related trainings at subsidized fee. The trainings cover a wide scope of courses with practical approaches to energy management by offering hands-on approaches to assist industries successfully implement energy management programs in the current energy scenario.

Certification Services.

On top of the regular trainings offered by CEEC, we also offer Certification services in conjunction with the Association of Energy Engineers (AEE) in the USA. The certification offered include:

Certified Energy Manager (CEM)

Certified Measurement and Verification Professional (CMVP)

Energy Management award (EMA)

EMA is an annual award that promotes excellence in energy management and recognizes enterprises that have achieved significant reduction in their energy consumption through implementation of energy efficient measures and technologies.

Exchange Visits

The centre coordinates exchange visits to enable engineers, energy managers, consultants among other players get a firsthand experience on application of various EE/RE technologies.

Resource Audits

CEEC with DANIDA is keen to support efforts towards implementation of resources efficiency in organizations. The resource audits will assist manufacturers and other target sectors to reduce production costs through increased efficiency, thereby increasing profits, increasing employment opportunities, creating more wealth and alleviating poverty.

Climate Change

The impact of climate change is already being felt in Kenya and it is expected to have a direct effect on both energy supply and demand, as well as on energy related infrastructure..

CENTER FOR GREEN GROWTH

The Centre for Green Growth and Climate Change (CGGCC) at the Kenya Association of Manufacturers (KAM) seeks to deepen industries' level interventions to become a one-stop solution center promoting circular economy, import-substitution, climate change actions, and financial linkages.



www.kam.co.ke



INDUSTRIALISING Africa

Industrialising Africa is a publication of FirstCode Corporation Inc. Revving up Africa's industrialisation agenda and contributing to the realisation of the AU's Agenda 2063, The Africa We Want.

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Industrialisation Renaissance in Africa, the hour has come.

Africa produces what it does not consume and consumes what it doesn't produce. Factually interesting. This paradox explains the massive levels of poverty and lack of jobs in almost all African countries.

Industrialisation is the process by which an economy moves from primarily agrarian production to mass produced and technologically advanced goods and services. This phase is characterized by exponential leaps in productivity in high volumes of better quality, in less time and at much lower cost. In simple terms, this is a period of transformation from an agricultural economy to an urban, mass producing economy. Individual manual labor is often replaced by mechanized mass production and craftsmen are replaced by assembly lines. It's never a smooth process but a sure bet to escape poverty and creation of wealth, jobs and more.

Africa commands a meagre 1.5% share of the global total manufacturing output. This compares badly with Asia & Pacific at 21%, East Asia at 17%, Europe at 24% and N. America at 22%.

Documented statistics shows that approximately 60% of the world's arable uncultivated land is in Africa. This means that if Africans holds their sleeves up, tighten their belts to work the land, mechanize the land, irrigate the land, Africa easily would dictate world food prices. In spite of these facts, Africa spends over USD 30 billion annually importing food products that it essentially should be exporting. Africa is supposed to be a net food exporter. If nothing is done to remedy this tread, the annual food import bill is expected to expand to USD 100billion by 2025.

In addition, about 30% of global mineral reserves are found in Africa. The continent proven oil reserves constitute 8% of the world stock whilst those of natural gas amounts to 7% of global stock. Interesting because in spite of these statistics, Africa is a net importer

of everything, except Oxygen and raw commodities.

By 2030, young Africans are expected to make up 42% of the world's youth and accounts for 75% of those under age 35yrs in Africa. Currently, about 226 million youth aged 15 to 24 live in Africa representing nearly 20% of Africa's population, making up one fifth of the world youth population. What a classical, energetic workforce Africa ve got!

To sum it up, Africa has all the ingredients for an industrial takeoff. Africa needs to link agriculture, industry and service sectors. It must focus its energies and resources on one area it has a big potential comparative advantage, Agro-industrialization. Africa needs to process everything it produces and moves massive young labor into more productive sectors of the economy, which is manufacturing.

Only then can industrialization percolates and permanently change the economic landscape of this beautiful motherland. Only then can African economies historically driven by unpredictable commodity prices start to stabilize. Only then can Africans exploit the opportunities presented by the more recently established African Continent Free Trade Area (AfCFTA). Only then can Africans manage their balance of trade and transforms the continent into a place of hope for the Youths and home for the foreign direct investments.

That time is now, the hour has come for our common dream of an industrialised Africa and walk the Agenda 2063 journey.

FirstCode Corporation is catalyzing this elusive Africa industrialization dream from multiple positions, from media to technology. It always seems impossible, until its done, said Nelson Mandela. The hour has come.

Eng. Jorge Forester
Chief Editor
FirstCode Corporation Inc.

Kenya launches the most ambitious Green Industrial Park in the World

By Frank Maloba

Kenya's Export Processing Zones Authority (EPZA) has embarked on the most ambitious development of a world-class Green Industrial Park in Africa dethroning their marathon archrivals, Ethiopia. It will also be one of its kind in the world that incorporates environmental and wildlife conservation.

**Paul Gicheru, immediate
former Chairman
Export Processing Zones
Authority, Kenya**





Kenya launches the most ambitious Green Industrial Park in the World

IN NUMBERS

75,000

acres that is served by two airports, two seaports, SGR and two major trunk roads that link the park with the major trading blocs of EAC (East Africa Community), SADC (Southern African Development Community) and COMESA (Common Market for Eastern and Southern Africa).

28

The number of ranches and seven existing conservancies that Taita Taveta Wildlife Conservancies Association (TTWCA) brings together

Kenya's Export Processing Zones Authority (EPZA) has embarked on the most ambitious development of a world-class Green Industrial Park in Africa dethroning their marathon archrivals, Ethiopia. It will also be one of its kind in the world that incorporates environmental and wildlife conservation. President Uhuru Kenyatta of Kenya has earmarked this as a presidential flagship project in the eastern coastal region of Taita Taveta of Kenya on an amalgamated piece of land of over 75,000 acres that is served by two airports, two seaports, SGR and two major trunk roads that link the park with the major trading blocs of EAC (East Africa Community), SADC (Southern African Development Community) and COMESA (Common Market for Eastern and Southern Africa).

The 75,000 acres is a portion of the nearly one million acre ranches in the county of Taita Taveta. The Taita Taveta Wildlife Conservancies Association (TTWCA) brings together 28 ranches and seven existing conservancies. It covers slightly over 24 per cent of the county and occupies 950,647 acres of land.

The Taita Taveta Green Industrial Park and its Lead transaction advisor, FirstCode Corporation Inc. presents a unique potential for exponential growth and positioning as the biggest economic zone on the continent and among the biggest in the world. The continent is now also embracing the Special Agro-Industrial Processing Zones (SAPZs), promoted by the African Development Bank (AfDB) in a draft final report on Kenya's investment potential that was presented in June 2021.

As transactional advisor, FirstCode Corporation liaises closely with Africa Social Finance Centre that has been at the forefront of initiating developmental and entrepreneurial economic activities



Hon. Majala Mlagui, Deputy Governor, Taita Taveta County Kenya

in Taita Taveta County under the Biashara Kwa Wote 006 (Business for All) programme. The Centre's mission is to promote social enterprise through facilitating access to and activation of the numerous opportunities created for the disadvantaged members of the society by various local and international government and non-government actors. We specifically focus on programs that support implementation and or absorption of local and national government policies and programs.

In so advancing the viable economic activities that will improve the livelihoods of the community members, improve infrastructure and enhance the wildlife conservancy efforts, FirstCode Corporation and Africa Social Financing Centre are closely working with the community members through the various branches and the Taita Taveta Wildlife Conservancies Association.

The mega Green Industrial Park will employ over 500,000 persons directly and over 2.5 million indirectly. It will also incorporate dynamics that will make it the largest in the world. It is a well-conceived Partnership bringing about a fruitful synergistic interaction between the government and private stakeholders.

The Economic Zones Authority is working closely FirstCode Corporation Inc. and other players to catalyse this ambitious endeavor in liaison with the national and County government as well as international stakeholders and investors scattered across the continent.

The project is inclusive in nature and carries along the private investors as well as the community. This inclusive and holistic approach allows for structured community participation as well as providing for mutual benefit community service responsibility (CSR) interventions like community housing estates, schools, sports and recreation facilities.

The new Africa CEO Survey 2020 reported that 37 percent of business leaders polled identified Co'te d'Ivoire, Ghana, Kenya, Rwanda and Senegal as the top African investment destinations. In 2019, the survey highlighted Kenya as a top destination for foreign companies seeking expansion into Africa. This Project therefore places the country in a good position to leverage for investments that will fully utilise the Taita Taveta Green Industrial Park facilities.



Source: GEIPP

Continued next page >>

>> From previous page

The Industrial Park will include textile, agro-processing, mineral processing, manufacturing as well assembly industries. Alongside these industrial investments, there will also be an environmental and wildlife conservation component. The package comes with retirement homes.

The Taita Taveta Green Industrial Park borders the world famous Tsavo East and West National Parks, a sprawling wildlife sanctuary that teems with the most beautiful and coveted wildlife species. Tsavo forms the largest protected area in Kenya and is home to most of the larger mammals, vast herds of dust red elephant, Rhino, buffalo, lion, leopard, pods of hippo, crocodile, waterbucks, lesser Kudu, gerenuk and the prolific bird life that features over 500 recorded species. These amenities make Taita Taveta Green Industrial Park an outstanding world-class enterprise.

According to UNIDO (United Nations Industrial Development Organisation), in its guidelines for international industrial parks, an eco-industrial park or Green Industrial Park is a community of businesses located on a common property in which businesses seek to achieve enhanced environmental, economic and social performance through collaboration in managing environmental and resource issues. This is designed to trigger an industrial symbiosis, which is a means by which companies or investors can gain a competitive advantage through the physical exchange of materials, energy, water and by-products, thereby fostering inclusive and sustainable development.

Green Industrial Park development aims to embed industries in the community through the creation of shared economic opportunities, improved ecosystems and innovative avenues for responsible business practices. Among their many benefits, Green Industrial Parks promote resource efficiency and circular economy practices, also helping to bridge the gap between urban centres and industries by making a significant contribution to sustainable urban development.

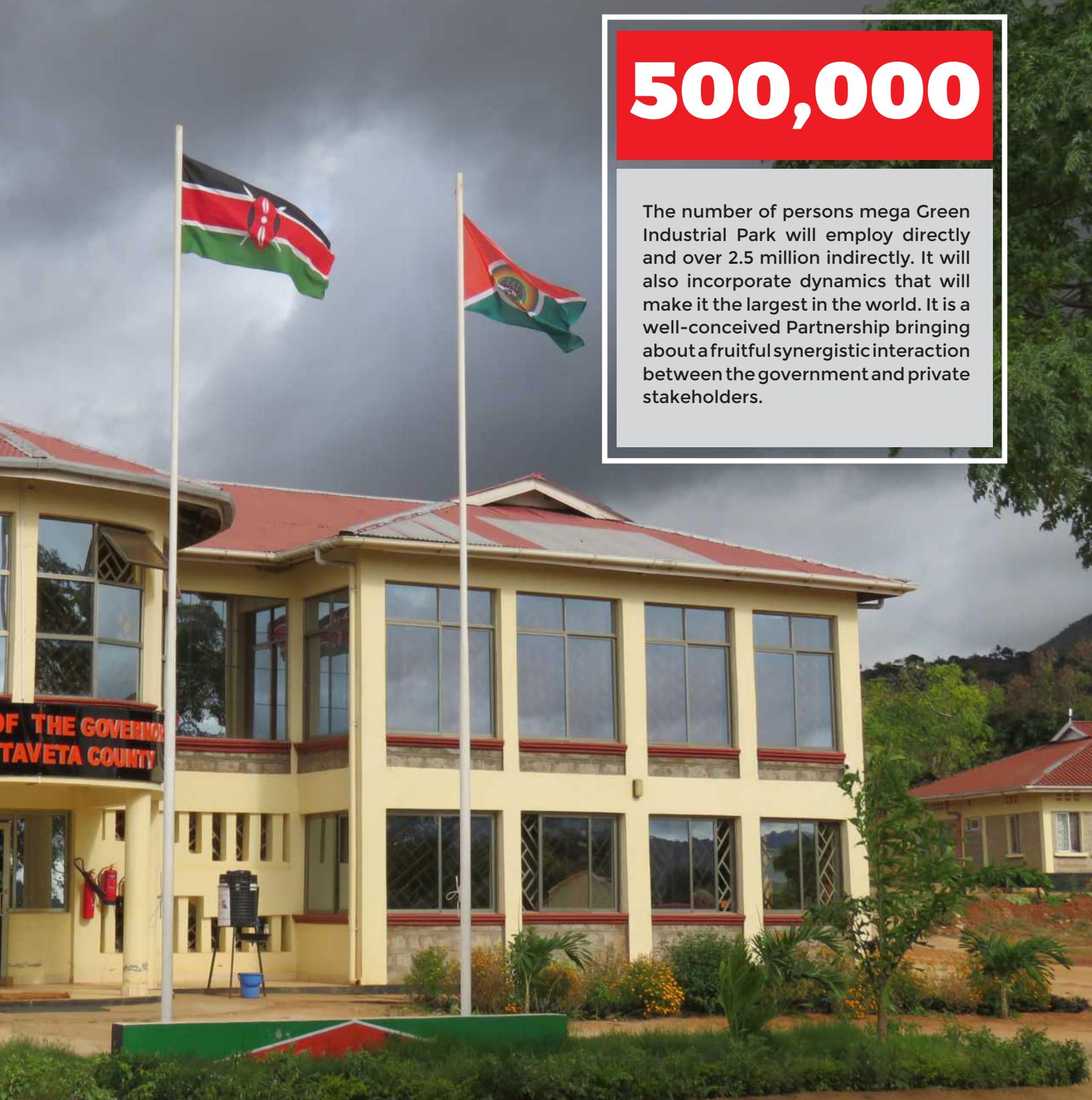
This International Guidelines for Industrial Parks address the industrial park's planning and design, construction, operations, marketing and investment promotion, waste management, and energy management. They are intended to be used and applied to industrial parks by a variety of stakeholders, including: Park Regulators, Park Developers, Park Operators, Park Tenants, and Stakeholders and partners such as multilateral development agencies and financial institutions.

The Taita Taveta Green Industrial Park is also a part of addressing modelling the mitigation of the negative effects of world-wide large-scale industrialisation is imposing on the ecological environment as Africa

**Taita Taveta County
Government Headquarters**



emerges as the new industrialisation frontier of the world. A major issue that governments are striving to address is the transition from the conventional industrial development that comes with an excessive price in resource and environmental terms towards a sustainable industrial development model, which



500,000

The number of persons mega Green Industrial Park will employ directly and over 2.5 million indirectly. It will also incorporate dynamics that will make it the largest in the world. It is a well-conceived Partnership bringing about a fruitful synergistic interaction between the government and private stakeholders.

is at the core of the United Nations Sustainable Development Goal 9 (Industry, Innovation and Infrastructure).

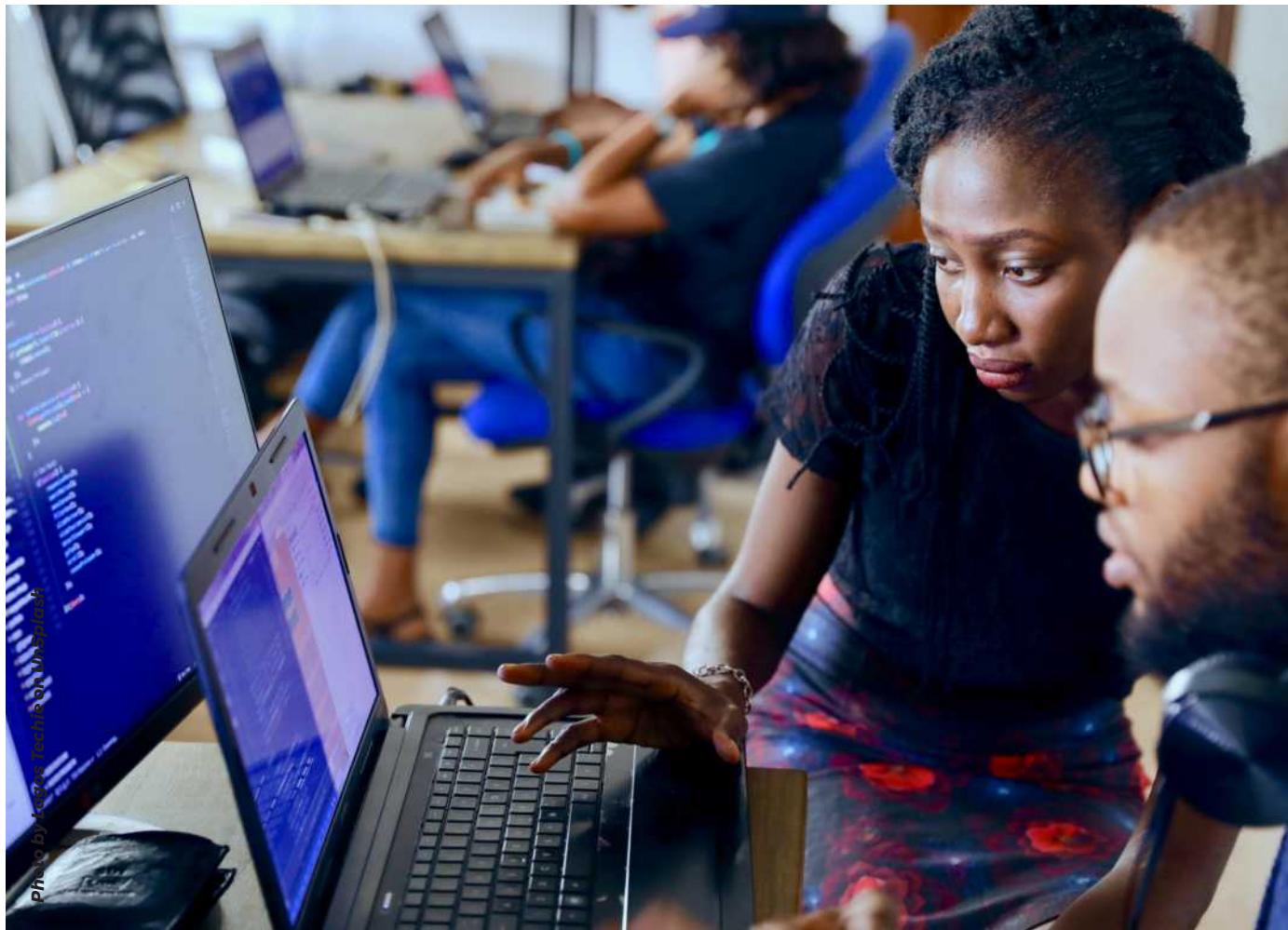
Agro-Industry experts have pointed out that, Taita Taveta Green Industrial Park is poised to become the biggest exporter of organic horticultural products

outside the continent, while at the same time, presenting the most cost-effective and strategically positioned industrial products supplier for the Great Lakes Region as well as the larger Eastern and Central African hinterland.

FirstCode Launches Digital Financing System for African SMEs

Special Correspondent

As an African industrialisation catalyzing mechanism, FirstCode has carefully considered the major gaps in the industrialisation journey on the continent and thus focused itself on the information, technology, business solutions and financing gaps.





44M

**The number of micro,
small, and medium
enterprises (MSMEs)
in Africa alone**



Picture by Markus-Winkler on Unsplash

The growth of African economies and contributing to more than 50 percent of the workforce notwithstanding, African SMEs still face major challenges when they need to access finance. The COVID-19 dispensation is making it more and more difficult to access bank loans, as competition for private equity money requiring more aggression; SMEs have to ensure that their businesses are investor-ready if they are to stand a chance at attracting money from private equity funds. FirstCode Corporation is using the digital tools it has developed to evaluate and advise on the investor readiness component.

Considering that SMEs provide an estimated 80 percent of jobs across the continent, representing an important driver of economic growth. Sub-Saharan Africa alone has 44 million micro, small, and medium enterprises (MSMEs), this primary institution in the industrial sector cannot be left to the periphery but should be mainstreamed.

Experts hold that African SMEs face two significant financing challenges: accessibility and affordability. Accessibility refers to the ability of SMEs to access finance. SMEs in Africa are frequently informal meaning they are not formally registered as businesses and this makes it difficult for them to access financing. Moreover, even those that are formally registered still frequently suffer from a lack of accessibility. This is a significant issue because without sufficient working capital, firms are unable to invest and grow. Only between a third and a fifth of SMEs in sub-Saharan Africa have a bank loan or line of credit. An estimated 28 percent of firms in the region are fully credit constrained.

FirstCode Corporation has thus developed

an online digital financing system that consolidates data from the SME stakeholders, synthesise it and provide a structured technical report that then gives financiers and financing institutions to evaluate and identify projects or enterprises that they can fund. And these have to be on an industrial nature either at the producer, processing or manufacturing levels.

A client logs into the system and provides the requisite data that is calibrated to extract important and necessary verifiable data. This includes a project proposal outline that is then evaluated internally through the consultancy portal after which it is loaded onto the projects portal where they are accessible to FirstCode financing partners in East and Southern Africa, as well as other parts of the world. Some of these financiers are featured in this current publication.

The Financing System portal provided a digitally enabled functionality that is complimented by a team of well experienced and specialised consultants who guide the financiers and project owners from project introduction to the post financing phase.

The Digital Financing Portal therefore works to expedite on projects execution and facilitates the following specific Project development aspects:

- Project Proposals on Manufacturing or Processing in search of expansion capital or seed financing or partnerships are evaluated and if found bankable, the proposals are refined and submitted to a pool of potential financiers and partners through a competitive process in what is called Monthly Funds Absorptors

- Financiers, DFIs and partners are presented with a pool of refined projects that meet their financing priorities as per the submitted requirements, this is in their focus regions of Africa in what is herein called Monthly Project Auction

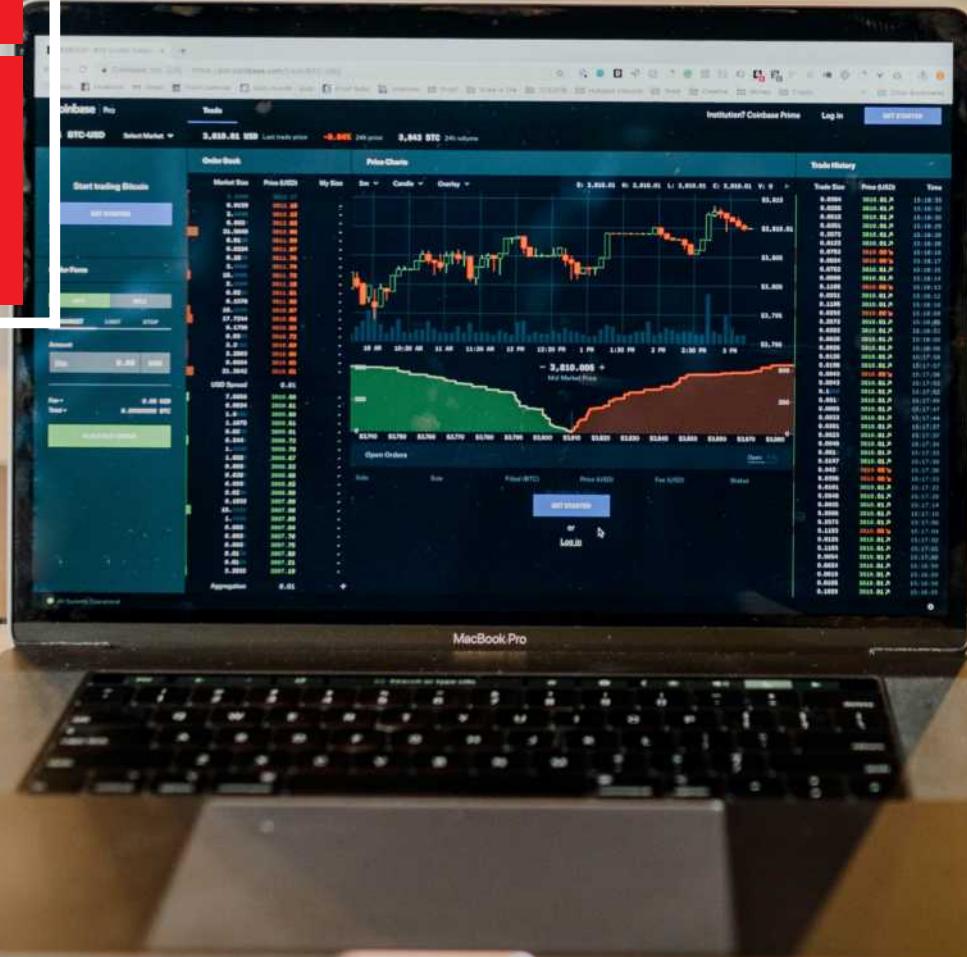
- Innovations in search of partners, finan-





28%

The estimated percentage of firms fully credit constrained



ciers, consultants and promoters for the innovation in an effort to facilitate business take-off. These innovation projects will be marketed as innovation briefs to global players in what is profiled as 4IR virgin models

- Presenting for deep evaluations a pool of equipment or technologies that are necessary for manufacturing or processing in what is called Quantum Data Ocean. It offers hundreds of alternatives of equipment and technologies in the manufacturing and processing projects of a limitless myriad industrial or entrepreneurial undertakings the continent of Africa requires irrespective of scale

- Presenting a pool of qualified consultants from various fields and supply chain players involved in various forms in actualizing the industri-

alisation agenda of the continent of Africa in what is referred to as Integrators.

The FirstCode Digital Diagnostics Tools and consultancy filtering, facilitate an assessment of the SMEs Investment Readiness or Financing Readiness. The processes also help the SME or organisation to identify all the elements that could be problematic for investors or financiers. For instance, a weak level of governance, a poor financial organization or doubt on the quality of the institution's teams could be considered as deal-breakers for some investors or financiers. In this respect, a proper investmentreadinessprocesswillenable the SME to identify the weaknesses and improve on them before approaching investors or financiers.

FirstCode

Financing

System



financing.firstcodecorporation.com

SUB -SECTORS OF INTEREST

- » Manufacturing
- » Agro Industry
- » Mineral Processing
- » Assembly Industry

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Africa Industrialisation Week

By Industrialising Africa Special Correspondent

The 20th November was proclaimed Africa Industrialisation Day by the 25th Ordinary Session of the Assembly of Heads of State and Government of the Organization of African Unity (OAU) in 1989.

Africa Industrialisation Day is celebrated on November 20 each year. It is a time when governments and other organizations in many African countries examine ways to stimulate Africa's industrialisation process. It is also an occasion to draw worldwide media attention to the problems and challenges of industrialisation in Africa.

The 20th November was proclaimed Africa Industrialisation Day by the 25th Ordinary Session of the Assembly of Heads of State and Government of the Organization of African Unity (OAU) in 1989. The same date was set aside annually as Africa Industrialisation Day by the United Nations General Assembly (UNGA) in 1989. The 20th November has since been observed each year as Africa Industrialisation Day. Since 2018, the Africa Industrialisation Day has been commemorated through a weeklong event involving the private sector, diaspora, African governments, youth, women, international cooperation partners; among several stakeholders.

As a part of marking this day, FirstCode Corporation has organised the Africa Industrialisation Awards in partnership with various stakeholders as a way to recognise key stakeholders and service providers in the industrial sector in Africa for the gallant efforts, innovations and tangible growth that they have demonstrated as a part of Africa's industrialisation drive intended to turnaround the socio-economic fortunes of the continent and spur the \$3.4 trillion intra-trade potential as envisaged in the enacted AfCFTA protocols and make a significant contribution to the world's annual 19 trillion dollar trade.

The awards also have a component that highlights the role of youth in the industrialisation agenda for posterity through the Youth Industrial Innovation Awards. FirstCode recognises the critical role of the youth and skills development play to drive industrialisation. In this regard, the organisation has a special category for youth under The Youth Industrial Innovation Awards for young innovators and engineers in

“

**Africa
Industrialisation
Week (AIW) whose
main objective
is to bring
together various
stakeholders
involved in
Industrialisation
on the Continent.**



the universities and technical training institutions. It will allow the youth to showcase their inventions or innovations that are designed to solve a problem in industry, improve quality or productivity.

Alongside the November 20 date, the African Union also advances the Africa Industrialisation Week (AIW) whose main objective is to bring together various stakeholders involved in Industrialisation on the Continent. The goal is to raise awareness on the strides made to industrialise Africa, to highlight the various activities being implemented as well as the challenges faced in the efforts to advance structural transformation in Africa. The event will also provide an opportunity to share best practices from other parts of the globe that have made advancements in their Industrialisation drive including the development of start-ups.

The events specific goals are to reinforce the industry-trade nexus in the context of the business opportunities presented by the AfCFTA, reinforce the development of regional industrial value chains towards the creation of employment and entrepreneurial opportunities for MSMEs, Youth and Women.

It is also aimed at providing high-level political support to drive a globally competitive Africa-Industrialization program through public-private alliances, at the national, regional, continental level, and aligned global policy coherence, coordination and linkages, investment financing.

The observance of the day showcases the advancements made in Africa's industrialization and best practices from the continent, creating a platform for knowledge exchange and also promote the implementation of AU continental frameworks such as; the Accelerated Industrial Development of Africa (AIDA); the Africa Mining Vision (AMV), the SME Strategy; the Boosting Intra-African Trade strategy (BIAT); the African Continental Free Trade Area (AfCFTA); the Sustainable development Goals (SDGs) and the UN General Assembly's Third Industrial Development Decade for Africa (IDDA III) in the context of Agenda 2063.







Technology and Industrialisation in Africa

By Anita Prakash

www.thinkasia.org

Industrialisation is important for Africa's growth and sustainable development. Deepening the manufacturing sector and greater integration in global value chains will build more resilient economies. Industrialisation will harness Africa's huge resources in agriculture, mining, and maritime resources, as well as a youthful labour force. Suitable and focused policies can harness these resources. African countries can leverage



digitalisation and information and communication technologies to further their goal of industrialisation. Industrial development will be the key to sustained and inclusive employment-led development.

Industrialisation contributes significantly to the accumulation of physical and human capital. It integrates the informal and formal economy and generates substantial backward and forward linkages with other sectors, providing a wealth of opportunities for suppliers, distributors, retailers, and business services. The inputs needed for different kinds of industrial production generates demand for agriculture, mining, and other raw materials, as well as energy and information technologies, while it increases the supply of products for consumer markets, construction, and other sectors. Manufacturing

is at the heart of industrialisation, although industrial activities around the processing and refining of raw commodities would continue to be a significant aspect of industrialisation in Africa.



Growth in manufacturing has lagged in Africa, however, except in very few countries. Manufacturing's share of sub-Saharan Africa's total gross domestic product is less than 10%. As a corollary, Africa is also lagging in two crucial aspects of industrial development: manufacturing value added (MVA) and manufacturing exports. The contrast with East Asia

often cited as the growth model for Africa could not be starker. MVA in East Asia and developing Asia is much higher than in Africa. Resource-based manufacturing accounts for about half of total MVA and manufacturing exports. Geographically, industrial activities and MVA are reported from the more industrialised regions of North and South Africa. However, these weaknesses offer an opportunity for Africa to realise its potential for industrialisation and the resultant growth.

10%

Percentage by which
Manufacturing's share
of sub-Saharan Africa's
total gross domestic
product is less than

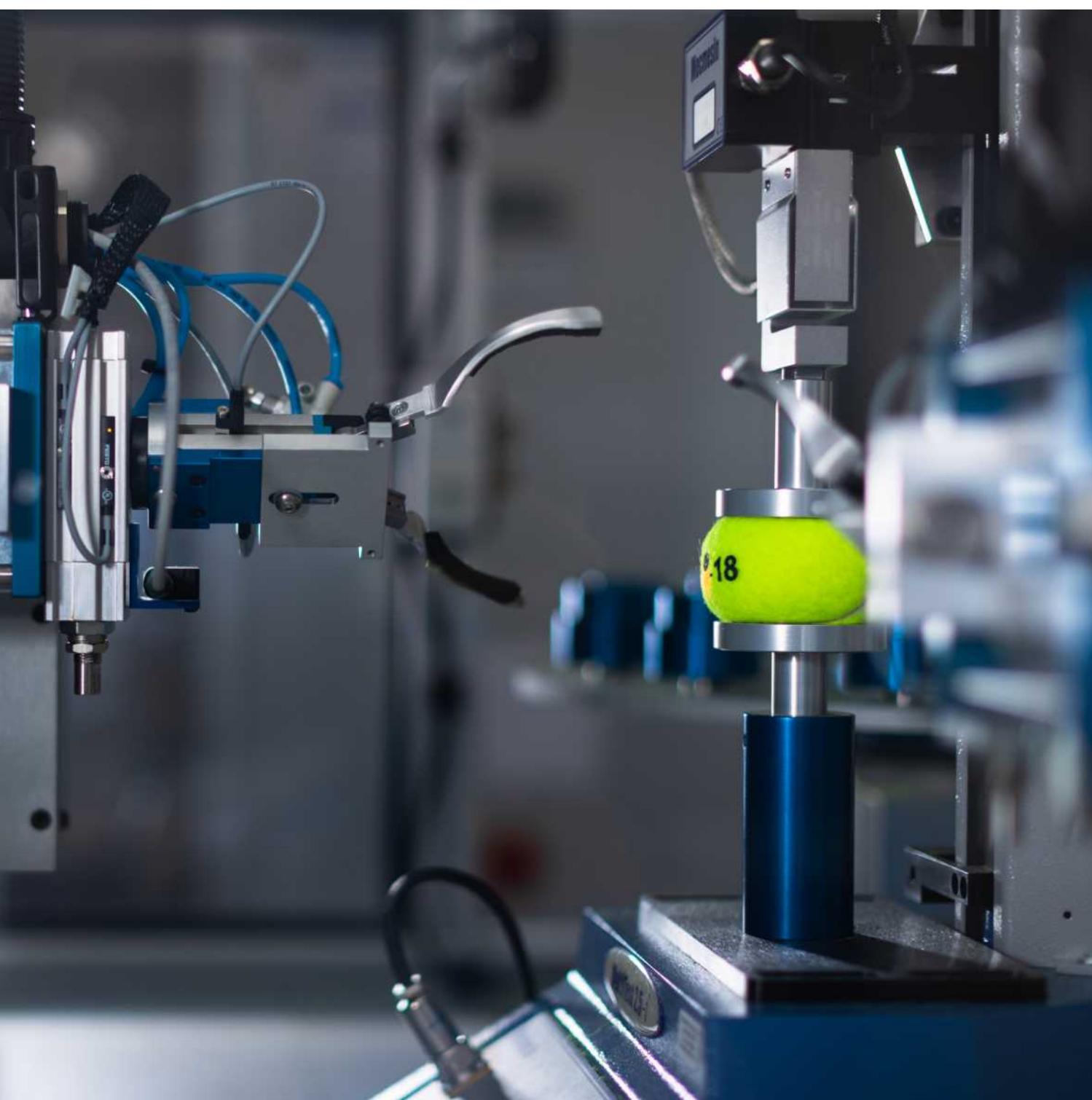
Africa has the opportunity to include dense and rich digital connectivity and digital innovation in its growth plans, which was unavailable for regions and countries in Asia, Europe, and Latin America during their growth phases in the 1980s and 1990s. Digital infrastructure, knowledge, and devices will bring in innovative businesses and market processes for Africa. Changes in the technological paradigm have transformed the patterns of industrialisation in different parts of the developing world. The international division of labour for the production and consumption of goods and services transcends national borders and propels countries towards greater integration into regional and global value chains. Africa can use ICT in its development strategy for increased participation in the trade of goods and services.

Every stage of development has reduced the cost of production and consumption of goods and services.



However, ICT-enabled production and consumption of goods and services has arrived in the developing world, including Africa, where agriculture and the resource-based economy still hold sway. These economies have an opportunity to use ICT in many instances to leapfrog from agriculture and a resources-based economy to a digital economy, however, and to transform and modernise their agriculture and resources-based industry.

These operations may be limited in size and location,



but countries/regions should capture any new business opportunities arising from the two-way application of ICT into the industrial dynamism of Africa. While leapfrogging to the digital economy is possible and even recommended, the step-by-step or sequential approach towards the digital economy has advantages in terms of the policy environment, infrastructure development, and human resources development. It prepares a minimal level of policy

environment and infrastructure for advanced industrial dynamism and trains the human resources required for the digital economy. However, ICT helps to overcome distance and generates dispersion forces. This will allow African industries to become innovative hubs making them attractive to international firms.

*Extracted from:
Economic Research Institute
for ASEAN and East Asia, ERIA Policy Brief, 2019*

Innovative tech might ease growth bottle-necks for entrepreneurship in Africa

By Prince C. Ozuguo

in The Conversation Africa

According to the 2018/2019 report from the Global Entrepreneurship Monitor, African countries such as Angola and Madagascar have some of the highest rates of entrepreneurship in the world. These entrepreneurs often operate on an informal, micro-enterprise scale, however, and their contribution to economic activity is minimal. This is a shame because, excluding South Africa, most industrial sectors in Sub-Saharan Africa are not dominated by large firms that tend to keep entrepreneurs at bay in more advanced economies, thus presenting opportunities for significant growth.

Although foreign multinationals have (and are already playing) a key role in GDP growth in these countries, the tendency to repatriate their earnings ultimately diminishes their contribution to local gross national income (GNI). Furthermore, these businesses are often attracted to larger, better organized markets on the continent, where they can readily capture value using products and processes developed in their home countries. This leads to a scenario where residents in larger African cities have access to much of the same products and services one might obtain in the developed world, while outside these regions, residents are left to deal with the consequences of commercial neglect.

Local entrepreneurship therefore offers at least three benefits for African economies:

Most of the income generated is retained and reinvested in local communities.

Being local, entrepreneurs can more readily navigate the complicated cultural, economic, and infrastructure circumstances, thus contributing to economic activity and social good in underserved regions.

At the individual level, entrepreneurship seems to be associated with higher rates of well-being, work satisfaction and overall happiness.

Given these potential upsides, it is unfortunate that entrepreneurship on the continent continues to lag.

As seems to often be the case, researchers have implicated the usual suspects: inadequate infrastructure, poor education and high levels of corruption.

Emerging tech to the rescue?

Innovative technologies often upend what we think is practical or even possible. If harnessed, they could provide solutions to some of Africa's most intractable problems.

To cite just three examples, the blockchain, drones and AI have enormous promise. The blockchain technology's distributed ledger system may be able to reduce corruption in certain activities. My research indicates that firms in the region often tend to cite informal payments to government

officials as an important business challenge. Any aspect of business-government relationships that can be made more transparent would therefore be favourably received by entrepreneurs in the region.

Applying blockchain solutions to government transparency is not a novel idea. To boost government transparency, the government of Canada has started sharing information about research funding through an Ethereum-based blockchain ledger. Similarly, other business-government dealings could be monitored via blockchain, reducing the potential for backroom deals that may disfavour struggling entrepreneurs, and increasing transparency and overall trust in government.



Photo by Jason Blakely on Unsplash

As a second example, autonomous vehicles such as drones may be able to solve logistics challenges for e-commerce or other businesses. This is the case with blood delivery in Rwanda, where drones minimise the effect of a difficult terrain and lacking transport infrastructure. Although this does not address the underlying dearth of infrastructure, it is easy to see how with policy support this system can be replicated in other industrial sectors and countries in the region facing similar infrastructural challenges.

Artificial intelligence is yet another example of the potential of emerging technologies. AI may be able to bring advanced education to the most remote areas of the continent by adapting world-class cours-

es to student's strengths and needs. AI has negligible marginal costs, after all, and doesn't mind living in the pocket of an entrepreneur in the Niger Delta.

Although these technologies offer solutions for developing entrepreneurship in Africa that were once far-fetched, these solutions will likely remain out of reach without policy measures to optimally apply the underlying technologies at scale. The newly minted African Continental Free Trade Area presents a unique opportunity for policymakers to redefine what it means to be an entrepreneur on the continent. A coherent effort to boost high-potential entrepreneurship on the continent will require leaders to think about questions such as:



Photo by Jametlene Resko on Unsplash

What the science and technology index tells us about development in Africa

By Gayle Allard

in The Conversation

In 2001, the RAND Corporation's Science and Technology Policy Institute created an index of science and technology capacity for the World Bank. They ranked 150 countries based on their potential to innovate and work with more scientifically advanced nations.

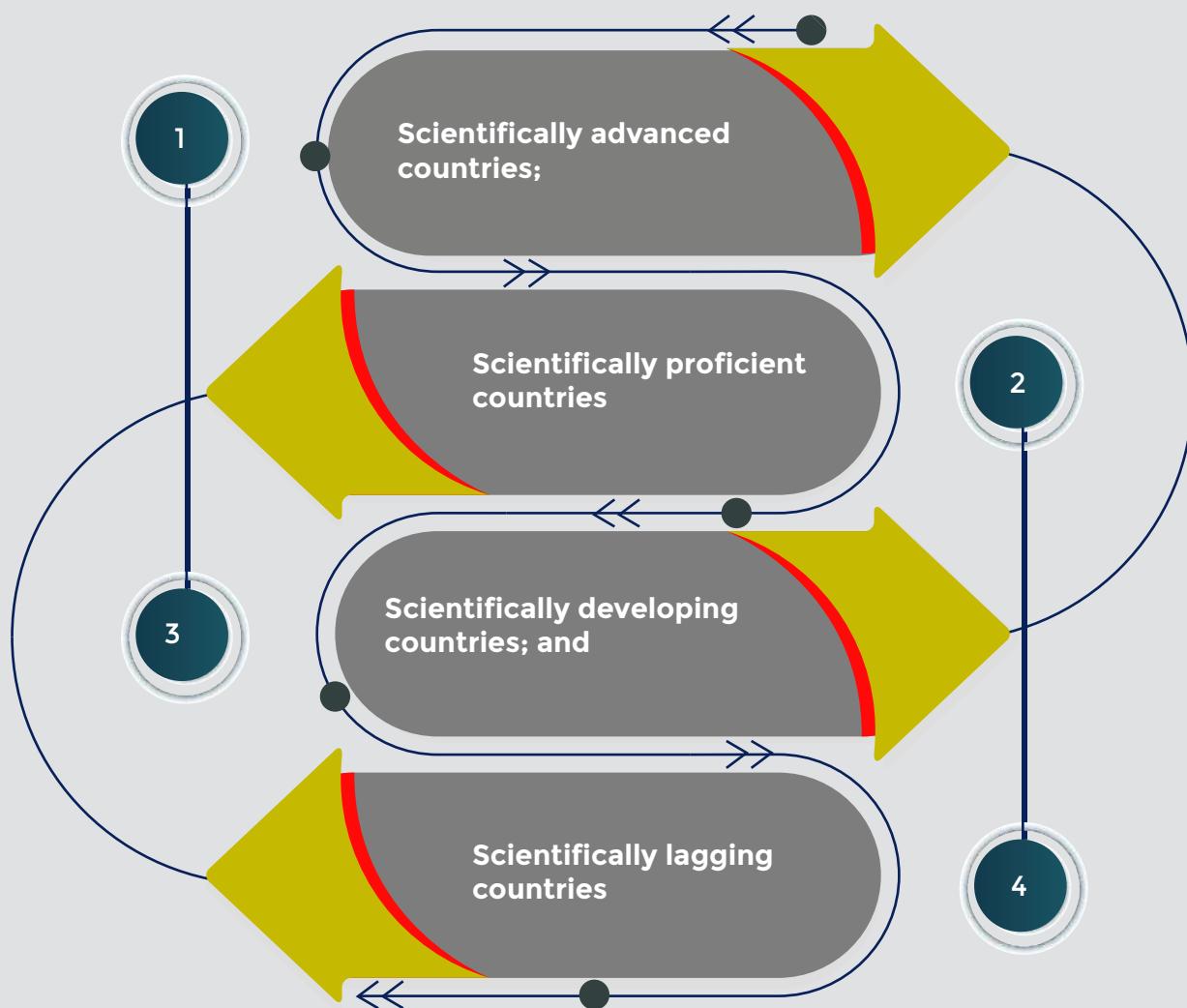


Photo by Christopher Gower on Unsplash

In 2001, the RAND Corporation's Science and Technology Policy Institute created an index of science and technology capacity for the World Bank. They ranked 150 countries based on their potential to innovate and work with more scientifically advanced nations.

