eLearning Africa Report 2019

55 country profiles

- Seeing the digital age
- Superwomen of tech
- How to study during a revolution
- The father of the African Internet
- African EdTech Directory

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Atingi aims at improving education and employability in selected partner countries by providing access to innovative digital learning formats, digital content and learning opportunities online.

The eLearning platform addresses especially young people looking for qualification and jobs as well as marginalised groups such as girls, women and people living in rural and remote areas.

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Editorial

Leapfrogging on the road to 2063

BELIEVING IN THE AFRICAN DREAM

Plenty of challenges and obstacles lie on the road ahead but there is now a real sense of optimism about reaching the ultimate destination.

The African Union set the year 2063 as the deadline for its ambitious plan to turn Africa into a "transformed continent." By that year, the AU hopes, Africa will have conquered the endemic problems of poverty, disease and internal conflict, which beset the continent, and turned itself, if not into a land of milk and honey, at least into a place of opportunity, peace and prosperity.

The dream is not so far divorced from reality as to be unachievable. It could happen. There is a programme of tasks. We know what needs to be done. We are aware of both the challenges and the opportunities. We can now see the details. We understand that there are things that must be done and, if we do not do them, we will fail.

We know the advantages Africa has – its resources, its demographics, its energy, its spirit. We see how the world is changing and how technology offers Africa the possibility to 'leapfrog' competing regions and seize the initiative by harnessing the power of youth and encouraging innovation, entrepreneurship and creativity.

The cynics tell us we've heard it all before. They say African leaders talk the talk but never deliver on their promises. They say the well paid people in the big offices in the international organisations are very good at coming up with fancy plans and lots of big ideas but concrete actions rarely follow their words. They say the dream of 2063 will inevitably evaporate into the same depressing reality of under-achievement, corruption and failure as every other grandiose scheme to transform Africa.

And yet, this time, something really is different. There is something tangible. Progress is already being made in so many areas. We are beginning to feel success. We are starting to appreciate that real, transformative, sustainable change is within reach. We are beginning to believe in the African dream.

The next decade will be crucial. Big technological changes will compound the effect of the ICT revolution which is changing every aspect of African society. Blockchain, artificial intelligence and the 'Fourth Industrial Revolution,' are among many developments set to sweep across Africa and the world.

Leading experts and advisers, such as Ibrahima Guimba Saidou, whom we interview in this report on page 38, know that, in starting from a relatively low technological threshold, many African countries actually enjoy a competitive advantage in comparison with much of the supposedly 'developed' world, where economies are often hidebound by traditional industries and ageing populations. Africa, by contrast, is in a position to implement new technological solutions very quickly and take advantage of its dynamic, youthful population, steady and impressive progress.

The game's afoot and there's everything to play for. As our country reports show, most African countries are making steady and impressive progress. Many have exciting and imaginative plans for implementing the UN sustainable development goals or boosting education outcomes. And, as we explain, there is a real chance that the prospect of an African Common Free Trade Association may soon become a reality.

What African leaders need to do now is to focus on the key decisions that will contribute to progress and collectively amount to the transformation of the continent. "The time for excuses," as our columnist Max Bankole Jarrett points out, "is over."

Investment in education and technology must be at the top of the list of priorities. There must be a concerted effort to address what we have called the Four As: accessibility, affordability, ability (the lack of e-skills) and appetite (the lack of local content).

If African Governments can make progress in these areas, the benefits will quickly be apparent and we will be well on the way to the 'transformed continent.'

Content

News Brief

Photo © iStock/javarman3

Madagascar

AFRICA'S CLEAR INTERNET WINNER

For the second year in a row, Madagascar has emerged as the fastest broadband provider in all of Africa. Ranked 33rd globally, the country beat a number of European countries in the speed department, including the United Kingdom. Madagascar's lightning quick download capabilities are thanks to the East African Submarine Cable System (or EASSy) — a 10,000 kilometer-long fibre optic cable system that runs from the South African coast to Sudan. That technology has enabled a boom in outsourcing companies (nearly 240 and counting) which are able to handle everything from customer support to data analysis for the Francophone market. For a country where much of the population lives on less than $2 a day, there are hopes that the sector — along with job training programmes — could create a whole new middle class.

An online marketplace... curbing the rampant sex for fish trade.

Kenya

AN INITIATIVE THAT SMELLS THE OPPOSITE OF FISHY

Cage fish farming is a wildly popular form of aquaculture throughout Africa, providing incomes for ten million people, half of whom are women. But building efficiencies into the industry has been a challenge, largely due to fluctuating water temperatures. Enter: smart devices. A new thermometer developed by Kenyan researchers and a Chinese firm notifies fishery workers how much fish food to purchase based on the temperature in the water and also shares its data with the nearest feed fulfillment factory, helping it cut down on waste. An online marketplace for fish trading, meanwhile, is creating a safer work environment for female fish sellers and curbing the rampant sex for fish trade.

Zimbabwe

THE INTERNET OF COWS

Data analytics and AI are transforming many of the West's agricultural systems. But, until recently, farmers in Africa haven't been equipped with similar tech tools. A new programme at Zimbabwe's Africa University is seeking to change this by providing dairy farmers with the most valuable intel of all: whether or not their bovine is currently in heat. Farmers are instantly notified when their cows are ready to be artificially inseminated via specially-designed s mart collars. The initiative is boosting productivity and providing a roadmap for greater food security in the country.

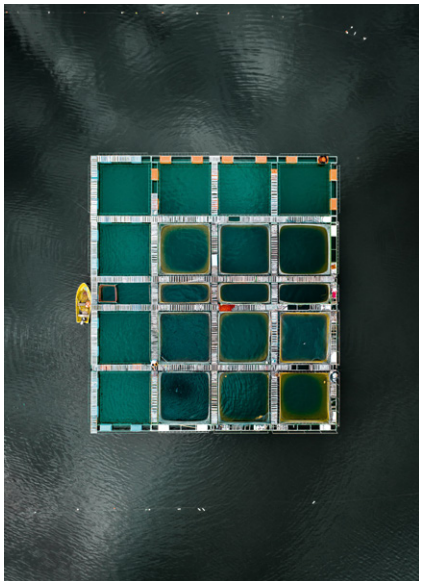

Photo © Unsplash/Teo Angelovski

Steven Blum's guide to learning and technology stories from across the continent

COULD A $20 PHONE BRIDGE AFRICA'S DIGITAL DIVIDE?

Despite awareness of the Internet's increasing role in electoral interference, far-right radicalisation and social alienation, there's no doubt that bringing countries online can have a positive impact on a whole host of metrics — from health care to gender equality to economic development. Countries where Internet use rises by just 10% see an average 2 per cent boost in gross domestic product.

In Africa, where many people are still not online, some are pinning hopes of bridging the digital divide on a quasi smartphone that's half the price of its closest competitors. This year, two of the biggest mobile phone operators in Africa, MTN Group Ltd. and Orange SA, began offering a $20 phone from KaiOS Technologies, a Chinese Android-based platform that is projected to jump 50% this year to 105 million devices, thus becoming the fastest growing OS in the world.