Have these changes had an effect on African nations' scientific and technological capacity? My study replicated the RAND Index in 2011 to answer this question and suggest which African nations might be best poised to move forward technologically in coming decades.

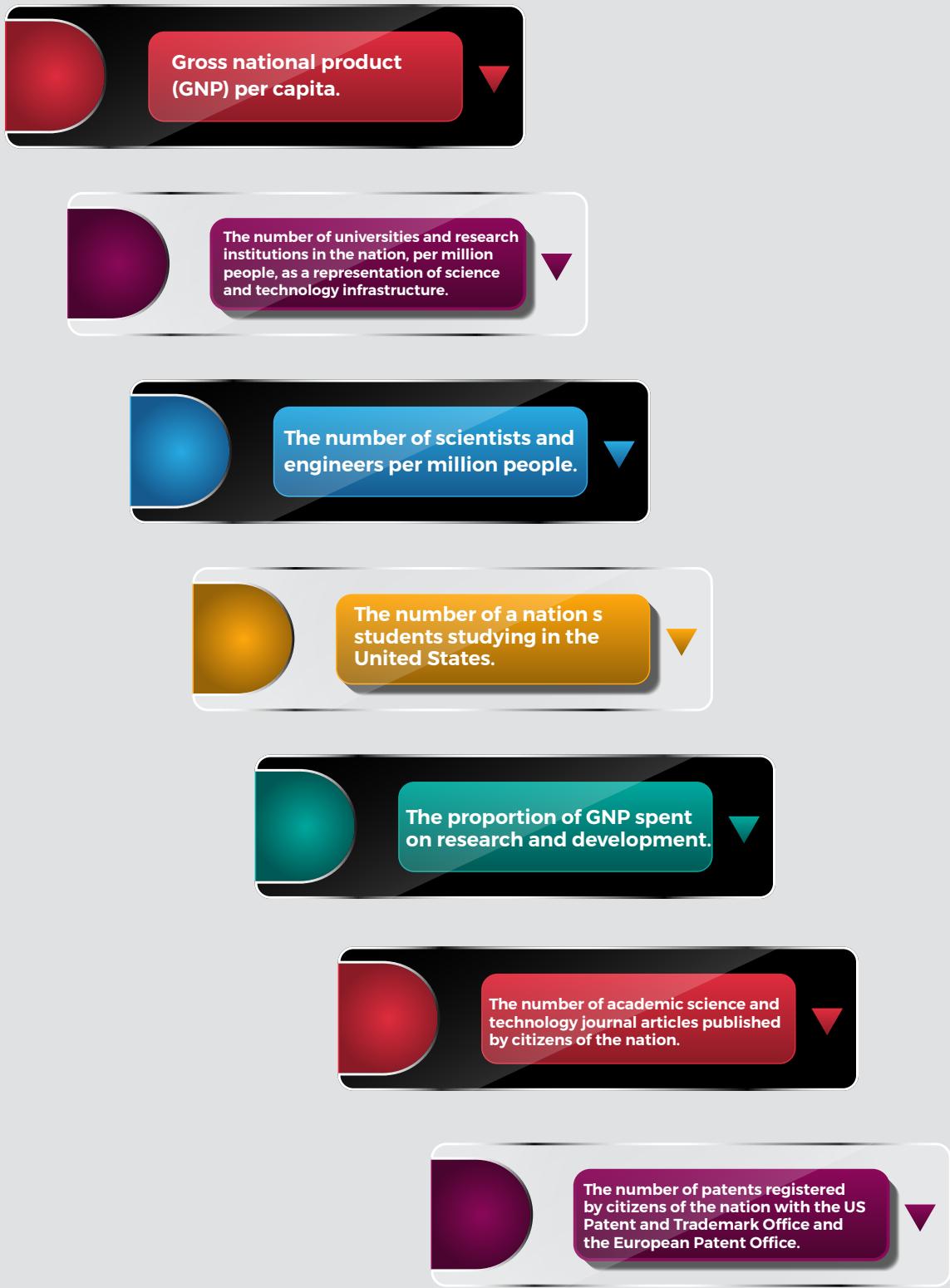
The index ranked most countries in the world, according to their science and technology capacity, into:



Various indicators have been developed in an attempt to quantify science and technology capacity across countries. Examples of this are the OECD's Science, Technology and Industry Scoreboard or the European Innovation Scoreboard.

What are the measurables?

The RAND index selected seven components for which national level data were available for most countries for 2001 or an immediately preceding year.



Above the average enrolment rate on the continent are Tunisia, Egypt, Algeria, Mauritius, Morocco and Cape Verde. Botswana, Gabon and Senegal are also high on the rankings.

To combine these different components into a single index, the RAND index standardised the numbers to show national performance. The value of each national characteristic was compared to the international average.

Performance was ranked based on the number of standard deviations of the national value away from the international mean. The indicators were then weighted according to points for each criteria.

What we learnt from the 2011 study

A number of countries on the African continent are poised to reap the economic benefits of increased investment in science and technology.

Science has helped stimulate economic growth in regions investing in innovative solutions around the world.

The African Manifesto is a vision for a renaissance in science, technology and innovation for Africans, by Africans, in Africa.

South Africa, Egypt, Tunisia, Morocco, Algeria, Nigeria and Mauritius are among the front runners in this group poised to do well because of the investment in science, technology and innovation.

In sub-Saharan Africa, the countries with the greatest promise apart from South Africa and Nigeria are Benin, Botswana, Uganda, Mozambique, Ethiopia and Sudan.

The countries that ranked rather low but show some promise for joining the others in the future are Liberia, Guinea, Namibia, Cote d'Ivoire and Cameroon.

Tertiary foundation

To benefit from the science and technology, tertiary education must fulfil the role as a driver of growth and technological capability.

Countries like Japan, Finland, Sweden, Korea, Taiwan and South Korea have shown how efforts to raise tertiary education standards can yield benefits for technological innovation.

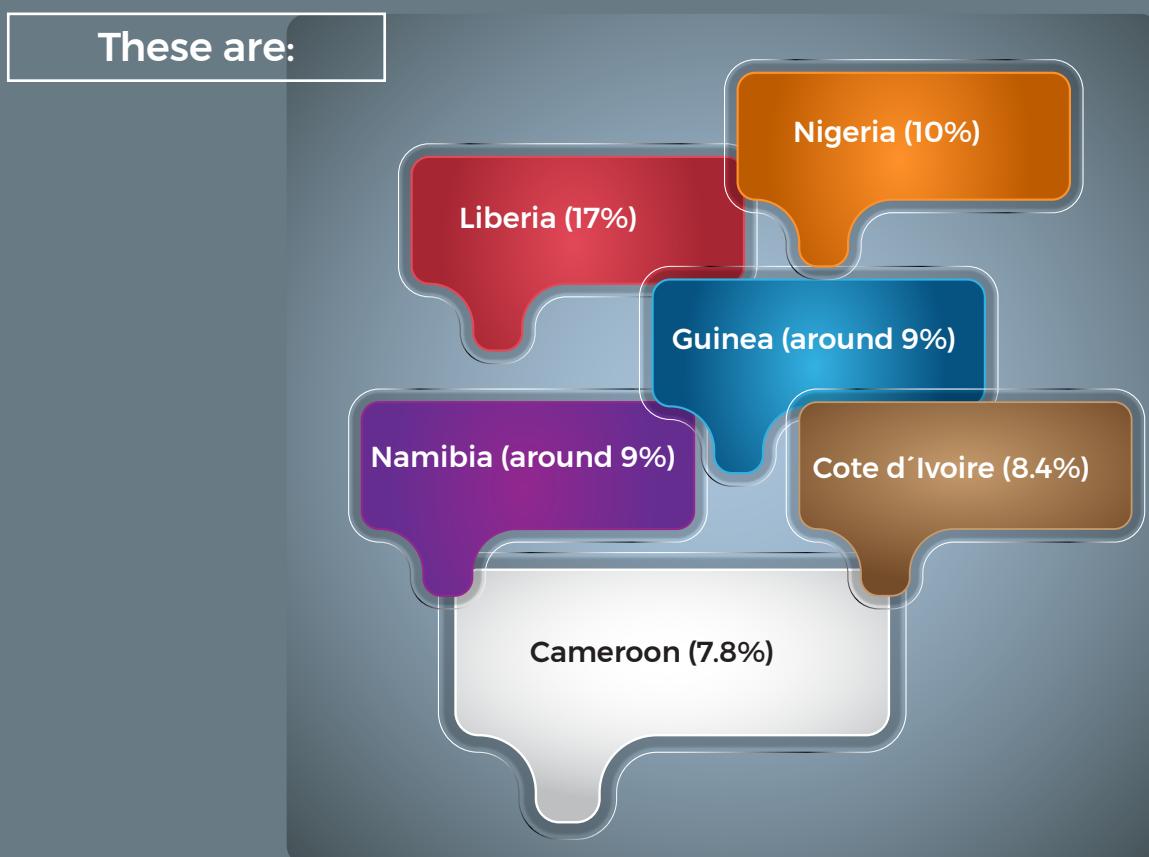
Many experts in Africa acknowledge the crucial role of higher education in development as a key strategy to boost performance across economic sectors.

Among other benefits, higher education also provides the capacity to understand and use global knowledge in science and technology. An example of this is in agriculture and other sectors. Investment in higher education can speed the rate of technology catch-up in Africa and boost income.

Enrolment challenges

But Africa's tertiary education enrolment rates are among the lowest in the world. The African average is 7.1%, compared to 25.1% elsewhere in the world. Others on top of the African ranking and above the average enrolment rate on the continent are Tunisia, Egypt, Algeria, Mauritius, Morocco and Cape Verde. Botswana, Gabon and Senegal are also high on the rankings.

A small group of sub-Saharan African nations is showing above average enrolment rates in tertiary education, but still lagging behind in science and technology capability.



If higher education is a key determinant of future science and technology capacity, these nations could progress in the coming years.

How Africa ranks

While African nations are still far behind in the latest study and most remain near the bottom of the list countries like Morocco, Algeria, Nigeria, Botswana, Mozambique, Ethiopia, Sudan and Libya had advanced in the ranking by 2011.

Out of the African nations in the original RAND index, South Africa was on top, followed by Mauritius, Benin, Egypt, Uganda, Togo and Tunisia. Mozambique, Chad and Eritrea were at the bottom.

Morocco and Algeria showed the most progress, the former going from 116th to 62nd in the world and the latter from 123rd to 68th. In sub-Saharan Africa, Nigeria moved to 77th from 104th. Botswana, Mozambique, Ethiopia and

Sudan also improved.

In contrast, African leader Mauritius declined in the 2011 index, from 58th to 79th as did Benin, Uganda, Libya, Togo, Congo and others. A decade later, most nations on the continent show a drop in the global ranking.

Because of their large populations South Africa, Morocco, Egypt, Algeria and Nigeria fell. Tunisia moved up and tiny Seychelles went from 98th to 87th. Gabon and Libya moved up but remained below the average.

The countries lagging the furthest behind were the same as in the first index: Mauritania, Tanzania, Niger, Sierra Leone, Liberia, Comoros, Eritrea, Chad and Somalia.

The widest differences, as could be expected, are in the indicators that reflect science and technology output. In the number of scientific and technological articles published in academic journals, every African nation was below

the sample average. Tunisia, South Africa, the Seychelles and Botswana were listed as the best performers on the continent.

In patents, only Seychelles was above the world average, with other nations lagging seriously behind. The human resource indicators also were substantially lower than for the rest of the world.

As African countries advance in science and technology capability, their chances of orienting their economies toward sustained and sustainable growth are greatly enhanced. Hence this becomes a key indicator for the future.

This piece was based on a study by Gayle Allard, PhD, Professor of Economics, IE Business School in Spain in the Journal of African Studies and Development.

**Gayle Allard in The Conversation
Africa Professor of Managerial Economics, IE University**



A professional portrait of Ms. Phyllis Wakiaga. She is a Black woman with long, dark, curly hair. She is wearing red-framed glasses, a blue and white patterned blazer over a dark top, and a necklace with large yellow and brown beads. She is smiling and looking directly at the camera.

Ms. Phyllis Wakiaga
Chief Executive Officer,
Kenya Association of
Manufacturers (KAM)
and Chair, Kenya Chapter
of the UN Global Compact

Manufacturing Underpins Africa's Economic Transformation

By Industrialising Africa

Africa has no other viable or alternative path for its economic transformation except through manufacturing and the technology that goes with it. Ms. Phyllis Wakiaga, the Chief Executive Officer of the Kenya Association of Manufacturers (KAM) emphasises the urgent need to accelerate Africa's industrialisation trajectory in the wake of the continued decline in the Asian manufacturing sector positions Africa as the emergent frontier for the 4th Industrial Revolution.

Manufacturing Underpins Africa's Economic Transformation

Africa has no other viable or alternative path for its economic transformation except through manufacturing and the technology that goes with it. Ms. Phyllis Wakiaga, the Chief Executive Officer of the Kenya Association of Manufacturers (KAM) emphasises the urgent need to accelerate Africa's industrialisation trajectory in the wake of the continued decline in the Asian manufacturing sector positions Africa as the emergent frontier for the 4th Industrial Revolution.

Ms. Wakiaga who also serves as the East Africa Manufacturers Network secretary and the Chair of the Kenya chapter of the UN Global Compact, accentuates the efforts being made by the national, regional and continental bodies to broaden the industrialisation space on the continent. Oiling the synergies between regional manufacturing bodies is at the top of the agenda for KAM in-line with the fledgling Pan Africa Manufacturers Association in liaison with the African Union (AU) within the purview of the regional trade agreements and recently enacted Africa Continental Free Trade Area (AfCFTA) protocols.

The UN Global Compact is a voluntary initiative based on member CEO commitment to implement universal sustainability principles and taking of steps to support UN goals including the Sustainable Development Goals by 2030. This includes aligning strategies and operations with universal principles on human rights, labour, environment and anti-corruption as well as take actions that advance societal goals.

Whereas there are the continental regional bodies, COMESA (Common Market for Eastern and Southern Africa), SADC (South Africa Development Cooperation), ECOWAS (Economic Commission for Western Africa States) and the EAC (East Africa Community); there are continued deliberate efforts to harmonise the functions and mandates of these regional bodies to bring about a balance and seamless facilitation of trade among African countries.

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Following the ratification and implementation of the AfCFTA protocols, the dynamics of intra-Africa trade have taken a new turn, and thus necessitating a re-look into how African countries trade with each other and how the regional bodies have adapt to the emergent business environment that has a direct bearing on manufacturers on the continent. This to a large extent informs what necessitated the complimentary Pan-Africa manufacturers Association (PAMA), with a goal of coordinating and easing the dynamics for manufacturers on the continent.

As part of addressing the emergent dispensation in the continental business environment, the East Africa Manufacturing Network, where KAM's CEO serves as secretary has spearheaded a tripartite agreement between COMESA, SADC and the EAC, that dovetails into the broader AfCFTA vision of easing and increasing intra-Africa trade.

The mandates of the Kenya Association of Manufacturers are broad and involve linkages and partnerships beyond the continent, with UN agencies like UNIDO, United Nations Industrial Development Organization that specialises in assisting countries in economic and industrial development. It also encompasses networking and providing leadership on matters of trade policy, investor incentives, energy,

27%

Percentage that Sub-Saharan Africa boasts as world's highest rate of women entrepreneurs

climate change management, strengthening factors of production and agro value chains, trainings and incubating of human resource by involving technical and vocation training institutions (TVETs) in addition to boosting SMEs (Small and Micro-Enterprises) sector.

During her tenure at the helm of KAM, Ms. Wakiaga has chalked a number of milestones to her credit including the strengthened partnerships with other international organisations like the Danish Association of Industries. She comes from a standpoint of appreciating the symbiotic relationship between manufacturing and all other sectors and functions of the society. Manufacturing touches on the key spheres of the socio-economic fabric of the society; health accessories and pharmaceuticals, building materials for real estate, transport tools in the logistics sector, agricultural produce value addition, communication equipment and security systems.

In the wake of the global Covid-19 pandemic, the manufacturing sector continues to play a very important role by manufacturing PPE kits, relevant medical accessories and tools like the PPEs and masks in addition to medication and vaccines. The manufacturing



Ms. Phyllis Wakiaga
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“

As a woman leader, Ms. Wakiaga recognises the increasingly important role women continue to play in the world of manufacturing and entrepreneurship under what is now referred to as the Global Reset

sector kept the systems going during this difficult time of the global health crisis. It is notable that women played a very significant role during this challenging time.

Post-Pandemic Global Reset

As a woman leader, Ms. Wakiaga recognises the increasingly important role women continue to play in the world of manufacturing and entrepreneurship under what is now referred to as the Global Reset dispensation as is espoused with the growing number of women in Manufacturing in Africa. Women dominate the beer industry leadership in Kenya. In Sub-Saharan Africa for example, boasts the world's highest rate of women entrepreneurs, at 27 percent. The MasterCard Index of Women Entrepreneurs 2017 listed two African countries, Uganda (34.8%) and Botswana (34.6%), as having the highest percentage of women entrepreneurs globally. This compares favourably with countries where gender equality has made great strides like the United States, where half the labour force are women and 29 percent of working in the manufacturing sector.

Overall, the post-pandemic dispensation has brought about a significant re-organising of global supply chains and things are most likely never going to go back to what they were before the pandemic.

According to the KAM Chief Ex-

ecutive, the other important critical aspect that plays in the strengthening of the industrialisation agenda in Africa is supporting the Small and Medium Enterprises (SMEs). These players compliment the role and functioning of the bigger players in manufacturing by providing primary raw material, components, finishing or intermediary services.

She reiterates that a robust manufacturing sector creates jobs in a sustainable manner. This in turn puts money in the hands of many more people who in turn spend their money in the local economy and pay taxes. It in turn boosts the economy, allowing more money to be put into services and innovation which then leads to emerging of new industries and thus catalyse a cyclic process that brings about a dynamic social-economic transformation. It is therefore incumbent upon African countries to consciously provide for a nurturing environment for the manufacturing sector across the board and do away with those policies that threaten to stifle the sector and thus hamstringing the overall socio-economic growth on the continent which is supposedly the world's new global factory.

Ms. Wakiaga concludes it is indisputable that Africa's prosperous future is pegged on manufacturing; as is also captured in Kenya's Vision 2030 and the Big 4 Agenda.





**African countries had a surprise manufacturing surge in 2010s
*it bodes well for the years ahead***



dustrialisation has been associated with rapid technological improvements and sustained growth in the western world, and more recently east Asia, gainfully employing millions of workers and helping it to close the income gap with richer countries.

Until the 2000s, sub-Saharan Africa was actually de-industrialising: the mood was gloomy as the little manufacturing activity that did exist was disappearing, and with it the traditional route to development and poverty reduction. In northern Nigeria's biggest city, Kano, for example, textile factories, leather tanneries and ceramics plants were visibly falling into disrepair. There were reports of empty industrial parks in Ethiopia, while South Africa's footwear industry had collapsed.

But recently the trend has reversed across the region. We have documented this in new research based on an in-depth investigation of national statistics in 51 countries, including 18 in sub-Saharan Africa, ranging from South Africa to Ethiopia to Nigeria to Kenya to Mauritius. These 18 countries account for nearly three-quarters of the GDP of the region, so they are a good representation of the overall picture.

Similar to other developing regions, sub-Saharan Africa recorded a 2.6% decline, following strong growth of 3.2% in 2019.

By Gaaitzen de Vries, Emmanuel B Mensah, Hagen Kruse and Kunal Sen

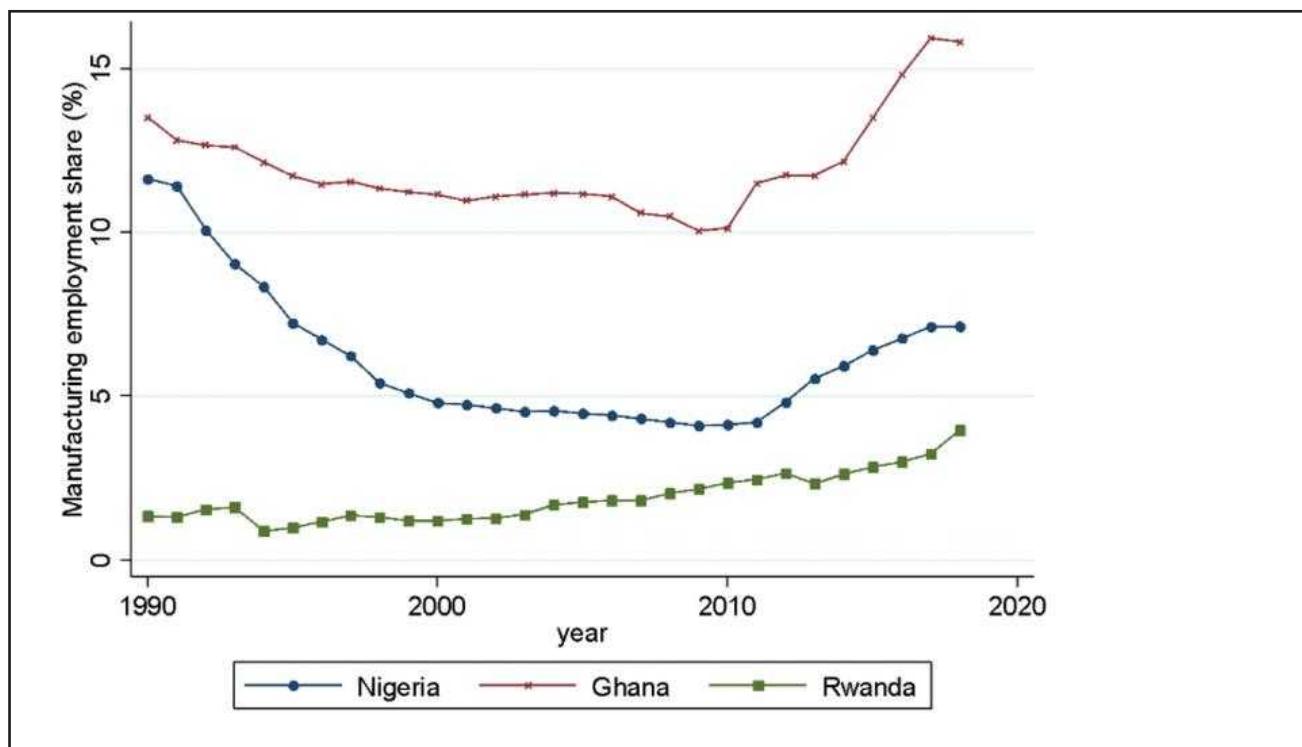
in the Conversation

The COVID-19 pandemic has wreaked havoc on the global economy, with world output contracting at 3.5% in 2020, and no recovery likely before the fourth quarter of 2021. Similar to other developing regions, sub-Saharan Africa recorded a 2.6% decline, following strong growth of 3.2% in 2019.

Unfortunately, this comes at a time when the region has been experiencing a surprising and very welcome manufacturing renaissance. Historically, in-

The graph below shows how this industrial renaissance affected the share of manufacturing employment in three of the countries in the study, namely Nigeria, Ghana and Rwanda. Manufacturing in Ghana and Nigeria started to expand from around 2010 onwards, while in Rwanda it had been steadily increasing as a share of employment since the 2000s. Rwanda's industrialisation includes the opening of its first car assembly plant by Volkswagen in 2018, for instance.

Manufacturing as a % of employment, 1990–2018



GGDC/UNU-WIDER Economic Transformation Database

We saw the same broad trends across the region, although in some such as Mauritius industrial capacity continued to decline. As you can see from the table below, the average percentage of employment in manufacturing in the African countries in our study remained static at 7.2% between 1990 and 2010 but had risen to 8.4% by 2018. This is still low in comparison with developing Asia and Latin America, but the trend is clear enough.

Manufacturing in Africa, Latin America and east Asia

Region	Employment			Real value added		
	1990	2010	2018	1990	2010	2018
Developing Asia	10.0	11.9	13.4	14.2	18.1	18.5
Latin America	14.1	11.0	10.3	18.7	17.1	15.4
Sub-Saharan Africa	7.2	7.2	8.4	12.7	11.4	10.9

Note that these are unweighted averages. GGDC-UNU WIDER Economic Transformation Database

Despite this promising trend, another thing to note from the table is that the manufacturing in the region as a share of real value added (in otherwords GDP) actually decreased. What this tells us is that productivity growth in manufacturing was lower than in the economy as a whole. In fact, manufacturing productivity barely improved at all in the region in the 2010s.

To explain why manufacturing employment rose while productivity stayed the same, we need to make a distinction between small and large firms. Large modern firms tend to be more productive than smaller firms, partly because they benefit from economies of scale so that more goods can be produced on a larger scale but with lower input costs.

What seems to have been happening is that smaller firms have been mainly responsible for sub-Saharan Africa's industrial resurgence, hiring workers to make more low-quality goods such as processed food, clothing and wood products to meet rising demand from domestic consumers. This is different to manufacturing in east Asia, which was driven by exports. In sub-Saharan Africa, some manufacturing work moved from China to countries such as Ethiopia in search of lower wages, but it's debatable to what extent this has driven the overall trend towards increased industrialisation.

The pandemic effect

One major question that stems from our research is how this trend towards more industrialisation in sub-Saharan Africa is likely to have been affected by COVID-19. Various economic activities have taken a hit, particularly travel and tourism, as lockdown policies have put a break on commerce and travelling. Fundamental drivers of long-term manufacturing growth have also been held back especially education, with schools closed in many countries for extended periods.

On the other hand, since the recent manufacturing growth has mainly been serving a domestic and not an export market, it is at least not primarily depending on demand from other countries. But as far as exports are concerned, the initial indications are that commodity exports in sub-Saharan Africa were hit harder than manufacturing vividly illustrat-



Photo by Possessed Photography on Unsplash

ed by the collapse in oil prices in 2020 (which has since bounced back). The recently created African Continental Free Trade Area might also boost regional trade in manufactured goods in the years to come. So all in all, the manufacturing renaissance in the region may be relatively resilient.

As Arthur Lewis, a Nobel-prize-winning economist from St Lucia, noted back in 1979, expanding small-scale activity in manufacturing is an important part of the development process. In sub-Saharan Africa, this has been made possible by an expanding market for domestic produce. Assuming the pandemic has not undermined this too badly, there is no reason why this trend should not continue in the decade to come.

African countries in our study remained static at 7.2% between 1990 and 2010 but had risen to 8.4% by 2018. This is still low in comparison with developing Asia and Latin America, but the trend is clear enough.





Photo by Science in HD on Unsplash

Manufacturing still matters: *five reasons why the IMF is wrong*

By Jostein Hauge

in The Conversation





According to new IMF research, countries need no longer rely on manufacturing for productivity growth. The IMF is not the first to take a jab at so-called manufacturing fetishism. Famous economists like Jagdish Bhagwati and Christina Romer have also done so in recent years.

In fact, you can trace the scepticism of pro-manufacturing theories to 1976, when the sociologist Daniel Bell published *The Coming of Post-Industrial Society*. Bell argued that the wealth of future societies would rely less on the production of goods and more on the provision of services.

In some ways, it's right that countries should look more to services for driving economic development. Some services are more easily traded and have greater potential for productivity growth than before. This holds true especially for services that are highly digitalised, like Netflix, Spotify, and other business-related services.

But talk of the post-industrial society is mostly hype without evidence. Here are five reasons to be sceptical of those who say that factories are dinosaurs.

Economic development has (almost never) happened without industrialisation

Throughout the history of capitalism, practically all countries that have transformed their economies from low to high income have done so through a process of industrialisation. The West's gradual establishment as world economic hegemon starting with the industrial revolution in the UK in the late 18th century was also a process of establish-

ing itself as the world's manufacturing hegemon. In 1750, Europe, North America and Japan constituted only 27% of manufacturing production in the world. But by 1900, those regions made up 90% of world manufacturing production.

Some would say that this statistic is unimportant because the traditional path of economic growth through industrialisation has changed. This is actually not true. Since World War II, only a few small countries exceptionally rich in oil (like Brunei, Kuwait, Qatar) or very small financial havens (like Monaco and Lichtenstein) have achieved sustainable standards of living without developing their manufacturing sector. This is why the terms industrialised country and developed country are still used interchangeably.

Manufacturing drives productivity growth and innovation

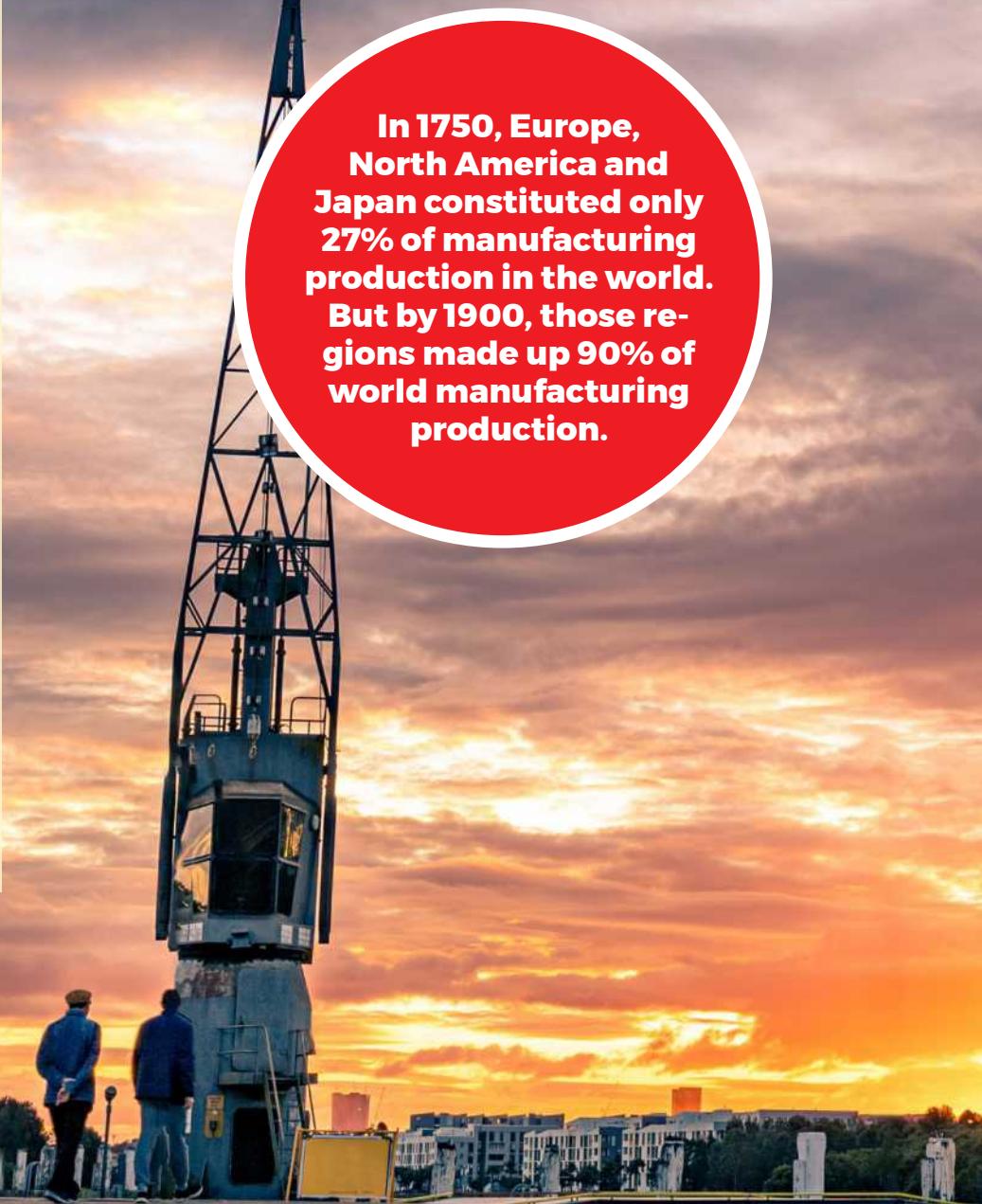
The reason for the strong relationship between industrialisation and economic development is that the manufacturing sector is the driver of productivity growth. This, in turn, is the lifeblood of technological development.

Economies of scale (reduced cost per unit that arise from increased production) are more easily achieved in the manufacturing sector than in the service sector. This is because manufacturing activities lend themselves more easily to mechanisation and chemical processing.

And let's not forget that productivity growth in other sectors of the economy are a result of innovations in the manufacturing sector. The world's most productive farms are heavy us-

ers of chemicals, fertilisers, pesticides, and agricultural machinery. And the world's most productive service firms rely on top computer technology, transport equipment and, in some instances, mechanised warehouses.

The importance of the manufacturing sector for a country's overall infrastructure for innovation cannot be highlighted enough. Even in advanced countries, where manufacturing production is supposed to be on the decline, the bulk of innovation happens in the manufacturing sector. In the US, firms associated mainly

A large construction crane stands prominently against a vibrant sunset sky. Two workers are visible at the base of the crane, appearing very small in comparison. The sky is filled with warm orange and yellow hues, with darker clouds on the horizon. In the foreground, there's some green grass and a paved area.

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with industrial production still employ 64% of all scientists and engineers.

Manufacturing helps services

Every economic activity stimulates another economic activity. So, just as manufacturing stimulates the provision of services, services stimu-

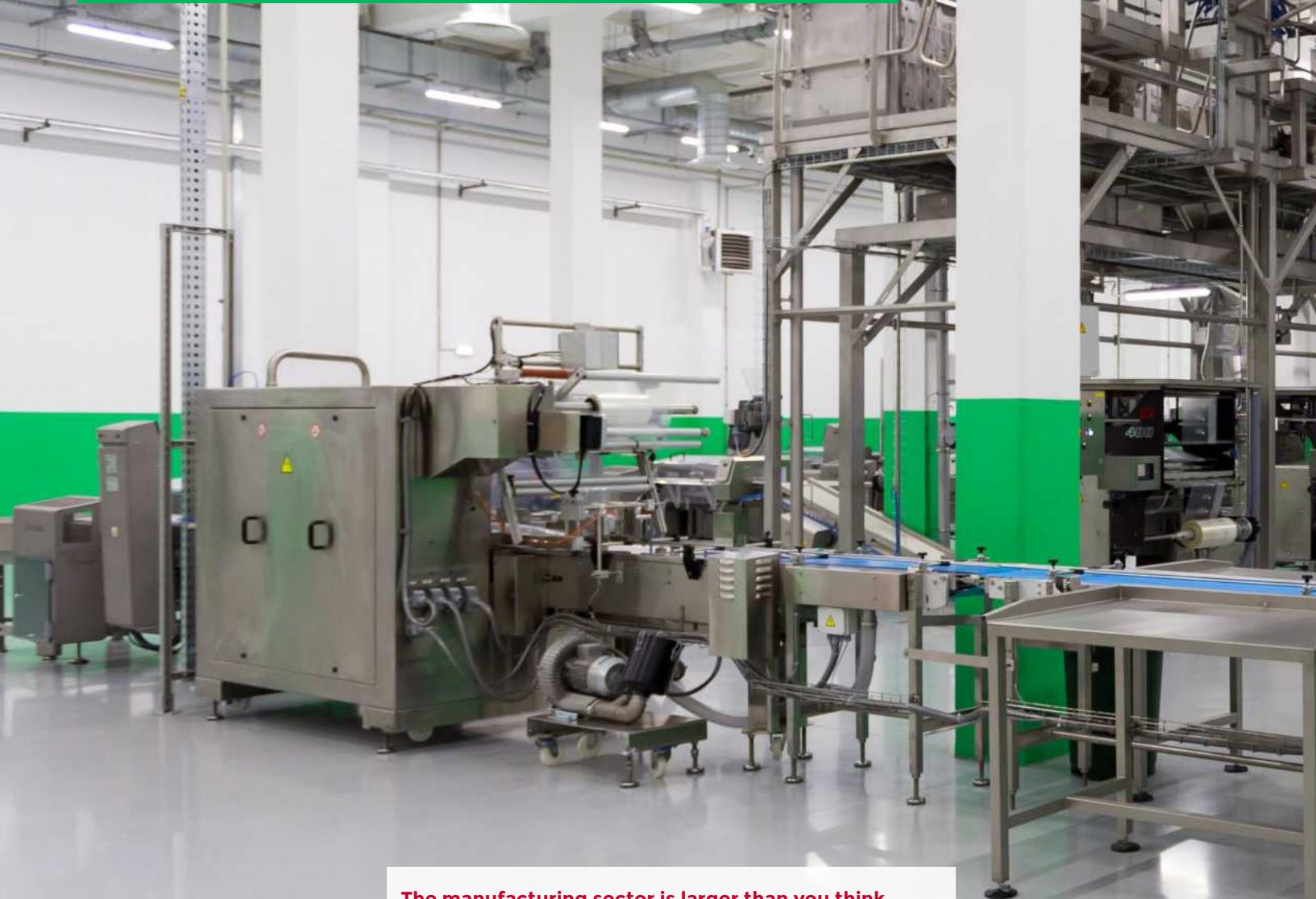
late manufacturing production. But evidence shows that manufacturing has a stronger multiplier effect than services.

In France, for example, 29% of the manufacturing workforce contributes indirectly to the production of non-manufacturing output. Only 13% of the services workforce contributes indirectly to the production of non-services output.

In Singapore, every 100 new manufacturing jobs are associated with 27 new services jobs. By contrast, every 100 new services jobs are associated with only three more manufacturing jobs.

Why IMF is wrong

- **Economic development has (almost never) happened without industrialisation**
- **Manufacturing drives productivity growth and innovation**
- **Manufacturing helps services**
- **The manufacturing sector is larger than you think**
- **The fourth industrial revolution is not stealing manufacturing jobs**



The manufacturing sector is larger than you think

Not only do many services depend on a manufacturing core, some of them are also by their very nature linked to manufacturing. These most importantly include industrial R&D, innovation, product design, and other engineering-related services.

One could make a strong case for having such services counted as manufacturing in the national accounts, which is currently not the case. A study published by the Brookings Institution think tank shows the importance of scrutinising the way we count production activities. The authors of the study calculated the size of the entire US manufacturing value chain, and found that in 2010, manufacturing, narrowly defined, employed 11.5m workers in the US, but broadly defined, it employed 32.9m workers.



The authors of the study calculated the size of the entire US manufacturing value chain, and found that in 2010, manufacturing, narrowly defined, employed 11.5m workers in the US, but broadly defined, it employed 32.9m workers.

The fourth industrial revolution is not stealing manufacturing jobs

With the advent of the fourth industrial revolution technological breakthroughs associated with things like artificial intelligence, robotics, the Internet of Things, autonomous vehicles, and 3D printing there is a growing fear that manufacturing will become less reliant on human labour. But this fear is not borne out by evidence.

The share of current jobs in OECD countries that stand at risk of automation is only 6-12%. In developing countries, this number is found to be even lower, at 2-8%. And keep in mind that these studies only talk about the risk of automation. So far, 3D printing and robotics have had a negligible impact on labour markets in most countries.

Even if we assume the doomsday scenario of 3D

printers and robots stealing most of our jobs, we don't know if the manufacturing sector will experience larger job losses than the service or agricultural sector. For example, a recent McKinsey report shows that transport and warehousing services are among the most automatable activities, and that sorting of agricultural products is 100% automatable at this point.

So, while it is true that some services are increasingly contributing to economy-wide productivity growth, these services cannot thrive without a vibrant manufacturing sector. Governments in high-income countries shouldn't let their factories rot away, and governments in developing countries are wrong to think that they can skip the industrialisation phase. Manufacturing still matters, a lot.

Jostein Hauge

in The Conversation Africa

Research Associate, University of Cambridge



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Hadija Jabiri
Managing
Director at
GBRI Business
Solution
Company
Limited

Hadija Jabiri on Agri-Tech to Boost Agribusiness in Tanzania and a Vision for Africa

By Industrialising Africa

As a young 30-year-old agri-entrepreneur, Ms. Hadija Jabiri espouses the ideals carried in the Africa Union 2063 Agenda under a public-private partnership (PPP) framework, in a way that puts her way ahead of the rest. Ms. Jabiri, the Chief Executive Officer of GBRI Solution, a company that specializes in agro-processing, adding value to agricultural produce for the local Tanzania market and the European export market.



**GBRI has
embraced
technology in
its enterprise
and introduced
an App, by the
name, Bwana
Shamba App.
The technology
in this App is
designed to
bridge the
technical skills
gap in an accessible
manner for free.**

As a young 30-year-old agri-entrepreneur, Ms. Hadija Jabiri espouses the ideals carried in the Africa Union 2063 Agenda under a public-private partnership (PPP) framework, in a way that puts her way ahead of the rest. Ms. Jabiri, the Chief Executive Officer of GBRI Solution, a company that specializes in agro-processing, adding value to agricultural produce for the local Tanzania market and the European export market.

The Africa Union Agenda 2063 carries a vision for a prosperous Africa based on inclusive growth and sustainable development thus, the need for the continent to invest in modern agricultural practices and technologies. The Comprehensive African Agricultural Development Programme (CAADP) is one of the continental frameworks under Agenda 2063 aimed at helping African countries eliminate hunger and reduce poverty by raising economic growth through agriculture-led development as well as promoting increased national budget provision to the agriculture sector. Through CAADP, African governments are expected to increase investment level in agriculture by allocating at least 10% of national budgets to agriculture and rural development, and to achieve agricultural growth rates of at least 6% per annum. CAADP also sets targets for reducing poverty and malnutrition, for increasing productivity and farm incomes, and for improvements in the sustainability of agricultural production and use of natural resources.

Through the market brand Eatfresh, GBRI is producing



Over Tsh80M

The amount the company has invested in a 60-ton cold storage facility at its Iringa packaging facility elevating its storage capacity to over 80 metric tons.

premium fresh vegetables and fruits which meet world-class standards. Over the past ten years, the company has grown from strength to strength to become a vertically integrated producer and exporter with major agribusiness operations on around 200 acres of farms in Iringa and Njombe regions while supporting about 2,500 smallholder farmers. The company is building sustainable, inclusive, climate-resilient horticulture value chains that benefit

smallholder farmers while broadening its horticultural economic contribution and inclusion of women and young people in these value chains in the SACCOT region of Tanzania.

GBRI has embraced technology in its enterprise and introduced an App, by the name, Bwana Shamba App. The technology in this App is designed to bridge the technical skills gap in an accessible manner for free. The Bwana Shamba App provides agricultural extension services online as a way of guiding farmers on good agricultural practices, request for technical assistance like an agronomist as well as provide access to service providers like agricultural input suppliers, agri-technology company and financiers.

The App has been rolled out in Tanzania and proven to be very successful. Plans are underway to extend the use of the technology into Kenya and the rest of the region, eventually all of Africa.

On matters agribusiness, Ms. Jabiri has all the angles covered; from production and processing to markets and capacity building. Through the training consultancy arm of Agriedo Company, the organization trains the farmers and gives them access to those skills and technologies that will improve their agricultural productivity as well as quality of their produce. The organization also incubates emergent enterprises in the agricultural sector.

A business Administration graduate, Ms. Jabiri has relentlessly pursued agricultural enterprise out of her own passion and volition as none of the family members are into agriculture.

GBRI is promoting smart agriculture and investing in horticulture infrastructure as well as cold chain agri-logistics to

increase efficiency and productivity. Determined to consistently improve its cold chain infrastructure, the company has invested over Tsh 80 million in a 60-ton cold storage facility at its Iringa packaging facility elevating its storage capacity to over 80 metric tons.

Inclusivity of smallholder farmers remains central to GBRI's operating principles and success through provision of extension services, handling equipment and transport services as well as farm input loans for vital necessities such as fertilizers and pesticides to hundreds of farmers. This initiative aims to promote social-economic inclusive growth by empowering smallholder farmers to shift from subsistence farming to formalized agribusiness. These efforts have continued to improve productivity, volumes and mitigate post-harvest losses hence increase return on investment for both the smallholder farmers and exporters. As a result, GBRI outgrowers are making remarkable progress in technology adoption rates, yields, gradual improvements in crop quality and a reduction in post-harvest losses which is considered one of the most achievable means of improving competitiveness in the horticulture sector.

As part of its efforts to help farmers reduce post-harvest losses, GBRI provides them financial credit during the harvest season to facilitate availability of sufficient human resource and ensure produce is harvested on time and maintains its export quality. This program has enhanced productivity per acre and enabled farmers to increase land areas from one acre to an average of 2 to 3 acres leading to exponential growth in incomes and transformation of their living standards.

As a woman, Ms. Hadija Jabiri admits that she has to work extra hard to compensate for the bias against women in the society. She has achieved a lot at the helm over the past ten years or so. According to Ms. Jabiri, getting the smallholder farmers ready market that pays well, creating jobs and building the Eatfresh brand to GAP certified standards are the biggest achievements she has recorded while at the helm of GBRI.



Photo by Francesco Gallarotti on Unsplash



**BWANA
SHAMBA APP**

BWANA SHAMBA APP
ICT and Mobile Apps Drive
Global Agriculture

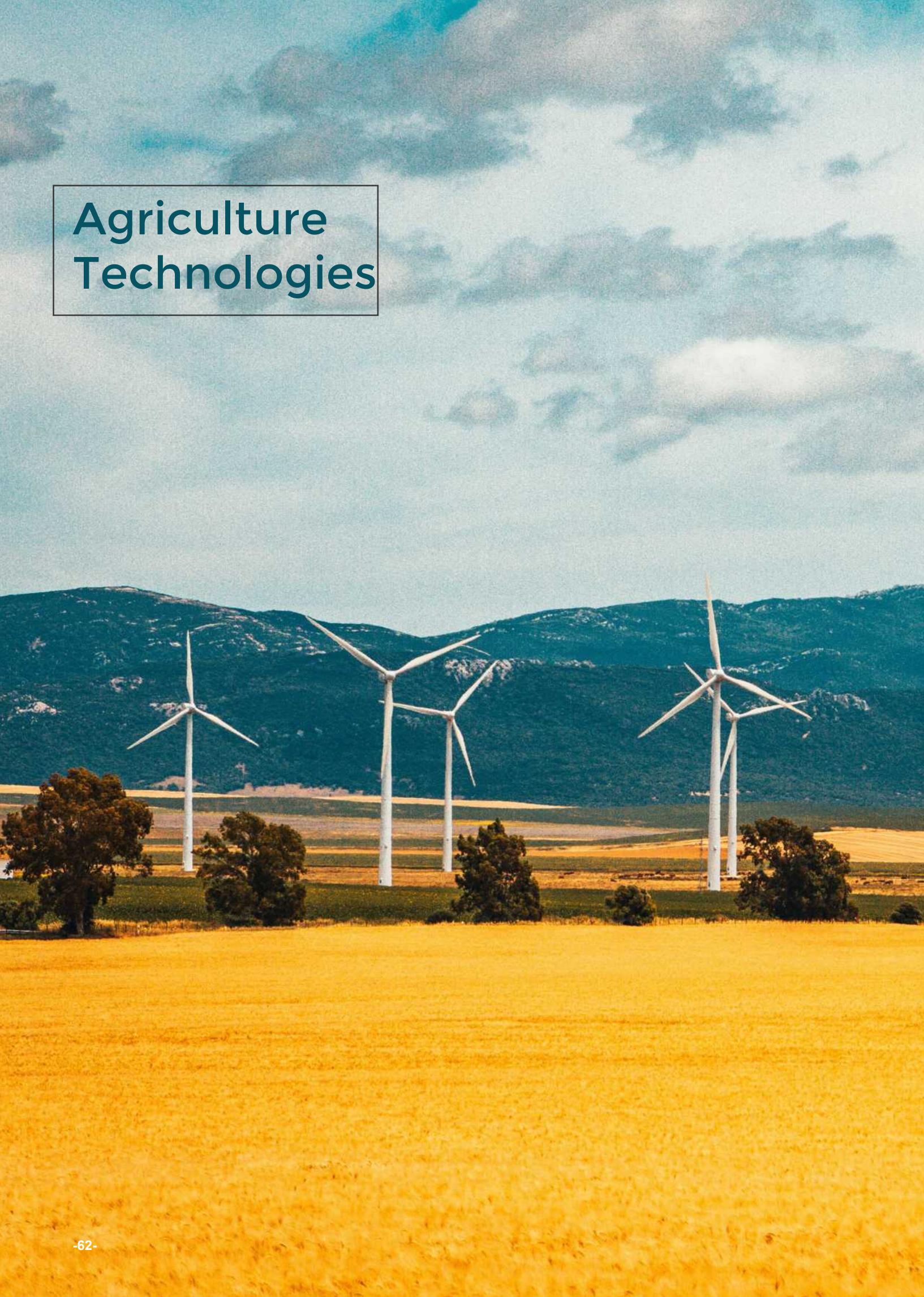


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What Africa can learn from China about growing its agribusiness

By Calestous Juma

in The Conversation Africa

The World Bank projects that agriculture and agribusiness in Africa will grow to be a US\$1 trillion industry in Africa by 2030. To promote this outcome, the continent must review its incentive structures.

The World Bank projects that agriculture and agribusiness in Africa will grow to be a US\$1 trillion industry in Africa by 2030. To promote this outcome, the continent must review its incentive structures.

Agriculture averages 24% of GDP across the continent. With post-harvest activities taken into account, agriculture-related industry accounts for nearly half of all economic activity in sub-Saharan Africa.

The region holds about half of the world's fertile and as-yet-unused land - and yet it spends US\$25 billion annually importing food. It also uses only a tiny percentage of its renewable water resources.

The role of the small players

The potential growth of Africa's food and beverage markets will only be possible with adequate investment in small and medium-sized agribusiness enterprises.

Small African firms engaged in agribusiness greatly outnumber the large players. Former Malawian president Bingwa Mutharika observed:

In West Africa, 75% of agriculture-related firms are micro or small enterprises, 20% are semi-industrial, and 5% are industrial.

Value chains in many African countries feature an informal chain that serves lower-income consumers and a formal chain that caters for high-income domestic consumers or exports. In many sectors the vast majority of the volume moves through the smaller, less formal businesses. More than 95% of the fruit and vegetables produced in Kenya move through smallholders and small and medium enterprises (SMEs).

Policymakers need to support agribusiness and technology incubators, export-processing zones and production networks. They must also sharpen the skills associated with these sectors.

Banks and financial institutions also play key roles in fostering technological innovation and supporting investment in homegrown businesses. Unfortunately, their record in promoting technological innovation in Africa has been poor.

Capital markets have played

a critical role in creating SMEs in developed countries. They bring money to the table and also help groom small and medium-sized start-ups into successful enterprises. Venture capital in Africa, however, barely exists outside South Africa.

African countries also need to make a concerted effort to leverage expertise in the diaspora. This cohort provides links to existing know-how, establish links to global markets and train local workers to perform new tasks.

Much is already known about how to support business development. The available policy tools include:



These can be complemented by simple ways to promote rural innovation that involve low levels of funding, higher local commitments and consistent government policy. For example, China's mission-oriented Spark Program, created to popularise modern technology in rural areas, had spread to more than 90% of the country's counties by 2005.



What China did for small businesses

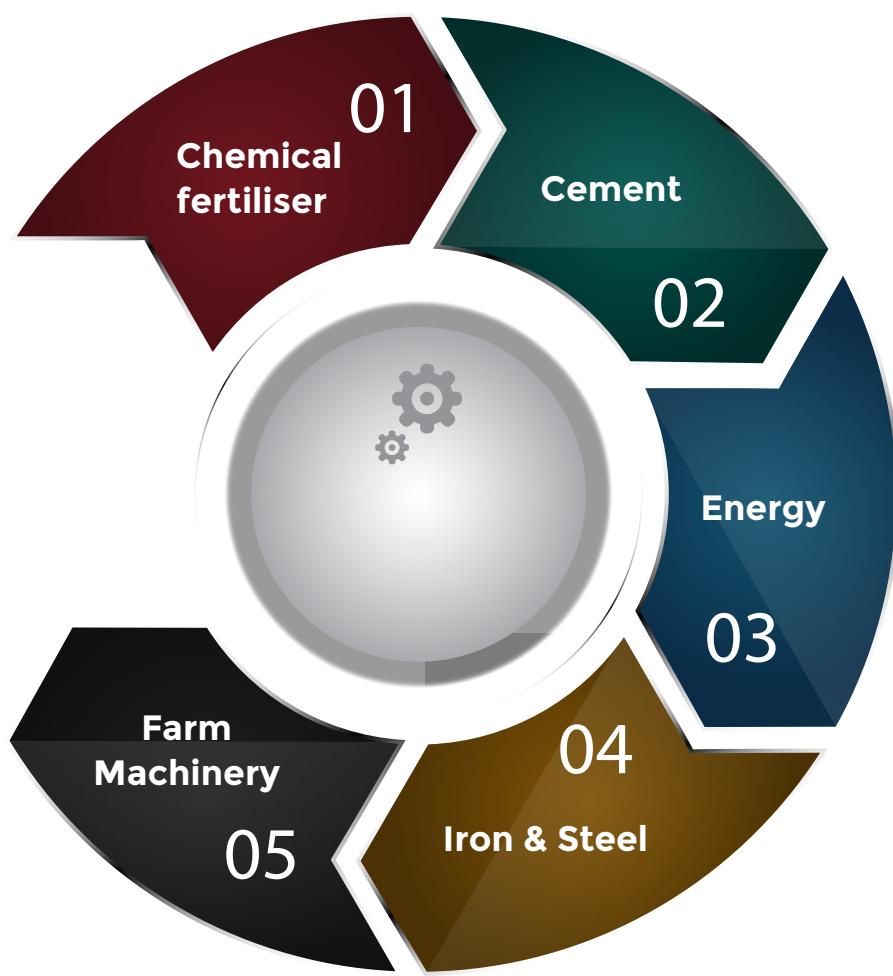
There is growing evidence that the Chinese economic miracle is a consequence of the rural entrepreneurship which started in the 1980s. This contradicts classical interpretations that focus on state-led enterprises and receptiveness to foreign direct investment.

Millions of township and village enterprises were created in provinces like Zhejiang, Anhui and Hunan. This played a key role in stimulating rural industrialisation. Over the past 60 years, China has experimented extensively with policies and programmes to encourage the growth

of rural enterprises. These include providing isolated agricultural areas with key producer inputs and access to post-harvest, value-added food processing.

By 1995, China's village enterprises had helped bring about a revolution in the country's agriculture. They had evolved to account for approximately 25% of GDP, 66% of all rural economic output and more than 33% of total export earnings. Most of them have become private enterprises that focus on areas outside agricultural inputs or food processing.

China's initial rural enterprise strategy focused on the so-called five small industries it deemed crucial to agricultural growth:



With strong backward linkages between these rural enterprises and Chinese farmers, agricultural development in China grew substantially in the late 1970s and 1980s. This happened through farmland capital construction, chemical fertilisation and mechanisation. This expansion, coupled with high population growth, led to a surplus of labour and a scarcity of farmland.

As a result, China's rural enterprises increasingly shifted from supplying agricultural producer inputs to labour-intensive consumer goods for domestic and international markets.

From the mid-1980s to the 1990s, China's township and village enterprises saw explosive growth in these areas. At the same time they continued to supply agricultural producers with access to key inputs, new technologies and food-processing services. The most successful were those with strong links to:

urban and peri-urban industries with which they could form joint ventures and share technical information; those in private ownership; and those who were willing to shift from supplying producer inputs for farmers to manufacturing consumer goods.

China's experience provides a mechanism for enhancing rural access to agricultural inputs such as fertilisers and mechanisation, as well as post-harvest food processing. Rural enterprises may make the most sense in areas where farm-to-market roads cannot be easily established.

Along with sparking agricultural productivity, rural enterprises may also help provide employment for farm labourers who have been displaced by agricultural mechanisation.

By keeping workers and economic activity in rural areas, China has helped expand rural markets and limit rural-urban migration. This has also helped create conditions under which it is easier for the government to provide key social services such as health care and education.

Township and village enterprises enjoyed government support, but retained a degree of autonomy in their operations.



The way forward

Some non-profit organisations and foundations are experimenting with promoting rural entrepreneurship by donating cows or other livestock to rural communities. Organisations like Heifer International provide cows, along with training about how to raise them and profit from animal husbandry.

But the impact of these programmes is relatively limited. In Malawi, for instance, Heifer International is implementing a programme alongside USAID that is designed to stimulate a dairy industry. But it serves only 180 smallholder farmers.

The lesson from China's experience is that development must be viewed as an expression of human potentialities, not as a product of external interventions.

By 1995, China's village enterprises had helped bring about a revolution in the country's agriculture. They had evolved to account for approximately

25% of GDP

66% of all rural economic output

more than 33% of total export earnings.



Food Processing Factory - Photo by niculcea florin on Unsplash

How smart investments in technology can beef up Africa's economy

Photo by Markus Spiske on Unsplash.

By Noble Banadda

in The Conversation

There is no shortage of technological innovations designed to boost animal agriculture in Africa. These range from GPS tracking systems which identify and trace pastoralists herds to livestock vaccine SMS services that alert farmers to disease outbreaks.

But to unlock the economic potential of the sector as demand for meat and milk swells threefold towards 2050, countries must invest in the critical areas that will improve quality across the whole value chain. That is increasing productivity and quality from the breeding of the animal throughout the production process to the end product. This includes safe storage, handling and sale.

My native Uganda offers some useful lessons from its use of smart investments in technology and farmer organisation. These have made it the only East African country that is self-sufficient in milk.

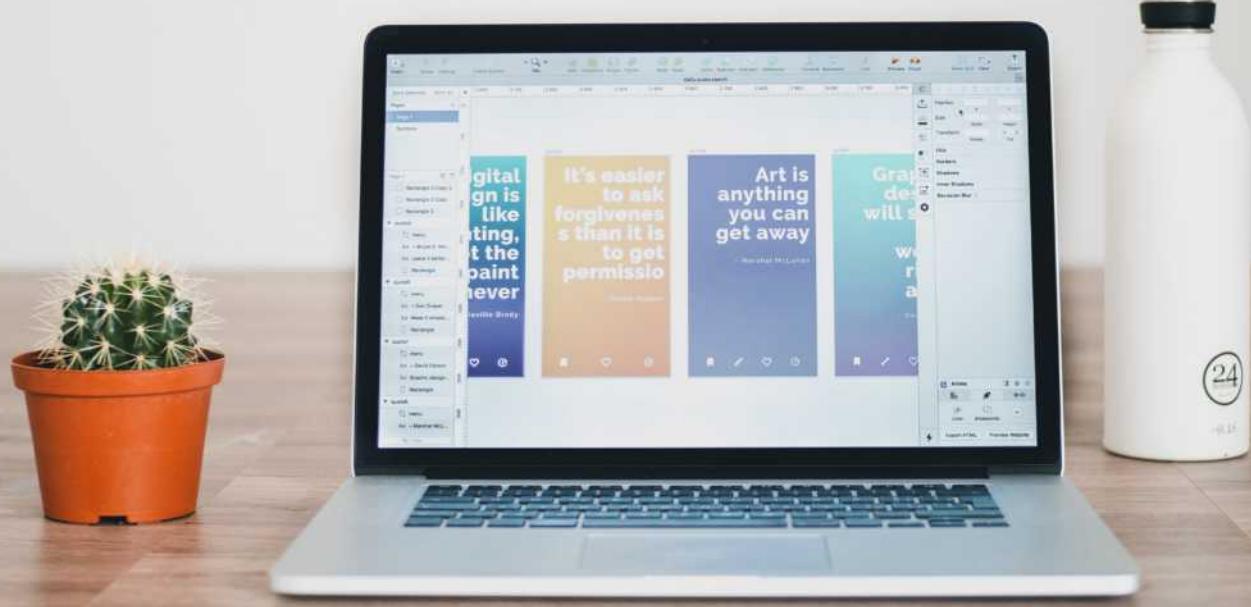


Photo by Federica Calli on Unsplash.

In recent years, some private sector players in Uganda have invested in testing systems to detect aflatoxin in animal feeds. The goal is to prevent milk and meat contamination. Others have developed refrigeration units that are powered with biogas from manure. Both are among the innovations that improve the quality of the final product.

As highlighted by a new report from the Malabo Montpellier Panel on which I sit, the same can be achieved elsewhere. It can also benefit other livestock commodities, to give Africa food sovereignty across animal-sourced foods and greater access to international markets.

The report makes 11 recommendations for Africa's livestock sector. These range from technological innovations and supportive policies to addressing trade barriers and challenges specific to each commodity.

Priority areas

African nations must be strategic in prioritising the infrastructure that will make the most difference to quality

2.8%

Percentage Africa currently contributes of the global meat market,

and productivity. The first priority is to increase consumer awareness around food safety, nutrition and sustainability to kickstart demand for better quality products.

Partly as a response to European consumer expectations around quality and safety, for example, Morocco developed a new system for animal identification and traceability in 2015.

Livestock can be identified using





electronic tags that communicate with the national database via mobile phone networks. This increases transparency and traceability. It also promotes Moroccan animal products on international markets such as the European Union.

The second priority is then to direct technology towards opportunities to open up market access.

To unlock trade means investing in improved animal health, processing operations, storage and distribution. Meeting regional and international standards for food safety and quality is a vital goal. Africa currently contributes 2.8% of the global meat market, which translates to 14 million tons. The continent produces just over 10% of the world's milk.

There are a number of barriers to increasing this production and gaining greater market share. They include limited availability of quality animal feed, access to affordable energy needed in producing and processing livestock, and limited infrastructure, particularly in the last mile.

With meat and milk being perishable goods, innovation in the cold chain and sustainable energy supplies will help strengthen the sector.

For example, an East African initiative which centralised milk quality testing and storage in chillers prior to sale increased yields sixfold within five years.

The volume of milk supplied to the 30km catchment area rose to three million litres a month. This increased income per smallholder household by more than 160% in Uganda, 120% in Kenya, and almost

65% in Rwanda.

The success of such projects in turn drives demand for continued innovation, such as solar-powered cold chains or interventions that protect other resources like water and grasslands. Finally, countries also need to prioritise policies that support new technologies across the livestock sector.

To transform its milk production sector, Uganda privatised the state-owned processing company Dairy Corporation as well as creating a Dairy Development Authority.

The Dairy Industry Act of 1998 empowered the authority to enforce milk hygiene standards and quality controls. As a result, traders were licensed to meet public health and milk quality standards. This encouraged the modernisation of the sector through the expansion of pasteurisation plants and processing infrastructure as well as processing of high value products.

Certainly, the gains have trickled down to the farmers in better farm gate prices.

Conclusion

As the Malabo Montpellier Panel points out, many of the tools needed to tap into the potential of Africa's livestock sector exist already. But with limited resources, they must be deployed smartly to improve the entire value chain.

Scaling up innovation at critical points will unlock new opportunities and help ensure animal agriculture keeps pace with a rising demand from a growing population.

Noble Banadda in The Conversation Africa
Professor and Chair of the Department of Agricultural and Bio Systems Engineering, Makerere University

Covid-19 - Photo by Martin Sanchez on Unsplash.

Covid-19 hit SMEs in South Africa



Andrew Bowman and Reena das Nair

in The Conversation

COVID-19 has prompted widespread discussion of the resilience of food systems and how efficiency and competitiveness have been previously understood. Recent decades have seen the growth of increasingly complex food value chains. These are underpinned by just-in-time delivery systems, a growing share of food products sold through supermarkets, and increasing concentration of ownership among powerful, large food manufacturers.

COVID-19 has prompted widespread discussion of the resilience of food systems and how efficiency and competitiveness have been previously understood. Recent decades have seen the growth of increasingly complex food value chains. These are underpinned by just-in-time delivery systems, a growing share of food products sold through supermarkets, and increasing concentration of ownership among powerful, large food manufacturers.

The pandemic has further emphasised the need for a more diverse and inclusive food system, in which small and medium sized enterprises (SMEs) play a key role.

As part of a larger project investigating challenges faced by agro-processing SMEs, we conducted qualitative telephone interviews with 16 SME maize milling and dairy firms during lockdown to gauge the effects of the pandemic.

As essential businesses, food manufacturers continued to operate through lockdown, and it might be assumed COVID-19's impacts on this industry were minimal. This was not the case. While aggregate production levels were maintained super maize meal output in April was 25% higher than the same month last year and consumer prices remained relatively stable, SMEs in these industries faced multiple disruptions throughout their supply chains.

There are still steps that can be taken to shield these enterprises from the worst effects of the pandemic. This should go beyond financial aid and improved access to credit to include, for example, supporting them in diversifying their routes to markets. Such support is critical because the exit of SMEs will exacerbate high levels of concentration and reduce diversity, with consequences for social inclusion and food system resilience. The implications for South Africa's food system would be far reaching.

Precarious

Many agro-processing SMEs were precarious before COVID-19 struck. Power in the South African food system lies with big businesses. In 2017, the 10 largest enterprises accounted for 72% of revenue in the manufacture of dairy products. In milling, the 10 largest accounted for 76%.

SMEs still play a critical role supplying localised and under-served markets, providing rural employment. They are also important for linkages with other small businesses. Typically they avoid doing business with the big supermarkets due to onerous conditions. Instead they target independent wholesalers and retailers, buyer groups and informal spaza shops. They also sell directly to local communities, school feeding schemes and catering.

COVID-19 has reduced SME access to these

Many agro-processing SMEs were precarious before COVID-19 struck. Power in the South African food system lies with big businesses. In 2017, the 10 largest enterprises accounted for 72% of revenue in the manufacture of dairy products. In milling, the 10 largest accounted for 76%.

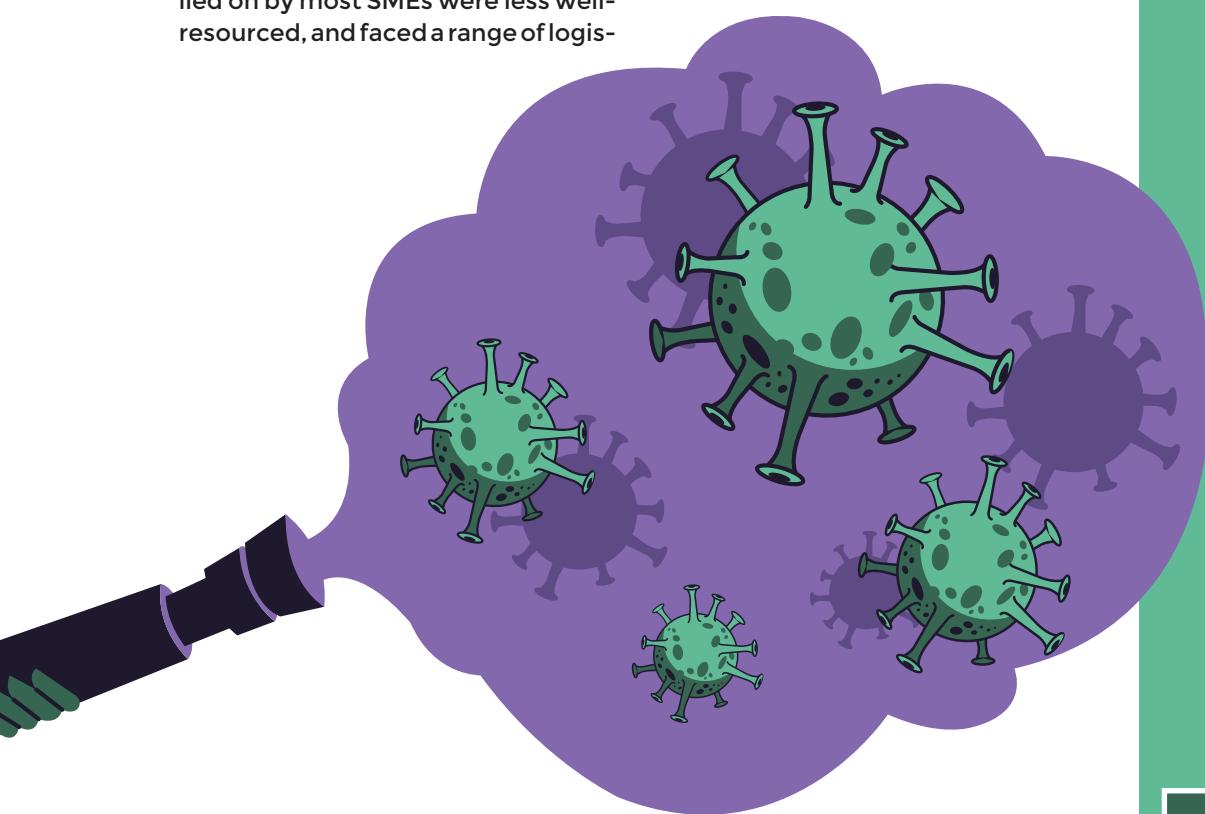


routes and therefore increased their vulnerability.

What we found

During lockdown, supermarkets sophisticated distribution systems enabled seamless operations. Panic-buying also diverted sales towards large retailers with higher stock levels. However, our qualitative research interviews found that the retailers relied on by most SMEs were less well-resourced, and faced a range of logis-

They would also have had to meet higher standards for product quality, packaging, hygiene and traceability. SMEs would have had to accept the mainstream supermarkets longer repayment periods, and often onerous rebate and returns policies. Government's emergency food parcel schemes meanwhile had been sup-



tical and operational setbacks, with financial strains resulting in increased defaults on payments to suppliers.

The SMEs reliant on non-retail sales channels were the worst affected. The cessation of school feeding schemes and closure of hospitality and catering had devastating effects on suppliers. All dairy processing SMEs interviewed suffered major sales reductions, of between 20% and 66%. Some millers reported lower revenue, with some closing down entirely.

Switching to supplying mainstream supermarkets was not a feasible alternative. It would have pitted SMEs against large companies.

plied by large firms, reflecting longer-standing challenges for SMEs with public procurement.

Perishability of raw materials and close links to farming were a further complicating feature. This was particularly common in the dairy sector in instances where SME processors were backwardly integrated into milk producers. Some started selling surplus raw milk to rivals or plan to retire herds because their normal routes to market were cut.

Milling SMEs faced severe difficulties sourcing raw material. They were also exposed to maize price volatility and the adverse rand-dollar exchange rate movement, given their

20% & 66%

Sales reductions
Percentage suffered by all dairy processing SMEs interviewed. Some millers reported lower revenue, with some closing down entirely.

lesser ability to hedge. Interviewees from both dairy and milling companies also described severe difficulties securing machinery parts, repairs and maintenance services. Compliance with hygiene regulations was a major cost for SMEs in ordinary circumstances. This dramatically escalated with the need to source personal protective equipment and sanitisers at elevated prices.

The consequences

Most firms in our sample said they were forced to lay off workers, cut their pay or work reduced hours. Investments that had been planned to improve businesses were halted.

Sadly, government business support measures provided insufficient remedy. The top-down approach to support provision, with a fragmented array of schemes, and complex application processes and qualifying criteria, proved confusing or too costly even to firms in need.

The Unemployment Insurance Fund provided a lifeline. Other measures, however, such as the tax relief, Department of Small Business Development funds and commercial bank support through the loan guarantee scheme, were less accessible.

Notably, firms in difficulty were typically reluctant to take on commercial debt. They argued that despite the loan guarantee scheme, interest rates are prohibitively high. One welcome development in relation to this was the announcement in June's Supplementary Budget of the relaxation of terms and conditions and extension of repayment holidays.

Even without a repeat lockdown, without greater support, many SMEs will fail or be severely weakened in this period of economic disruption. Adaptation is going to require significant and costly changes to business models.

What could help?

We see three key actions that could help.

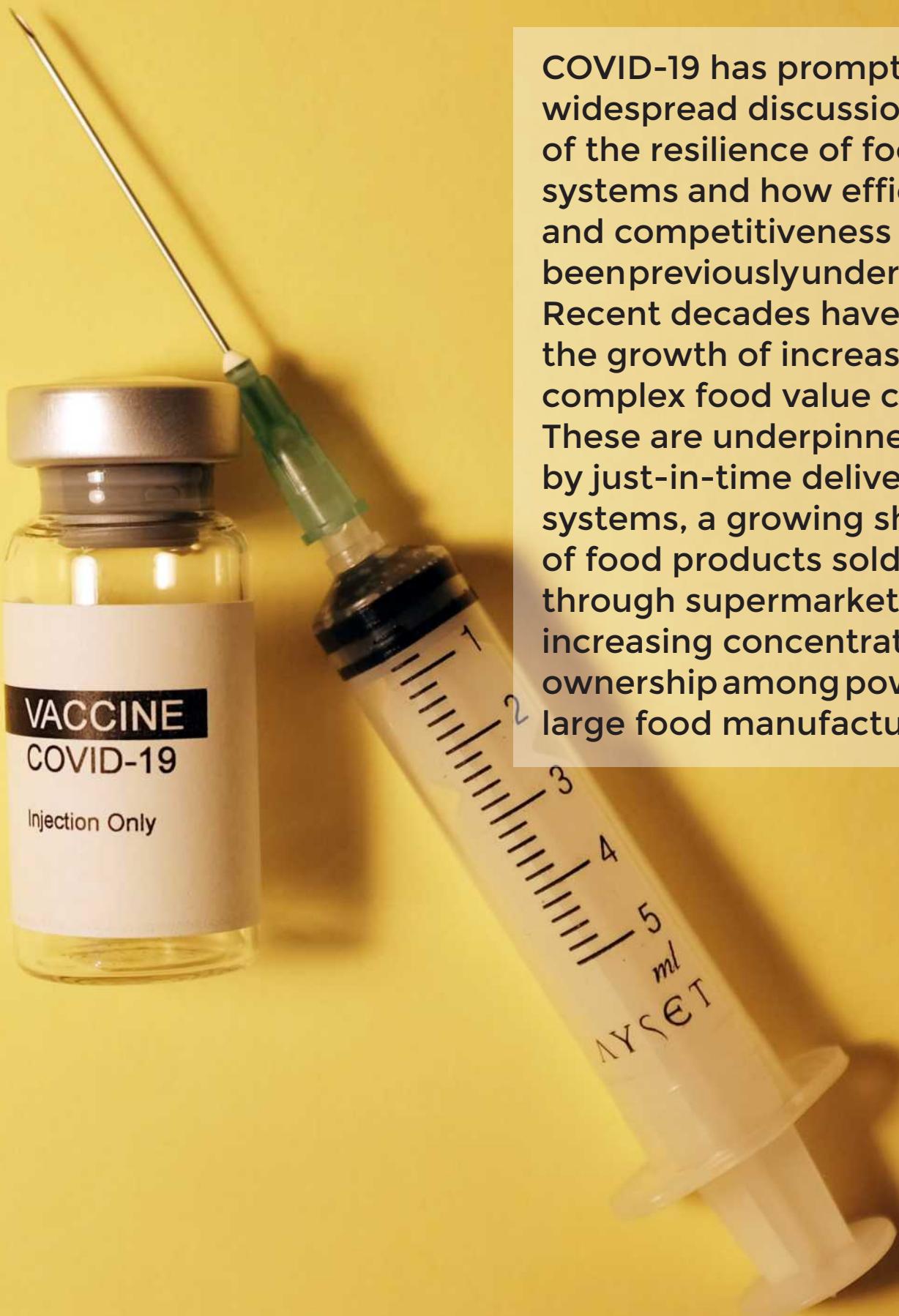
First, there should be commitments by the major retailers to offer SMEs preferential shelf space and to introduce local procurement policies at preferential terms.

Second, alternative routes to market need to be strengthened. This can involve improving infrastructure and implementing regulations that enable SMEs to operate in the peri and non-urban areas. Public procurement can also provide SMEs with consistent revenue streams but needs to be reconfigured to accommodate SMEs' needs. Delays by the state in paying SMEs and often complex and dysfunctional tendering processes remain a big problem. The expansion of inclusive e-commerce platforms for retail and digital management of food logistics and sales can help SMEs access multiple new routes to market. But this requires state support to build firms' digital capabilities. It also requires policies and regulations to create a competitive digital space and curb the market power of dominant platforms.

Thirdly and finally, there should be improved short-term emergency support, with streamlined application processes and broadened access conditions. Commercial bank loans are inappropriate for SMEs in severe difficulties, and grant finance should be more easily available. Government should also provide assistance with personal protective equipment and sanitisers, in addition to training and advice on how to adapt to new requirements.

In the longer term, South Africa needs to consider how markets may undermine inclusive food systems through toxic competition. The country needs to rethink market shaping policies and value chain governance to emphasise the critical role of the state and collective action.





COVID-19 has prompted widespread discussion of the resilience of food systems and how efficiency and competitiveness have been previously understood. Recent decades have seen the growth of increasingly complex food value chains. These are underpinned by just-in-time delivery systems, a growing share of food products sold through supermarkets, and increasing concentration of ownership among powerful, large food manufacturers.

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Photo by Jin Yun on Unsplash



Lelemba Phiri: Financial Liberator for African Women SMEs

By Industrialising Africa Special Correspondent

Having started at the tender age of 16, Lelemba Phiri had to employ entrepreneurial skills she had learnt from her mother who ran a small business to take care of herself and the family. It is these early experiences and responsibilities in Zambia that seared the struggles of the African woman in the psyche of the young Phiri before she moved to South Africa where she heads an organization that funds African women enterprises, The Africa Trust Group.

Having started at the tender age of 16, Lelemba Phiri had to employ entrepreneurial skills she had learnt from her mother who ran a small business to take care of herself and the family. It is these early experiences and responsibilities in Zambia that seared the struggles of the African woman in the psyche of the young Phiri before she moved to South Africa where she heads an organization that funds African women enterprises, The Africa Trust Group.

A qualified accountant by profession with a degree in business management and currently pursuing a PhD in finance. Ms. Phiri embodies the determination to succeed against all odds. While in Zambia, the young lady landed her first job at an auto-shop in Lusaka where she served as an accounts assistant before being elevated to shop manager not long after. This gave her firsthand experience on managing finances, coordinating stocks, running orders facilitating sales and taking care of the customer relations portfolio for the business.

Her background in finance and business management has helped her to adequately analyse the needs of African women in business with greater clarity that goes beyond empathy. Working in partnership with a few associates, Lelemba Phiri went on to found a robust funding agency for African women in business.

Even though she had a stint at the Zambia Revenue Authority, it is her work in the corporate sector in South Africa that gave her vision the wings to fly. Serving as regional assets manager, the corporate outfit she worked in gave her a chance to travel widely across the African continent, providing her with deeper insights into the needs and struggles of the African woman entrepreneur.

According to World Bank, Africa leads the world in terms of numbers of women business owners. In fact, women in Africa are more likely than men to be entrepreneurs. Women make up 58 % the continent's self-employed population. The influence of women unfortunately diminishes drastically as one gets higher up the entrepreneurial echelons. It is this state of affairs that informs the mission of Africa Trust Group (ATG) and within the ambit of the Academy for Financial Education for Women and the Africa Trust Academy.

The Africa Trust Group invests in women entrepreneurs with businesses that demonstrate potential

for upscaling within three years. This includes entrepreneurs with a willingness to leverage technology, imbibe innovative approaches, demonstrate resourcefulness and have capacity to take up franchises for expansion.

ATG is currently focused on funding enterprises in the SADC region but with active plans to expand into the larger COMESA (Common Market for East and Southern Africa) region and East Africa in particular. The organization will continue with the funding of viable ideas and then go on to provide seed funding to get the business started. In this way, the organisation is attending to a section of the society and business sector that would otherwise be considered disadvantaged and high risk by the mainstream financial institutions.

The organisation is cognizant of the fact that the biggest obstacle women face when starting and growing any business is access to funding and ability to raise capital. And this is inspite of research that shows female-owned businesses consistently out-survive male-owned businesses in many industries. Lelemba Phiri has a passion for promoting women in Africa, with an intention to give them confidence to seek a place at the table of value creation through the kind of contextualized funding model that has been developed for them. A table that started with a fiscal outlay of over R100,000,000 and seeks to serve up an opportunity for outstanding female entrepreneurs whose businesses have the capability to grow to scale and who are interested in exploring means and ways of raising additional capital for their businesses. African women are the future of value creation and this iconic lady is the face that is inspiring that African women story.

Through the workings and interventions of ATG, the women beneficiaries are able to stand up to the business and social challenges that would otherwise impede their efforts to either grow or initiate an enterprise. The organisation headed by this entrepreneurial lady is empowering women to step into existing space and make the best of the opportunities at their disposal as SMEs continue to play a central role in the African industrialisation journey that is gathering pace fast under the AfCFTA protocols.

As a pillar that epitomizes hope for African women entrepreneurs, Lelemba Phiri sees Africa Trust Group growing into a funder of funds on the African continent and an agent of transformational change through supporting women entrepreneurs and managers.

Lelemba Phiri sees Africa Trust Group growing into a funder of funds on the African continent as an agent of transformational change through supporting women entrepreneurs and managers.



Lelemba Phiri Southern Africa
Operating Partner Africa
Trust Group



Photo by Omotayo Tajudeen on Unsplash.



AFRICA
TRUST
GROUP

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INVESTING IN AFRICA'S WOMEN

Who we are

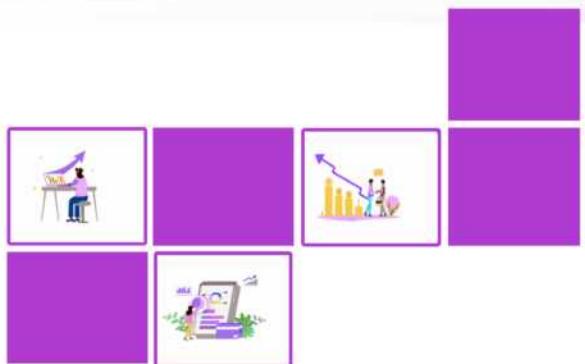
We are holistic early stage gender-lens investors committed to investing in Africa's Women entrepreneurs.

Our mission is to drive economic growth and development on the African continent through investing in entrepreneurship development with the hope of contributing to the economic transformation of individuals, communities and regional economies.

Who we Do

Our unique capabilities are highlighted in a 3-pronged approach:

- Early stage gender-lens funding
- Entrepreneur development and acceleration
- Business research and advisory



New Female Focused VC Fund



Fundraising Roadshow - Angola



Fundraising Roadshow - Egypt



Gender lens angel investment Fund

For further information, please contact

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Central banks are waking up to climate change dangers. *It's about time*

By Danny Bradlow

in The Conversation



The impact of climate change on the stability of individual financial institutions and the financial system in general is growing. It influences the types of activities that financial institutions will fund and the cost of finance.

For example, the increased frequency and intensity of floods, storms and droughts is complicating the insurance industry's ability to assess insurable risks. It is also driving up insurance premiums.