The phone itself isn't packed to the gills with the latest specs, but it offers a decent user experience at an incredible value. Designed for a 3G network, it's got WiFi connectivity, a solid battery that lasts anywhere between one and a half and three days and the ability to run vital apps like WhatsApp, YouTube, Google Assistant and Google Maps. Composing texts is apparently a pain but Google has mercifully announced plans to bring voice typing to the operating system. In markets where users can't afford an extra $20 for a full featured smartphone, this less-learned version could be a godsend.

Photo © Pexels / Cytonn Photography

Kenya

THE KENYAN ACADEMIC-FOR-HIRE ECONOMY

In Kenya, where there are more college graduates than jobs, the essay-for-hire industry is booming. Young, highly-educated workers in need of a job are selling their skills online to desperate foreign students with last-minute papers to turn in. The industry has allowed some to make small fortunes: as much as $2,000 a month in a country with a per capita annual income of around $1,700, but the work can also really get under the skin of those who have been enlisted, essentially, to help teens cheat. Even with advanced plagiarism technology catching up to the phenomenon of students turning in original papers written by strangers, millions of essays continue to be ordered worldwide online.

Scores of engineers... arrested for "crime" of carrying a laptop.

Toni Astro, photo © @toniastro_

Nigeria

TECH VS. POLICE IN NIGERIA

The tech community in Nigeria, Africa's most populous country, is fighting back after scores of engineers have been accused of being scam artists and arrested for the "crime" of carrying a laptop. Tech workers in the country say they are increasingly subject to extortion and harassment at the hands of police and worry that the state's aggressive measures could accentuate a talent drain in Africa's largest economy. With the very tools of their trade marking them as targets in a government shakedown, some have decided to leave the country for greener pastures while others are crowdfunding for a potential class action lawsuit and public awareness campaign.

Kenya

MICROLENDING VIA APPS: STILL A GOOD IDEA?

In Kenya, there are now more people keeping money on their phones than in banks. Mobile lending programmes, now ubiquitous, offer the average shopper a frictionless experience —making it easy to borrow for a new car or just to cover basic expenses. But now that micro lending has gone big, there are concerns that it's causing more harm than good. Today, two-thirds of Kenyan borrowers are in debt stress, with some being forced to sell assets or reduce food spending just to pay back loans. Those who default have their savings frozen and could become targeted by loan sharks. There's more need than ever for better restrictions on who's allowed on the field.

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Photo © pexels/Oudney Patsika

Uganda/Zambia

CHINA SPARKS SECURITY CONCERNS

As ICT tools expand to certain African countries, so do concerns about government surveillance. According to recent reports, Huawei engineers assisted Ugandan authorities in hacking the WhatsApp and Skype accounts of opposition politician Robert Kyagulany (known locally as Bobi Wine) while also lending their support to a crackdown on pro-opposition bloggers in Zambia. What makes the revelations even more significant is Huawei's position as the single most dominant player in telecommunications in Africa and their involvement in government surveillance systems, including Uganda's $126 million investment in facial recognition technology. China's readiness to partner with authoritarian regimes troubles NGOs as well as the UN's David Kaye, who has said the growing surveillance software industry has "grave implications, worldwide, for privacy and freedom of expression."

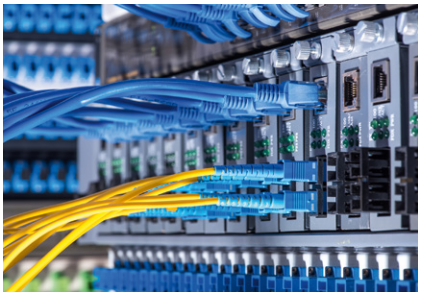
Photo © pexels/Kelly Lacy

Kenya

A HIGH TECH FARMER'S ALMANAC

Farmers in Africa must contend with a host of uncertainties, including, not insignificantly, a rapidly warming planet. But Kenyan Thomas Nieru is determined to help take some of the guesswork out of the notoriously risky sector. His new microinsurance programme, called Pula, harnesses AI, remote sensing and automation tools to provide farmers with protections against failures of seed germination and poor harvests. One form of coverage, called weather index insurance, even uses satellite data to determine whether there has been sufficient rainfall. Microinsurance is a $64 billion market but many farms in Africa are small and remote, making smart technology all the more vital. And, with an annual insurance premium per farmer of around $3 to $5, Pula is suited well for those who can't access conventional insurance coverage.

...automating tools to provide farmers with protections against failures of seed germination and poor harvests.



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Nigeria/South Africa/Kenya/ Egypt/Ghana/Nairobi

MORE AND MORE TECH HUBS CALL AFRICA HOME

Spaces built to grow technology companies — also known as tech hubs— have grown from 314 to 442 across Africa over the past two years, according to a recent report. These incubators, accelerators and technology parks continue to be most common in Nigeria and South Africa, but several countries are catching up, including Kenya, Egypt and Ghana. It's a hopeful sign that startups, and the cultures that birth them, are sprouting up everywhere despite internet shutdowns and political conflict. And in another indication, two of Africa's powerhouse tech incubators have announced that they will join forces. Nigeria's CcHub has acquired the Nairobi based iHub. The merger will create what one tech publication called a „mega Africa incubator."

Rwanda

A NEW PHONE FACTORY RISES IN RWANDA

Africa's first fully-homegrown smartphone factory recently opened its doors in Rwanda's capital city of Kigali. In the past, African smartphones, such as South Africa's Onyx Connect, were assembled on the continent using imported parts, but the Mara phone is entirely crafted in Africa, from the phone's motherboard to its packaging. The company hopes to crank out a few million phones, using almost entirely local workers, of whom nearly 60 per cent are women. (And the company is expecting nearly to double its workforce over the next five years.) The phone, which costs less than $200 to purchase, is manufactured by the Mara Group, a pan-African business but with its headquarters in Dubai. Rwanda's ICT minister Paula Ingabire is hoping the phone will improve digital literacy among both youth and seniors, as the government has set an ambitious goal of 100 per cent digital literacy among youths aged 16-30 by 2024.

Tech hubs have grown from 314 to 442 across Africa over the past two years.

4 As

And how they could help Africa become the 'Transformed Continent'

by Harold Elletson

In the age of technology assisted learning, traditional rote methods are often despised. Some, however, definitely still have something to teach us.

Take mnemonics, for example. They are learning techniques to aid information retention or retrieval; often they make use of codes, cues or imagery. They were first developed, and greatly valued, in the ancient world. Plato and Aristotle both referred to them and Cicero spoke admiringly of the mnemonic systems developed by Carneades of Athens and Metrodorus of Scepsis.

A useful mnemonic device, in the form of an acronym, has been developed to remind us of the key 21st Century skills we should all learn. The Four Cs help us to remember that Critical thinking, Creativity, Collaboration and Communication will be essential in the market places and labour markets of the future.

Now, GIZ,[1] the German Government's international partnership organisation, which is involved in several pioneering education projects in Africa, including the 'Africa Cloud,' has suggested that remembering the Four As may help decision makers to focus more clearly on key priorities for education and development in Africa. Sometimes it is helpful to see problems from the perspective of a well meaning outsider. And progress in these areas could help governments to meet UN targets for sustainable development (SDGs) and play a significant role in making a reality of the African Union's plans for a 'transformed continent' by 2063.

So what are the Four As and why are they so important for Africa's development?

GIZ defines them as a lack of Access; Affordability and the high cost of access to ICT; Ability and a lack of applicable knowledge and skills; a lack of Appetite in the form of demand for adequate, relevant content, combined with little awareness of the value offered by the Internet.

So, access, affordability, ability and appetite.

All four are vitally important but, of them all, at the moment, perhaps access, in its broadest sense, is the most significant. Figures produced this year by the UNESCO Institute for Statistics (UIS) show that, without urgent action, the world will fail to meet its education commitments by 2030 and four in ten young people will still not be completing secondary education. In sub-Saharan Africa, the problem is particularly acute and

> "In sub-Saharan Africa, 60 per cent of youngsters aged between 15 and 17 are not in school."

rates of education exclusion are as high as anywhere in the world. UIS, which develops key indicators to help governments, donors and UN partners better address the challenges, has shown that, with seven out of ten countries facing a serious shortage of teachers, one fifth of children between the ages of 6 and 11, and one third between the ages of 12 and 14, are out of school. In the secondary system, the problem is even worse: fully 60 per cent of youngsters aged between 15 and 17 are not in school.

This situation is perhaps the most significant factor in undermining the potential benefits of the demographic dividend due to Africa from its ever more youthful population. With Africa's school-age population still growing, on present trends, the situation is likely to get much worse.

"Without urgent action, the world will fail to meet its education commitments by 2030."

GIZ suggest that attempts to solve the problem need to focus on:

- Access to education and training through digital technology
- Lifelong learning and access to the labour market
- Access to education in rural areas and for marginalised groups
- Access to Information and Communication (e.g. in Agriculture)
- Access to platforms and data

"9 million girls between the ages of 6 and 11 will never go to school at all."

The significance of solving the problem in rural areas and with marginalised groups cannot be underestimated. Over 40 per cent of the labour force in Africa are still employed in agriculture and, of these, more than 70 per cent are women. Technology and the new skills that can be learned through it are already having a significant impact on increased productivity and efficiency, in turn boosting the continent's ability to feed itself and helping to make a reality of the African Union's plans for a 'transformed continent.' So, UIS statistics showing that, across sub-Saharan Africa, 9 million girls between the ages of 6 and 11 will never go to school at all, compared to 6 million boys, are particularly alarming.

The statistics show that exclusion and disadvantage starts early too. 23 per cent of girls in the region are out of primary school, compared to 19 per cent of boys.

GIZ's mnemonic, however, reminds us that the key to solving the problem does not simply lie in improving access. There are other important factors too and, whilst affordability clearly has a major impact, particularly on improving access, the importance of 'appetite' and 'ability' should not be underestimated.

Ensuring that skills learned are actually applicable in the fast moving, technology driven markets of the future will be crucial. So the choices political leaders, planners and employers make about the key skills sets that will be necessary a decade from now are vital to the prospects of ensuring sustainable economic growth.

And 'appetite' is vital too. Content, in this respect, certainly is king. It has to be relevant and it has to be localised. It has to reflect the demands and needs of different countries, nations and ethnic groups, as well as their differing economic priorities and strategies.

"In my opinion," says Volker Lichtenthäler of GIZ, "the 'Appetite' area, in particular, is neglected and there is a lack of good locally valuable content. Unfortunately, the tendency is even to believe that you don't have to develop your own content anymore, since US-American MOOCs and similar online learning platforms would actually provide everything for free."

In a world in which we are all ever more closely interconnected and where it is likely to be increasingly important to 'think global, act local,' the significance of matching content with local needs and demands is clear.

So, whilst rote learning may no longer be in fashion, it's worth remembering mnemonics and the Four As.

1 The Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) mainly implements technical cooperation projects on behalf of the Federal Ministry for Economic Cooperation and Development (BMZ)

4 As: In detail

How Africa is meeting the challenge of the Four As

by Steven Blum

Harnessing technology to educate a continent is not as simple as merely expanding broadband Internet access or building the perfect learning management system. In Africa, there's no one-size-fits-all model to address the needs of such a dynamic and varied region. Instead, policymakers should look closely at the barriers preventing eLearning's adoption in a range of different contexts. Here we look closely at some of the challenges facing technology-assisted education across Africa and imagine what it will take for these tools to be adopted more widely.

ACCESS

Access to technology varies greatly across the African continent, so it would stand to reason that there are also disparities when it comes to accessing eLearning tools. Even in universities where eLearning has taken hold, student access is spotty: according to a 2012 study, only 0.15 per cent of students and academics used learning management systems at the University of Nairobi in Kenya, and the number was even lower —0.11 per cent— at the University of Zambia. Meanwhile, just 3.48 per cent of students and academic staff used eLearning platforms at the University of Dar-es-Salaam.

But there are plenty of eLearning initiatives that give reason for optimism. One is Krystal Digital, an eLearning company based in Nigeria that provides schools with oodles of web-based storage and already counts more than 65,000 active students as users. Using the company's "MySkool" software, school administrators can send mass bulletins on the go, teachers can compute scores and generate reports, and students can track their academic performance in real time.

Entrepreneurs are also finding clever workarounds to the lack of Internet access across the continent. According to the International Telecommunication Union (ITU), only 7 per cent of households in the least developed countries (a majority of which are located in Africa) had Internet access in late 2014.

> "All users have to do is send a question to a number provided by the platform to receive a reply with answers and information curated by Tanzanian teachers."

Those sobering statistics spurred Given Edwards, in Tanzania, to create Mtabe, an artificial intelligence-powered SMS platform that can answer students' most pressing questions by text. All users have to do is send a question to a number provided by the platform to receive a reply with answers and information curated by Tanzanian teachers.

The digital gender gap is another factor affecting who gains access to potentially life-transforming technology. The proportion of men using the Internet is higher than the pro-

portion of women in two-thirds of countries worldwide. In Africa, Internet penetration rates for men were 24.9 per cent for men but just 18.6 per cent for women in 2017, per ITU. Existing gender gaps, if not properly addressed, are likely to exacerbate inequalities in labour markets and financial systems, but new initiatives — like African Girls Can Code — seek to address this disparity. The four-year project brings together young women from across the continent to spark their interest in ICT as a career path, and hundreds have already participated in the first camp at Addis Ababa.