It is affecting the ability of pension funds to plan their investment strategies. Banks are facing increased reputational and financial risks from financing activities that contribute to climate change. These activities include coal mining and cattle farming.

Globally, financial institutions and their clients are facing an increased risk of litigation for their failure to manage risks associated with climate change. For example, the Commonwealth Bank of Australia was sued for misleading investors by failing to disclose climate related risks in its 2016 annual report.

Financial regulatory authorities are beginning to respond to these developments. The central bank of Brazil requires banks to explain how they treat environmental risks when determining their capital requirements. The central bank of China incorporates environmental factors into its monetary policy framework and financial stability assessments.

**If banks don't
adjust to
climate
change
they will fail
to exist .**



New international standards encourage financial institutions to be more transparent about their exposure to climate related risks.

It is against this backdrop that the recent decision by the South African Reserve Bank (SARB) to join the Network on Greening the Financial System must be viewed. The Network consists of 42 central banks and banking supervisory authorities, including central banks from China, England, France, Malaysia, Mexico, the Netherlands and the European Central Bank.

The Network's aim is to promote effective environment and climate risk management in the financial sector. It also aims to mobilise mainstream finance to support the transition toward a sustainable economy. Its members recently warned that if banks don't adjust to climate change they will fail to exist.

The creation of the Network is an implicit acknowledgement that central banks and other financial sector regulators have not always paid adequate attention to the environmental impacts of the financial sector. The Network's existence is also an acknowledgement that the financial sector has a responsibility to become more environmentally responsible.

This is a challenge for central banks. Their independence requires them to act without fear or favour. But addressing climate change requires them to encourage financial institutions to favour certain types of activities over others. For example, the Lebanese central bank changes the amount of reserves it requires banks to hold against their deposits according to how much they lend for renewable energy projects.

If central banks do not discriminate, financial institutions may continue financing activities that increase greenhouse gas emissions. This can raise the risk of droughts, floods, and more extreme temperature variability. This in turn can affect

the quality and quantity of available land and water for producing food, and constructing new housing, education and health facilities. These factors can affect migration patterns, agricultural and other commodity prices. They can also affect aggregate demand, employment levels, public health and confidence in an economy. These are among the factors that often impact on financial stability and inflation.

Climate also poses a legal challenge

The South African Reserve Bank's mandate is set out in the country's Constitution. Article 224 states that the SARB must protect the value of the currency in the interest of balanced and sustainable economic growth. This is an unusual but not unprecedented mandate. Central banks with similar mandates include those of the Philippines, Russia, Malaysia and Tanzania.

But what exactly does this mean? The term balanced and sustainable growth has no precise and universally accepted economic meaning. It is also not clear what the Constitution means when it says that the SARB's mandate is to protect the value of the currency in the interest of balanced and sustainable growth.

As the SARB's Governor recently noted, the Constitution tells us what to do, but it is not explicit about how we do it. This is true. The Constitution gives the SARB wide discretion in interpreting its mandate. The SARB currently interprets its mandate narrowly as requiring it to prioritise protecting the value of the currency. This certainly falls within the scope of its constitutional authority. However, it is not the only interpretation that would satisfy this requirement.

For example, the mandate also could be interpreted more broadly as imposing a dual responsibility on the SARB: to protect the value of the cur-

rency and to promote environmentally sustainable growth. Sustainable growth could mean growth that meets the needs of the present generation without compromising the ability of future generations to meet their needs. In this case, the SARB would be failing to meet its Constitutional responsibilities if its policies and actions protected the value of the currency but were implemented in a way that resulted in increased funding for large carbon emitters.

What a different approach would look like

A more environmentally responsible approach to its mandate may not lead the SARB to adopt different policy decisions. However, it would lead it to pay more attention to their implementation.

For example, Article 10 of the South African Reserve Bank Act gives the SARB broad authority to trade in different types of financial instruments. These include those issued by government as well as those issued for commercial, industrial and agricultural purposes. The environmental impact of its decision to raise or lower interest rates could vary depending on which financial instruments it decided to buy or sell in implementing its interest rate decision.

The SARB's decision to join the Network is prudent and responsible. Climate change is a reality and it is adversely affecting the financial sector. However, the SARB now needs to take the next step. This would be to reconsider whether it is interpreting its mandate in a way that is both constitutionally defensible and environmentally and socially responsible.

Danny Bradlow in The Conversation Africa

SARCHI Professor of International Development Law and African Economic Relations, University of Pretoria

The term **balanced and sustainable growth** has no precise and universally accepted economic meaning. It is also not clear what the Constitution means when it says that the SARB's mandate is to protect the value of the currency **in the interest of balanced and sustainable growth**.

Why Tanzanian women entrepreneurs don't apply for formal loans

By Vanessa Naegels

in The Conversation Africa

With an annual GDP growth of 7% since 2013, Tanzania is one of the fastest growing economies in sub-Saharan Africa. Much of this economic growth is driven by small and medium sized enterprises, more than half of which are owned by women.





Photo Credit: Karen Kabi 2021

Why Tanzanian women entrepreneurs don't apply for formal loans

With an annual GDP growth of 7% since 2013, Tanzania is one of the fastest growing economies in sub-Saharan Africa. Much of this economic growth is driven by small and medium sized enterprises, more than half of which are owned by women.

But, women-owned businesses in emerging economies like Tanzania often can't grow because of a lack of financing.

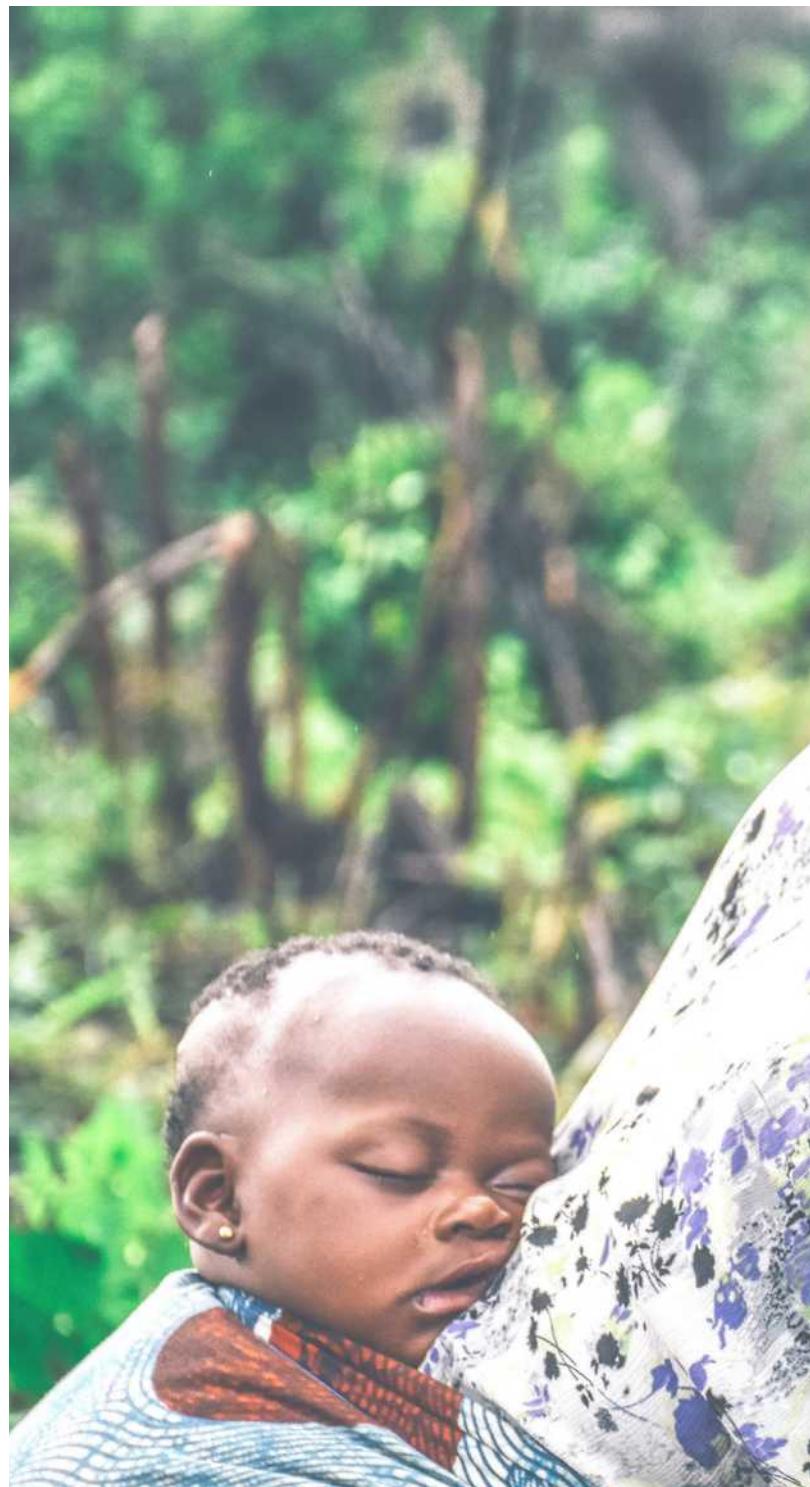
The most important financing source for small businesses worldwide is debt. However, research shows that many women entrepreneurs in emerging economies don't hold formal loans such as bank and microfinance loans. Traditionally the assumption has been that this is caused by a lack of supply. But data points to a different answer.

A 2013 survey among women entrepreneurs in Tanzania showed that more than 80% of bank loan applications and more than 90% of microfinance loan applications had been approved. At the same time, only 18% of women entrepreneurs applied for bank loans and 28% for microfinance loans.

This suggests that a lack of demand instead of a lack of supply is to blame for the limited use of formal loans by Tanzanian women entrepreneurs. This is the result of borrower discouragement: women have negative beliefs with respect to bank and microfinance loans, which discourages them from applying.

In our study we set out to identify women entrepreneurs' beliefs about bank and microfinance loans. We also explored where these beliefs originated from and exactly how they discourage women from borrowing. We interviewed 29 women entrepreneurs from Dar es Salaam, Tanzania's largest city and economic capital.

We found that there are many different reasons why women entrepreneurs don't apply, many of them inter-related.



Lack of trust

Most women we spoke to said they didn't believe that loan officers discriminated against women. But they complained about the unattractive borrowing terms offered by banks. We heard stories of extremely high interest rates (up to 20% or even 30% annually) and collateral requirements.

Many women told us that they had no collateral. They either didn't own a house or land or didn't have their hus-



African Woman with Child on Back - Photo by Annie Spratt on Unsplash

bands permission to use them as collateral.

In addition, those who could use their houses as collateral didn't want to risk losing them in the event of defaulting.

Entrepreneurs mentioned that high taxes as well as adverse economic and political conditions reduced their profits.

As a result, many feared that they would fail to pay back their loan and would then face harassment or abuse by loan officers.

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Apart from unattractive borrowing terms and default risk, many argued that application processes were long and costly. One informant told us she couldn't provide the extensive financial information required because she didn't keep accounts.

And loan officers often requested bribes to speed up the process or bend requirements.

The women also complained about various types of inappropriate behaviour from loan officers. Two women mentioned that loan officers asked for sexual favours in exchange for a loan. Others blamed them for exploiting entrepreneurs' lack of financial knowledge.

For example, women who do end up applying for loans don't know that payments increase if they are late in paying back their loans, or that the bank has the right to sell their collateral.

We also heard stories of loan officers who visited women entrepreneurs in their businesses or even at home to convince them to take out a loan. One informant claimed that loan officers purposefully sought out entrepreneurs with valuable assets in the hopes of seizing them in case of default.

Painful experiences

Two mechanisms shape women entrepreneurs' beliefs: personal experiences and stories from others.

Some informants applied for loans in the past and were rejected; others had trouble reimbursing their loan or experienced other problems such as corruption. Even if they'd had these experiences taking out informal loans, it nevertheless affected their beliefs about formal loans.

Stories of other people's negative experiences with both formal and informal loans also shaped their beliefs. These stories either come from within the entrepreneur's personal network or were passed on within the community.

Women entrepreneurs' negative beliefs about formal loans give rise to negative attitudes. Some mentioned that getting a loan would reduce their

freedom to run the business and use the money as they saw fit.

Because of their negative attitudes most women entrepreneurs said they didn't intend to apply for a loan any time soon. One said that a bank or microfinance loan would be the last thing she would do to access money for her business.

What needs to be done

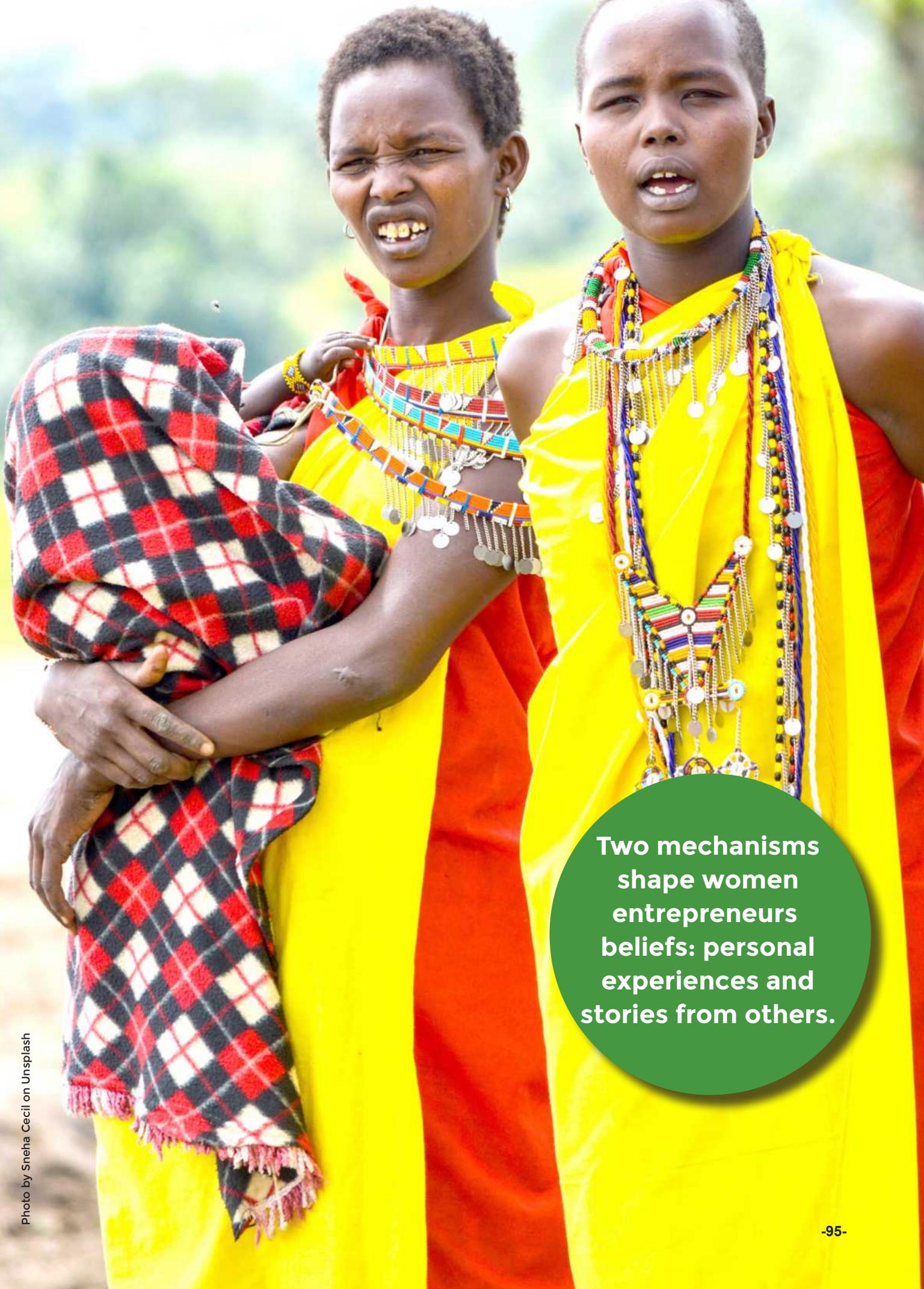
In the past policymakers have tried to address women-owned businesses' lack of financing by increasing the supply of finance. But our research shows that this is addressing the wrong problem. In Tanzania women entrepreneurs aren't deterred by a lack of supply. They don't apply for formal loans for a host of reasons most of them negative beliefs.

This is what needs to be changed. But that's easier said than done.

Often, entrepreneurs' beliefs are rooted in legitimate issues such as loan officers' inappropriate behaviour. So it's imperative that policymakers tackle problems such as corruption, harassment and abuse.

In other cases negative beliefs are probably the result of entrepreneurs' lack of knowledge and low financial literacy. This can be mitigated by educating women entrepreneurs on how to keep accounts, how to invest loans and explanations on the relationship between interest and risk.

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**Two mechanisms
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Photo by Visual Stories Michele on Unsplash

Entrepreneurship funds in Africa: distinguishing the good from the bad

By Aubrey Hruby

in The Conversation Africa

Entrepreneurs have a pivotal role to play in Africa's unemployment crisis. Today over a third of the continent's young workforce (those aged 15-35) are unemployed. Another third are in vulnerable employment. By 2035, Africa will contribute more people to the workforce each year than the rest of the world combined. By 2050 it will be home to 1.25 billion people working aged.

To absorb these new entrants, Africa needs to create over 18 million new jobs each year. Governments need to put in place policies that drive economic growth and competitiveness. These in turn, will enable the growth of small and medium-sized enterprises (SMEs). This is important because they currently play a significant role in low-income countries, representing nearly 80% of jobs. They are also responsible for 90% of new ones created each year.

The challenge for countries is how to support the growth of SMEs. Various African governments have experimented with ways to help address the US\$140 billion funding gap for startups and SMEs. For example, one approach has been to set up entrepreneurship funds.

Based on my experience of watching their performance over the past 18 years, I would issue some words of caution. Some entrepreneurship support models work better than others. And how they are set up – particularly the governance structures put in place to manage them – is key to their success, or failure.

Funding gap

Access to financing is consistently listed as the biggest obstacle to business for SMEs in African countries. They often face double digit interest rates from local banks. And venture capital penetration is still extremely low. Top end 2018 estimates put it at about \$725 million for the whole continent.

To tackle the problem, African countries continue to start new entrepreneurship funds. In July 2017 Ghana launched the National Entrepreneurship and Innovation Plan. The aim is to provide integrated national support for start-ups and small businesses.

Almost a year later, Rwanda secured a \$30 million loan from the African Development Bank for the establishment of the Rwandan Innovation Fund. This will focus on investments in tech-enabled SMEs.

As new funds are started, African countries must look to the successes and failures of both global and regional funds to replicate best practices and avoid common pitfalls. African governments should explore replicating models similar to Small Enterprise Assistance Funds and the USAID backed enterprise funds. Both include robust investment selection criteria for funds.

In doing so, African government-backed entrepreneurship funds would operate as fund-of-funds where a fund invests in another private equity or venture fund rather than directly in businesses themselves as do many development finance institutions globally such as the UK's CDC or FMO of the Netherlands.

The what and the how

The fund of funds structure creates an arm's length relationship between the government agency that houses the entrepreneurship fund and the businesses that eventually receive investment. In between, sits a professional fund manager that earns the majority of its income from making good investments, growing companies and exiting them after a period of five to seven years. In this way, there are natural disincentives for corruption and market-based selec-





tion criteria for the entrepreneurs who receive investment.

How the fund managers are selected also matters. To ensure true investment independence from the government, fund managers and board members must be chosen in a transparent and competitive process. And once selected, representatives of the government entrepreneurship fund agency can sit on the investment committee for oversight purposes but should respect the fund managers independent decision-making.

There are examples of funds being set up without the necessary independent, accountable fund managers. One is the YouWin program in Nigeria. Created in 2016, it was set up to help youth entrepreneurs grow businesses. But senior civil servants handed out awards to friends and relatives.

Government supported fund managers through the FoF model can also catalyse additional investment. By operating in markets and sectors often ignored by traditional private equity funds, Small Enterprise Assistance Funds and enter-

prise funds have mobilized additional capital for investment-starved companies. African government-backed entrepreneurship funds could do the same by participating in blended finance deals with development finance institutions, social-impact investment funds, local banks and other market players to back growing firms.

Measuring success

While not actively managing the funds portfolio investments, governments have a key role to play in guiding the funds priorities. Priorities may vary by country and given Africa's growing rates of unemployment, funds should prioritise job creation by evaluating investment on key performance indicators. These would include the number of jobs created per dollar invested, indirect jobs created per dollar invested, and average salary of job. In addition to job creation, governments can direct funds to focus on specific sectors either in need of increased capital or high-growth areas in local economies.

Beyond establishing investment criteria, government-backed funds should prioritise rigorous measurement of investment results and long-term data tracking to inform future investment decisions. The UK British Bank regional growth fund found the cost per job created varied considerably by project from £4,000 to over £200,000. It concluded that a better allocation of funds could have led to thousands more jobs created for the same resources.

Data driven investments can not only lead to a better results, but further curtail issues around potential mismanagement of funds.

Tackling Africa's job creation challenge requires innovative thinking and initiatives that support private sector-led growth. Looking to the model of Small Enterprise Assistance Funds and enterprise funds, African governments can spur local ecosystems and drive new private capital to regions today seen as unfriendly or too risky to outside investors.

Properly structured investments today could yield much larger dividends tomorrow.

Afreximbank and AfCFTA Roll-out a Pan-African Payment and Settlement System (PAPSS)

By Special Correspondent, Afreximbank

The African Export-Import Bank (Afreximbank) and AfCFTA Secretariat have rolled out of the Pan-African Payment and Settlement System (PAPSS), a revolutionary Financial Market Infrastructure to enable instant, cross-border payments in local currencies between African markets. By simplifying cross-border transactions and reducing the dependency on hard currencies for these transactions, PAPSS is set to boost intra-African trade significantly and underpin the implementation of the African Continental Free Trade Area (AfCFTA).



PAPSS
*enables instant,
cross-border
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between African
markets without
depending on
hard currencies*



Photo by Adeolu Eletu on Unsplash.

African Export-Import Bank (Afreximbank) headquartered in Cairo, Egypt, is a Pan-African multilateral financial institution mandated to finance and promote intra-and extra-African trade. Afreximbank deploys innovative structures to deliver financing solutions that support the transformation of the structure of Africa's trade, accelerating industrialization and intra-regional trade, thereby boosting economic expansion in Africa.

PAPSS will serve as a continent-wide platform for the processing, clearing and settling of intra-African trade and commerce payments, leveraging a multilateral net settlement system. Its full implementation is expected to save the continent more than US\$5 billion in payment transaction costs each year.

The development of a pan-African payments infrastructure has been made possible by some of the continent's leading institutions. The platform has been developed by Afreximbank, who also acts as the main Settlement Agent in partnership with participating African Central banks. The implementation of the infrastructure is taking place in collaboration with the African Continental Free Trade Area (AfCFTA) Secretariat with the endorsement of the African Union (AU).

The commissioning of PAPSS follows a successful pilot phase in the countries of the West African Monetary Zone (WAMZ), with live transactions done in an instant. The West Africa Monetary Institute (WAMI) collaborated with Afreximbank in launching the system in the WAMZ. This an important milestone for the continent and PAPSS is now engaged in advanced discussions with other national and regional institutions to rapidly expand continent-wide connectivity. Afreximbank provides settlement guarantees on the payment system and overdraft facilities to all



\$500M

Amount Afreximbank has approved to support the clearing and settlement in West African Monetary Zone (WAMZ) countries.

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settlement agents. To accelerate expansion and ensure settlement finality, Afreximbank has approved US\$500 million to support the clearing and settlement in West African Monetary Zone (WAMZ) countries. It is estimated that a further US\$3 billion will be made available to support the systems continent-wide implementation.

Professor Benedict Oramah, President of Afreximbank and Chairman of PAPSS Management Board, holds that, with the implementation of PAPSS, Africa can expect to begin to reap the fruits of the African Continental Free Trade Agreement. Afreximbank is proud to have contributed in the realization of the multi-decade dream that seemed unachievable just a few years ago.

PAPSS is not positioned to replace existing regional and national payment systems but to collaborate and work with them in better integrating African economies for the benefit of all. We thank the African Union, the AfCFTA Secretariat, the West African Monetary

Institute and African Central banks for a remarkable outcome.

According to Wamkele Mene, Secretary-General of the African Continental Free Trade Area, the implementation of the Agreement establishing the AfCFTA will improve intra-Africa trade, necessitating in this regard, the establishment of a payment system to facilitate affordable and efficient cross border trade transactions. It is on this basis that the AfCFTA Secretariat strongly supports the development of a Pan African Payment and Settlement System (PAPSS) that will usher in a new phase in the African economic trajectory.

The introduction of PAPSS provides Africa with greater capacity to conduct cross-border transactions and expand the scale of both active and latent opportunities for enhanced intra-African trade.

Godwin Emefiele, Governor Nigerian Central Bank, reiterates that, PAPSS has been brought about by our collective desire to facilitate and accelerate the growth of intra-African trade. With central banks working actively together alongside the Afreximbank, we are ushering in a new phase in Africa's economic trajectory, in keeping with the ideals of the African Continental Free Trade Area.

And that the introduction of PAPSS provides central banks with greater transparency and control as we now have a single window into all cross-border transactions emanating from our various jurisdictions and across the continent.



Photo by Sincerely Media on Unsplash



Photo by Benjamin Dada on Unsplash

In presenting this game-changer, Mike Ogbalu III, CEO of PAPSS says that, PAPSS is designed to be a fundamental rail connecting African markets to each other and enabling individuals, businesses and governments on the continent to trade with each other seamlessly. PAPSS will provide fresh impetus for businesses to scale more easily across Africa, essentially eliminating the borders that have balkanized us and robbed us of our economic prosperity for so long.

He also affirms that PAPSS has demonstrated credibility through its successful pilot and proof of concept in the WAMZ region, a region with the diversity and complexity anticipated in the larger African context that considers multi-lingual, multi-currency and multi-regulator dynamics. Following the accomplishment of this milestone, PAPSS will now set its sights on integrating the rest of the continent into this critical infrastructure by integrating National Payment Systems, Regional Payment Systems and other financial services providers.

PAPSS was initially launched on July 7th, 2019 in Niamey, Niger, at the 12th Extraordinary Summit of the Assembly of the African Union (AU) who adopted it as a key instrument for the implementation of the African Continental Free Trade Agreement (AfCFTA).



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Mike Ogbalu III, CEO of PAPSS



Innovation: Key to Africa's Industrialisation

Patrick N. Osakwe and Nicole Moussa

A first step to effectively promoting technology and innovation in Africa is for African governments to develop coherent STI policies. Over the past decade many African countries have either developed or revised their STI policies. However, there is often incoherence between STI policies and other development policies. For example, UNCTAD (2015) reviewed STI policies of three countries (Ethiopia, Nigeria and the United Republic of Tanzania) and found that there was lack of coordination between STI and industrial development policies in these countries. Other areas where there is disconnect between STI and other development policies include gender and education.



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It is well-known that technological progress tends to be gender and skill-biased. In particular, new technologies tend to favour skilled workers and men (more than unskilled workers and women), which has negative consequences for income distribution and the quest for inclusive development. Despite the importance of these issues and the associated linkages, STI policies in Africa are developed independent of gender and educational policy. To enhance policy coherence, there is the need for STI policies to go hand in hand with educational policies geared towards enhancing the skills of unskilled workers and women to enable them take better advantage of technological progress and make the growth process more inclusive than in the past. There is also the need for African governments to strengthen efforts to align national and regional STI strategies



for better development outcomes.

Increase domestic expenditure on R&D

It is a well-known fact that R&D is an important component of any effective package to promote technology and innovation. Yet African countries spend a relatively small percentage of their GDP on R&D (less than 1 per cent). In 2014, for example, gross domestic expenditure on R&D as a percentage of GDP was 0.68 per cent in Egypt, 0.27 per cent in Togo and 0.64 per cent in Uganda. These numbers are far below the 1 per cent target set by the African Union and need to be scaled up.

A related issue is the low investment rates in tertiary education in Africa which is a disincentive to R&D and also constrains technology transfer through foreign direct investment (FDI). African governments should prioritize tertiary education to stimulate R&D and also promote knowledge spillover from foreign to domestic firms. Studies have shown that when domestic workers have required skills, it facilitates knowledge spillover to domestic firms and enhances local capacity to absorb foreign technology. While we emphasize the need to increase spending on R&D, it is

also important to point out that R&D is useful to the extent that it can effectively foster technological learning and building of innovation capacities in a country. It is therefore important for African governments to pay attention to the kinds of research activities they promote to ensure that they address the technology and innovation needs of the country.

Strengthen university-industry collaboration

Universities are major producers of knowledge. But for this knowledge to have impact on diversification and structural transformation, it has to

In 2014, for example, gross domestic expenditure on R&D as a percentage of GDP was 0.68 per cent in Egypt, 0.27 per cent in Togo and 0.64 per cent in Uganda. These numbers are far below the 1 per cent target set by the African Union and need to be scaled up.



address the needs of industry and also transferred or disseminated to the productive sectors. Unfortunately, in many African countries the educational curriculum is not geared towards addressing the challenges facing industries, resulting in a mismatch between university output and the labour demands of the private sector. One way to reduce this mismatch and make the growth process more inclusive is to develop effective linkages between institutions of higher learning and the industrial sector in Africa, through for example appointing Chief Executive Officers of strategic industries to sit on the boards of universities. This would encourage university administrators to involve the private sector in the design of education curricula in universities. It would also enhance the likelihood that university graduates have the skills they need to access and participate in the labour market. Governments can also incentivise industries to collaborate with universities through, for instance, providing enterprises that enter into such partnerships with grants for joint research.

Enhance implementation of existing STI policies

A major challenge facing African countries is the lack of full implementation of policies and plans at both the national and continental levels. As indicated earlier, many countries have developed an STI policy document over the past decade. Yet, some of these policies have not been implemented. In Lesotho, for instance, several of the policies contained in the National Science and Technology Policy for 2006-2011 have not been implemented. Similarly, in Malawi, the Science and Technology policy framework revised and adopted in 2002 has not been fully implemented (UNESCO 2015). These facts underscore the need for African policymakers to pay more attention to implementation of policies than in the past. Some of the measures they can take to enhance implementation of policies include: developing an implementation plan for STI policies; prioritizing data collection and introducing a monitoring and evaluation system; and making appropriate pro



visions for STI policies in national budgets to ensure adequate funding.

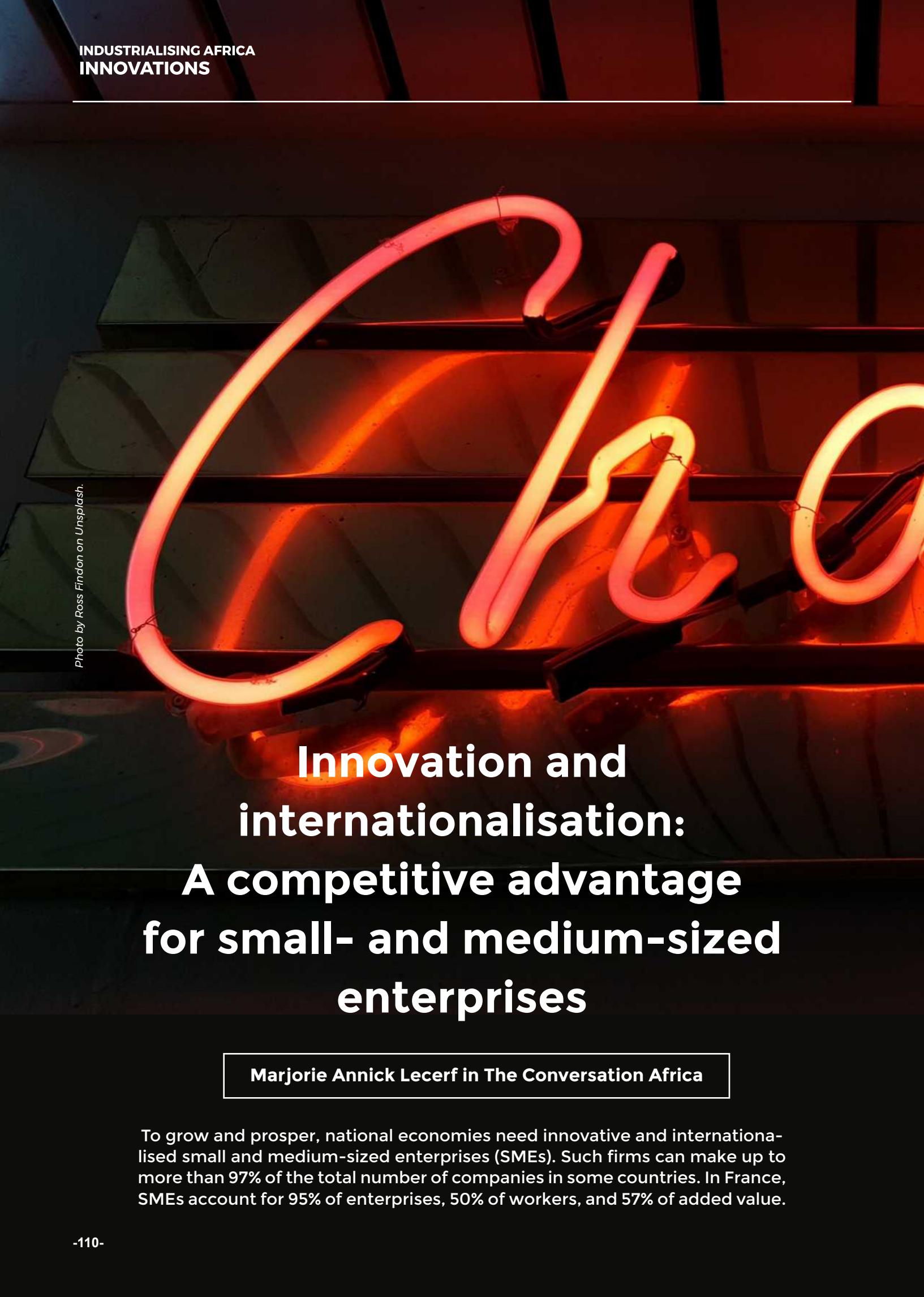
Promote innovation at the enterprise level. The creation of an environment conducive to entrepreneurship is necessary to achieve sustained progress in technology and innovation. Governments can unleash the innovation potential of entrepreneurs through providing better infrastructure, building a skilled labour force, and eliminating regulatory obstacles that drive some entrepreneurs into the informal sector. They can also encourage entrepreneurs to innovate through setting up of technology parks and providing incentives (such as the establishment of innovation prizes and entrepreneurship awards) to young potential entrepreneurs. While governments have a major role to play in promoting innovation, it is not the responsibility of governments alone. Firms also have an important role to play but they can do so effectively if they adopt a systemic as opposed to a reactive innovation strategy.

Increase awareness of intellectual property rights (IPRs)

Lack of awareness of existing IPRs can create a disincentive for firms to invest in R&D and militate against innovation. It can also make young potential innovators reluctant to innovate for fear that their novel ideas could be stolen, patented and used by potential competitors. African governments can play a crucial role in addressing this issue by increasing awareness of existing IPRs in their countries through organisation of information dissemination events and exploiting opportunities created by the rapid growth and use of social media. Intellectual property offices in Africa should also be encouraged by governments to play a more active role in facilitating access to information on IPRs and also in disseminating technological information in support of local innovative activities.

Technology - Photo by [Paul Frenzel](#) on [Unsplash](#).

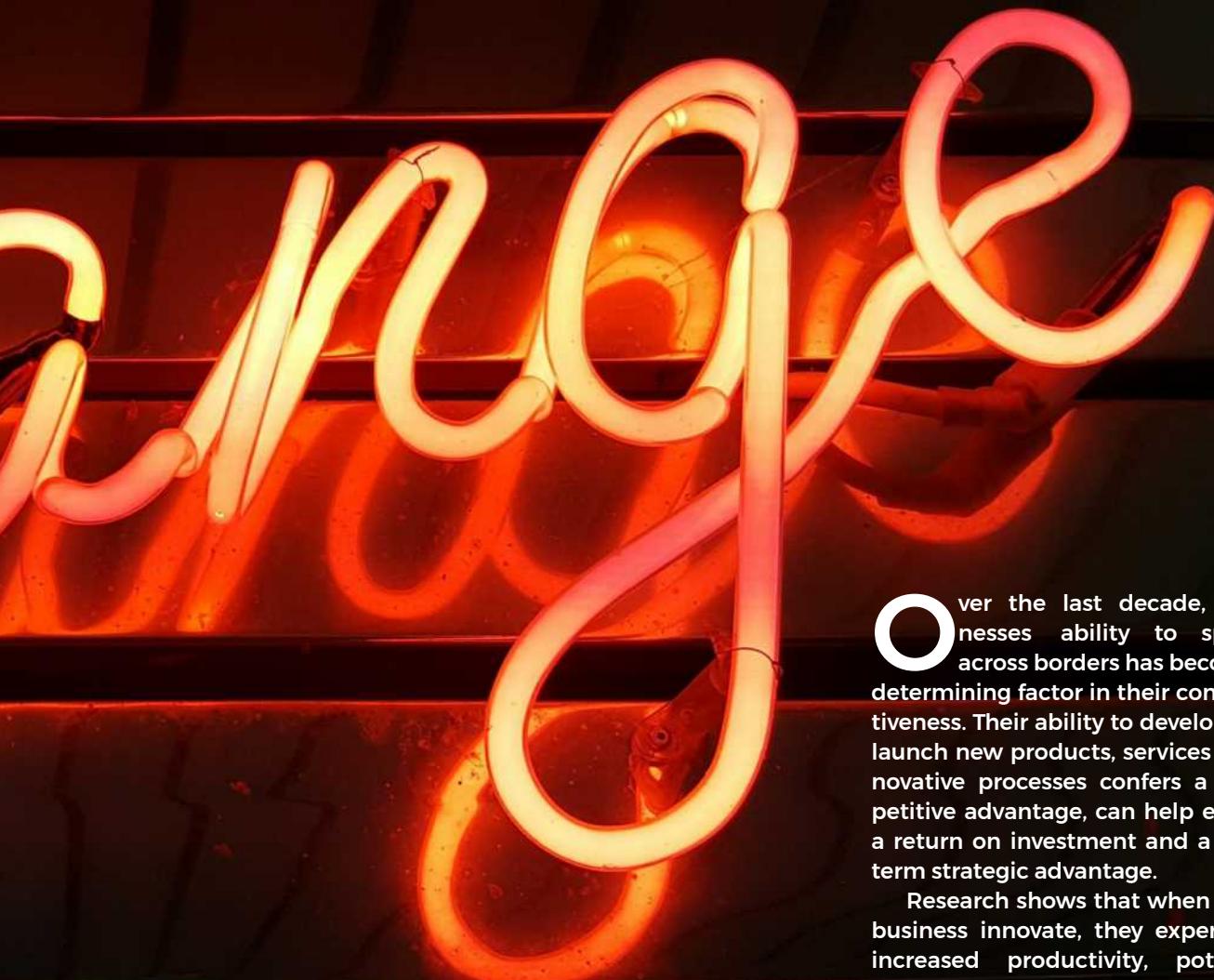




Innovation and internationalisation: A competitive advantage for small- and medium-sized enterprises

Marjorie Annick Lecerf in The Conversation Africa

To grow and prosper, national economies need innovative and internationalised small and medium-sized enterprises (SMEs). Such firms can make up to more than 97% of the total number of companies in some countries. In France, SMEs account for 95% of enterprises, 50% of workers, and 57% of added value.



Over the last decade, businesses ability to spread across borders has become a determining factor in their competitiveness. Their ability to develop and launch new products, services or innovative processes confers a competitive advantage, can help ensure a return on investment and a long-term strategic advantage.

Research shows that when small business innovate, they experience increased productivity, potential growth and general sustainability. In some economic sectors, the proportion of innovative SMEs exceeds that of large companies; more than 20% of French firms filing patents are small businesses.

When confronted with serious structural or technological changes, the evolution of markets is constrained by innovation. Global strategic direction, the enlargement of the external environment, and the acquisition of international customers are positive factors in the development of a self-sustainable innovation dynamic.

Internationalisation and innovation
While previous research has explored the connection between innovation and international development, our

current work, based on a sample of 335 French SMEs, has established that technological resources are key drivers.

The innovation process is based on a company's ability to activate its existing and available internal knowledge. It also depends on the firm's capacity to gain knowledge from external sources through imitation strategies, licensing acquisition, partnerships or the purchase of patents. Export strategies increase the innovative capacity of small- and medium-sized companies by increasing their access to resources such as skilled labour.

Global activities allow direct access to business partners and international experts in venture-capital markets. Only 30% of European SMEs engage in exportation, while in France the figure is about 16%. Product innovation is presented as a major factor of the propensity of German companies to export.

Moreover, SMEs operating within an industry or with technologically advanced suppliers have higher innovation potential. Research has shown that if business are constrained by geographic limitations, that also constrains their innovation capabilities.

Internationalisation provides the opportunity to increase their resources by reaching new markets. This leverage frees internal financial resources. Access to external financing is also improved through export activities, providing convenient access to new networks of potential investors more willing to participate in innovation efforts. Proximity allows access to critical information in terms of current and potential customers expectations. Much research

considers customers as the main lever of product innovation.

Toward more innovation and internationalisation of SMEs

Nevertheless, implementing mixed strategies can result in major difficulties.

The size of SMEs limit innovation or internationalisation strategies, as they can they consume significant financial, technological, commercial and human resources. Considered fragile in terms of resources, small businesses maintain performance through high flexibility. The synergy expected as a consequence of the joint development of both innovation and internationalisation is limited by the low transferability of resources. Indeed, cultural and institutional distances can drastically reduce the transmission of skills and knowledge.

The results of our research allowed for a better adaptation of public innovation and export policies, which are separated and individually managed. The French Employment Orientation Council has identified more than 2,500 different promotion programs, mainly based on financial support, but coordination is lacking and effectiveness limited. Indeed, a study conducted by ANVAR (French organisation for the improvement of innovation in SMEs) reported that 39% of the firms that received financial support still failed. By focusing on support in codifying the existing innovations, public policy would sustain the internationalisation strategy, increase the value added and the industry production, and induce a job-creation effect.