Finally, disparities in education access, more broadly, affect who is able to try out the latest learning tools. The problem of access is particularly stark in sub-Saharan Africa, where the number of students in tertiary education has swelled to 8 million, or 9 per cent of all young people, in recent decades — more than double the share in 2000, but significantly lower than in regions like South Asia (25 per cent) and Latin America and the Caribbean (51 per cent). State-run institutions in that region, especially, are struggling to keep up with demand, and funding per student has actually fallen since the 1990s.

Enter MOOCs. In South Africa, a number of learning providers —including the University of Cape Town, Stellenbosch University and Wits University— are starting to deliver online courses that are locally produced and provide an African perspective. Many more are needed, especially those tailored to indigenous communities.

AFFORDABILITY

As smartphone penetration reaches significant levels across the continent, broadband Internet has gone increasingly mobile. According to ITU, Internet subscriptions have surged by 45 per cent in the least developed countries over the past five years, and the reason (not surprisingly) is the increasing affordability of such services: mobile broadband prices have dropped 20 per cent there as a percentage of GNI per capita from 2013 to 2016. It's now more affordable to buy Internet for your phone than it is for your home.

In some regions, WhatsApp is emerging as a key social media tool that offers students a chance to improve their understanding of course materials and become agents of knowledge — all without breaking the bank. According to one study in South Africa, WhatsApp is cheaper, easier to run and more accessible than most other data-heavy platforms like Facebook.

Other students are using ICT to find valuable funding for their academic pursuits. Isaya Young in Tanzania created SomaApps after he saw how many domestic and international scholarships went unclaimed every year because young people were unaware that they existed. The app matches African stu-

GERMANY PROVIDES NEW ACCESS TO DIGITAL LEARNING IN AFRICAN PARTNER COUNTRIES

by Volker Lichtenthäler

A look back at international cooperation between Germany and its partner institutions around Africa shows a long tradition of eLearning cooperation that takes centre stage. Since the inception and establishment of the first innovative Global Campus 21® platform in August 1999, countless projects, joint initiatives and pilots of innovative learning technologies have contributed to the advancement of digital learning. With support from the Federal Ministry of Economic Cooperation and Development (BMZ) and implemented by the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ), many of today's African eLearning champions were qualified within the Capacity Building 4 eLearning programmes framework and continue to this day to help shape it.

In an increasingly digitally connected continent, the issue of access continues to be of central importance and leaves many problems unsolved. The Esperanto word Atingi means to 'achieve something' and has quite rightfully become the banner of the latest digital learning initiative of German development cooperation in Africa, building on the experience of the last 20 years. The issue of access refers not only to the digital divide between people with and without Internet access, but also the gap between those who are able to recognise valuable digital content, those who can produce digital content, those who have the financial means to act online and those who have no opportunity to do so.

This is particularly true for women and people in rural areas. In this respect, Atingi aims to address the four A's:

1. Access: Lack of technical access to ICT,

2. Affordability: High cost of access to ICT,

3. Ability: Missing application knowledge / eSkills,

4. Appetite: Lack of adequate content and lack of awareness regarding the added value offered by the Internet.

A principal challenge the Atingi initiative will address is the provision of digital educational opportunities for people in marginalised communities, with an objective of increasing their employment opportunities. To this end, Atingi will use its local and regional partners and networks for the open distribution of high-quality digital learning content. In addition, Atingi will employ innovative technologies and services, targeting Africa-wide dissemination of learning opportunities through the development of a Pan-African knowledge and learning platform.

As part of German-African development cooperation, Atingi will create innovative digital knowledge products and learning opportunities that are freely available. The project aims to create better employment opportunities with the help of on-demand and free digital learning solutions, thus becoming an important catalyst for achieving the Sustainable Development Goals (SDG). At the request of the Atingi team, respective questions were also asked in the present survey of the eLearning Africa Report. Explicitly

addressing the issue of access, repondents were asked: Which of the following factors do you consider is currently most significant in restricting digital access to education and training in Africa? The responses show that eLearning actors in Africa are well aware that access was, and continues to be, a manifold issue, which cannot be limited to physical Internet access. To assess their recognition of digital literacy and valuable content importance, they were asked: How significant do you consider digital technology to be in improving access to education and training for people in rural areas? Only two people answered that it was not important. Among other responses, the eLearning Africa report has demonstrated a rising awareness among decision-makers and eLearning experts in Africa.
In spite of the great strides made in digital availability and accessibility, many questions and challenges remain for the Atingi project, in order to achieve its ambitious goals. New and creative solutions need to be found and the Atingi Project aims to be at the forefront, spearheading cutting edge solutions. Keep an eye out for the Atingi Project if you are interested in ICT-supported inclusive education – both formal and informal – in Africa.

GIZ Moderator Team 1st Hackathon on Gamification for Social Good Addis Ababa 2015. Photo© Liya Dejene/GIZ

dents with fully-funded opportunities, including scholarships, conferences, internships and workshops—all from their phones.

Beyond phones, many libraries across Africa still struggle to afford basic Internet access. Another study of 107 libraries in 20 countries found that only 30 per cent were connected to a university-wide network and the majority had limited Internet connectivity; 15 per cent had none. But some regions are seeing massive change on this front, with researchers citing a "remarkable rise" in the use of technology in Nigerian University Libraries in particular.

ABILITY

When students attain a certain level of digital fluency, it can be easier for them to learn on their own, in contexts far outside the classroom. Instead of relying on strict pedagogical approaches, teachers can spur their students' individual explorations. Of course, this approach requires that students understand the tools at their disposal. Information literacy programmes are vital in these circumstances. In Kenya and Rwanda, a GSMA survey found that 28 per cent of women and 22 per cent of men perceived technical literacy and confidence as a barrier to owning and using a mobile phone.

Basic digital literacy initiatives can go a long way towards alleviating these feelings of anxiety, and can take the form of coding classes, training materials and university campaigns. All have the same goal: reducing the digital literacy divide, while fostering local creativity and ingenuity. Spearheaded by Intel, the She Will Connect programme teaches women digital literacy skills like navigating the Internet, email, social media, and word processing, and then provides them with free Internet access through the Free Basics platform. Intel is also partnering with organisations that provide skills training and job placement for women in ICT.

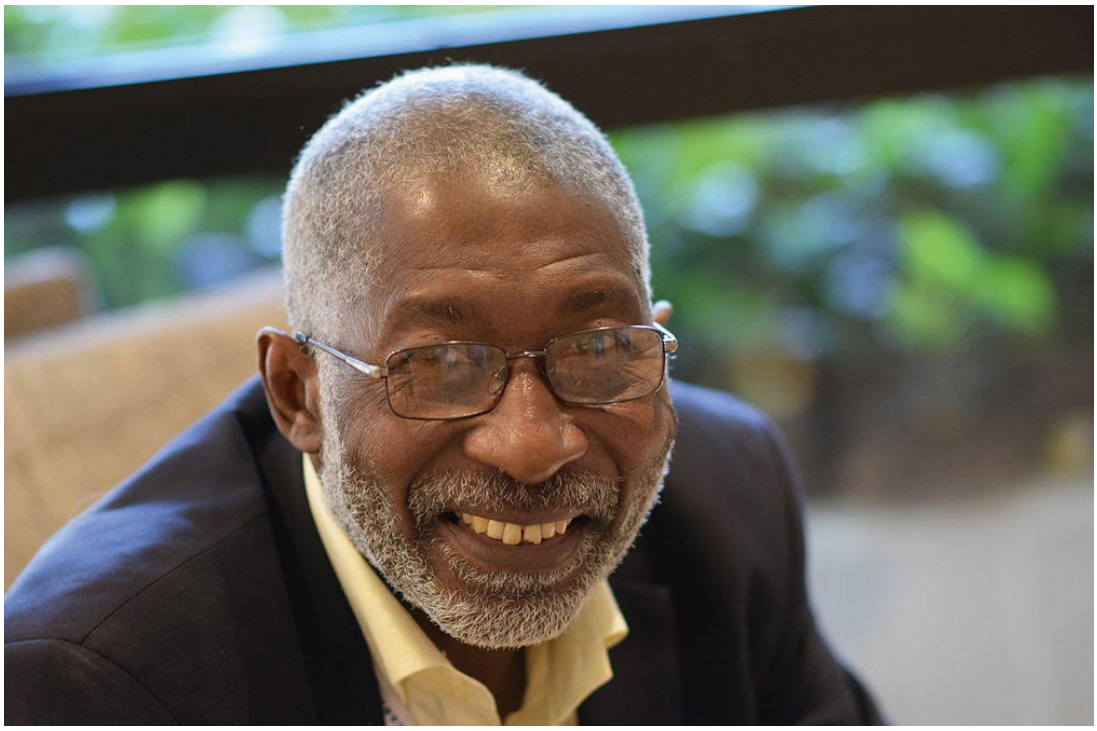
APPETITE

This year, the Financial Times ran an article with the headline "Are tech companies Africa's new colonialists?" Much of the piece concerned the backlash against foreign investment in African countries. According to one Ugandan entrepreneur, Africans have "the idea that we don't have the capacity to do anything, that nothing we do has value until someone from the West blesses it."

Similarly, some academics are skeptical of Western eLearning's applicability to the African context. An essay by Munyaradzi Mawer at the Great Zimbabwe University points to eLearning's individual-centric models as being diametrically opposed to African Ubuntu philosophies, which value dynamic community-based approaches to learning.

"In such an approach, invariably the learner is set as a persona in a cultural setting that aligns with a postmodern Western urban culture that wishes to be free, with the individual," he writes. "African cultures, however, put the community as the centrepiece of their worldview."

For eLearning to be embraced, Mawer argues, it must be geared towards the African model of education, which embodies transdisciplinary community, orality, and a focus on sharing.



Nii Quaynor

The 'Father of the African Internet' on how eLearning can change prospects by improving access and affordability

The arrival of the Internet in Africa in the '90s ushered in great hopes for new opportunities for learning from a remote location; opportunities for people who could not have access to education; and opportunities of access to new content beyond local capabilities. This was to transform the prospects of young Africans who make up the majority of the population in Africa.

After decades of eLearning application on the continent, we have seen the opening of learning to a wider community, making an impact on many who would otherwise not have had access to education. However, some of the lofty aspirations for eLearning to become the mainstay of all education are far from being realised.

In this opinion piece, I will examine how well eLearning and traditional education have fared for the education needs of the continent.

IMPROVING ACCESS AND AFFORDABILITY

I will summarise the role of eLearning in changing the prospects of the young by improving access and affordability, improving the infrastructure for better access to education.

The needs for education vary but the education we want is one which helps Africa inherit its future by creating value and solving its issues, while contributing to the world. It is an education which enforces Research and Development (R&D). Our education should produce skilled and hands-on graduates, as well as those with a broad overview and others with a theoretical bias to lead long term development challenges.

World Bank data showed that, in terms of researchers in R&D per million people in 2015, African countries were between 0 to 300 per million people. Additionally, investments in R&D per GDP remain low at less than 1 per cent in Africa.

The subject content area needs to include all humanities, social sciences and sciences. The subject areas make different demands on instructional methods and thus infrastructure for education.

The challenges to such education are extensive and include finding students with a good background in offered programmes, quality of teachers, relevant curricula, labs, libraries and other facilities.

Internet technologies support eLearning well and the underlying infrastructure is improving steadily.

The average Internet penetration in Africa is 39.8 per cent. However, in a large country like Nigeria it is 59 per cent, well exceeding the continent average. Internet usage has grown over 11,481 per cent from year 2000 to mid 2019. This confirms that Africa has successfully engaged with the Internet as a user.

Mobile Internet has had an important effect in the growth observed. As of February 2019, mobile devices accounted for 48 per cent of web page views worldwide, with mobile-first markets, such as Asia and Africa, leading the pack. Nigeria registered the highest rate of Internet traffic coming from mobile devices; followed by India, Ghana, and Kenya.

> "Less than 10% of households in Africa have computers in 2018."

In terms of capacity, broadband access is limited. The cost of connectivity on both fixed and mobile is still high, despite the changes caused by the improvement of Networks, competition and policy environment.

Other measures help explain how well we are engaging with the Internet. When we examine network domain names encountered frequently by users, a different picture emerges. Most eLearning Information resources must be hosted on a good infrastructure.

Recent data for country code TLD shows that, while USA is listed No1 in domain names per country with 92,640,669 names, the first African country, which is South Africa, has 1,061,876 names; Others are lagging far behind.

Further observations on critical network identifiers used in the core networks reveal the following. The number of identifiers we call IPv4 of size /32 per user and per GDP varies widely. The corresponding measures for South Africa, the first African country ranked by total of /32 allocated to country, are 0.840 and 0.510.

INTERNET INFRASTRUCTURE

Thus, while usage is significantly better compared to the '90s, the Internet infrastructure and services delivery are still weak.

Not too long ago, a computer was needed to go on the Internet, usually through a fixed connection. With the rise of smartphones and a plethora of Internet-enabled devices, coupled with mobile-broadband, this is no longer the case. Nevertheless, computers still allow users to do things that can be challenging on smaller screens, such as programming, creating presentations, or writing documents with the aid of a keyboard. However, less than 10% of households in Africa have computers in 2018, further impeding eLearning.

So for eLearning to have impact and bring benefit to a good part of the population, the infrastructure must keep improving in both services and access and must be more affordable.