39%

Percentage of firms that received financial support and still failed

Developing countries need to wake up to the risks of new technologies

Technological advances associated with the fourth industrial revolution – including artificial intelligence – allow the automation of an increasingly wide array of processes in increasingly interactive and sophisticated ways. These advances will likely give rise to many opportunities for economic and social development in developing countries, for instance by increasing food production.

By Ralph Hamann



Technological advances associated with the fourth industrial revolution – including artificial intelligence – allow the automation of an increasingly wide array of processes in increasingly interactive and sophisticated ways. These advances will likely give rise to many opportunities for economic and social development in developing countries, for instance by increasing food production.

But the new technologies also involve important risks, which have special significance in developing countries. They may build upon and exacerbate existing inequalities both within developing countries as well as between developing and more developed regions.

Three of these inter-related risks are worsening unemployment, increasing concentration of economic power and wealth, and the spread of biases in influential algorithms. They will manifest in different ways and require different responses in diverse contexts. A cross-cutting problem is that too few developing country governments are giving these risks serious attention.

Risk 1: Worsening unemployment

The concern that new technologies especially artificial intelligence – will lead to widespread job losses has been widely discussed. Of course, the fear that new technologies replace workers is an old one. But it's been pointed out that historically new technologies have often given rise to more new jobs than the ones that have been automated away.

What's perhaps different now is that the new, interconnected digital technologies will likely have a broader and more far-reaching array of abilities. And so the prospect of new kinds of jobs may well be diminished or limited to increasingly sophisticated domains, such as machine learning.

In addition, new technologies are now not just replacing jobs, but they are also enabling the disruption and restructuring of entire industries. For instance, Uber has already pulled the rug from underneath the conventional taxi industry in many places. Imagine the possible consequences of Uber's shift to driver-less cars.

Lower labour costs in many developing countries mean that investments in job replacing technologies will be lower. But other aspects of developing countries contexts increase the possible severity of this risk.

First, the dearth of effective education systems and skills in countries like South Africa will make it more difficult for people to be retrained for the technology intensive new jobs that will become available. Secondly, all governments are struggling to grapple with the implications of new technologies and associated new business models. This struggle is particularly strong in developing country governments. The case of Uber in South Africa reflects this.

Risk 2: Increasing concentration of wealth

Many developing countries are characterised by high levels of inequality within their populations. Elites within these countries will be more likely to make use of AI and other new technologies. This will further increase returns to capital widening the gap between elites productive capacity and that of everyone else.

A similar effect is likely at a global level. It's no coincidence that Russia's President Vladimir Putin has identified AI as the new terrain for global competition between nations.

New technologies advantages for capital are not just due to increasing productivity, but also because they allow new business models that may control or even dominate entire sub-sectors and stifle competition. For instance, it could become possible for a single company to control large fleets of automated vehicles in one or more large areas.

Again, much will depend on whether





states can keep up with these developments and respond effectively. Particular attention will need to be paid to intellectual property and competition law. For instance, the strict enforcement of intellectual property rights for AI algorithms may well support increasing economic concentration. It's also likely that national governments may have less and less influence over such decisions and trends. Even so, many developing country governments are not giving these developments their due attention.

Risk 3: Bias baked into algorithms

Finally, the AI algorithms that are at the centre of the fourth industrial revolution will reflect and perpetuate the contexts and biases of those that create them. Difficulties faced by voice recognition software in recognising particular accents are a relatively innocuous example. Of course, the promise is that AI will enable such systems to learn to address such issues. But the learning process itself might be influenced by racial, gender, or other prejudices.

AI algorithms are developed almost entirely in developed regions. Thus they may not sufficiently reflect the contexts and priorities of developing countries. Ensuring that AI algorithms are appropriately trained and adapted in different contexts is part of the required response. It would be even better if developing countries become more engaged in the development of new technological systems from the get-go.

Governments need to act

These three risks require that academics, businesses, and civil society actors attend to the role of new technologies in developing countries. But a special responsibility lies with governments. For the most part, they seem to be distracted.

Governments ought to carefully assess the above risks in their national context and then establish corresponding policies and programs. This includes national skills development and work placement platforms, intellectual property and competition policies, and local technology adaptation and development.

Ralph Hamann in
The Conversation Africa
Professor, University of Cape Town

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Why the African free trade area could be the game-changer for the continent's economies

By Muazu Ibrahim

in The Conversation Africa





Most economists see structural transformation as one of the main routes to Africa's sustainable development. What it means is changing the share of agriculture, manufacturing and services in an economy. It is a central aim of the African Union's Agenda 2063.

With this aim in mind, economists and policymakers need to know what determines structural transformation. They have flagged factors like demand for goods and services, trade policies, financial development, institutional quality and economic integration.

But researchers haven't closely examined the way economic integration through trade and finance influences structural transformation.

I therefore set out to study African countries' integration with the rest of the world and the effect of that integration on their structural transformation. This study provides fresh evidence about whether integration is good for Africa. It also uncovers the right levels of integration necessary to increase structural transformation.

Trade and financial integration are both about countries exporting to and importing from each other. The two are often referred to as economic integration. Opening national borders to trade has a number of potential benefits which can promote development. For example it creates comparative advantage, access to external finance and opportunities for risk sharing. It also enables technology transfer. Local firms serving larger foreign and domestic corporations can acquire knowledge and skills and transfer them to the rest of the economy.

All these benefits are essential for structural transformation. But excessive openness and integration may also come at a cost, largely from distortions around trade policy. For instance, if certain local industries have been protected, local firms may not be fit enough to compete with foreign counterparts. Opening these industries to competition may harm them.

Balancing the potential benefits and dangers of integration is a pressing policy issue now that African countries have signed the African Continental Free Trade Area agreement, which aims to foster integration.

Policy makers need to know whether there is an ideal level of trade and financial integration that will change economies in the desired ways.

The study: findings and implications
With this background, I examined the effects of economic integration on structural transformation in 32 African countries from 1985 to 2015. The time period and choice of countries were based on data availability.

I created an index of structural transformation that incorporates changes in sectoral value addition and demographic characteristics. The index ranges between 0 (low transformation) and 1 (high transformation). I found that structural transformation on the continent was low, with an average value of 0.419, but varied across countries.

The majority of the countries' indices were lower, suggesting that structural transformation is only just beginning.

I also found that African countries were less integrated in terms of trade and finance than other developing economies.

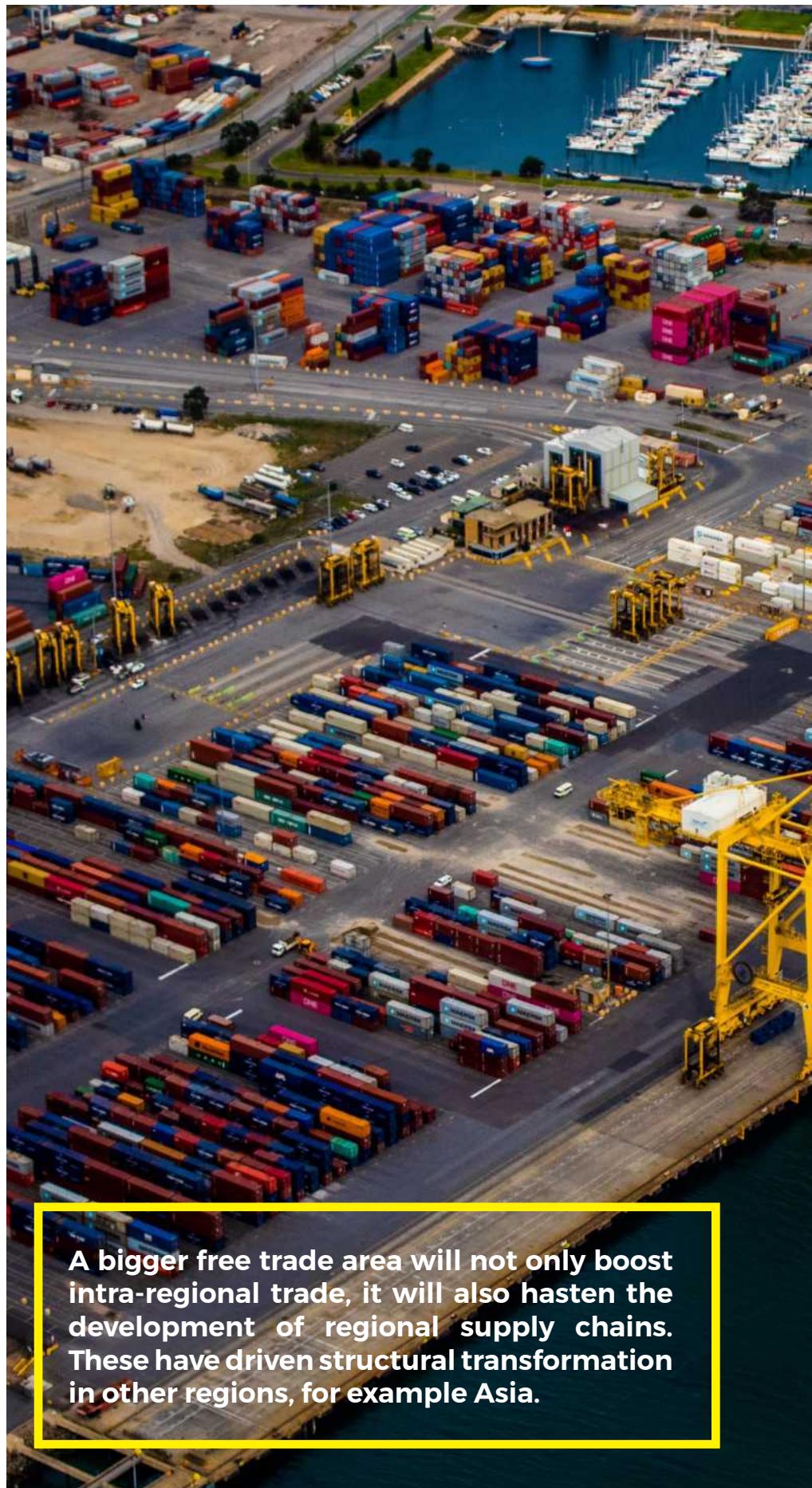
I measured trade integration as the ratio of countries imports and exports to GDP. This shows the degree of openness. I found that the optimal level for trade integration was 73.29% of GDP. By this I mean the level of trade integration that produces an improved effect on structural transformation.

The data suggested that trade integration encourages the reallocation of resources to more productive sectors.

To measure financial integration, I used the ratio of countries total foreign liabilities and assets to GDP. This shows the degree of restriction of capital flows. The optimal level for financial integration was 137.5% of GDP. Ten African countries were above these levels and 22 were below.

The 10 countries that are above this financial integration threshold are Botswana, Congo Republic, Côte d'Ivoire, The Gambia, Guinea Bissau, Mauritania, Mauritius, Seychelles, Sudan and Togo. Similarly, the 10 countries above the trade integration threshold are Botswana, Congo Republic, Côte d'Ivoire, Gabon, Mauritania, Mauritius, Seychelles, Eswatini (formerly Swaziland), Togo and Tunisia.

I observed that structural transformation increases more in countries that are below these levels of integration compared to countries that are above the thresholds. Integration increases structural transformation, but





too much integration slows that process, producing undesired effects.

The positive effect of integration on transformation occurs through enhanced efficiency, comparative advantage, external finance and risk diversification. Countries can have these features despite being less integrated and operating below the thresholds. The benefits of integration come from efficiency of integration rather than unbridled integration.

A key implication is that efficiency in both trade and financial integration is critical to driving structural transformation in Africa. This explains the urgent need for African countries to simultaneously deepen trade and financial integration. Economies that embark on economic integration along both lines can expect to have improved transformation for sustainable development.

The role of the free trade area

The study shows that Africa has opportunities to integrate further. The African free trade area has the potential to defragment the continent and bring its economies into the global economy.

The free trade area aims to progressively eliminate tariffs and non-tariff barriers to trade in goods and to liberalise trade in services. It will establish a single continental market for goods and services: a bigger and more competitive market.

A bigger free trade area will not only boost intra-regional trade, it will also hasten the development of regional supply chains. These have driven structural transformation in other regions, for example Asia. It is also necessary for policy to address the non-tariff barriers to trade. Among these are poor logistics and infrastructure (such as roads, rail, ports, power and digital connectivity).

Countries should be focusing on removing such bottlenecks. The African Union, United Nations Economic Commission for Africa and the African Development Bank should get the free trade area working as soon as possible.

It has the potential to make a big difference to structural transformation and could be the game-changer for Africa.



UK-Africa trade and investment: who benefits?

By Ian Scoones

There has been much hype about a major Africa investment summit being hosted by the UK. Attended by Prime Minister Boris Johnson and an array of royals, a great deal of hopeful win-win-win rhetoric abounded linked to forging new partnerships for a post-Brexit future.

There has been much hype about a major Africa investment summit being hosted by the UK. Attended by Prime Minister Boris Johnson and an array of royals, a great deal of hopeful win-win-win rhetoric abounded linked to forging new partnerships for a post-Brexit future.

At the summit, Ghana, it seems, is being given top treatment as a favoured destination, while Zimbabwe appears to have been snubbed despite being open for business .

UK aid policy these days is focused on promoting UK trade interests abroad, with the government adopting a global business promotion approach for UK firms.

The linking of aid and trade of course has a history in Britain. In 1994 the Pergau dam scandal in which aid was used as a sweetener for an arms deal led to the commitment to untie aid. It also led to the establishment of a separate development department and an Act of Parliament specifying how aid must be spent.

This consensus on aid since the mid-1990s, however, is now under threat.

Trade and investment can of course help reduce poverty, promote women's empowerment and be good for children's rights. But the opposite may be true too. There are many different business models and so labour, environmental and rights regimes with very different outcomes. We've been looking at some of these issues over the last few years across a number of projects. All were funded

by the UK's Department for International Development.

The project compared three broad types of commercial agricultural investment: estates and plantations; medium-scale commercial farms; and outgrower schemes. The team looked at each business model in Ghana, Kenya and Zambia, examining the outcomes for land, labour, livelihoods and so on.

Cases included investments with UK-linked companies such as the much-feted Blue Skies company in Ghana, which packages and exports fruit produced by smallholder outgrowers. Another was the rather bizarre sugar outgrower scheme in Zambia, operated by Illovo, which is now largely owned by British Foods, whereby smallholders' land is incorporated into an estate and they are paid revenues for the use of land.

The findings showed that the terms of incorporation into business arrangements really mattered. Too often estates or plantations operated as enclaves separated from the local community; some provided employment opportunities but frequently with poor conditions. Smallholder-led outgrower arrangements, where influence over terms was effective, had substantial linkage effects with the local community.

A decade ago, at the height of Africa's land rush, many investments were deemed to be land grabs . But our work argued for a more nuanced assessment. Not all investments are bad. But not all are good either. Linking investment to the UN Food and Agriculture Organisation's "Voluntary Guidelines" is essential. This allows investors, governments and recipient communities to make balanced appraisals, avoiding investment riding roughshod over local land rights and livelihoods.

Hidden networks

Another project, part of the Agricultural Policy in Africa programme, has focused on agricultural investment corridors in Kenya (LAPSSET), Tanzania (SAGCOT) and Mozambique (Beira and Nacala). Alongside Chinese, Brazilian and other investors, UK in-

At the summit, Ghana, it seems, is being given top treatment as a favoured destination, while Zimbabwe appears to have been snubbed despite being open for business .

vestments are evident in all sites.

Again, our findings highlight the design of these corridor investments and the importance of a networked approach in which there are multiple linkages from the core investments (usually around infrastructure, large estates and mining) to the wider hinterland. Too often extractive tunnel designs emerge in which any impacts on wider development are very limited.

Our conclusions are reflected in AGRA's excellent 2019 report focusing on the hidden middle. This argues that the private sector investment with the most impact is usually small, often informal, and deeply linked into local economies. Clusters of interconnected economic activity are usually spontaneous, not planned as part of grand corridor or investment hub schemes. And when you look, the link between the vast number of smallholder producers and consumers is increasingly filled with many entrepreneurial private sector actors working in transport, processing, logistics and so on.

Private sector players are not missing in these instances, as is often assumed, but instead hidden from view. The UK-Africa summit focuses on investment and the private sector emphasises large, formal operations, branded as UK plc. But it is the smaller, local outfits that are driving change in African agricultural value chains. They are the ones in need of support and investment.

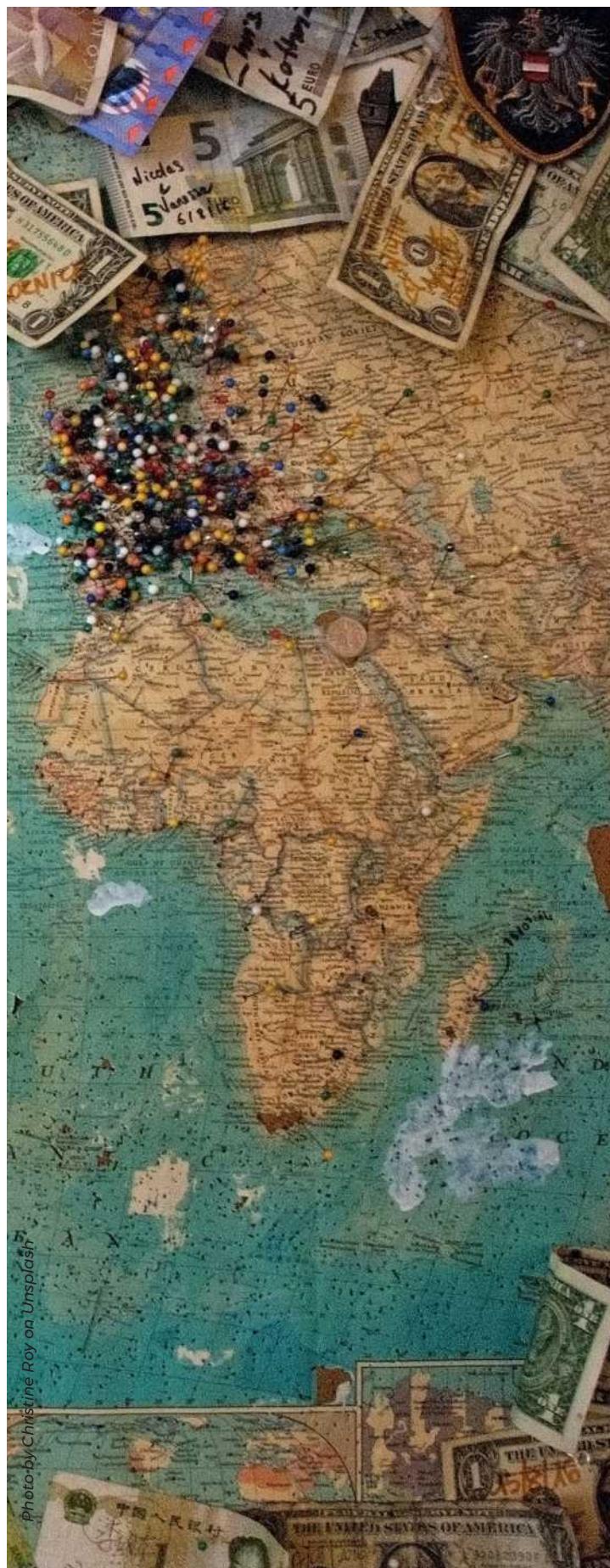
Will the focus of the UK Africa investment summit be on supporting such smaller initiatives with the real potential for transformation, and developmental gains? From what I have seen, I somehow doubt it.

What to guard against

As the UK scrambles to compensate for the errors of committing to Brexit, it will be crucial to hold the UK government to account for its aid spending to avoid business imperatives overriding development goals, with larger UK investors getting the upper hand and crowding out local alternatives.

Investing is certainly possible in ways that are positive for local economies and where land rights are protected in line with internationally-agreed guidelines. But it does require a sophisticated approach that goes beyond the promotional gloss and the hype of international trade fairs. There's plenty of good research on the implications of trade and investment on development in Africa, including that commissioned by DfID. Let's hope the arm of the UK government that is promoting trade makes use of it.

Ian Scoones
In The Conversation Africa
Professorial Fellow, Institute of Development Studies, University of Sussex



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How West Africa economic partnership deals put the cart before the horse

By Michael E Odijie

in The Conversation Africa



Photo by Mihailo Kharlamkin on Unsplash

The effect of the economic partnership agreement on Côte d'Ivoire's poultry industry strategy was to close down its regional market as all neighbouring countries replicated the policy. It was thus self-defeating.

Flawed co-ordination

Under the economic agreement with the EU, the regional body is required to liberalise 75% of its imports from the European bloc. The remaining 25% can be excluded – local products can be protected from competing with the EU imports.

The sensitive products are excluded to protect existing local industries and to support current and future sector or industrial policy.

The problem of co-ordination is well illustrated in the case of Nigeria selecting sugar as one of the products for regional exclusion. It did so because it has an existing industrial policy on

sugar that necessitated domestic protection. This means other ECOWAS countries can import cheaper sugar from the EU. This leaves other countries with two other options: they can import sugar from Nigeria, or develop their own sugar sectors.

The first option would benefit Nigeria's sugar sector by giving it the markets of 14 other ECOWAS countries. This is, after all, the main rationale for regional integration. But the second option is more likely. For one thing, Nigeria's sugar industry is still in its infancy and therefore does not produce enough to take advantage of the regional market. The fact of regional protection is therefore likely to instigate national industrial policy in several neighbouring countries.

The second option is a problem because if most of the countries in a given region have an industrial policy in the same sector, the sector will be added to their national list of sensitive products, blocking neighbouring countries from exporting to them.

The production of chicken is another example.

At the end of 2004, while most West African countries relied on cheap imports of chicken parts from the EU, Côte d'Ivoire sought to protect local chicken production. This revived a dying poultry industry as imports declined and production grew. In 2012 the Ivorian government decided to invest more in poultry and created a development plan to this effect. The plan involves a strategy to start exporting large numbers of chickens to sub-regions of ECOWAS.

The completion of the economic partnership agreement in July 2014 changed all this. After poultry was listed as an excluded product, seven neighbouring ECOWAS countries started developing their poultry industries. Ghana, for example, launched a programme only six days after the signing of the agreement. It had previously depended on imports of cheap chicken portions from the EU and was a target market for Côte d'Ivoire.

The effect of the economic partnership agreement on Côte d'Ivoire's poultry industry strategy was to close down its regional market as all neighbouring countries replicated the policy. It was thus self-defeating.

This problem is not unique to poultry production or to ECOWAS. A study of Botswana noted that when an industrial policy succeeds there, it's usually copied by South Africa. The authors of the study called for the integration of Botswana's industrial policy with that of South Africa to avoid this.

What should the regional body do?

The solution to this problem is a negotiated division of labour at the regional level. Countries should form an industrial council that would embody the industrial policies of a single state and use it as the basis for regional negotiation with the production policies of other states. At the regional negotiation level, problems of coordination would become clear from the outset.

This approach would also help passive countries to become active in developing production policies.

Ideally, just as trade-based regional integration starts with trade liberalisation and ends with a common trade policy, so production-based regional integration would lead to a common production policy (production coordination).

The common production policy would stem from co-ordinating production policies of different countries. The goal would be to supply the enti





Dr. Mukhisa Kituyi,
Secretary
General
Emeritus for
UNCTAD

Purposeful Industrialisation for Africa's Economic Transformation

Industrialising Africa

An exclusive interview by Industrialising Africa with Dr. Mukhisa Kituyi, Secretary General Emeritus for UNCTAD on Africa's industrialisation journey, potential, challenges and opportunities

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In 24 years, Vietnam's industrial production capacity and exports had leapt by a phenomenal 1,000 percent from 1.25Billion Dollars in 1994 to 125Billion Dollars in 2018; whereas Africa recorded a modest 50 percent growth within the same period.

*Dr. Mukhisa Kituyi,
Secretary General Emeritus for UNCTAD*



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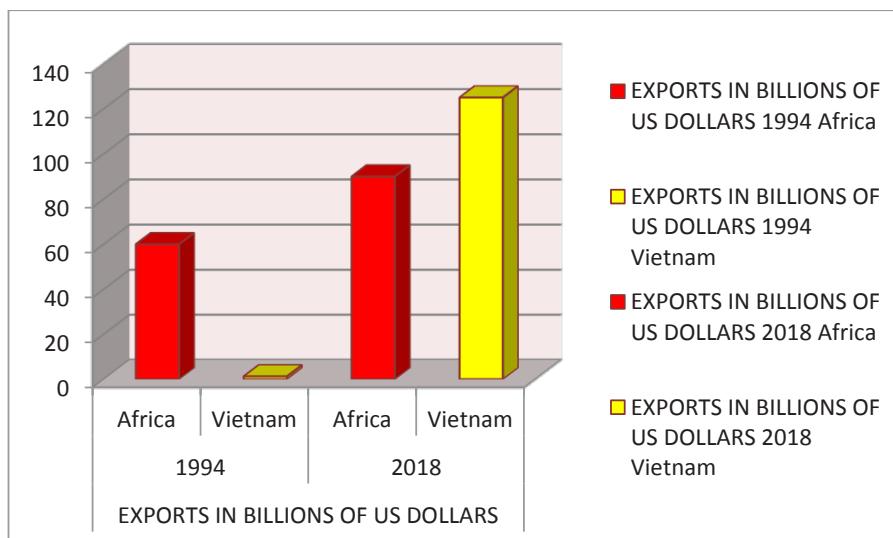
Dr. Mukhisa Kituyi, the Secretary General Emeritus, UNCTAD (United Nations Conference on Trade and Development) firmly believes that Africa stands on the verge of emerging as a powerful player in the 4th Industrial Revolution and prominent actor on the world stage. He however adds that, this is only realizable if African countries singularly and collectively do the right things, most important of all, leveraging on technology and innovation to gain comparative competitiveness in the industrialisation trajectory.

During his tenure at the helm of UNCTAD, he worked closely with UNIDO (United Nations Conference on Trade and Development) to establish practical and effective ways in which the two supranational agencies would add value to Africa's growth in the areas of trade and industry by encouraging an industrial culture and industrial productivity.

The seasoned technocrat opines that, whereas it is important for Africa to industrialise, the continent cannot industrialise solely through the traditional chimney stack approach, as that is only a part of a four-fold compendium that speaks to each country's context. A One Fits All linear approach for Africa's industrialisation is bound to fail,

He who has no destination cannot get lost or as Americans would say, If you do not know the way, any way will take you there.

There are illustrations to show that even though Africa is industrialising, the pace is wanting. As shown in this 24 years comparison of industrial productivity for export between Vietnam and Africa:



considering the diversity on the 53 African countries.

What would work best for Africa is the Airbus Model , where African countries will compliment each other on their diverse competencies, strengths and deficiencies; as opposed to competing with each other. He cites an example of a model he mooted as Minister for Trade and Industry in Kenya, where high quality cotton grown and harvested in Tabora, Tanzania would be spun and weaved in Jinja, Uganda and the fabric used to stitch garments for export in the EPZ of Athi River in Kenya. In this case as the business grows, the accruing economic benefits are felt by thousands in three countries and their respective governments.

According to Dr. Kituyi, the biggest impediment to Africa's industrialisation is lack of clear, concise and coherent goals and policies on matters industrialisation, thus the adage:

In 24 years, Vietnam's indus-

trial production capacity and exports had leapt by a phenomenal 1,000 percent from 1.25Billion Dollars in 1994 to 125Billion Dollars in 2018; whereas Africa recorded a modest 50 percent within the same period. Vietnam was a country just merging from a devastating war, whereas Africa which had not suffered any large scale calamity to impede its growth, did not grow as much it should have.

The greatest responsibility with regard to industrialisation rests with the governments. They are supposed to serve as catalysts for unlocking and harnessing potential in transforming the qualitative processes along the entire value chain with regard to industrial production.

Some of the setbacks to Africa's industrial development and trade are self-imposed. It is absurd for African countries to levy direct and indirect tax on cross border factors of production within Africa. Tariffs on inter-African trade are higher than tar-

Airbus Model

What would work best for Africa is the Airbus Model , where African countries will compliment each other on their diverse competencies, strengths and deficiencies; as opposed to competing with each other.



iffs on overseas imports on the same products, a phenomenon only practiced in Africa. In this way, such policies continue to subdue Africa's competitiveness on the world market.

Africa's trade within the continent as envisaged in the AfCFTA protocols will hopefully address some of these glaring discrepancies and in so doing, spur the continent's industrialisation trajectory at a more impressive pace as it positions itself as the next world factory. Dr. Kituyi believes that the continent is well positioned as the next frontier for producing labour intensive products away from the intensifying economic nationalism and technology cold war between the West and the East.

Industrialising Africa will directly

impact regional security and the continent's relationship with the European Union, because it will create more job opportunities on the African soil and mitigate the continued northward flow of economic immigrants and refugees fleeing the economic hardships back home. The industrialisation drive opens a whole new frontier for international cooperation with Africa to support the vulnerable economies of these developing countries through such sustainable and purposeful initiatives.

The UNCTAD Secretary General Emeritus surmises that, the world will be welcoming of a qualitatively transforming Africa through industrialisation.

A professional cyclist is shown in mid-motion on a road bike during a race. The cyclist is wearing a white and black triathlon suit with a helmet, and a black and red bicycle. The background shows a road and some greenery.

As a world leading bicycle manufacturer, Vietnam's emergence as a manufacturing hub is gathering momentum. From the seven emerging Asian based countries for manufacturing, Vietnam has emerged as number one, due to its low manufacturing costs, skilled labor force, geo-political and economic stability.

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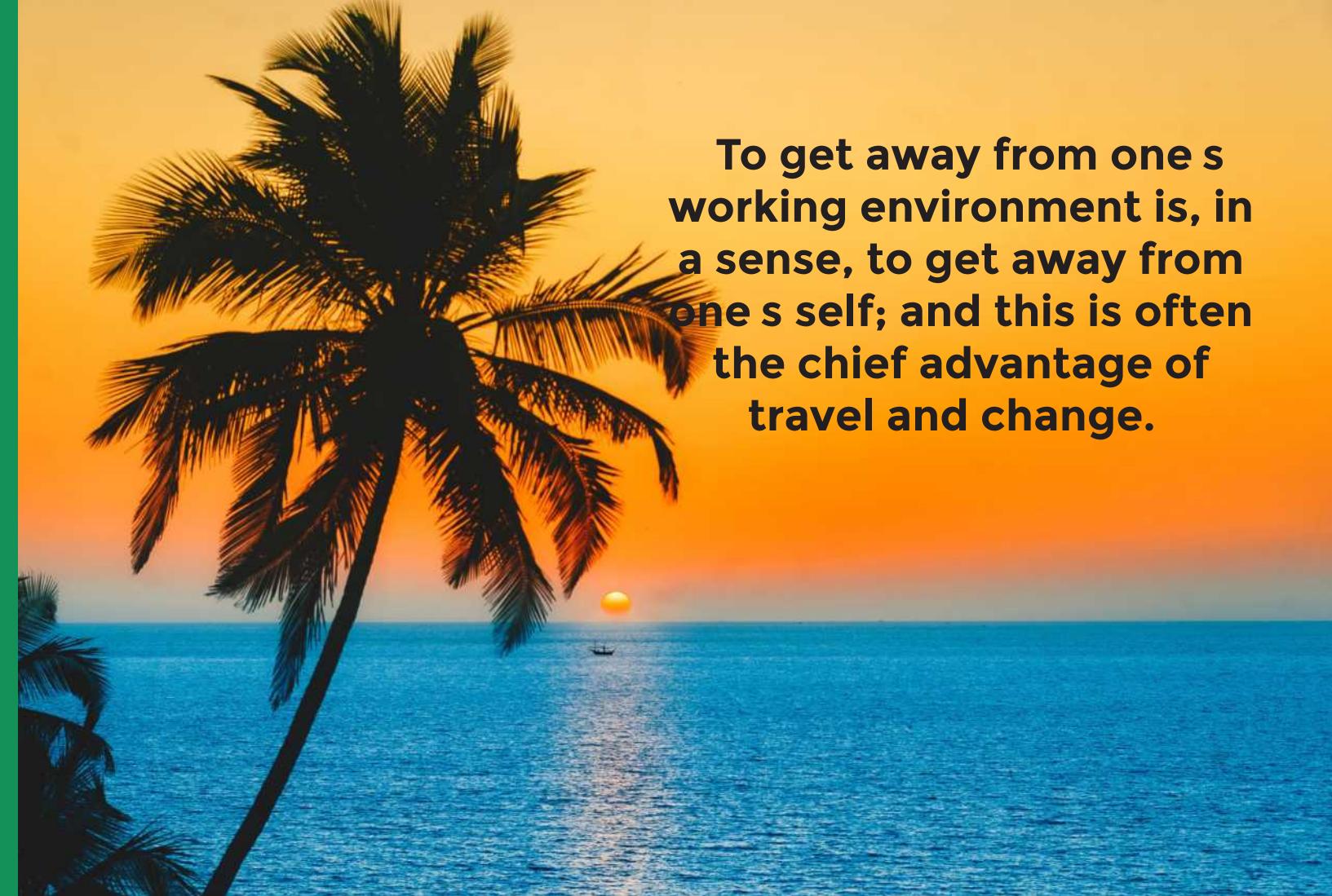
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Technology is a powerful determinant of change, but labour can shape its direction

By Alex Mohubetswane Mashilo

in The Conversation Africa

Photo by Science in HD on Unsplash





Technology is a product of human labour. The working class and society can therefore shape its direction. According to the International Labour Organisation (ILO), long-term technological change has created more employment than it has destroyed, and has pushed overall living standards to new levels, notwithstanding the disruption that it inevitably brings.

What's more, the ILO concludes in a 2017 report, there's no clear sense that this will be otherwise in the foreseeable future.

The Southern Centre for Inequality Studies has embarked on a research project comparing countries across the global South to explore, through global production networks, the impact of new technology on the future of work and workers. Global production networks have gained increased importance in global production organisation, co-ordination and associated international trade. Using global production networks to anchor an analytical framework enables a focus on the actors involved in the geographically dispersed, multi-scale, multi-dimensional, globalised structures of production and trade.

This includes a focus on workers.

My research focuses on the automotive manufacturing sector – South Africa's leading manufacturing sector. The research shows that, while technology is indeed a powerful determinant of change, it is important to recognise the role that worker organisation and the state, through its industrial policy, play in shaping the direction of change.

Technological change and job disruption

My findings indicate a decline in employment in the final vehicle assembly segment by 8,600 workers, from 38,600 in 1995 to 30,000 in 2017.

During the same period, investment by final vehicle companies, known as original equipment manufacturers, increased from R0.8 billion in 1995 to R8.2 billion in 2017.

Figure 1 below shows the relationship between the investment and employment trends.

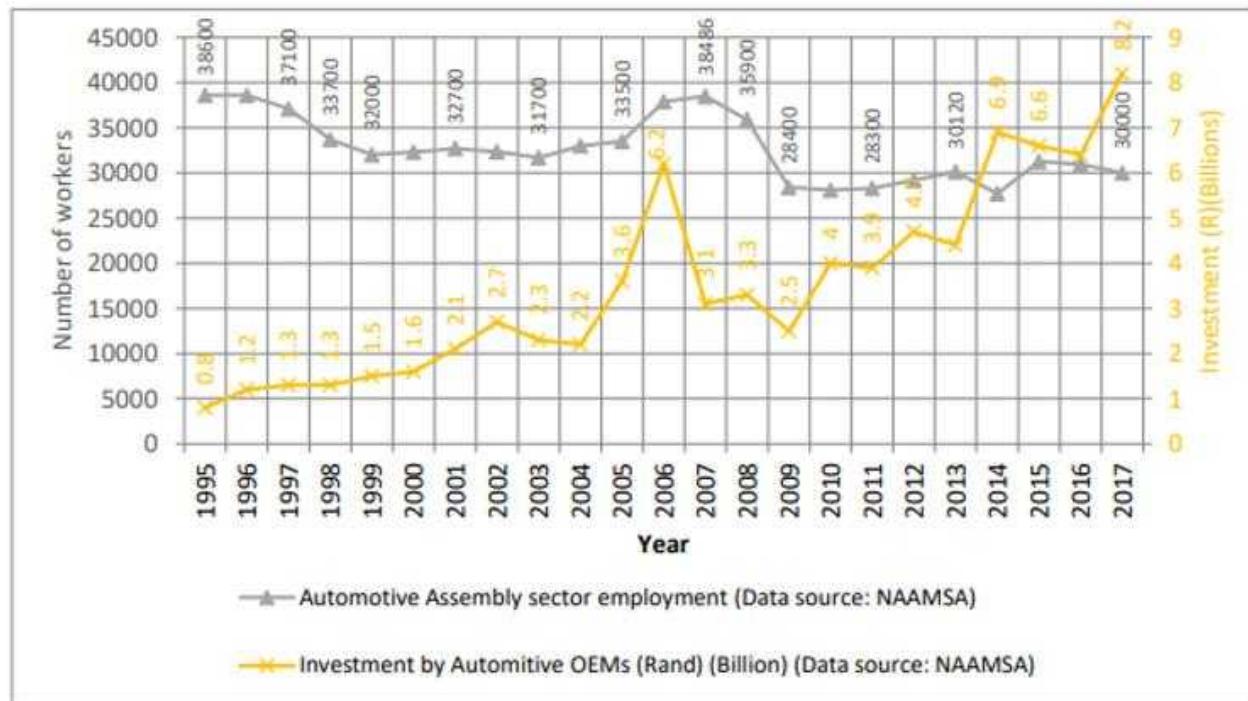


Figure 1: Investment and employment by OEMs in South Africa

Author's own design.

The role of the state's industrial policy through the Motor Industry Development Programme played a key role from September 1995 to December 2012 in attracting increased investment. The plan offered incentives, including import rebate credit certificates. The incentives gave automotive exporting companies reduced import duty, or duty-free imports, on the components that they did not source locally or vehicle models they did not produce in the country.

Increased automation of production, a key part of investment by original equipment manufacturers, wasn't introduced in isolation. With it came global production systems, new methods of work and ways of co-ordinating production, all more effective than the previous ones.

The changes included rationalisation of vehicle model platforms, in certain instances down to single vehicle platform assembly plant operations.

From January 2013 investment in the automotive manufacturing sector was led by the Automotive Production and Development Programme. This was made up of several incentives. These included a cash grant of 25% 30% of the value of qualifying investment for the vehicle assembly segment and 25% 35% for the components manufacturing segment, payable over three years.

The global economic crisis of 2008 badly affected investment, production and employment in original equipment manufacturers. This is reflected in Figure 1 above, and Figure 2 below.

Yet these manufacturers achieved remarkable productivity from 1995, as a result of technological change and the accompanying work reorganisation and restructuring.

During the period 1995 to 2017, they gained double the capacity of output per worker. Figure 2 below shows their total production volumes divided by their total employment.

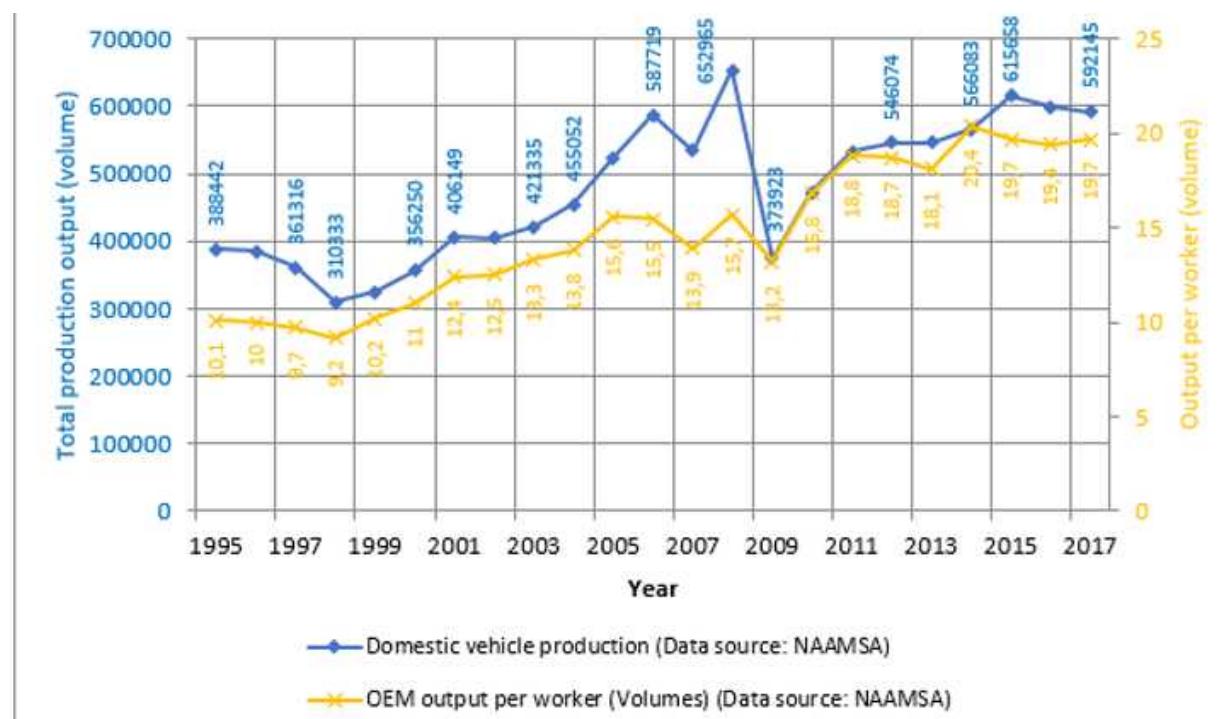


Figure 2: Domestic vehicle production and output per worker

Author's own design.

The 38,600 workers employed by the manufacturers in 1995 produced 388,442 vehicles, averaging an output of 10 vehicles per worker. The rise in production surpassed half a million, reaching a peak of 652,965 vehicles in 2008. These were produced by a reduced workforce of 35,900 workers – that is the 1995 workforce less 2,700 workers.

The average output per worker increased to about 16 vehicles in 2008. The increase reached double capacity in 2014 from that of 1995, to an average of 20 vehicles per worker. In 2014 the manufacturers' workforce was reduced to 27,715 – that is the 1995 workforce less 10,885 workers.

The trends presented here reflect the original equipment manufacturers' specific reality. The research findings show that there are production conditions that, if strong enough, can counteract the reduction in the workforce, and even result in an increase in the workforce, which is important for industrial policy. This is clearly demonstrated by the case of VW, highlighted below.