Related network infrastructure providers of interest are the National Research and Education Networks (NRENs). NREN infrastructure is the best opportunity yet for eLearning. The regional coordination organisation, AfREN, was identified among the needed regional technical institutions of the Internet in 1998 along with AfRINIC, the numbers registry; AfNOG, the network capacity building organisation; and AfTLD, the African ccTLDs. The AfREN community is only now building out of NRENs and

Nii Quaynor is widely known as „the father of the African Internet." He received his Ph.D in Computer Science (distributed systems) from S.U.N.Y at Stony Brook, USA in 1977. After working with DEC, U.S.A, he returned to Ghana to set up the first ISP operated by Network Computer Systems (NCS) in 1993. He also established Ghana Dot Com (GDC), an ICANN Accredited Domain Registrar in 2006, as well as a Blockchain & Crypto currency Service Provider. He is the Convener of AfNOG, a network technology transfer institution and the Founding Chairman of AFRINIC, the African numbers registry. He is also a Founding Member of AfricaCERT and WACREN.

Nii established the Computer Science Department at the University of Cape Coast in Ghana and has taught microprocessors with the International Center for Theoretical Physics in several developing countries. He has served on several Boards, including ICANN and the UN ICT Task Force.

comprises three sub-regional organisations: WACREN covering west and Central African NRENs; Ubuntunet Alliance covering southern and Eastern Africa; and ASREN, covering Arab states. See a diagram of the global network of NRENs, as at September 2019, below. These NRENs provide an opportunity for campuses to share infrastructure, costs and common services, creating new opportunities for eLearning. All countries in Africa have a NREN programme but few are carrying live traffic.

"A cocktail mix of eLearning and traditional education is the optimum approach."

RENs offer an identity management system, which is critical for access to Network, content, interaction with teachers, labs, observatories… eLearning introduces a new education paradigm which requires participants to combat distraction and focus on learning as access to eLearning also provides access to normal Internet in most cases.

SKILLS TRAINING CHALLENGES

Whereas eLearning and various distance learning offerings have had an excellent impact, attempts to push the envelope to dominate traditional education have not been tenable. They have had challenges with skills training and other content that require direct mentoring. The approach has been successful in supplementing education on broad subject areas in humanities and social sciences but it has fallen short in hands-on skills development in technology and people-oriented, practical subjects in management.

Traditional education also sought to benefit from the Internet by using it to improve student access to educational resources and communications between students, student and teacher/instructor and university. Traditional education has not been able to meet demand, including student to teacher ratios and the increasingly growing size of classes, which are common issues on African campuses.

Within our context it helps to view eLearning as an extension of traditional education, with access to students, training materials and teachers but not as a replacement. eLearning should remain complementary and a supplement to traditional education in Africa. Such a coexistence will give varied opportunities to both approaches.

Policy attempts to provide education or learning that is beneficial to development. Hence, the state of development plays a factor in what style of learning is desired. As Africa is an emerging Internet economy, the bias is naturally towards those who produce and less on those who manage or users, even though all are desired at all times. Evidently, emerging technologies in artificial intelligence can help in tailoring learning programming to students.

eLearning by itself alone is insufficient to meet all these objectives. While it is effective in providing broad education, management and user education, it is challenged in technical and scientific hands-on education. We may conclude that a cocktail mix of eLearning and traditional education is the optimum approach. We envisage, for practical training, a process of escalation from use of simulation, to watching others do technical work and doing it yourself. It works well.

I acknowledge very useful information provided by Alain Aina, CTO of WACREN.

Superwomen of tech

Ara Oforiwa talks to 5 leading African female technology entrepreneurs

Drawing on the positive impact of digital and social technology, combined with the transformative power of female entrepreneurship, four dynamic, successful women give us a view into their daily working lives - and reveal what makes them tick. These fearless entrepreneurs have shaken up the technological ecosystems in their countries and, in the process, created wealth, employment and, importantly, stepping stones for upcoming young women. The women featured here are frequent presenters at development forums and policymaking dialogues, where they advocate tirelessly and resolutely for more regional and global digital economy, ensuring, in their advocacy of inclusivity, that women's voices are heard.

Out of the office and their daily hustles and bustles, they are personifications of what it takes to succeed in a still male-dominated sector, as they strive to inspire more women to take on the mantel in the technological sphere.

"I feel intense happiness when I can help improve other people's lives."

FLORENCE TOFFA

These women embody a profound need to make a difference and to transform their communities. They are fervent in their desire to empower women to make a potent, positive impact in Africa, where potential remains unrealised because women continue to struggle with access and business scaling. Most importantly, these women are steadfast in their endeavour to propel the next generation of female tech warriors – and, hopefully, to get them to know each other better.

"I would make friendlier regulation magically appear for startups like ours."

ODUNAYO EWENIYI

"As I challenge myself to dream bigger, I have noticed that life has forced me forward."

GLORIA MUHORO

"I have aspired to become the new Oprah."

EDITH BROU

"I decided to laugh more, love more, play more and worry less."

KUMBA MUSA

The May 2019 edition of Forbes Africa Magazine ranked Edith among the 100 most influential women in Africa.

EDITH BROU, from Cote d'Ivoire, is passionate digital entrepreneur. She runs ACG Enterprises, an agency focused on influencers and brand contents.
She regularly collaborates with the AfDB and the World Bank on specific consultancies. In October 2018, she organised the first edition of African Women 4 Tech in Abidjan, Côte d'Ivoire. The event was a high-level panel highlighting the women leaders of the tech industry in Africa. In October 2014, she was invited by the International Telecommunication Union to Busan, South Korea, where she participated in the Young ICT Policy Leaders programme for three weeks.
In February 2015, Jeune Afrique magazine ranked her among the 50 personalities who move Côte d'Ivoire. Edith is an ambassador for the U-Report project of UNICEF Côte d'Ivoire. In April 2017, the French Ministry of Foreign Affairs selected her to take part in its PIPA programme Personalities of the Future. She is also a fellow of the US State Department as a member of its International Visitors Leadership Program.
The May 2019 edition of Forbes Africa Magazine ranked her among the 100 most influential women in Africa. She studied Economics at Felix Houphouet-Boigny University in Ivory Coast. She is the mother of two boys. Drawing on her love for the American media personality Oprah Winfrey, she believes that "having it all" is a real possibility.

Nigerian **ODUNAYO EWENIYI** is co-founder and COO of PiggyVest, a very secure online savings platform. She also co-founded one of Africa's largest job sites, pushcv.com, which boasts the continent's largest database of pre-screened candidates. She has five years' experience in business analysis and operations and is a first-class graduate of Computer Engineering, Covenant University, Nigeria.
Odunayo was named one of Forbes Africa 30 under 30 Technology in 2019 and one of 30 Quartz Africa Innovators 2019. She sits on several advisory boards, including TrainFuture, an education-technology company based in Switzerland; the Gender Lens Acceleration Best Practices Initiative, a collaborative effort of Village Capital, US; and the International Finance Corporation (IFC)'s Women Entrepreneurs Finance Initiative (WeFi).

Odunayo was named the SME Entrepreneur of the Year West Africa.

In 2019, she was named the SME Entrepreneur of the Year West Africa by The Asian Banker platform's Wealth and Society website. She is also the youngest Nigerian on Forbes Africa list of 20 New Wealth Creators in Africa 2019. One of Business Day's Spark 2019 Women to Watch, she has received numerous other honours.
She works to support the inclusion of women in technology by working with hubs and female-focused networks like For Creative Girls, GreenHouse Labs, She Leads Africa, Itanna, etc. She is also the co-founder of the women's community, Wine and Whine Nigeria. Her amazing attainments at a young age push her resolve to achieve more; coming back as black Hilary Clinton would be the real icing on the cake for her!

From the beginning of her professional life, Kenya's **GLORIA MUHORO** sought a career merging technology and development. She sees her role as catalysing women's inclusive participation in the digital economy. She is an international development professional with ten years' experience leading and managing work on inclusive innovation, women's socio-economic empowerment, and leveraging ICTs across Africa.
She works at the African Development Bank as a Gender Consultant and leads their Women in Tech work-stream. In this

Gloria sees her role as catalysing women's inclusive participation in the digital economy.

role, she mainstreams gender in the Bank's technology projects with regional member countries and advises on the design of innovative projects that have the potential to bring a critical mass of African women into the access, use, creation and leadership of technology.
She holds a Master's degree in Inclusive Innovation from the University of Cape Town and a Master's in Business Administration from Herriot Watt University.

FLORENCE TOFFA has over eight years of experience in the ICT4D sector. She is the director of Mobile Web Ghana, a technology hub that focuses on empowering communities, organisations, and the youth to leverage mobile, the web and data to solve problems. She is an advocate for solving local problems through civic engagement, capacity building, and new technology, and she has led and founded projects such as Females in Mobile Entrepreneurship, visuals for gender, and Ghana Fashion Awards. She believes that, with the right human resources, Africa can develop and bridge the poverty gap.
Florence was selected for the 2017 International Leadership Programme to visit France, as a 2016 Mandela Washington Fellow and as a 2015 Vital Voices Fellow. She has met various world leaders through her work, including Emmanuel Macron, Barack Obama and Angela Merkel.

Florence has met various world leaders through her work.

Florence holds a BA in Psychology and Sociology from the University of Ghana; a two-year certificate in software entrepreneurship from Meltwater Entrepreneurship School of Technology; and a certificate in project management from the Ghana Institute of Management and Public Administration. She is studying toward her MSc in Public Health Monitoring and Evaluation at the School of Public Health, University of Ghana.
Her passion is training young women in technology, while chasing the adrenaline rush of solving a challenge! She is "someone who believes in people."
"I believe that God has given people the opportunity to create their own lives," she says. "The potential that people – especially the youth – have to create a better community and future is enormous. I have incredible belief in people and the human potential to create a better community and future. I am inspired by youths' ability to make this possible."

Kumba founded and leads the NGO STEM Women Sierra Leone

KUMBA MUSA is a Data Scientist at Sierra Leone's Directorate of Science, Technology and Innovation. Holding a Bachelors in Electrical and Electronics Engineering and a Masters in Information Technology and International Business, she founded and leads the NGO STEM Women Sierra Leone, working to improve STEM education and increase women's participation in STEM fields. Kumba also directs her own boutique and clothing line, and is a Queen's Young Leader, One Young World Ambassador, Chevening alumna and a TechWomen alumna.

"We need to start encouraging people to create content, locally relevant content, online, rather than merely consuming content."

How did your journey in your current occupation begin?

EDITH From a very early age, I was fascinated by computers and computer games. When the Internet arrived in the early 2000s, it was like catching a virus. Then, in 2009, I started blogging, and through the web, I got into contact with others who had the same fascination with this technology. We held many discussions about what it could mean for Africa. Virtually everyone in that group has continued working in information technology. I participated in many social actions in Africa as a web activist. From 2010 to 2016, I worked for different digital communication agencies as web-project manager, community manager, and digital manager. And in 2017, I created ACG companies, my own agency of digital communication, influence, and brand content.

ODUNAYO It started two weeks after graduation in 2013. I reconnected with a few friends from university, and we've been working on tech consumer products ever since. I also worked brief stints as a tech journalist at TechCabal and editor-in-chief at Techpoint.ng.

FLORENCE I am into technology. After university, I actively started using a simple email application. I was surprised how quickly I was able to get a response because I was used to posting letters – and we all know how long it can take to get a response via the post. I became very curious about technology and its potential to imminently disrupt communication. I decided to learn more about software development. Through my curiosity, I found a programme that was recruiting software entrepreneurs to train them for two years. I applied and enrolled in a two-year program at Meltwater Entrepreneurial School of Technology. This is how my journey into technology started! In hindsight, I am glad I resigned from my job in 2007/8 and took the risk to pursue technology. At a time where the post was still the tool for communication, I was impressed by how quick email was and – even better – how fast replies came. I was instantly hooked. I had the need to find out how this was possible, but most importantly, how it worked. I resigned from my job and enrolled in a software training programme. I am so glad I did; I've never looked back.

GLORIA My journey into my current occupation began when I was pursuing my undergraduate degree. At the time, I was pursuing a degree in Biochemistry and it disturbed me to no end that we were only a handful of women studying in the course and subsequently entering into scientific careers. After my degree, I wanted to contribute to the creation of systems that provide access to opportunities for women and youth. My current role focuses on exploring ways in which we can encourage more African women to access and use technology, and participate in a range of science fields in the technology, engineering, and math (STEM) sector.

KUMBA In May 2018, the President of Sierra Leone announced the establishment of the Directorate of Science, Technology and Innovation. Dr. David Sengeh was appointed head and Chief Innovation Officer. I took a shot in the dark and offered to work in his team, which he accepted.

What is the one thing you would change in your sector if you had a magic wand?

EDITH More madness and daring among my customers!

ODUNAYO I'm in the fintech sector, so if I could change anything, it would be regulation. I would make friendlier regulation magically appear for startups like ours.

FLORENCE I'd change the way people, especially the young ones, think about and use technology. There are amazing opportunities in tech both online and offline. People think technology is "technically hard", "difficult", "for some types of people", etc., but it's not any of the above. We can be more productive by using simple applications, especially on our phones, to plan, manage expenses, and market our businesses online. We need to start encouraging people to create content, locally relevant content, online, rather than merely consuming content. For example, they can just create simple blog posts.

GLORIA ICT is said to have had the highest global socio-economic impact in the past decade. It has revolutionised the way we interact, socialise, do business, run governments and

"More madness and daring among my customers."

"Touching hearts and changing lives."

serve people. The Internet in particular has made the creation, acquisition and sharing of information much more efficient and timely. However, while the benefits of ICT in the contemporary economic and social transformation are recognised in Africa and beyond, its benefits have been unevenly distributed based on gender differences. Barriers such as cost, social norms, security and harassment, trust, and technical literacy all contribute to the fact that there is a significant gender gap in usage of ICTs, particularly for more transformational services such as mobile Internet. While this may be a global problem, it is more pronounced in Africa, where the majority of the women are poor and live in rural areas. I would want to change this situation.