Worker agency

In 2015, VW decided to invest R6.1 billion, including R564 million for 330 new robots, at its vehicle body construction plant in Uitenhage, Eastern Cape province.

About 600 robots, including the 300 new ones, were expected to complete the structure of each vehicle in a reduced time of one minute and 57 seconds.

The new robots resulted in 40 qualified fitters being declared redundant (not to speak of less skilled workers). VW served the National Union of Metalworkers of South Africa (NUMSA) with a retrenchment notice. The union challenged VW, resulting in an agreement for the re-training of the fitters as electricians. This paved the way for their jobs to be saved.

VW globally also allocated more production volumes to its Uitenhage plant. This helped save the jobs of (less skilled) production workers that could otherwise have been disrupted by the use of robots. And it resulted in an additional 300 production workers being required.

The plant's production increased to 133,000 vehicles in 2018, of which

83,000 were for export markets. The 2018 output reflected an increase of 23,000 vehicles from 110,000 in 2017. In 2019 the plant reached its target of 160,000 vehicles, 27,000 more than in 2018.

Conclusion

The decline in overall manufacturers' employment from 1995 to 2017 in the context of increased capital investment and productivity underlines the necessity of increasing local production to save jobs and create additional employment. This social upgrading through the targeting of employment creation is an important industrial policy consideration and can be linked with the investment incentives given by the state.

The VW case shows that increased production localisation in global production networks can benefit employment in two important ways, despite technological disruption. Firstly, it counteracts retrenchments consequent on the way new technology is adopted. Secondly, it creates additional employment. As the role played by NUMSA at VW indicates, organised labour can shape the direction of new technology and its impact on workers.

Africa should focus on industrialisation.

Free trade will follow

By Michael E Odijie

in The Conversation Africa

The African Continental Free Trade Area is a continental agreement which came into force in May 2019. It covers trade in goods and services, investment, intellectual property rights and competition policy. Of the 55 African Union member states, only Eritrea has yet to sign it.

The immediate objective of the free trade area is principally to boost trade within Africa by eliminating up to 90% of the tariffs on goods and reducing non-tariff barriers to trade. In 2017, the exports and imports between African countries represented only 16.6% of Africa's total exports. This figure is low compared with exports within other regions: 68.1% in Europe, 59.4% in Asia, and 55.0% in America.

Proponents of the free trade area say that increasing intra-Africa trade will provide larger markets for African producers and encourage manufacturing. It will also help achieve a better connection between production and consumption. The United Nations Conference on Trade and Development argues that the phase of transition to the free trade area alone could boost intra-African trade by 33% and increase manufacturing in Africa.

This line of argument is that free trade leads to industrialisation and structural change. But in my view it works the other way round: industrialisation leads to free trade.

Industrialisation should come first

Low intra-Africa trade is indeed an indication that African countries do not consume what they produce. But this is a problem of production (product focus), not trade. The export products of most African countries, which follow the colonial pattern, influence the trade strategies, trade agreements and trade-related infrastructure.

For example, it is cheaper for Côte d'Ivoire to export products to the Netherlands than to some other African countries. This is simply because Côte d'Ivoire's main export product is cocoa beans and the Netherlands (as well as France and other European countries) is the main destination for the product. Côte d'Ivoire has developed its trade strategy and infrastructure accordingly. If Côte d'Ivoire alters its production focus, its target market will be altered and it will build a trade strategy accordingly. African countries have to change their production focus to change their trade focus. For example, Nigeria recently started to export cement products. In my research I showed how this led the government of Nigeria to invest in alternative freight schemes, upgrade terminals and create a cross-border trade facilitation committee to aid the cement industry's export strategy. It also set up a senior trade committee to resolve the non-tariff barriers imposed by Nigeria's neighbours and countries of interest to the cement sector.

Trade-related infrastructure is spe-

cific to the products that countries have to sell. It's similar to traders renting their shops according to the products they sell. Developing free trade that is not product-based would be like a prospective trader renting a shop in the hope of developing a certain product in the future. The problem with such an approach is that the features of the shop confine the trader to certain lines of business. Likewise, negotiating and signing a free trade agreement could confine a country's efforts to industrialise. This is important because manufacturing plays a key role in the processes of economic transformation required for high quality growth, job creation and improving incomes. Yet the share of manufacturing in GDP has been falling in sub-Saharan Africa over the past three decades.



Photo by Crystal Kwok on Unsplash.

The problem of coordination

In my research I showed how the African free trade area could impede industrial policy through a lack of coordination between the policies of different countries.

This is how industrialisation works: a government decides to promote a particular sector (as Nigeria did in 2002 for cement) and grant players in the sector several incentives. These could be a domestic market (through protection), subsidies and tax breaks to reduce the risk of investment. Industrial policy does not always succeed. But when it does, the sector will eventually be able to start exporting. At this point, the government will help the sector with trade strategies finding and accessing a market - and create an appropriate trade infrastructure.

The free trade area could deprive states of the policy space to select and protect specific sectors. It could create numerous coordination problems when states use their sensitive products to pursue industrialisation.

For example, industrial policies could be duplicated by countries in the free trade area. This would undermine the advantage of having a large market. There could be contradictory policies, such as one country attempting to reduce intensive agriculture while another seeks to increase it. One country might make decisions

that create problems for the industrial policies of other countries. These contradictions have occurred at the regional level, but they are easier to solve when fewer countries are involved.

Industrialisation would flourish under the African free trade area if industrial policies were to be implemented at the continental level, as opposed to the state level, with no state sensitive products. But even the European Union has not attained such a high level of integration. And there are political interests that suggest it would be impossible in Africa.

There are other obvious problems with the agreement. One is implementation. Even regional integration in Africa faces hurdles, though it involves fewer countries and less commitment. Expecting more than 50 African countries to implement free trade efficiently is idealistic. Nigeria recently closed its borders, violating both the spirit of the Africa Union agreement and the letter of its commitment to the Economic Community of West African States. Sudan, Rwanda, Kenya and Eritrea did the same earlier this year.

It is more reasonable to concentrate on building regions and industrialising before attempting the African free trade area.





The fourth industrial revolution : potential and risks for Africa



By Ross Harvey

in The Conversation Africa

Klaus Schwab, the founder of the World Economic Forum, argues that the single most important challenge facing humanity today is how to understand and shape the new technology revolution. What exactly is this revolution, and why does it matter, especially for Africa?

Klaus Schwab, the founder of the World Economic Forum, argues that the single most important challenge facing humanity today is how to understand and shape the new technology revolution. What exactly is this revolution, and why does it matter, especially for Africa?

The fourth industrial revolution captures the idea of the confluence of new technologies and their cumulative impact on our world.

Artificial intelligence can produce a medical diagnosis from an x-ray faster than a radiologist and with pinpoint accuracy. Robots can manufacture cars faster and with more precision than assembly line workers. They can potentially mine base metals like platinum and copper, crucial ingredients for

renewable energy and carbon cleaning technologies.

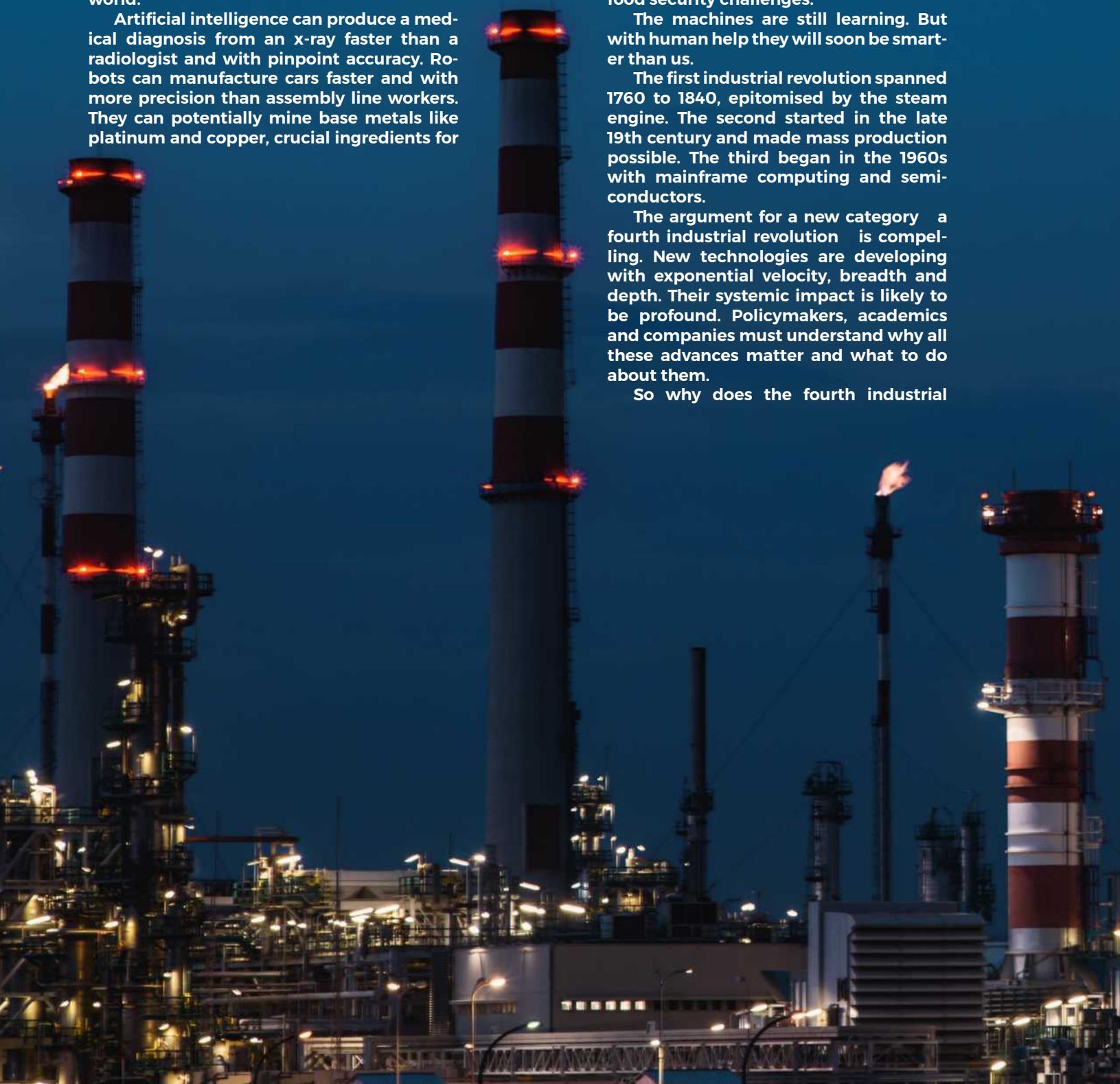
3D printing will change manufacturing business models in almost inconceivable ways. Autonomous vehicles will change traffic flows by avoiding bottlenecks. Remote sensing and satellite imagery may help to locate a blocked storm water drain within minutes and avoid city flooding. Vertical farms could solve food security challenges.

The machines are still learning. But with human help they will soon be smarter than us.

The first industrial revolution spanned 1760 to 1840, epitomised by the steam engine. The second started in the late 19th century and made mass production possible. The third began in the 1960s with mainframe computing and semiconductors.

The argument for a new category – a fourth industrial revolution – is compelling. New technologies are developing with exponential velocity, breadth and depth. Their systemic impact is likely to be profound. Policymakers, academics and companies must understand why all these advances matter and what to do about them.

So why does the fourth industrial



revolution matter so much specifically for Africa? And how should the continent approach the risks and opportunities?

Exciting opportunities

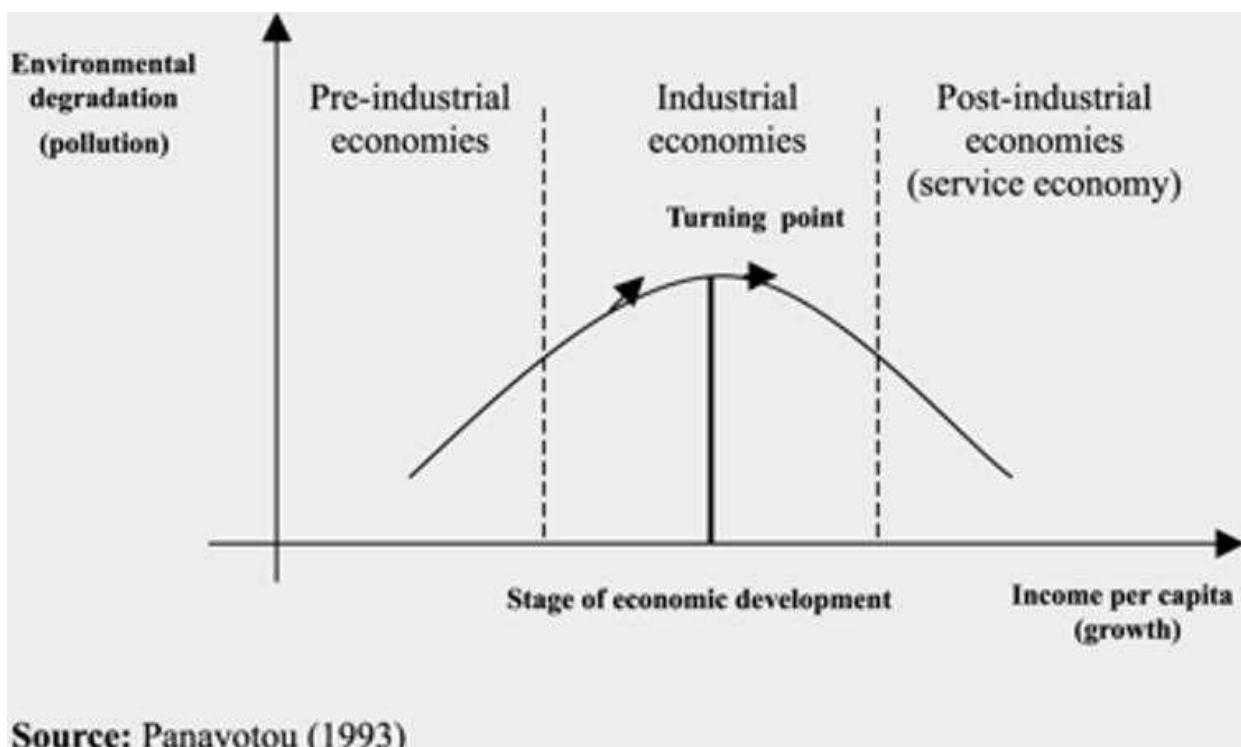
The revolution's most exciting dimension is its ability to address negative externalities hidden environmental and social costs. As Schwab has written:

Rapid technological advances in renewable energy, fuel efficiency and energy storage not only make investments in these fields increasingly profitable, boosting GDP growth, but they also contribute to mitigating climate change, one of the major global challenges of our time.

Some countries' growth trajectories may follow the hypothesised Environmental Kuznets Curve, where income growth generates environmental degradation. This is partly because natural capital is treated as free, and carbon emission as costless, in our global national accounting systems.



Photo by Maksym Kaharlytskyi on Unsplash.



The hypothesised Environmental Kuznets Curve.

New technologies make it possible to truncate this curve. It becomes possible to transition to a circular economy , which decouples production from natural resource constraints. Nothing that is made in a circular economy becomes waste. The Internet of Things allows us to track material and energy flows to achieve new efficiencies along product value chains. Even the way energy itself is generated and distributed will change radically, relying less and less on fossil fuels.

Perhaps most importantly for African countries, then, renewable energy offers the possibility of devolved, deep and broad access to electricity. Many have still not enjoyed the benefits of the second industrial revolution. The fourth may finally deliver electricity because it no longer relies on centralised grid infrastructure. A smart grid can distribute power efficiently across a number of homes in very remote locations. Children will be able to study at night. Meals can be cooked on safe stoves. Indoor air pollution can basically be eradicated.

Beyond renewable energy, the

Internet of Things and blockchain technology cast a vision for financial inclusion that has long been elusive or subject to exploitative practices.

Risks

No revolution comes without risks. One in this case is rising joblessness.

Developing countries have moved away from manufacturing into services long before their more developed counterparts did, and at fractions of the income per capita. Dani Rodrik calls this process premature deindustrialisation .

The employment shares of manufacturing, along with its value addition to the economy, has long been declining in industrialised nations. But it's also been declining in developing countries. This is unexpected, because manufacturing is still the primary channel through which to modernise, create employment (especially by absorbing unskilled labour) and alleviate poverty. Manufacturing industries that were built up under a wall of post-independence protectionism are starting to decompose.

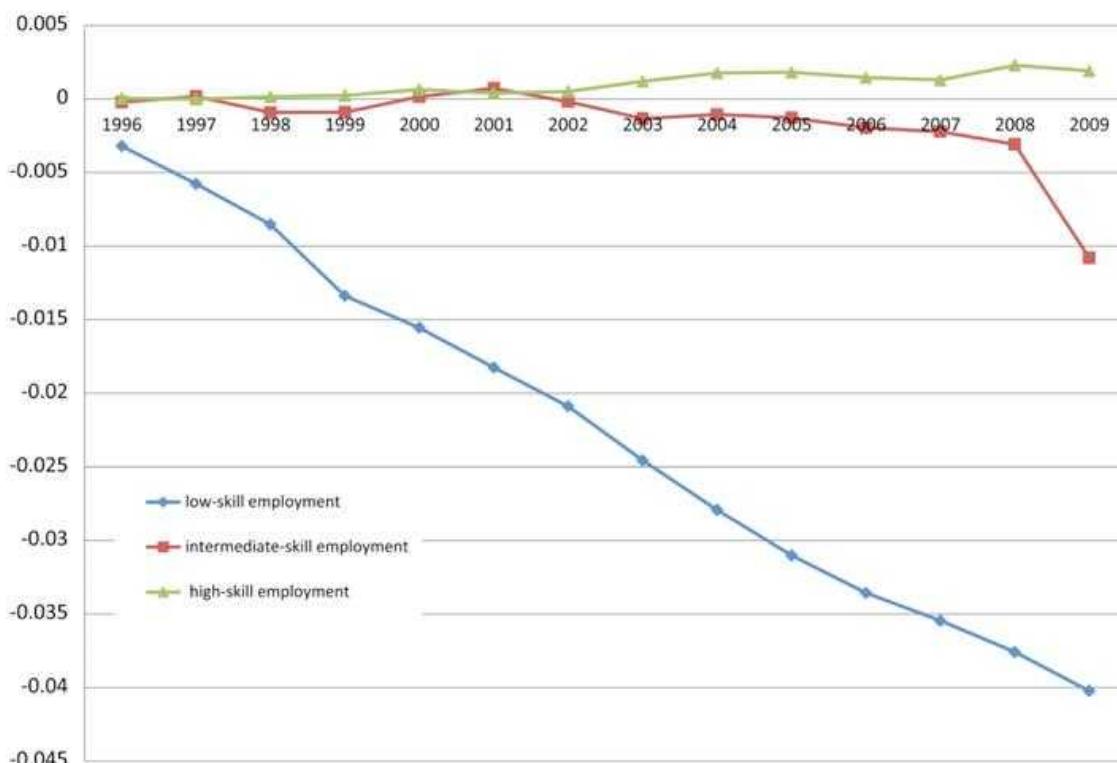


Fig. 4 Estimated year coefficients for employment of different skill types

Rodrik D, Premature deindustrialisation , Journal of Economic Growth, 21, 2016, p. 19.

The social effects of joblessness are devastating. Demographic modelling indicates that Africa's population is growing rapidly. For optimists this means a dividend of young producers and consumers. For pessimists, it means a growing problem of youth unemployment colliding with poor governance and weak institutions.

New technologies threaten to amplify current inequalities, both within and between countries. Mining typically a large employer may become more characterised by keyhole than open heart surgery, to borrow a medical metaphor. That means driverless trucks and robots, all fully digitised, conducting non-invasive mining. A large proportion of the nearly 500 000 people employed in South African mining alone may stand to lose their jobs.

Rising inequality and in-

come stagnation are also socially problematic. Unequal societies tend to be more violent, have higher incarceration rates, and have lower levels of life expectancy than their more equal counterparts.

New technologies may further concentrate benefits and value in the hands of the already wealthy. Those who didn't benefit from earlier industrialisation risk being left even further behind.

So how can African countries ensure that they harness this revolution while mitigating its risks?

Looking ahead

African countries should avoid a proclivity back towards the import substitution industrialisation programmes of early independence. The answer to premature deindustrialisation is not to protect infant industries and manufacture expensively at home. Industrialisation in the 21st century has a totally differ-

ent ambience. In policy terms, governments need to employ systems thinking, operating in concert rather than in silos.

Rapidly improving access to electricity should be a key policy priority. Governments should view energy security as a function of investment in renewables and the foundation for future growth.

More generically, African governments should be proactive in adopting new technologies. To do so they must stand firm against potential political losers who form barriers to economic development. It pays in the long-run to craft inclusive institutions that promote widespread innovation.

There are serious advantages to being a first mover in technology. Governments should be building clear strategies that entail all the benefits of a fourth industrial revolution. If not, they risk being left behind.

EMERGENCY

Coronavirus
disease (COV
19) outbreak

How a post-COVID-19 revival could kickstart Africa's free trade area

By Faizel Ismail

in The Conversation Africa

The COVID-19 pandemic, notwithstanding its devastating impact on the health and economies of Africa, could be an opportunity to advance the free trade area in a more developmental, inclusive and mutually beneficial way for African countries. It was launched two years ago at an African Union (AU) summit in Kigali. It was scheduled to be implemented from 1 July 2020. But this has been pushed out until 2021 because of the impact of COVID-19 and the need for leaders to focus on saving lives.

Studies by the International Monetary Fund (IMF), the United Nations Economic Commission for Africa and others state that the free trade area has the potential to increase growth, raise welfare and stimulate industrial development on the continent. But there are concerns. Some countries, particularly smaller and more vulnerable states, could be hurt. For example, they could suffer revenue losses and other negative effects from premature liberalisation.

The impact of COVID-19 will only worsen these structural weaknesses. The Economic Commission for Africa has reported that between 300,000 and 3.3 million people could lose their lives if appropriate measures are not taken. There are several reasons for this level of high risk. These include the fact that 56% of urban dwellings are in overcrowded slums, 71% of Africa's workforce is informally employed and cannot work from home and 40% of children on the continent are undernourished.

Africa is also more vulnerable to the impact of COVID-19 because it is highly dependent on imports for its medicinal and pharmaceutical products and on commodity exports. The latter include oil, which has suffered a severe collapse in price.

Other contributing factors are high public debt due to higher interest rate payments than Organisation for Economic Co-operation and Development (OECD) countries, a weak fiscal tax base, and the negative impact on Africa's currencies due to huge stimulus measures taken by OECD countries.

The COVID-19 crisis has brought these weaknesses into sharp relief. But it also provides an opportunity for African countries to address them. For example, they could accelerate intra-regional trade by focusing on the products of greatest need during the health crisis. Countries could also start building regional value chains to advance industrialisation, improve infrastructure and strengthen good governance and ethical leadership.

These are all vital to guiding African countries through the current crisis.

These goals can be achieved if African states adopt a developmental regionalism approach to trade integration. This would include fair trade, building regional value chains, cross-border investment in infrastructure and strengthening democratic governance.

Fair trade

A number of conditions need to be met for a free trade area to succeed.

Firstly, African states vary widely in size and economic development. As a result some may warrant special attention and specific treatment. In particular, among Africa's 55 states 34 are classified by the United Nations as least developed countries. These are low income countries that have severe structural problems impeding their development.

Building trade agreements in favour of small and less developed economies will contribute to fairer outcomes of the free trade deal.

Secondly, African governments should include their stakeholders (businesses (both big and small), trade unions and civil society organisations) in the national consultation process. This will require effective institutions that enable the fullest participation.

Additional steps countries should take to cope with the fallout from COVID-19:

Reduce tariffs on vital pharmaceutical products (such as ventilators), personal protective equipment and food products;

Stimulate intra-regional trade by prioritising these products for an immediate or early phase down in the free trade area.

Building regional value chains

African countries are increasingly connected to the global economy, but tend to operate at the lowest rung of the ladder. They are mainly supplying raw materials and other low-value manufactured outputs.

Cooperation is needed between Africa's emerging entrepreneurs and industries to improve their competitiveness in global markets. This would have a number of positive outcomes including:

- triggering industrialisation, which will transform economies
- helping African countries obtain a fairer share of the value derived from African commodities and labour, and
- improving the lives of people on the continent.

The current crisis creates an opportunity for African countries to build value chains on medical equipment, pharmaceuticals and personal protective equipment.

The clothing and textile sector could also be restructured to meet the needs of the health sector while taking advantage of the breakdown in supply chains from China and Europe.

As more countries lock down their economies and apply movement controls, agricultural and processed food supply chains are disrupted. This creates opportunities to build regional supply chains and partner with retailers.

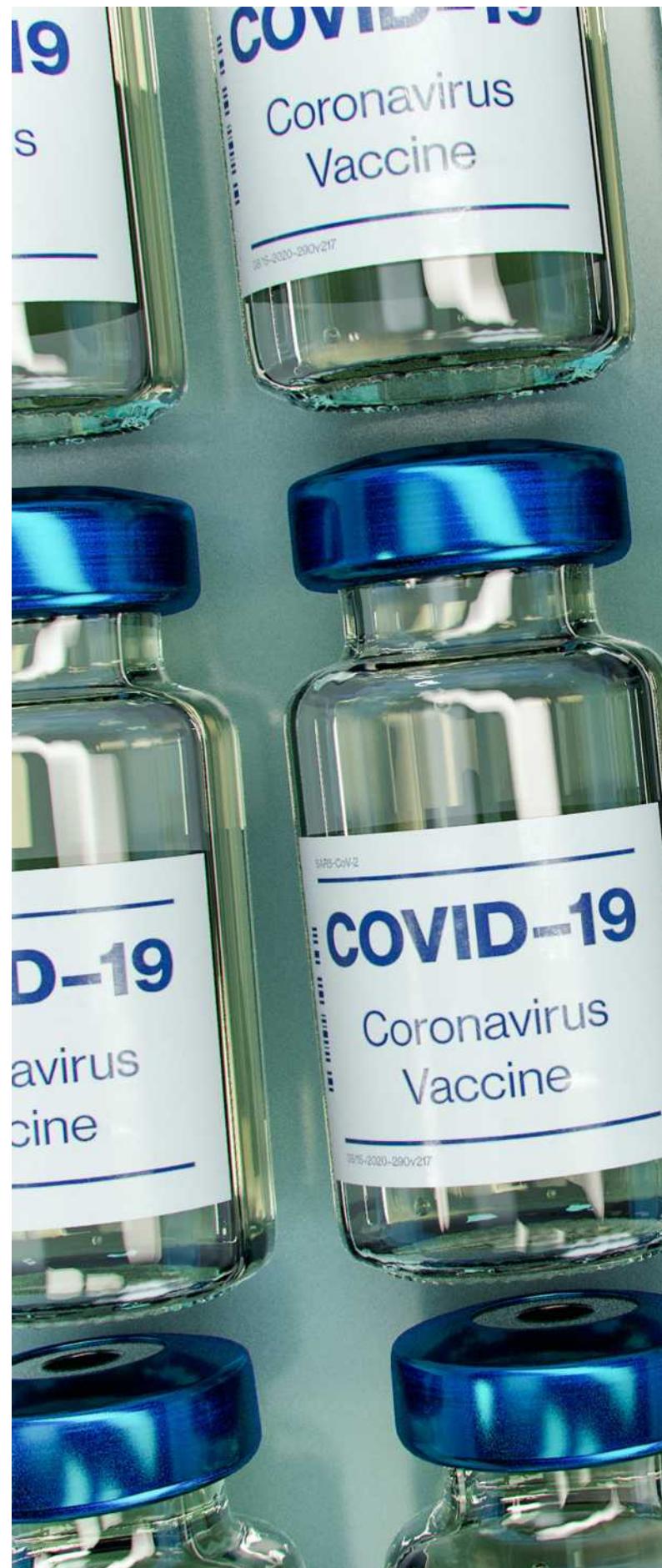




Photo by Daniel Schludi on Unsplash

There are also opportunities to build infrastructure to support the health response: hospitals, water and sanitation, schools, low-cost housing and alternative energy.

African countries can also benefit from the growing interest in environmental tourism.

Cross-border infrastructure investment

Since most African countries are less developed, and many are small, intra-regional trade will require them to cooperate to improve their infrastructure. This includes physical ports, roads and railways as well as customs procedures, port efficiency and reduction of roadblocks.

Progress is already being made. Examples include the Mombasa-Nairobi Corridor; the Addis to Djibouti road, rail and port connection; and the Abidjan-Lagos Corridor, which handles more than two-thirds of West African trade.

Increased investment in these types of cross-border infrastructure projects will benefit regional integration.

Democracy and governance

Most African states have started accepting multi-party systems of governance. Many have also embraced a culture of constitutionalism, rule of law and human rights.

Democratic governance supported by active citizenship will create an environment of transparency and predictability that encourages domestic and foreign investment. Both are vital for growth and industrialisation. The process is also essential for the sustainability of regional economic integration and democracy in Africa.

Countries are becoming better at fulfilling their democratic obligations. For example, 40 African countries, including the Seychelles and Zimbabwe, voluntarily joined the African Peer Review Mechanism. The mechanism is a remarkable achievement that the free trade area agreement must build on.

The way forward

The free trade area could become a landmark in Africa's journey towards peace, prosperity and integration. The COVID-19 pandemic, notwithstanding its devastating impact on the health and economies of Africa, could be an opportunity to advance the free trade area in a more developmental, inclusive and mutually beneficial way for African countries.

Faizel Ismail

in *The Conversation Africa*

Director of the Nelson Mandela School of
Public Governance, University of Cape Town

Photo by Kaysha on Unsplash



African countries can't industrialise? *Yes, they can*

By Wim Naudé

in The Conversation Africa



Narratives are essential. Humans are, after all, "helpless story junkies". Business and economic success depend much more than is commonly acknowledged on getting the narrative right. And if there is a narrative where getting it right or wrong matters hugely, it is the narrative about Africa's industrial development.



Photo by Kumpan Electric on Unsplash

African countries can't industrialise? Yes, they can

Narratives are essential. Humans are, after all, "helpless story junkies". Business and economic success depend much more than is commonly acknowledged on getting the narrative right. And if there is a narrative where getting it right or wrong matters hugely, it is the narrative about Africa's industrial development. Africa is the poorest continent. It is likely to be the most affected by climate change. It is the continent where terrorist groups are spreading fast.

Therefore, African industrialisation is essential. Unfortunately, the dominant narrative is that Africa has been de-industrialising, even prematurely. In this narrative, it is also questioned whether Africa can ever industrialise. African countries have even been advised not to try. The World Bank's *Trouble in the Making* report concludes that manufacturing is becoming less relevant for low-income countries.

Fortunately, a very different narrative is possible. In a recent paper, I argue that Africa can industrialise because of three factors. These are brilliant new technologies enabling digitisation, smart materials and 3D-printing; a more vibrant entrepreneurship scene; and Africa's growing middle class (as measured by the share of households that earn between \$11 and \$110 per person per day), which supports the continent's first generation of indigenous tech-entrepreneurs.

Consider therefore the following narrative: More than 300 digital platforms, mostly indigenous, are operating across the continent. There are also more than 400 high-tech hubs, and more are being added. In addition, venture capital funding into African tech start-ups increased ten-fold between 2012 and 2018.

Moreover, manufacturing has more than doubled in size in real terms since 1980. And since 2000, manufacturing value added has grown at more than 4% a year. That is double the average between 1980 and 2000 (numbers from the Expanded African Sector Database).

As a result, total employment in manufacturing in 18 of the largest African economies (for which there is data) grew from roughly 9 million in 2004 to more than 17 million by 2014. That is an 83% increase in ten years. The proportion of labour in manufacturing for Africa as a region grew from roughly 5% in the 1970s to almost 10% by 2008.

So, how will these trends shape the future? I argue that they will result in three varieties of industrialisation.

Three varieties

The first variety can be labelled “acquiring traditional manufacturing capabilities”. This variety is implied by Overseas Development Institute researchers Karishma Banga and Dirk Willem te Velde. It will be experienced by countries and sectors where technological change is too fast and complex to benefit immediately. These countries and sectors will need time to first put complementary investments in place, while at the same time continuing to promote traditional labour-intensive manufacturing.

The second variety, fostering sec-

tors with the characteristics of manufacturing, is elaborated in a recent UNU-WIDER book. Here it is argued that service sectors can take up the role held by manufacturing in the past. In many countries, services such as ICT and telecoms, tourism and transport, financial and farming services can lead to productive development.

The third variety, resurgent entrepreneurship-led industrialisation is based on my earlier work. I point to the growing list of achievements of African countries in terms of high-tech manufacturing. For example South Africa leads in advanced manufacturing in having one of the world's largest 3D-printers, used to manufacture parts for the aviation industry.

Different combinations of these varieties will dominate in different countries. For example, Kenya is already experiencing the simultaneous development of high-tech financial services alongside growth in traditional manufacturing, such as food processing and textiles, as well as clusters of advanced manufacturing. While every country's pathway will be a unique combination of these varieties, what they will have in common is that progress will require that they deal with the impact of new technology, especially digitisation, on manufacturing.

To ensure momentum is maintained, the narrative about industrialisation has to change. As Israeli historian Yuval Noah Harari pointed out, neither land – the core resource of feudalism nor physical capital – the core resource of 20th-century capitalism will be decisive for competitiveness in the future. Instead, data and data science, free information flows, ICT (data) skills, and decentralisation of decision-making will be the decisive factors.

What needs to be done

With an outdated story that gives up on manufacturing, Africa will fail to close the huge digital gap it still faces. The gap is reflected in the fact the continent contributes less than 1% of world's digital knowledge production. To reduce this gap, African countries will have to start by expanding internet access and use. If internet use across the continent can be expanded to the same rate as in high-income countries, 140 million new jobs and US\$2,2 trillion could be added to GDP.

What must be done to change the narrative? What do African governments need to do? The first is that its leaders need to start telling more stories about the future than about the past. Perhaps, like China's leaders, they can even be inspired by science fiction. British best-selling author Neil Gaiman relates

how China started to embrace science fiction after sending a delegation to

the US, to Apple, to Microsoft, to Google, and they asked the people there who were inventing the future about themselves. And they found that all of them had read science fiction when they were boys or girls.

Helping to imagine the future of African industrialisation, South African President Cyril Ramaphosa recently stressed that fact that Africa is one of the early adopters of mobile telephony and moreover that the continent needs to aspire to more:

We need to focus on the new technologies that are going to revolutionise the world, and we need to be ahead of the curve.

This is the right narrative. It is necessary, although not suf-

ficient for African industrialisation. For this, words need to lead to actions. And some consistent actions, at least for a start, would be for African governments to refrain from creating stumbling blocks for their brave new tech-entrepreneurs, such as curbing access to the internet, restricting digital information flows, under-investing in science, technology, engineering and mathematics education, neglecting data-privacy legislation, and restricting the rights of women to work in manufacturing.

Wim Naudé in The Conversation Africa

Professorial Fellow, Maastricht Economic and Social Research Institute on Innovation and Technology (UNU-MERIT), United Nations University

20 years of US-Kenya trade: Some lessons for Africa

By Francis Owusu and Kefa M. Otiso

in The Conversation Africa

Kenya is one of the top five beneficiaries of the US-Africa trade initiative, the African Growth and Opportunity Act (AGOA). It also had the second-highest utilisation rate in 2018 with over 70% of its US exports covered by the programme.



Kenya is one of the top five beneficiaries of the US-Africa trade initiative, the African Growth and Opportunity Act (AGOA). It also had the second-highest utilisation rate in 2018 with over 70% of its US exports covered by the programme.

Launched in 2000, the trade pact gives sub-Saharan Africa the most liberal access to the huge US market available to any country or region with which Washington does not have a free trade agreement. The initiative has had a significant impact on stimulating Africa-US trade. Exports to the US from eligible African countries grew by over 272%, from US\$22 billion in 2000 to US\$82 billion in 2008.

Probably due to COVID-19 disruptions, exports declined to US\$18.4 billion in 2020. Despite these fluctuations, Africa maintained a positive balance of trade with the US in the 2000-2020 period, thanks to AGOA eligible products. As of 2017, the trade initiative had created over 300,000 jobs in sub-Saharan Africa, many of which were in the apparel sector.

We recently carried out a Kenya country case study on the implementation of AGOA in the 2000 to 2016 period. We found that in this period, Kenya's total exports to the US grew by \$443.2 million (or 405%) from \$109.4 million to \$552.6 million. By 2020, the figure had risen to \$569 million, with most of the country's exports coming from eligible products.

Looked at differently, in the nine years before the trade programme (1992 to 2000), Kenya's average annual exports to the US were \$101 million. In the nine years after (2002 to 2010), average annual exports to the US rose to \$305 million. They rose further on average to \$557 million in the 2012 to 2020 period.

Moreover, in contrast with the 1990s, Kenya had a positive balance of trade with the US, averaging \$158 million per year since 2016.

Kenya's exports to the US under this programme have enabled the country to build a sizeable textile and apparel export sector. As of 2016, Kenya had 111 firms in its export processing zones that produced most of its \$634 million worth of exports. Calvin Klein and Tommy Hilfiger are some of the US brands that buy Kenyan apparel and clothing products.

The sector employed 52,000 workers, used over \$250 million in local resources and attracted in excess of \$710 million in total investments. But Kenya's apparel export sector is overwhelmingly dependent on the US market. This over-reliance on

the US market should worry Kenya because it makes its apparel sector susceptible to unpredictable swings in the US market.

While Kenya's non-textile exports to the US – mainly coffee, tea, nuts and cut flowers – also grew during the 2000-2016 period, their growth rate was less impressive.

Socially, AGOA has also helped to create jobs for marginalised groups such as women and youth. Nevertheless, we found that working in these apparel firms entailed poor working conditions, low pay, temporary work, and the sexual harassment of female workers.

We also found that Kenya, like many other eligible countries, is under-utilising AGOA with the near neglect of the non-textile sectors. Whether or not the US-Africa trade programme is renewed when it expires in 2025, Kenya's experience points to many policy implications for the country and other member countries.

Trade pact objectives

The African Growth and Opportunity Act was signed into law by former US president Bill Clinton. Its main objectives were to diversify the region's export production, expand trade and investment between the two destinations, and accelerate economic growth in sub-Saharan Africa.

These would be achieved in a number of ways. First, the reduction of tariff and non-tariff barriers. Second, the negotiation of trade agreements. Third, the integration of the region into the global economy. Finally, the expansion of US assistance to Africa's regional integration.

In many ways, its main aim was to support African economies' ability to use the textile and apparel sectors as potential engines of industrialisation and economic growth. In this sense this mirrored the similar success in South and Southeast Asia.

Much of the growth in exports to the US from Kenya and other non-oil exporting countries has come from the textile and apparel sector. There is a relatively tepid response from other sectors of the economy. These

countries can make better use of the US trade initiative by not so heavily basing their exports on only a few of the thousands of eligible products.

Lessons for Africa

In our study, we found a number of policy gaps in Kenya that are relevant for other African countries. For example, the trade opportunities are largely driven by US trade policy rather than by the region's competitive advantage. Also, the US dominates the terms and conditions of the pact's renewal. In our view, eligible countries like Kenya should look beyond US-Africa programme and diversify their markets accordingly.

Second, to make the most of their apparel exports to the US and to capture new global markets, the African countries should ensure that their apparel industries are globally competitive. They should have a good supply of the inputs and infrastructure they need to thrive. Improvements in transport infrastructure, for instance, would speed up and reduce costs of moving inputs in and finished goods out.

Third, the vast majority of Kenya's export processing zone investments are foreign-owned. There is also a huge pay gap between Kenyan and foreign workers due to the cadre of jobs and skills possessed by these two types of workers. Thus, there is a need for capacity building to produce a critical mass of professionals who can lead the country's textile and agro-processing industries to maximise their gains from current and future trade opportunities.

Countries in the sub-Saharan Africa region should also strengthen their regulatory frameworks. These include mechanisms for enforcement of laws regarding labour and other forms of human rights protections envisaged under the US-Africa trade pact. This would ensure that women and youth workers in Kenya's export-led enterprises are protected and enabled to benefit from this trade programme.

These countries should also create a favourable export policy environment which is globally competitive to attract substantial manufacturing

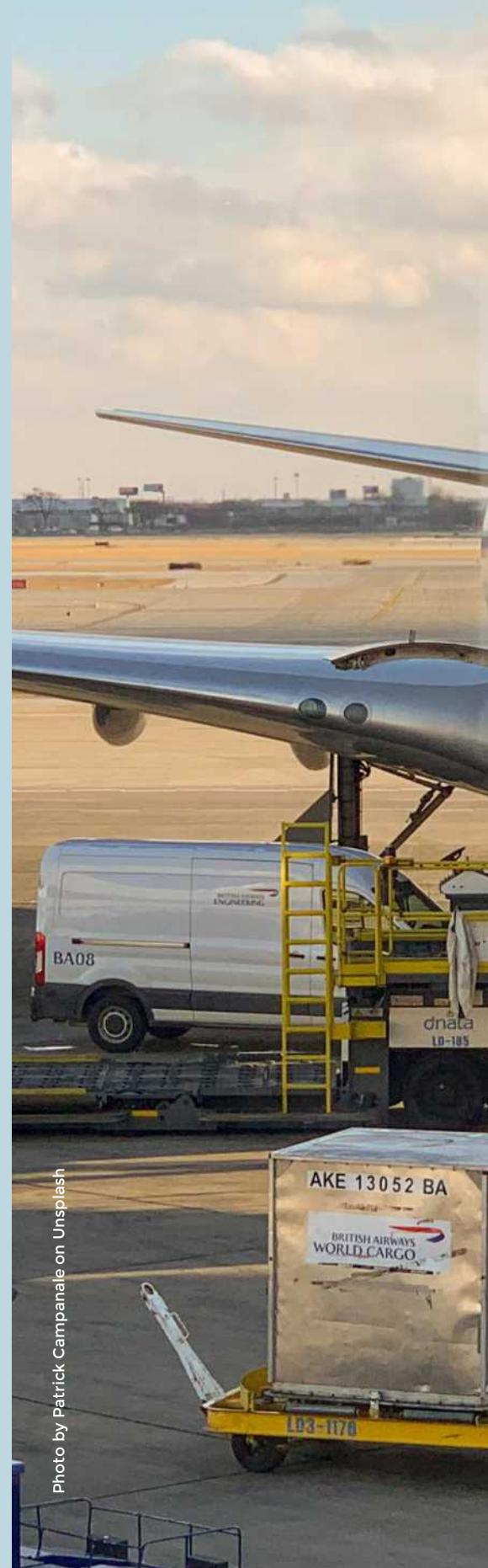


Photo by Patrick Campanale on Unsplash



investments to the region. In Kenya, this is currently undermined by high levels of corruption and mismanagement. There is also a fair amount of political instability mostly driven by the country's ethnic-driven and hyper-competitive elections especially at the presidential level.

The country now has a new devolved government structure that promises to contribute to a more tranquil national political environment. But Kenya needs to do more to hold credible elections, and, perhaps, dilute its presidential powers which drive its overly competitive, acrimonious, and perennially destabilising elections.

Finally, Kenya and other African countries should strengthen their trade negotiation ability to make the most of new international trade deals. In today's world, the difference between winning and losing in trade substantially comes down to one's ability to negotiate good trade deals. Therefore, African countries must not only invest in high quality capacity building training for their trade negotiators, but they must also hire, keep, and empower the right people for these roles.

Kenya is in the middle of negotiating a free trade agreement with the US, the first such agreement between the US and a sub-Saharan African economy. If it succeeds, it would be the most important trade development in the region since the enactment of the AGOA in 2000.

300,000

Number of jobs created as of 2017, due to trade initiative in sub-Saharan Africa, many of which were in the apparel sector.



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IGNITE AFRICAS ECONOMIC RENAISSANCE

Mr.Rudolf Isinga, the General Manager of New Wide Garment Company, in Kenya's Export Processing Zone in this candid interview by ***Industrialising Africa*** holds that:

“All said and done, it is manufacturing and agro-processing that will put Africa on a sustainable industrialisation and socio-economic development trajectory”

Mr. Isinga believes that there is hope for Africa's quest to industrialise at a pace if African governments purposed and networked to bring about a coalescing sense of purpose in the drive to **industrialise, the continent stands a chance of emerging as world's leading industrial hub.**

He outlines several factors that position Africa as having the potential to be the most lucrative industrial hub in the world. At the top of the deck is human resource. Africa boasts a huge reserve of educated and affordable labour force.

It is noteworthy that a sizeable number of African countries are making great effort to provide affordable and reliable energy for the industrial sector.

Building transport infrastructure is also a priority for many African countries. These countries are doing this using the resources at their disposal as well as in partnership with development partners.

Most African countries are also coming up with policies that are facilitative for industrialisation and investments in the sector.





Mr. Isinga debunks the cliché that Africa's industrialisation journey is hampered by lack of injectable financial resources. He opines that Africa's challenge with the industrialisation journey is not lack of financial resources but putting the available resources on the wrong priorities. For example, it makes no economic sense to sink hundreds of millions of shillings into a hospital building that ends up a white elephant because there are no drugs. If the same went into a manufacturing hub, the benefits are instantaneous. A manufacturing or processing hub will create jobs, the resultant human needs and liquidity will attract private investors who will put up hospitals, schools and other social amenities to service the emerging salaried people and their dependants. The ripple effect to the surrounding community is tremendous and the government in turn benefits from the taxes across board.

The Managing Director sees all these industrialisation interventions as doables that are within the grasp of most African countries. And that there are existing functional models on this continent that have proved that this approach is working and only needs to be embraced and upscaled and the continent will experience rapid and sustainable socio-economic development of unprecedented levels.

According to him, to give the industrialisation initiative a strong push will also need other complimenting aspects to be considered as well. These include; enacting enabling policies that will ease doing

of business, provide tax incentives improve efficiencies in immigration, customs and licensing.

It is necessary to come up with more diverse and robust platforms that will provide for continent-wide information sharing and exchange between countries, industrial stakeholders, investors and traders. Lack of adequate information remains a weak link in the continental industrialisation drive.

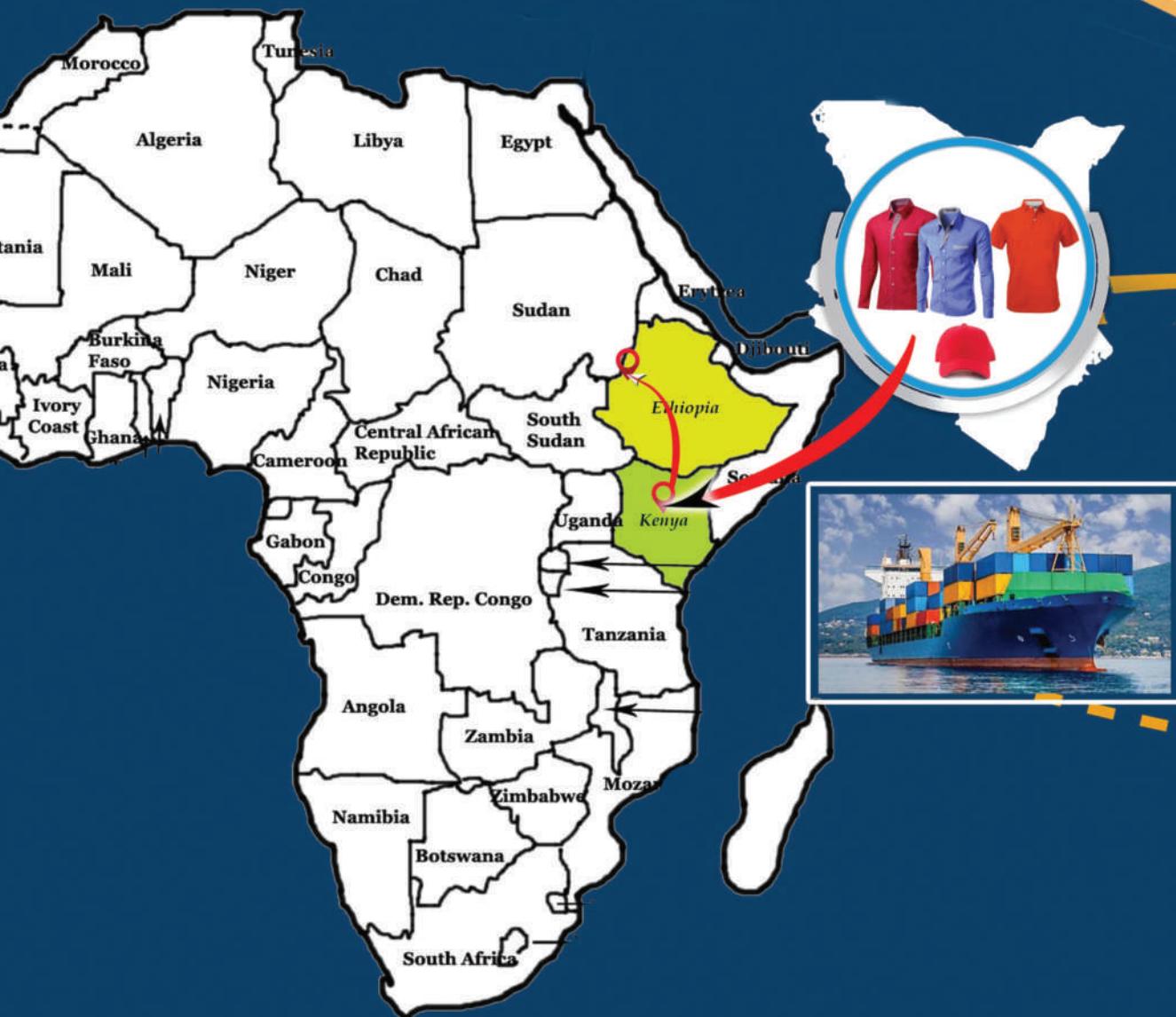
He cites a comparison that is now a cliché, between South Korea and Kenya. In the late 60s and early 70s, these two countries were at the same level of development. South Korea however, sprinted away emerging as one of the Asian Tigers with an unmatched level of industrialisation and economic development. In this time and age, there is no comparison between Kenya and South Korea except for good diplomatic ties.

He avers that, the missing link, that marked the big difference between Kenya and South Korea is how the two countries prepared their young generations for the industrialisation take-off and world of work. In South Korea, apart from a good education and impartation of job skills, the education system was designed to inculcate good morals and values. The young Korean in school was trained to be patriotic, shun corruption and be passionate about the work he or she set to do.

South Korea's industrialisation is therefore built on a strong foundation by people who are committed to the tasks that are geared to greater industrialisation and resultant economic growth.



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Ethnic conflict could unravel Ethiopia's valuable garment industry

By Dorothee Baumann-Pauly

In The Conversation Africa

Ethiopia has long been considered one of Africa's economic wunderkinds. Until recently, it had relative political stability in comparison to other countries on the continent. And, with an average GDP growth rate of 10% in the past decade and a government that instituted policies friendly to foreign investors, the country was able to attract South and East Asian clothing manufacturers. These sell to international brands, such as Decathlon and H&M.



Ethiopia has long been considered one of Africa's economic wunderkinds. Until recently, it had relative political stability in comparison to other countries on the continent. And, with an average GDP growth rate of 10% in the past decade and a government that instituted policies friendly to foreign investors, the country was able to attract South and East Asian clothing manufacturers. These sell to international brands, such as Decathlon and H&M.

But, for the past two months, violent conflict in Ethiopia's northern Tigray region fuelled by ethnic power politics has threatened the country's stability. According to the International Crisis Group, the violence has likely killed thousands of people, including many civilians, displaced more than a million people internally, and led some 50,000 to flee to Sudan.

The scale of the conflict could scare off foreign investment in the country's garment industry. This sector is hugely important to Ethiopia, which aimed to propel its agricultural economy toward a more prosperous future built on providing clothing to consumers in the West.

While the Ethiopian textile and garment industry is still small – its export share is not more than 10% of total exports, and its products only represent 0.6% of total GDP – the sector was expected to grow by around 40% a year in the next few years.

In March 2019, I assessed Ethiopia's garment industry alongside two colleagues from the New York University's Stern Center for Business and Human Rights. We wanted to see whether Ethiopia as the new frontier of garment manufacturing

had learnt from mistakes in other sourcing countries. We analysed the industry's prospects and the working conditions with a close look at the flagship Hawassa Industrial Park. This is a vast and still only partly filled facility, which currently employs 25,000 workers about 225km south of the capital of Addis Ababa.

What we found was sobering.

Manufacturers told us about the many challenges of doing business

in Ethiopia. These included bureaucratic and logistical hurdles and the problems that come with an unskilled workforce that had no prior experience of working in an industrial setting.

Workers reported that they could barely survive with their base monthly wage as low as US\$26. The government's eagerness to attract foreign investment led it to promote the lowest base wage in any garment-producing country.

In addition to this already-strained business context, the report we published points to what we saw as the greatest challenge of all: ethnic tensions.

In Hawassa, ethnic tension erupted in July 2019 and caused disruptions to the industrial park. The new conflict in Ethiopia's Tigray region could be the tipping point for foreign investors in the garment industry. Manufacturers had told us that further political instability in the country could jeopardise all future business.

The collapse of this sector would be disastrous. Tens of thousands of people would lose their jobs and the investments made in this enterprise wasted. In addition, foreign investors and the Ethiopian government need to understand that its collapse could have a symbolic knock-on effect in the region. Ethiopia's garment sector is often seen as a pioneering experiment proving that structural transformation in Africa is possible.

Unmet promises

Garment manufacturers were already struggling to do business. We found that workers, unhappy with their working conditions and pay, were increasingly willing to protest by stopping work or even quitting. Attrition was high, and production was low.

There are also problems with raw materials, almost all of which need to be imported into Ethiopia from India or China. The government advertised the availability of more than 3 million hectares for cash crops, including cotton cultivation in 2010. In fact, only about 60,000 hectares were being used by 2019 to grow cotton, and





that figure is falling as local farmers switch to sugar, sesame, and other more lucrative cash crops.

Ethnic tensions disrupted factory operations further. When Abiy Ahmed took over as Prime Minister in 2018, his reforms which aimed to create a more ethnically inclusive government unsettled the ruling coalition and opened a political space for ethnic tensions to resurface. For instance, in Hawassa, a group of the Sidama people - who are the majority ethnic group in the Hawassa state pushed for independence in 2019.

The political uncertainty due to ethnic tensions translates into economic uncertainty for investors.

In Hawassa, security concerns emerged for local workers and foreign staff. Night shifts had to be cancelled so that workers could get home safely before nightfall. Political demonstrations at the park's fence and within the park disrupted production. Sidama people also mobilised within factories and demanded more jobs for their people resulting in short strikes and occasional park-wide closings.

Such disruptions are a wild card beyond the control of investors, which may set back further investments.

By a thread

When the COVID-19 pandemic broke out in early 2020, the sector was hanging by a thread. In June 2020, the International Labour Organisation published a report, which described reduced orders and a situation for workers even more perilous than before.

By the end of 2020, many of the over 60,000 garment workers in Ethiopia had lost their jobs or were too afraid to return to work, fearing they would catch the coronavirus.

The current ethnic conflict could be the straw that breaks the camel's back. For instance, the industrial park in Mekelle built for 20,000 workers

and with an occupancy in 2020 of around 3,500 workers is currently closed. The current internet and phone blackout in the Tigray region

now also makes any communication between buyers and the factories impossible.

A worsening human rights situation creates reputational and operational risks for investors and buyers. It increases uncertainty over the ability to complete orders and ship them on time. It also increases security risks for staff and workers. This may all cause long-lasting damage to investor confidence and the opportunity for sustainable economic development.

What must change

To assure investors, buyers, and international stakeholders, Prime Minister Abiy Ahmed needs to end the blackout in the Tigray region, better protect journalists and civilians, and allow for independent human rights monitors to assess conditions.

At this critical moment, clothing companies and manufacturers invested in Ethiopia need to double down on their commitments to business in Ethiopia. This means they need to stay in the country and speak up to support human rights.

Once ethnic tensions are defused, more work will still need to be done by both the government and foreign manufacturers to strengthen the sector. This includes developing a domestic supply chain and establishing a minimum wage that ensures decent living conditions for workers.

But first, the future of the industry must be secured.

*Dorothee Baumann-Pauly in The Conversation Africa
Adjunct Professor and Director of the Geneva Center for Business and Human Rights, Université de Genève*

Ghana's electricity supply mix has improved, but reliability and cost is still a challenge

Theophilus Acheampong and Bridget O. Menyeh

Ghana has made significant progress over the past 10 years in increasing electricity generation and access. This has supported higher levels of economic growth. However, beneath these improvements lies inefficiencies, including extraordinarily high distribution losses. Electricity is also quite expensive in Ghana. If not addressed, these issues could derail Ghana's development agenda.

As countries transition their economies to ones that use less carbon, they need to build balanced energy systems. These must be anchored on high energy security, universal access at affordable prices and low emissions.

Ghana began reforming its energy sector in the mid-1990s to encourage competition and efficiency. Independent power producers were introduced to increase thermal generation capacity using crude oil and natural gas. Ghana had been heavily dependent on hydroelectric power from the Akosombo Dam. When rainfall patterns began to change in the mid-1980s with accompanying low water levels, energy policy shifted.



The reforms also introduced performance contracts and other energy efficiency initiatives to decentralise the value chain, which had been monopolistic. This was also a pre-condition by development financiers such as the World Bank.

Between 2000 and 2019, electricity generation capacity increased at a rate of 6.4% a year from 1,358 megawatts (MW) to 4,695 MW. Supply capacity has nearly doubled since the 2013 power crisis. At the same time, system peak demand grew at a 4.6% annual rate from 1,161 MW to 2,804 MW.

The increase in power generation supported Ghana's economy. The economy grew in real terms by 6.67% a year between 2011-2019. Electricity demand is estimated to have grown at 7%-10% a year since 2010.

Despite energy generation being in excess of demand, power remains expensive and unreliable, and has become a constraint on doing business in the country.

We recently conducted research in which we analysed how the country's changing power mix affects energy security, energy equity and environmental sustainability. The three are referred to as the 'energy trilemma'.

We found that Ghana has shown significant improvement from 2000 to 2019 in energy security and energy equity. It has made marginal improvements on environmental sustainability. However, these improvements mask some inefficiencies that need addressing if the country is to have a more resilient electricity sector.

Rebalancing energy sources

The World Energy Council's Energy Trilemma Index ranks Ghana among the top 10 countries that have improved on energy security, equity and environmental sustainability. Only two other African countries – Kenya and Ethiopia – made the top 10.

The shift from hydro to thermal has helped Ghana to increase energy security. Whereas hydro accounted for 68% of electricity generated in 2000, it's now 36%. At the same time, the country has increased thermal generation capacity to 64% of the mix. Ghana also has a better balance of sources for fuel for electricity generation. In 2019 Ghana procured 63% of gas from its own offshore fields and another 37% via the West African Gas Pipeline. Gas supply reliability is expected to improve again when the Tema LNG project is completed.

Renewable energy makes up less than 1% of the electricity mix excluding hydro. There are a number of reasons for this. They include a lack of financing for renewable projects and a general lack of public awareness of renewable energy technologies. Ghana is also short of experienced personnel to install and manage renewable projects.

On equity, 85% of the population has access to elec-

tricity in 2020. This makes Ghana one of the African countries that are most likely to achieve 100% universal access by 2030.

Despite the improvement in electricity access, we also found that changes to the energy mix, and the resulting electricity tariff structure, have been masking inefficiencies in the distribution system.

The tariff structure places a burden on some consumer categories. These include commercial and industrial users. This creates unintended consequences of unpaid bills and electricity theft, hampering full cost recovery. Ultimately, this negatively impacts on further investments that could improve electricity supply.

Energy security is not just about increased power generation and availability. It is about the entire value chain, from generation to transmission and through to distribution. Our analysis shows a lack of investment in the country's distribution infrastructure.

The result is that a persistent 25% of electricity generated in Ghana is lost at the retail end. These are caused by dilapidated infrastructure (technical losses) as well as electricity theft or commercial losses. Ghana's losses are more than double the sub-Saharan Africa average of 12%.

The state of distribution infrastructure has implications for integrating other variable renewable energy sources into the grid by making them even more expensive to connect. For consumers, such losses mean power outages are likely to continue.

25%

Percentage of
electricity generated
in Ghana that is lost
at the retail end.



Photo by Christian Dubovan on Unsplash.

Environmental sustainability is a composite measure of final energy intensity (the energy used to produce a particular output), low carbon energy generation and CO₂ emissions per capita. Thermal generation capacity now has a higher share of the energy mix but its fuel sources have improved, shifting from heavy fuel oils to gas. However, there has also been less room for low-carbon energy generation. The target for renewable energy generation was 10% by 2020, and has now been extended to 2030.

Finally, power in Ghana is expensive, compared with some neighbouring West African countries. For example, Ghana's tariff averages 15.5 cents per kilowatt versus 10.5 cents per kilowatt in neighbouring Côte d'Ivoire. This can reduce the country's competitiveness, given that cheaper power attracts both domestic capital and foreign investment.

It's also important in meeting Sustainable Development Goals (SDG) 7 and 13 which, respectively, aim to increase access to modern energy and combat climate change. Currently, about 70% of Ghana's population lack access to clean cooking fuels. This has severe implications for health, gender, and the environment.

A better balance

Addressing inefficiencies in Ghana's electricity sector will reduce the need to price in distribution losses, thereby enhancing affordability. This could promote industrialisation and clean cooking with electricity. Balancing the often-competing dimensions of the energy trilemma remains the central challenge of energy governance and not just about reducing carbon intensity as the sole mandate.

This article was co-authored with Doris Agbevivi who is an Energy Economist working with the Energy Commission of Ghana.

Country's changing power mix affects energy security, energy equity and environmental sustainability. The three are referred to as the energy trilemma .



Photo by Karsten Würth @karsten.wuerth on Unsplash.

Solar technologies can speed up vaccine rollout in Africa. ***Here's how***

By Cyrus Sinai and Rob Fetter

in The Conversation Africa

There's hope that some industrialised countries will achieve near-universal vaccination against COVID-19 in the coming months. Yet the effort to vaccinate even the most essential workers in developing countries has only just begun. By current estimates, achieving herd immunity (to current strains) will require at least 75% of the world's population to be vaccinated. Some developing countries haven't reached that level of coverage even for common vaccine-preventable diseases like measles and polio.

Many low-income countries will soon get vaccine access through the COVAX initiative. The first doses distributed in sub-Saharan Africa under COVAX were injected at the end of February. Around 30 million more doses are expected to arrive in March 2021.

But the success of national distribution efforts depends on a functional cold chain. This is an uninterrupted system of storage, transport and delivery of vaccines at low temperatures all the way from national warehouses to local clinics and into the arms of people.

Most vaccines must be stored between 2°C and 8°C. This is the case for polio and measles vaccines as well as the COVID-19 vaccines from Johnson & Johnson and AstraZeneca-Oxford. Others have temperature

requirements that are notoriously more difficult to maintain. The COVID-19 vaccines from Moderna must be stored at between -25°C and -15°C. The Pfizer-BioNTech requires -70°C, but can be kept between -25°C and -15°C for up to two weeks.

Keeping vaccines seamlessly refrigerated is an especially daunting challenge where electricity is unavailable or unreliable. A 2013 review spanning 11 African countries found that just 28% of clinics and hospitals had reliable electricity, and 26% had no electricity access at all. Updated data on energy access in health facilities is scattered and sparse, but we are working on a new comprehensive review.

Unreliable power is extremely costly for vaccination efforts. Each year, nearly 50% of freeze-dried and 25% of liquid vaccines are wasted. This is in large part due to cold chain electricity disruptions.

Thus, to deliver COVID-19 vaccines at the required scale, the problem of energy access at health facilities must be confronted. But realistically, entire national grids can't be overhauled overnight to provide universal, uninterrupted power. So what can be done?

Solar as a solution

In many cases, the answer may be to go solar. Solar photovoltaic solutions, like other decentralised renewable energy systems, come in countless configurations. These typically include battery storage and can be used along with existing electricity sources like the national grid or a diesel generator.

This flexibility means that photovoltaic systems can be deployed rapidly and modularly to provide health facilities with power, often more reliably than the grid. Electricity is essential for vaccine cold chain and other services needed during a pandemic.

Health facilities in areas with limited electricity have long relied on gas-powered absorption type refrigerators. Solar-powered refrigerators are more reliable and efficient. Photovoltaic refrigerators with batteries store energy from solar panels for later use. In this way power is available even on cloudy days or at night, or (for grid-connected clinics) during a power outage.

Other photovoltaic refrigerators do not use batteries at all. Solar direct drive refrigerators use solar energy to directly freeze water into an ice wall. This keeps the storage container cold for days, even when solar energy isn't available.



up Grid, has solar-powered batteries that can maintain stable internal temperatures as cold as -20°C for up to 24 hours.

For the time being, however, the most widely used subzero storage and transportation devices forgo electricity altogether. They use passive cooling instead, essentially functioning as giant, highly insulated super-Thermoses.

Solar power can also help with another essential electricity-dependent component of vaccine delivery systems: information and communication technologies. These enable national health programmes to monitor vaccine stocks and refrigerator temperatures in remote, rural health facilities in real time, and alert them when deviations occur that may compromise their integrity.

In rural areas that are far from the grid, cellular and internet connections are often more difficult to access. But in recent years, solar-pow-

ered cell towers have strengthened and expanded telecommunications networks in areas with unreliable power in countries such as Guinea, the DRC and Mali. Off-grid cell towers have also been used to power vaccine refrigerators in settings such as Zimbabwe. These refrigerators also rely on the cellular network to relay monitored temperature data to health facility staff.

Solar-powered cold chain technologies can be game-changers in the fight against COVID-19 in resource-limited settings in sub-Saharan Africa and beyond. As the COVAX initiative scales up across the continent, governments and development partners should consider how solar-based solutions can aid vaccine delivery. They are invaluable tools – perhaps even equal in importance to the vaccines themselves.



Unreliable power is extremely costly for vaccination efforts. Each year, nearly 50% of freeze-dried and 25% of liquid vaccines are wasted.



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Nigeria doesn't have a coherent strategy to manage freight: *how it can get there*

By Richard Oloruntoba

in The Conversation Africa

Nigeria's transport network is largely in a state of disrepair due to inadequate investment over the decades, economic and population growth, and ineffective policies and plans.

Nigeria doesn't have a coherent strategy to manage freight: *how it can get there*

Nigeria's transport network is largely in a state of disrepair due to inadequate investment over the decades, economic and population growth, and ineffective policies and plans.

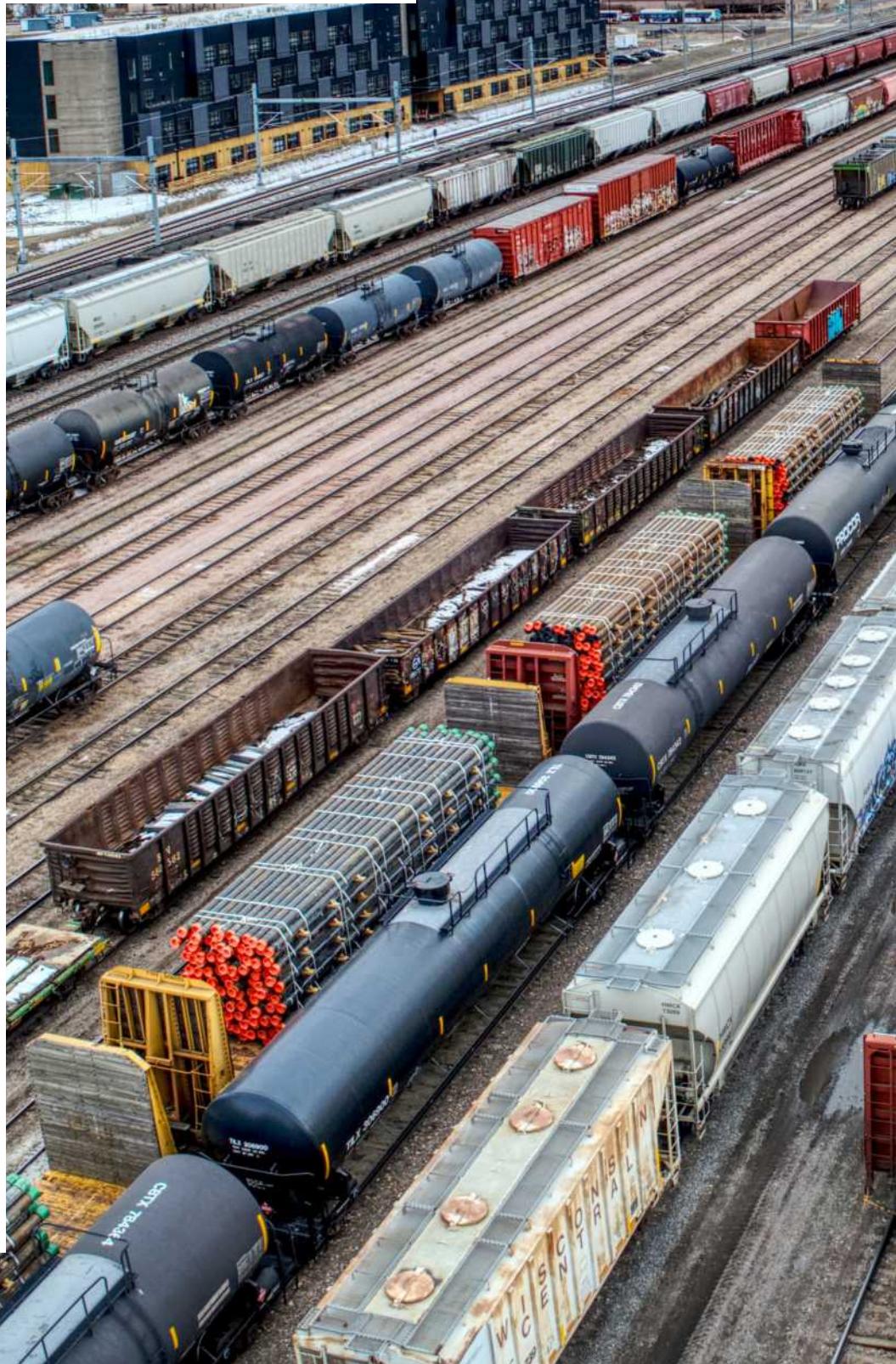
For instance, Tin Can and Apapa ports in Lagos continue to suffer from inadequate cargo handling equipment. This results in expensive delays. And when goods are eventually cleared, absence of rail connectivity results in them having to be hauled over poor and congested roads to the northern and eastern parts of the country.

These factors often result in accidents, breakdowns and further delays. All are detrimental to the economy.

Such ineffectiveness is in spite of a series of national transport policies. Reforms were initiated in 2003, 2008 and 2010. These paid some attention to the possibility of intermodalism ensuring trucked goods are moved on to rail or water, and back to truck for final delivery. These reforms also considered privatisation and public-private partnerships. However, none of these policies and reforms made a significant difference.

Costs associated with ineffective and inefficient national transportation and logistics systems are well documented. The International Trade Administration, an agency of the US government, citing a survey by the Lagos Chamber of Commerce and Industry, showed that the Nigerian economy loses an estimated revenue of N3.46 trillion annually.

Nigeria connects to the global and regional economy through international maritime shipping and air while its internal connections are mostly by road and rail movements. Given this, any freight logistics plan





for the country must be seen as part of a global supply chain network.

In my view, the time has come for a serious consideration of an overarching and holistic national freight logistics strategy for Nigeria for the next few decades.

It would bring together all tiers of government and industry to provide a coordinated, national multi-modal approach to freight planning. And it would address Nigeria's freight challenges, while supporting its long term international competitiveness.

As an experienced logistics analyst, consultant, scholar and educator in the developing and developed worlds, I have come across a range of relatively effective national freight logistics strategies such as those of South Africa, Panama, Vietnam and Thailand.

They provide useful benchmarks for what is possible.

Why plans haven't worked

Firstly, transport traditionally gets constant attention from public authorities. But logistics and supply

chain management is often considered to be a private business-oriented activity.

Public authorities should be paying much closer attention to it, especially in relation to its integration with trade, and the economy.

Secondly, decision makers still take a piecemeal view and approach. This is clear from the fact that there are a number of disparate plans that touch on transport. These include the Nigeria Integrated Infrastructure Master Plan which was put in place in March 2015 by the National Planning Commission. And then there's the Economic Recovery and Growth Plan which was approved by the government in 2016 for execution in the period 2017 to 2020.

Similarly, there are several oversight agencies. For example, air transport alone has three – the Nigerian Airspace Management Agency, Nigerian Civil Aviation Authority and the Federal Airports Authority of Nigeria – but none has a freight focus.

A piecemeal approach results in insufficient integration of trade and



Photo by Andrew Coop on Unsplash



Photo by Olga Subach on Unsplash.

economic considerations in the design, operation and management of the national transport system. The outcome is poor logistics and supply chain management.

What the plan needs to cover

A well-developed freight logistics strategy should be integrated and overarching. It should facilitate the safe and efficient movement of freight within the country. It would also integrate the country seamlessly within the West African sub-region and beyond.

The plan should address sources of freight generation, commodity flows and associated data-based modelling. It should also cover the transportation and distribution industry and workforce, storage and warehousing location principles, and movement of bulk commodities, containers and general cargo through major ports, airports, inland dry ports, transport corridors and intermodal terminals.

In addition the plan should cover railroad access, water port access and air cargo access to allow efficient access of bulk freight to support agricultural regions, production clusters, local industries, businesses and consumers.

Lastly, the strategy should address compatibility of data and information standards, platforms and systems. This would ensure smooth interactions between trading partners and carriers, as well as the introduction of modern and productive freight technologies. South Africa, Panama, Thailand and Vietnam are some examples Nigeria can learn from.

How it can be achieved

A national freight logistics strategy like this would be different from the myriad existing government plans and policies. For example, it would reduce transaction and coordination costs for freight operations and the economy as a whole.

The policy can be developed through systematic freight research based on accurate data and other evidence from stakeholders. This may include a series of nationwide inquiries into the priorities for national freight and supply chains.

Other relevant data and information can be collected through industry partnerships and extensive non-partisan consultations.

Each country has its unique issues. A thorough and representative consultation process would therefore be crucial.

A thorough mapping exercise also needs to be done.

Freight networks and hubs consist of multiple visible and invisible economic, social and political connections. These combine to provide an effectively working system and must be identified.

For example, Lagos and Kano are monocentric hubs. What's meant by this is that freight has to be trucked in or out from the outskirts of the city sprawl, and from other parts of Nigeria at great cost. And with difficulty. A national decentralised system with several hubs across Nigeria would make much more sense. This would allow logistics facilities and infrastructure to be located closer to the sources of major freight generation and consumption, and closer to key transport corridors.

This would make freight transport less reliant on Lagos ports. In turn this would ease the pressure on transport networks. This has positive implications for efficiency, productivity, transport emissions, noise reduction and social equity.

Considerations should therefore be given to several other hubs outside of Lagos, Kano, Port Harcourt and Abuja. For instance, Enugu-Onitsha may serve as a freight hub to support manufacturing and trade, while Makurdi or a similar middle belt city can serve as hub for the food producing regions of the area.

Overall, an audit must be undertaken to identify regulatory, economic or environmental challenges. Skills and geography also need to be part of the picture.

Nigeria's current approach to the movement of freight is fragmented. It needs a single point of national accountability. While the current emphasis on road infrastructure projects is good, an integrated freight logistics and supply chain management approach would be better.

Logistics is not as attractive to senior politicians as simply building roads. It therefore struggles to gain political attention. But that's no reason for the country not to pursue an integrated national freight logistics policy.





Kenya launches Lamu port. But its value remains an open question

By Jan Bachmann and Benard Musembi Kilaka

in The Conversation Africa

Kenya's newest mega infrastructure project, the Lamu port, has received its first ship. Moina Spooner, from The Conversation Africa, asked Jan Bachmann and Benard Musembi who study the environmental, socio-economic and security dynamics along the Lamu Port South Sudan Ethiopia Transport Corridor to provide insights into the history of the port, the opportunities it presents and the concerns around it.

When and why was the Lamu port project initiated?

The Lamu port is part of an ambitious transport corridor between Lamu – a small archipelago north of Mombasa in Kenya – South Sudan and Ethiopia.

Kenya already has one deep-water port in Mombasa. Plans for a second one to diffuse economic dependency on Mombasa go back to the mid-1970s. However, it only



Photo by Dominik Luckmann on Unsplash.jpg



materialised in March 2012. The occasion was marked when the then East African heads of states Kenya's Mwai Kibaki, Ethiopia's Meles Zenawi and South Sudan's Salva Kiir laid the port's foundation stone.

In its early ambition, the Lamu port figured as connecting the landlocked East African economies to global trade routes. More specifically, it was envisioned as an alternative outlet for South Sudan's oil, which is currently pumped via the Greater Nile Oil Pipeline to Port Sudan.

With South Sudan mired in continuous war and Ethiopia upping its stakes in the ports of Djibouti and, most recently, Berbera, the international ambitions of the transport corridor shrivelled somewhat.

Yet, as a cornerstone of the Kenyan government's Vision 2030 development plan, it is now branded as a "game changer" project.

Its new aim is to integrate marginalised northern Kenya into the Kenyan economy and the nation. Plans for the corridor include a pipeline, a railway line, a road network connecting Lamu, Garissa, Isiolo, Moyale and Turkana, a dam along Tana river, airports and resort cities. There are also plans to establish numerous industrial areas along the corridor.

We show in our research that most of the plans are real on paper and government websites only. Nevertheless, the implications for communities across northern Kenya are very concrete. Beside the completion of the 500km Isiolo-Moyale road, the official opening of Lamu port marks the project's most salient achievement so far.

Constructed by the China Communication Construction Company, the first three of the planned 32 berths come at a cost of US\$367 million.

What opportunities does the port present?

Mobilising projections about future trade, the Kenyan government has persistently argued that the Lamu port will become a viable and necessary complement to the hub of Mombasa. Local authorities specifically invest their hopes in plans for a special economic zone, though to date these have rather been elusive. This promises significant investments in the port



and the creation of hundreds of jobs.

Since the port will primarily serve as a transshipment hub, it's expected to attract key shipping lines by competing with the ports of Djibouti on the horn of Africa and Durban in South Africa. In addition it would serve key markets in southern Ethiopia and South Sudan.

So far, around 19 shipping lines have inspected the port. The Kenya Ports Authority anticipates many will use it and take the generous promotional offers currently in place.

On the positive side, road works connecting Lamu to Nairobi via Garissa are well under way. And the new road between Lamu and Garsen has already reduced transport costs as trucks and travellers no longer need to go via Mombasa.

Once the project's highway towards Garissa and Isiolo is completed, the former northern frontier region may benefit from the connection to the port.

But there are big question marks when it comes to the overall economic value of a second Kenyan deep-water port. This concern is driven by the deficient infrastructural integration of Lamu and Northern Kenya.

Logistics experts also warn that Lamu port has formidable potential to become a white elephant project because of the immense uncertainties about its core use.

What have been the big issues around construction?

Planning and construction of the port have yielded a wide range of concerns and contestations, particularly on land rights, the environment, local livelihoods and security.

Different rights groups have documented numerous complaints by residents about compulsory land acquisition. One study found that the government had taken more land than it paid compensation for.

Another major concern touches on the environmental impact of the port's construction, some of which

19
**Shipping
lines that has
inspected
the Port**

came to light in a 2018 High Court ruling.

And local protests against the project have been met with harassment by Kenyan security forces.

The economic livelihoods of hundreds of local fishermen will be disrupted by the port because its extensive restricted area restrains access to viable fishing grounds. And in contravention of a court ruling that awarded fishers about KSH1.7 billion (US\$ 18.4 million) compensation for their economic losses, the government has delayed the payments over disagreements about the list of beneficiaries and the mode of compensation.

Concerns about employment opportunities to residents are also grow-

ing. So far, around 100 youths from Lamu have secured employment at the Lamu port.

Lastly, there are security concerns. In the last 15 years or so, Lamu has become a highly volatile region. Attacks by the al-Shabaab militant group have brought violence to the area and turned it into a highly securitised region. Security operations have significantly reduced insecurity incidences. But periodic al-Shabaab attacks have affected construction activities.

How should these concerns be handled?

The concerns from the community are weighty and require serious attention since they affect many aspects of their daily lives.

Our ongoing research shows that many of the concerns could have been averted if due process had been followed from the project's inception. This includes timely and adequate compensation to everyone affected by the project. It also includes proper and robust environmental and social impact assessments as well as considering qualified residents for employment opportunities. Finally, there's the issue of addressing the perennial problems of land rights in Lamu.

It's vital that Lamu residents are treated as direct stakeholders and partners to the project. Their voices, concerns and aspirations should be taken seriously.





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South Africa's auto industry highlights the social and employment cost of innovation

By Bianca Ifeoma Chigbu and
Prof Phulu. H. Nekhwevha

in The Conversation Africa

In South Africa, local operations of international motor manufacturing companies must constantly innovate to meet global demands and offer competitive value. The way work is done is constantly changing.

South Africa's auto industry highlights the social and employment cost of innovation

In South Africa, local operations of international motor manufacturing companies must constantly innovate to meet global demands and offer competitive value. The way work is done is constantly changing.

The current technologies adopted in the workplace are ever smarter than those that went before.

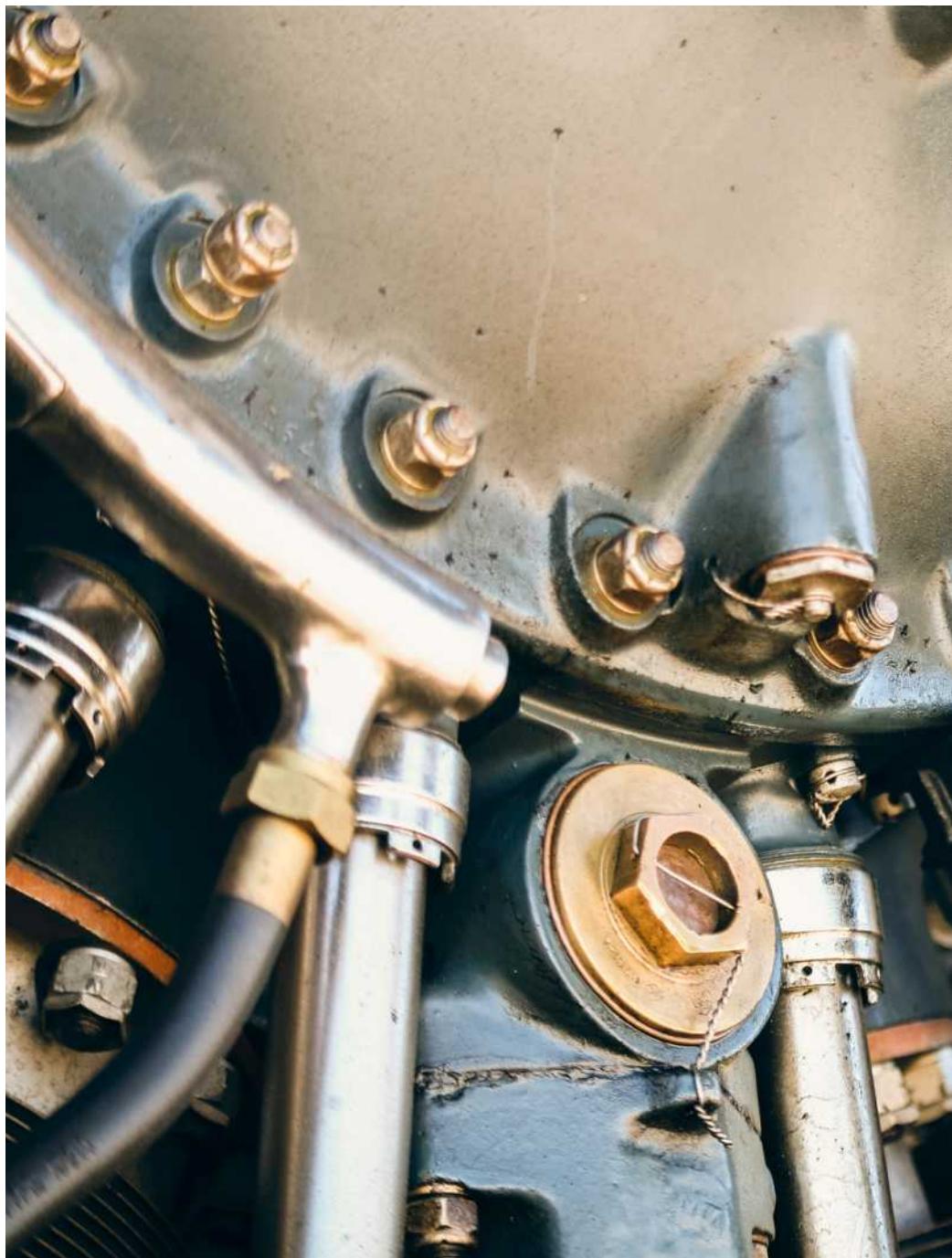
This trend, driven by economic forces, does not always lead to social improvements. Automation and the use of robots in manufacturing, combined with new working methods and systems, can have negative social impacts on workers.

Job automation in South Africa

There has been an increase in technology in South Africa's automobile sector since 2003. Most of the work in vehicle manufacturing has been automated, which makes manufacturing easier, faster, and more productive. More units of cars are produced daily. Companies used to manufacture only 20 units of cars hourly. Now they are manufacturing over 100 units an hour using the same number of autoworkers.

Study of the industry found that automation is well advanced. The sector's body shop is fully automated. The paint shop is 80% automated. There is about 20% technology utilisation in the car assembly line. And logistics is making a lot more use of machines than before.

These percentages are an indicator of how workers have lost the contest with technology in the industry. Many workers are being deskilled: they no longer fully use their skills to do their job, because robots do most



of the work. The remaining workers are being reshuffled to assembly lines likely to be automated with time. This increase in job automation and deskilling can cause some workers to lose their jobs because their skills have been substituted by machines.

We gathered data through in-depth interviews with 30 participants, drawn from three automobile companies. They included managers, autoworkers and workers representatives.

Our interviews with management revealed that management does not

necessarily prefer machines over human workers. But in order for the product to compete, they have to consider production capacity, quality and workplace economics.

Where they intend to introduce machines, it is not to take over the jobs of the workers but because some tasks require the use of machines. For example, one cannot expect workers to lift a car while another person is working underneath it. A machine can do that without endangering the workers. Still, management said that if given the chance, they would replace more workers with machines as robots perform more tasks efficiently and boost productivity without the need for negotiation.

What automation means for workers

Though robots have eased the process of labour, their increasing use stagnates the population of workers on the shop floor, paint floor, body shop and assembly line.

The decisions that resulted in the reallocation of many autoworkers from the body shop and paint shop to the assembly line are almost irreversible. One worker said:

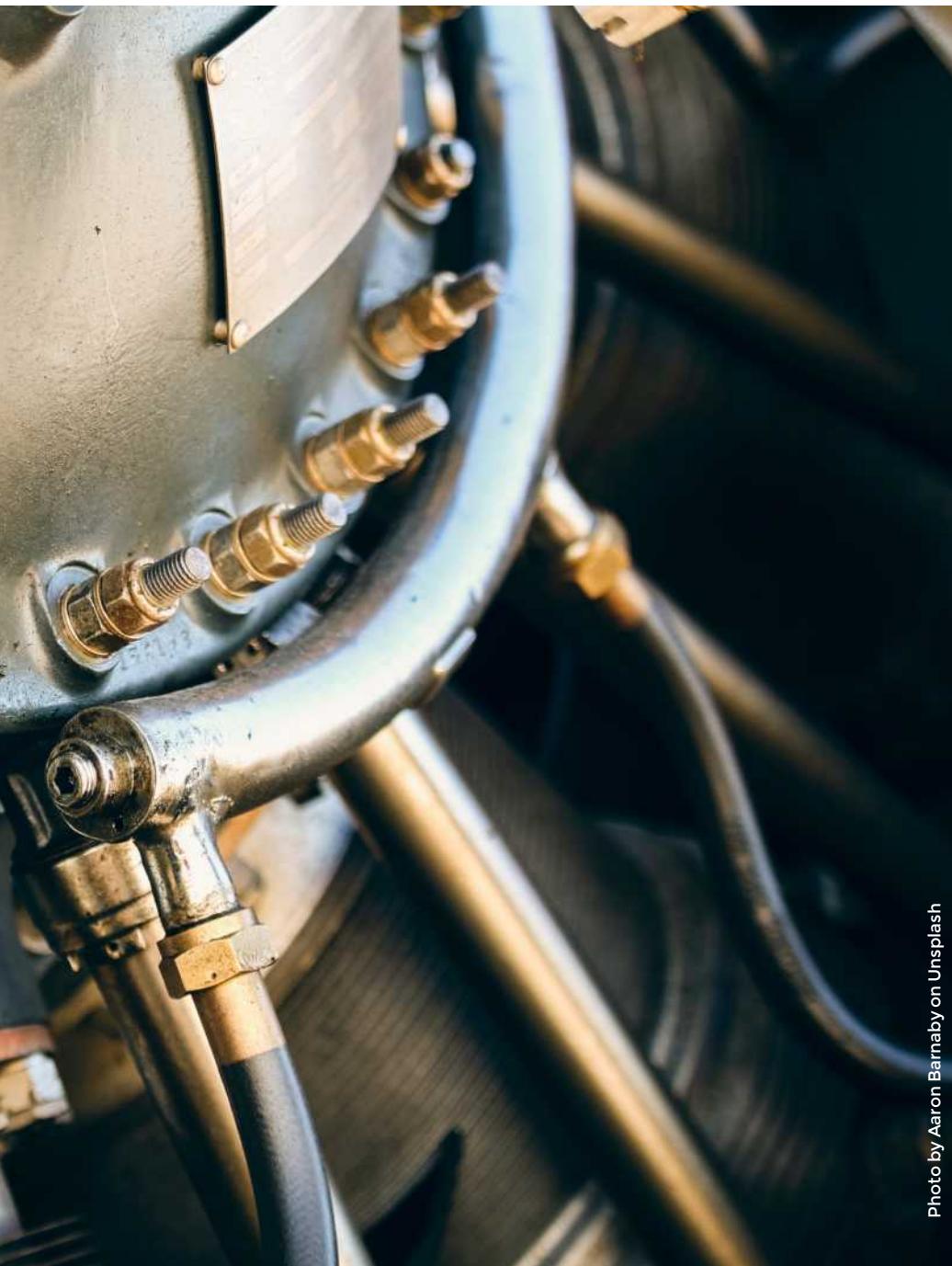
If you have to look at the traditional press line, you would have an average of 20 operators. Now you only need four operators just to pack the parts. So, 16 workers are reduced by introducing five robots. The affected workers are moved to other departments within the industry for now.

Growth in the automobile industry does not create more jobs for human workers. Where automation does create jobs, it is mostly in managing the technology. It doesn't create work for existing skills.

This creates the threat of a rising unemployment rate, which was at 30.1% in the first quarter of 2020. That, in turn, contributes to South Africa's position among the most unequal countries in the world.

Driving forces

The adoption of technologies can relieve workers from strenuous tasks and boost productivity but will most likely also relieve workers of their jobs entirely.





As an initiative to boost productivity and save costs, the global auto industry expects thousands of job losses with an estimation of 234 000 jobs cut by 2030 in Germany, 12 000 job cuts by Ford in Europe by the end of 2020, and 2 000 job losses in India by the end of 2020.

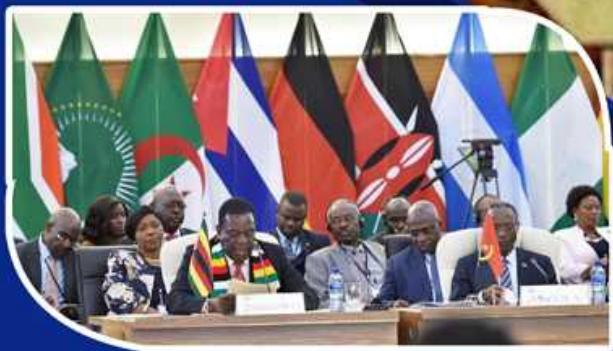
We noted in our research that the capacity of the auto workers trade union, the National Union of Metalworkers of South Africa, to collectively restructure the auto sector with management and benefit all stakeholders is weakened due to the coercive control of the management and top-down labour arrangement.

Innovation is the driving force of consumers and this is what management responds to. But instead of valuing innovation above all else, industrial policy-makers

should seriously examine how far it can boost the human condition before it becomes a problem by contributing to job losses, employment uncertainty, deskilling and inequality.

The solutions would be to retain existing jobs, increase job opportunities, revamp industrial policy, reduce the rate of task allocation to technologies, and make the automobile sector's production process more labour intensive than capital intensive.

The state, car companies, unions, workers, consumers and society in general all have a role to play in effecting meaningful economic change and employment reform that is sustainable for all.



Action Plan for **SADC Industrialisation** Strategy and Roadmap



Photo by Hush Naidoo Jade Photography on Unsplash

The seven tactics unhealthy industries use to undermine public health policies



If you are working to improve public health and the environment in Africa, you need to know what your opponents are up to.

By Rob Moodie
in The Conversation Africa

Across Africa there are examples of governments trying to introduce policies that improve health, and protect the environment only to find their efforts undermined by unhealthy corporations, and their industry associations. A case in point is South Africa's efforts to introduce a tax on sugary drinks to reduce the growing burden of obesity. In the process they are facing a barrage of resistance. This is one small example of unhealthy industries undermining the public's health and the global environment.

The seven tactics unhealthy industries use to undermine public health policies

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If you are working to improve public health and the environment in Africa, you need to know what your opponents are up to.

Below is a quick guide to their tactics, which I have assembled as a summary from three sources: Naomi Oreskes and Eric M Conway, *MERCHANTS OF DOUBT*, William Wiist's *The Corporate Playbook*, *Health, and Democracy: The Snack Food and Beverage Industry's Tactics in Context*, and Nicholas Freudenberg's *Lethal but Legal*.



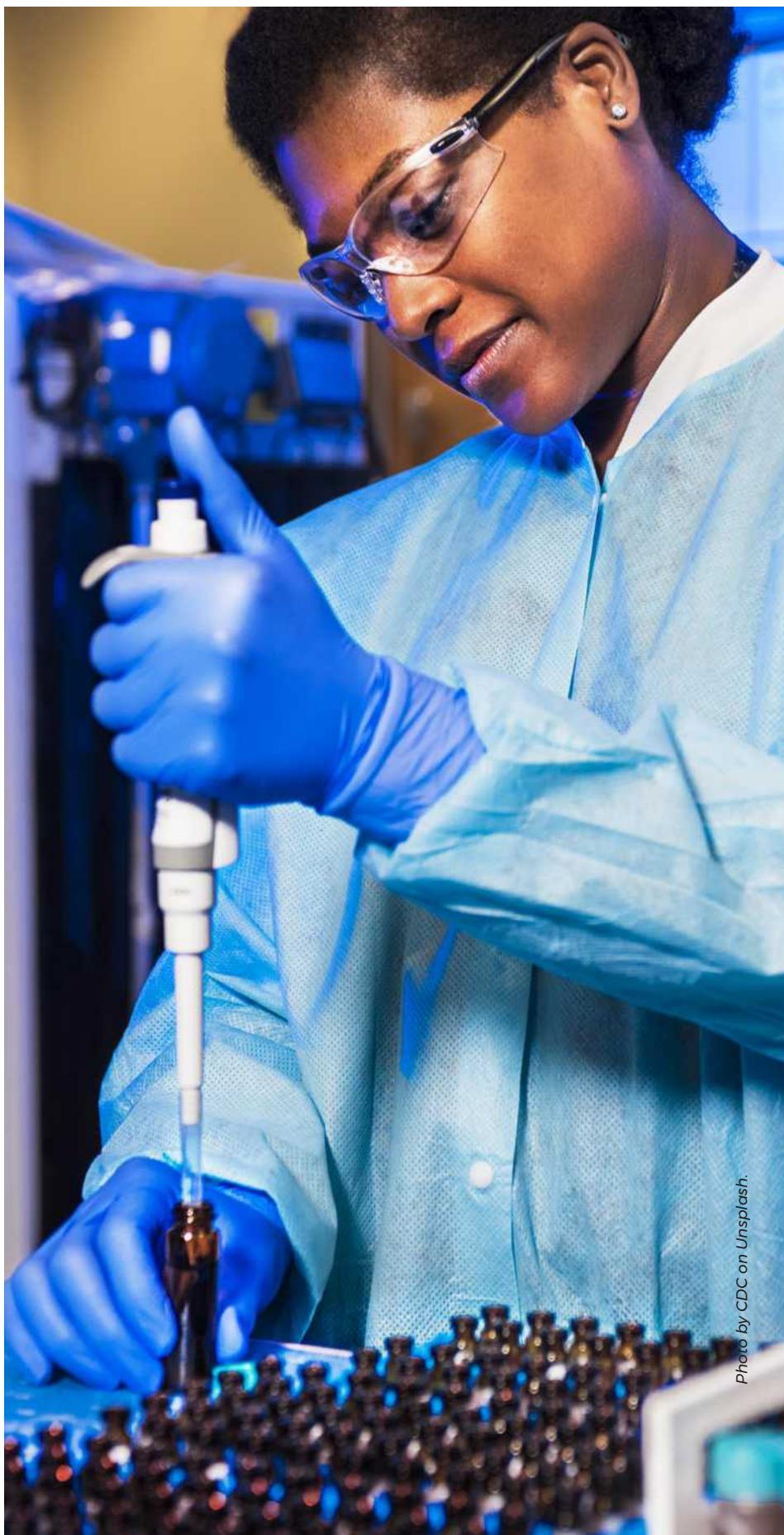
Photo by Jaron Nix on Unsplash



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1. Attack legitimate science

- Accuse science of deception, calling it "junk science" or bad science, claiming science is manipulated to fulfil a political agenda.
- Attack the scientific institutions and government agencies perceived to be acting against corporate interests.
- Insist that the science is uncertain by claiming scientists don't know what's causing it, and that more research is needed.
- Withholding any data unfavourable to the corporate product.
- Using information in a misleading way; cherry-picking by using facts that are true but irrelevant.
- Insist that there are many causes to a health or environmental problem, and that addressing just one of them will have minimal impact.
- Exaggerate the uncertainty inherent in any scientific endeavour to undermine the status of established scientific knowledge.
- Use corporate-funded studies.
- Fund researchers sympathetic to corporate causes or products.



2. Attack and intimidate scientists

- Create doubt by attacking the authenticity and integrity of the author.
- Attack the credibility of the messenger and allege ulterior motives.
- Have attack dogs intimidate opponents.
- Smear the enemy for example, by calling environmentalists watermelons (green on the outside and red on the inside), use hatred and fear of communism to transfer animosity to the environmental movement.
- Threaten to sue - or actually sue - scientists and advocates but avoid or delay hearings of the facts.
- Make accusations using the rhetoric of political suppression.
- Infiltrate scientific groups and monitor prominent scientists.
- Create enough doubt to forestall litigation and regulation.
- Constantly repeat the doubt, using surrogates or message force multipliers .
- Use pejorative terms repeatedly such as excessive regulation, over regulation, unnecessary regulation, nanny state, and health Nazis to promote fear and disdain.
- Always demand more proof.
- Alternatively, aim for self-regulation instead of regulation; introduce corporate voluntary codes to forestall government regulation.

3. Create arms length front organisations

- Create front groups.
- Run projects through front groups (information laundering) especially law firms, because they can avoid scrutiny due to attorney client privilege.
- Create research institutes that can create their own scientific studies.
- Sponsor conferences and workshops.
- Create independent newsletters, magazines, and journals (not subject to peer review).
- Publish findings selectively.
- Manipulate research funding, design, and authorship.
- Distribute materials targeted pamphlets and booklets, social media.
- Use public opinion polling.



Photo by CDC on Unsplash

4. Manufacture false debate and insist on balance

- Create the impression of a controversy.
- Maintain the controversy, keep the debate alive.
- Create false dichotomies.
- Insist that responsible journalists cover both sides of the argument equally.
- Demand balance, relying on the Fairness Doctrine.
- Divert attention from harmful products.
- Focus on corporate social responsibility.
- Set up corporate social responsibility foundations; find small-scale, apparently well-meaning community activities.
- Focus on other issues as the problem, like physical activity instead of diet, for example.

5. Frame issues in highly creative ways

- Insist that the problem is very complex, thus implying it can't have a simple solution, if any.
- Insist it is premature to suggest remedies.
- Constantly repeat that technological advances will obviate the need for regulations and that the

problem can be solved only through the marketplace.

- Insist on personal or parental responsibility and insist that government should have no role in influencing individual health behaviour.
- Use colourful imagery such as a billion dollar solution to a million dollar problem); use words like "speculative," "oversimplified," "premature," and unbalanced .
- Use the creation of fear as a tool for change of policy.
- Diminish the severity of the problem while giving some ground.
- Admit that it is a serious problem, but not a life-threatening one.
- Admit that there may be a problem, but it is less severe than everyone says.
- Argue that the problem is less severe than other problems - those should be the priority.
- Argue that the cost to fix the problem is too high.
- Argue that the benefits of the problem haven't been considered.
- Argue that other options haven't been considered.



- Understand and use the power of language
the other side's language is filled with uncertainties,
so make sure yours is certain.

6. Fund industry disinformation campaigns

- Run industry disinformation campaigns using new and creative forms.
- Pay and co-opt celebrities and sympathetic expert witnesses.
- Sponsor conferences to challenge scientific consensus.
- Align with other issues employment discrimination, antitax groups.

7. Influence the political agenda

- Donate to political parties across the political spectrum.
- Get representatives from unhealthy industries around the policy table, for guideline development or standard setting.
- Invest heavily in paid lobbyists.
- Get "friends" in important and influential government roles - for example, by targeted hiring of politicians, their advisers, or senior administration officials once they leave office.
- Aim to reduce government budgets for regulatory or scientific, or policy activities against corporate interests.

This is an edited version of an article that appeared in a publication of the American Journal of Public Health.

Rob Moodie

in The Conversation Africa

Professor of Public Health, The University of Melbourne

Photo by Sharon McCutcheon on Unsplash.

Africa's growing lead battery industry is causing extensive contamination

By Faridah Were

The Conversation Africa

Photo by John Cameron on Unsplash.

Africa is facing a serious lead poisoning problem. In Senegal, for example, researchers linked the deaths of children from processing lead waste to supply a lead battery recycling plant in a poor suburb of Dakar.

In Kenya, the legacy of a shutdown lead-recycling plant is causing major health problems for people living in the neighbourhood. And in Nigeria an investigation by journalists showed how lead battery recycling facilities were poisoning workers and the people living in the area.

The problem is growing along with the market for lead batteries. This is due to lack of regulation and investment in environmentally sound battery recycling plants. Most facilities in Africa are small. They weren't built with adequate pollution controls to prevent disasters and ongoing contamination.

The production of lead batteries is growing rapidly in Africa as the market for lead batteries expands. Global lead output continues to grow, with about 85% production going to make batteries.

We conducted a study around lead battery recycling plants in Cameroon, Ghana, Kenya, Mozambique, Nigeria, Tanzania and Tunisia. Our results showed significant lead contamination around 15 licensed battery recycling plants. This shows that informal sector recycling is not the only source of lead pollution.

Other studies have also reported excessive emissions from lead acid battery manufacturing and recycling plants in low and middle-income countries.

Our findings contribute to the growing body of research in documenting lead contamination around licensed recycling plants across Africa. This underscores the need for urgent action. This should include putting in place regulatory systems.

Growing problem

At the 15 facilities we tested, 85% of the soil sampled from inside and outside the plants exceeded 80 parts per million (ppm). This is the health hazard level used in California. Piles of used battery cases and waste slag

(residues) were responsible for some of the soil contamination. But excessive airborne emissions are the largest source.

This extensive soil lead contamination is a significant source of human exposure across the region. We found that these hazardous sites are often adjacent to residential areas, agricultural and grazing lands.

In recent years, the United Nations Environment Assembly has begun to recognise the growing threat of lead battery recycling to public health and the environment. In 2016, it passed a resolution noting the lack of adequate infrastructure needed to recycle the rapidly growing number of used lead-acid batteries. It noted that there was a need to further reduce releases, emissions and exposures .

Despite this call and the urgent need for continued intervention, there's been minimal effort by African governments.

Unlike electronic waste, lead battery recycling is a profitable enterprise that can be safely done without any subsidies. Countries such as China have enforced minimum size requirements for recycling facilities to ensure that adequate emission control technology can be cost effective.

In the US and Europe effective take-back schemes ensure that lead batteries are collected back at the end of their useful life. These measures are key to ensuring that used batteries go to regulated facilities and aren't diverted to the informal sector.

What is needed

Our research points to the need for regional and national level action across the continent. This should include the establishment of comprehensive industry-specific regulations.

There must be performance re-



quirements in place for stack emissions, ambient air levels, minimum production capacity for new and existing recycling plants and occupational exposure limits for airborne emissions and blood lead levels.

There's also a need to attract investment to build efficient facilities with proper emission control technology. Along with these measures, governments should put strategies that should require manufacturers and distributors to take back used batteries in order to consolidate this hazardous waste stream.

Without formal collection systems there's no financial incentive for battery recycling companies to invest in suitable infrastructure as they are competing against the informal sector.

As our study shows, land use restrictions in most countries on the continent have been ineffective in separating hazardous recycling plants from residential areas. This has resulted in harm to human health.

The industry needs to be more transparent. Battery makers and recyclers should report emissions and alert the public about soil lead contamination.

The remediation of contaminated soils under these circumstance is complex and costly. The regulatory system should ensure that financial resources are available for the anticipated cost of remediation following plant closure.

Comprehensive awareness programmes about the associated health impacts are critical to the communities since most contaminated sites only come to light after reported deaths or cases of severe lead poisoning are identified.

Perry Gottesfeld, the Executive Director of Occupational Knowledge International, was a co-author of the research and also contributed to this article.

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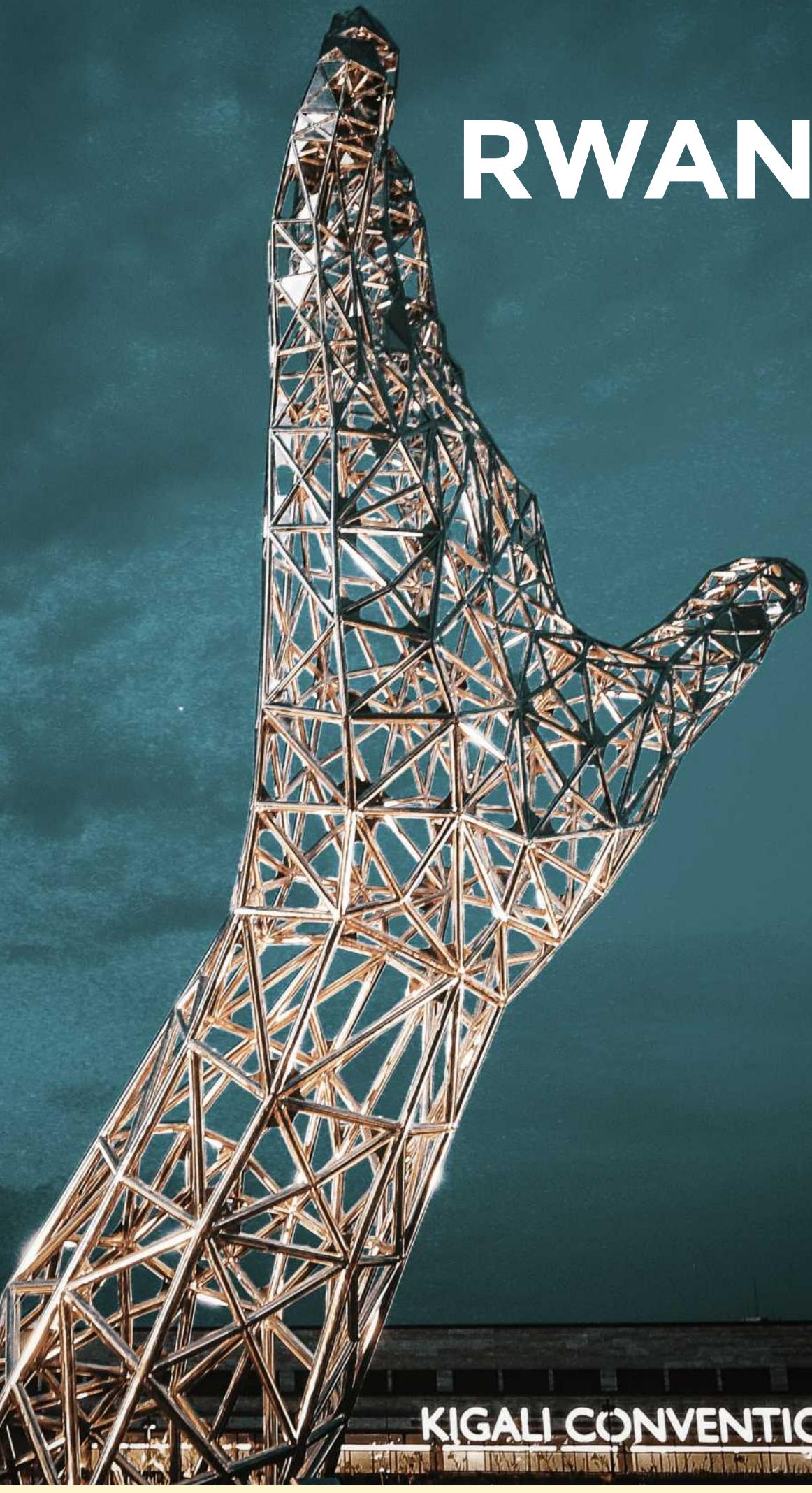


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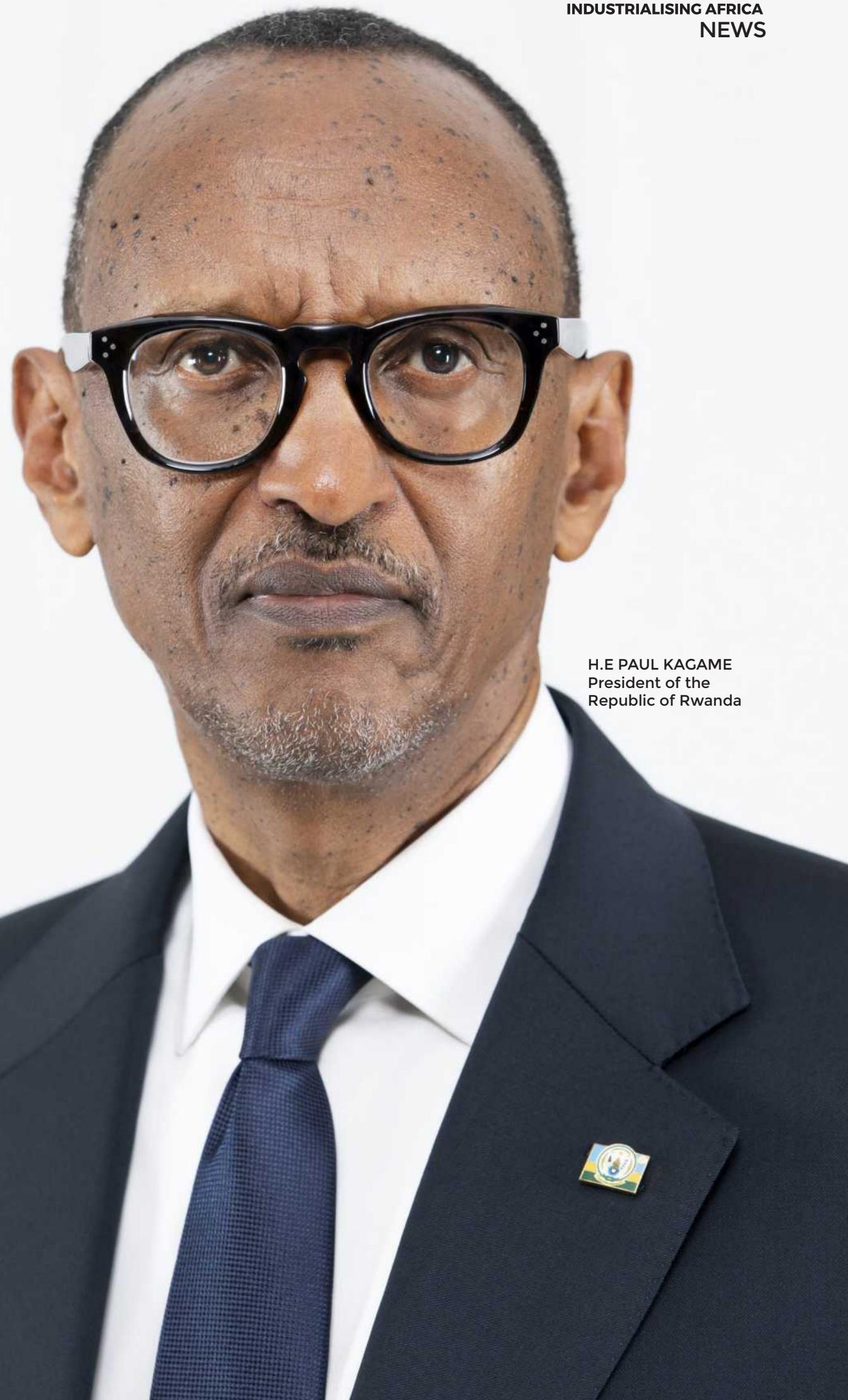


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Bachelor of Science in Molecular Biology and Forensic Technology	Full-Time OR Evening	8 Semesters Or 6 Semesters Or 4 Semesters
Bachelor of Science in Mathematics and Computer Science	Full-Time OR Evening	8 Semesters Or 6 Semesters
Bachelor of Science in Statistics & Computer Science	Full-Time OR Evening	8 Semesters Or 6 Semesters
Bachelor of Technology in Renewable Energy and Environmental Physics	Full-Time OR Evening	8 Semesters Or 6 Semesters
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H.E PAUL KAGAME
President of the
Republic of Rwanda

Rwanda and Mozambique sign MoU to promote strategic private sector investments



By Special Correspondent



The Rwanda Development Board (RDB) has signed a Memorandum of Understanding with the Investment and Export Promotion Agency (APIEX) of the Republic of Mozambique to attract, promote and facilitate investments between the two countries. The strategic sectors of focus of this partnership will include; agro-processing, tourism, healthcare, mining, and real estate sectors.

H.E. Mr. Paul Kagame, President of the Republic of Rwanda, was appointed to lead the AU institutional reforms process. He appointed a pan-African committee of experts to review and submit proposals for a system of governance for the AU that would ensure the organisation was better placed to address the challenges facing the continent with the aim of implementing programmes that have the highest impact on Africa's growth and development so as to deliver on the vision of Agenda 2063.



In the picture during the MOU signing ceremony are Richard Tusabe, Rwanda's Minister of State in charge of National Treasury, Carlos Alberto Fortes, Mozambique's Minister of Industry and Trade and Zephanie Niyonkuru, Deputy CEO of Rwanda Development Board.

The Rwanda Development Board (RDB) has signed a Memorandum of Understanding with the Investment and Export Promotion Agency (APIEX) of the Republic of Mozambique to attract, promote and facilitate investments between the two countries.

The strategic sectors of focus of this partnership will include; agro-processing, tourism, healthcare, mining, and real estate sectors.

Such an initiative answers M8to the African Union's Agenda 2063 that calls for an integrative approach to the development and shared prosperity in Africa. Agenda 2063 is a shared framework for inclusive growth and sustainable development for Africa to be realized in the next fifty years. It is a continuation of the Pan-African drive over centuries, for unity, self-determination, freedom, progress and collective prosperity pursued under Pan-Africanism and African Renaissance.

Rwanda Development Board is a government agency responsible for leading the country's transformation to a dynamic global hub for business,

investment, tourism and innovation. Its mission is to fast track economic development in Rwanda by enabling private sector growth.

Speaking at the signing of the MoU, Richard Tusabe, Rwanda's Minister of State in charge of National Treasury, said:

The timing of the signing of this MoU could not be any better. This is when we are trying to catch up on what we have lost over the last two years of the pandemic. The effects will be long-term, but through cooperation, we can shorten the recovery period. We need to complement each other in terms of policies and implementing strategies that respond to our national challenges.

Carlos Alberto Fortes, Mozambique's Minister of Industry and Trade, said:

The current COVID-19 pandemic situation calls for different approaches to decisions that we have to make to recover our economies. Working together is much better than working alone. This is what we will continue to enforce between our two governments. No one is going to do the

\$70B

If the Africans were able to increase their share of world trade from 2 to 3 percent, that 1 percentage increase would actually generate about \$70 billion

development of our countries on our behalf. It will require a lot of sacrifice and effort."

Commenting on the MoU, Zephanie Niyonkuru, Deputy CEO of Rwanda Development Board, said:

With the signing of this MoU, expectations are high regarding the business prospects for the private sector in Rwanda and Mozambique. We look forward to growing our bilateral trade and investment relationship underpinned by the friendship of both countries.

Mozambique and Rwanda are building a synergistic relationship for the private sector ecosystem for the mutual benefit of the two countries.

Rwanda's exports to Africa Countries increased by about 50% over the last five years, from USD 108 Million in 2015 to USD 160 Million in 2019 and the new initiative is meant to catalyse this growth through targeted efforts which builds on a previous agreement that is meant to promote investment and exports between the two countries.

Between 2018-2020, Rwanda's exports to Mozambique were estimated at US\$741,426. These mainly comprised solar systems and hot rolled steel plates, while imports from Mozambique amounted to US\$9.8M; mainly sugar and sugar confectionery.

Experts hold that, trade is critically important to economic development. Africa has about 2 percent of all world trade, which is hard to believe when you think about all of the tremendous resources that they have, oil, diamonds, gold not to mention all the agricultural products such as coffee, tea, cocoa and to think that Africa still only has 2 percent of world trade is really incredible. But the power of trade is that if the Africans were able to increase their share of world trade from 2 to 3 percent, that 1 percentage increase would actually generate about \$70 billion of additional income annually for Africa or about three times the total development assistance Africa gets from the entire world.

Africans trade the least with each other than all the other continents. A shortcoming that is being addressed through the African Continental Free Trade Area (AfCFTA) This has bringing about a greater increase in intra-African trade but it also places a greater onus on African countries to strive to be not only competitive regionally but competitive globally as well, which a whole different ball game. If you are not competitive regionally. It is the opening of borders to each other and trade with each other, is the sure way to achieve the level of competition that will allow African countries to be major providers of any product globally.



AFRICA TRADE STATISTICS

Top 5 Products exports imports at HS 6 digit level 2019

The top five exported HS 6 digit level products to world by Sub-Saharan Africa along with trade value are:

- Sub-Saharan Africa exported Petroleum oils and oils obtained from bituminous, worth US\$ 51,619,786.62 million.
- Sub-Saharan Africa exported Gold in other semi-manufactured forms, non-monetary, worth US\$ 14,090,802.96 million.
- Sub-Saharan Africa exported Petroleum oils, etc, (excl. crude); preparation, worth US\$ 6,387,055.84 million.
- Sub-Saharan Africa exported Diamonds non-industrial unworked or simply sawn, worth US\$ 6,252,617.36 million.
- Sub-Saharan Africa exported Cocoa beans, whole or broken, raw or roasted, worth US\$ 5,789,609.41 million.

The top five imported HS 6 digit level products from world by Sub-Saharan Africa along with trade value are:

- Sub-Saharan Africa imported Petroleum oils, etc, (excl. crude); preparation, worth US\$ 26,203,116.96 million.
- Sub-Saharan Africa imported Petroleum oils and oils obtained from bituminous, worth US\$ 11,315,334.72 million.
- Sub-Saharan Africa imported Other medicaments of mixed or unmixed products, , worth US\$ 4,871,813.28 million.
- Sub-Saharan Africa imported New stamps; stamp-impressed paper; banknotes; c, worth US\$ 4,135,767.01 million.
- Sub-Saharan Africa imported Transmission apparatus, for radiotelephony, incorpo, worth US\$ 3,754,425.38 million.

Sub-Saharan Africa top 5 Export and Import partners 2019

The top five countries to which Sub-Saharan Africa exported 2019 along with the partner share in percentage are:

1. Sub-Saharan Africa exports to China worth US\$ 25,987 million, with a partner share of 10.77 percent.
2. Sub-Saharan Africa exports to India worth US\$ 18,494 million, with a partner share of 7.66 percent.
3. Sub-Saharan Africa exports to South Africa worth US\$ 14,765 million, with a partner share of 6.12 percent.
4. Sub-Saharan Africa exports to United States worth US\$ 12,460 million, with a partner share of 5.16 percent.
5. Sub-Saharan Africa exports to Netherlands worth US\$ 11,338 million, with a partner share of 4.70 percent.

The top five countries to which Sub-Saharan Africa imported goods 2019 along with the share in percentage are:

1. Sub-Saharan Africa imports from China worth US\$ 45,548 million, with a partner share of 17.98 percent.
2. Sub-Saharan Africa imports from South Africa worth US\$ 17,303 million, with a partner share of 6.83 percent.
3. Sub-Saharan Africa imports from India worth US\$ 17,087 million, with a partner share of 6.74 percent.
4. Sub-Saharan Africa imports from United States worth US\$ 16,407 million, with a partner share of 6.47 percent.
5. Sub-Saharan Africa imports from Germany worth US\$ 12,397 million, with a partner share of 4.89 percent.

Source: World Integrated Trade Solution



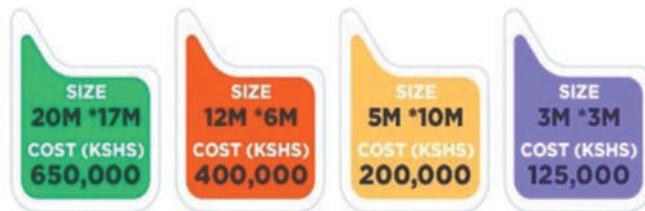
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FirstCode Corporation through Industrialising Africa is utilising its diverse and dedicated information aggregation and dissemination platforms to advance and promote the vision, mission and ideals of Africa's Agenda 2063 that will transform the economies of African countries through science, technology and innovation (STI) driven industrialisation as a catalyst to unlocking Africa's \$3.4 trillion latent trade potential and thus make a significant contribution to the \$19 trillion annual world trade.

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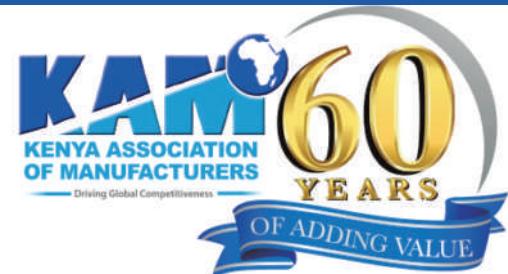
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Service highlights for Kenya market



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Our Mission

To promote competitive and sustainable local manufacturing.



Goal

To transform KAM into a sustainable member-focused association delivering relevant, quality, timely and effective services to its members.



Values

KAM has 6 values that are the key drivers of its corporate culture. These are Effectiveness, Good Governance, Innovation, Professionalism, Responsiveness and Teamwork.



KAM MEMBERSHIP

KAM membership constitutes 40% of manufacturing value-add industries in Kenya and comprises of small, medium and large enterprises. Over 80 per cent of these are based in Nairobi, while the rest are located in other major towns and regions, including Coast, Nyanza/Western, Nakuru, Eldoret, Athi River, Nyeri and Thika.

Membership at KAM is structured in two categories, namely:

Ordinary Membership

Ordinary membership is extended to companies that are directly involved in processing, manufacturing or any other value addition activities.

Associate/Consultancy Membership

Associate/Consultancy membership is extended to firms which have direct interest in the expansion of industries, either through the provision of services or other inputs.



POLICY AND ADVOCACY

Legal Framework

Review of legislation that affect members. We create awareness of legislation or bills still in parliament, by reviewing and circulating the summaries of legislation to members.

Counterfeit Goods & Illicit Trade

Kenya Association of Manufacturers (KAM) has been the leading Business membership Organization in East and Central Africa advocating against counterfeit products that are an ever-increasing scourge eating into effective and profitable trading for all countries in this region today.

Trade



TVET

Kenya Association of Manufacturers (KAM) is committed to driving the skills agenda for Kenya by providing young graduates with opportunities for practical learning. This is happening through the Technical Vocational and Education Training (TVET) Program.



SME DEVELOPMENT

Kenya Association of Manufacturers plays a crucial role in advocating the government to create an environment conducive to entrepreneurship and SME development to secure the future of industry. KAM set out to provide strategic leadership in supporting Manufacturing SMEs towards inclusive global competitiveness.



ENERGY SERVICES

KAM in conjunction with the Ministry Of Energy and Petroleum Development established the Centre for Energy Efficiency and Conservation (CEEC) in 2006. The Centre runs energy efficiency and conservation programs designed to help companies identify energy wastage, determine saving potential and give recommendation on measures to be implemented.



THE MANUFACTURING ACADEMY

The Manufacturing Academy, an arm of the KAM Consulting aims at providing technical and/or specialised and management training and services that are aimed at ensuring the Manufacturing industry continuously inspires global competitiveness.



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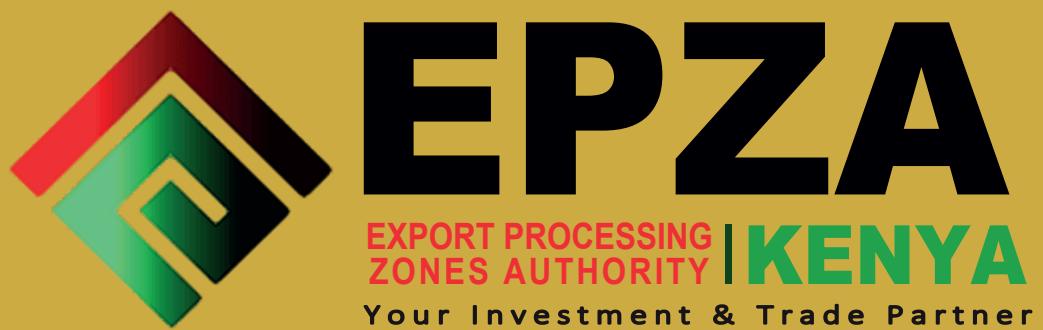


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Kenya's Gate to the \$ 19 trillion World Trade



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