KUMBA I would like to change decision makers' mindset for transformational methods. It is hard for a Data Scientist to get them to take our insights and use them to transform how the system operates. Many government personnel have been operating in the same way for many years; getting them to change is a big challenge.

What were your aspirations as a child, and how have they changed?

EDITH My aspirations have not really changed. I wanted to become editor-in-chief of the biggest African lifestyle magazines. Since I was in my twenties, I have aspired to become the new Oprah. I very much hope to get there and realise my first billion dollars extremely quickly.

ODUNAYO As a kid, I always wanted to be a lecturer. I'm not teaching yet, but I eventually will. My aspirations haven't changed. I suppose I'm just taking a slightly longer, more impactful route to eventually get there. Working in education is my life's dream.

FLORENCE When I was in junior high school, one of my teachers told me I would make a good banker. For some reason, this made an impact on me, so even though my grades were good, and I was offered science at senior high school, I declined and decided to do a business programme. When my final results came, I was among the best students and wanted to study accountancy at university. I earned a grade of A in three electives, but the university decided that, because I hadn't done elective maths, I was offered Psychology, Sociology, Information Studies, and Political Science. I was devastated and disappointed because, at that time, I didn't even know much about these courses and their prospects. All I wanted was to do the courses that would take me into the banking field. I ended up majoring in Psychology and Sociology. Clearly, I am not into balance sheets or P&L accounts. I am into enabling and empowering people to take advantage of the information age to improve their lives and work.
I wanted to be a banker. At least, that is what I thought I wanted to be. Falling short in a core subject meant I wasn't able to pursue my desired degree.

GLORIA As a child, I dreamt of becoming a doctor! This has changed in the meantime. My current career interest is to create impact and develop systems, institutions, structures, and policies that enhance inclusive socio-economic development, particularly those that improve the quality of life for the people of Africa.

KUMBA I wanted to be a physician and after my General Certificate Examination, I applied to the College of Medicine. As a backup, I also applied to Fourah Bay College to study Electrical and Electronics Engineering. I had never considered a career in engineering, but while waiting for my grades, I researched the field and found it to be fascinating. I ended up being accepted to both programmes, but I had developed a passion for engineering and decided to go for it. I have no regrets about the career change.

If not yourself, who would you like to be?

EDITH Oprah or Rihanna or Michelle Obama.

ODUNAYO I'd be Hillary Clinton, but hopefully still a black woman.
FLORENCE I would like to have been a lecturer or a banker. I am also inspired by Joyce Meryer. More importantly, I would

"I'd be Hillary Clinton, but hopefully still a black woman."

have been that determined girl who knows that with perseverance and willpower, one can achieve anything. I would be a lecturer or a banker…possibly Joyce Meryer.

GLORIA Nobel laureate Prof Wangari Mathai, all day, every day. She chose a difficult path into the environmental conservation and women's rights movement, fighting issues like equal benefits for women and men, land grabbing, and environmental conservation. She developed a broad-based, grassroots organisation that organised women in rural Kenya to plant trees – not just to combat deforestation and soil erosion, but to generate local income, education and resources. In the process, she laid the legal framework for women's rights and the creation of a Pan African Green Belt Network.

KUMBA Actually, after reflection, I have no desire to be anyone but myself. I feel I am unique and a product of my own experiences. Some have been extremely traumatic, but they have made me wiser, more tolerant, less judgmental and extremely empathetic. It is far better to become the best possible version of yourself than a poor imitation of someone else.
Having said this, there are several people I admire because of their groundbreaking work in creating an environment for women to thrive. They include Asmaa James (Sierra Leone), Chernor Bah (Sierra Leone), Chimamanda Ngozi Adichie (Nigeria), and Michelle Obama (United States), among others.

What qualities attract you to the people you would want to be?

EDITH To me, they represent the ultimate incarnation of the powerful, intelligent, excellent-in-business, rich, altruistic and empathic black woman.

ODUNAYO She's a flawed but, ultimately, a great example of what a powerful woman looks like for me. She doesn't aspire to perfection, as society will have women do. She makes mistakes, but she owns up to them and she stands up to criticism. She's everything I hope I'll be.
FLORENCE Regarding Joyce Meryer, I love that, after all her experiences in life, she is still standing tall and doing what she loves, which is using the word of God to teach women to become better people. For the determined girl, it's her drive, determination, perseverance and strong desire to touch others' lives and make them better. Her drive, perseverance and strong desire to touch other's lives in helping them be better versions of themselves.

GLORIA Her views and actions often brought her into conflict with Kenya's government in the 1970s and 80s, but her tenacity, perseverance, and courage in the face of injustice provided a base for environmental work to progress in Kenya and beyond.

KUMBA They devote their time, effort and resources to their work, and I am in awe of their drive and selflessness.

How do you view challenges?

EDITH Without challenges in my life, I do not improve. Obstacles are a source of fuel for me. Obstacles motivate me to become the best version of myself. They're courses in an MBA programme of life.

ODUNAYO A great challenge to me means looking for great solutions to a problem. And it should mean that finding these solutions will impact the lives of many people positively. It doesn't matter the sector or the industry – a challenge must have clarity of impact for me.

FLORENCE My personal definition of a challenge is anything that stretches my thinking; something that scares me and I cannot predict what the outcome will be.

GLORIA Moving forward and growing – to do this, I have to stretch outside of my comfort zone and constantly challenge myself to dream bigger so that I am always advancing. As I challenge myself to dream bigger, I have noticed that life has forced me forward.

KUMBA Chasing my dreams, including the daily hustle of the unknown; striving for progress; the self-doubt of not knowing if I'm making the right decisions; judgement from those who

“Many government personnel have been operating in the same way for many years; getting them to change is a big challenge.”

don’t understand me; and finding the motivation to keep pursuing what I think is right after repeated rejection.

What brings you joy?

EDITH My two boys, my hubby-to-be and my family

ODUNAYO Reading, watching movies and TV shows, Twitter

FLORENCE I love it when I see a desire in people to solve a problem or a challenge using technology and seeing them use the knowledge and skills we have taught them practically. I feel intense happiness when I can help improve other people’s lives.

GLORIA Touching hearts and changing lives. I also enjoy being outdoors, travelling, a good workout, a good laugh and good food.

KUMBA Engaging my creativity, ideally in a team, to solve a challenge, start a project, or bring an idea to life. Also supporting and encouraging others to take action on their passions. I can’t describe the joy of witnessing someone step into their power and own their gifts.

What was your eureka moment?

EDITH When I read Robert T. Kiyosaki’s book Rich Father, Poor Father

ODUNAYO Still waiting on that. Hopefully I get there soon!

FLORENCE I have had a series of eureka moments, especially coming into technology!! Whenever I solve a challenge or have a breakthrough, I go like “yaaaah”!!! The little moments count because they sum up to make up my big moments!

GLORIA When I read Dr. Myles Munro’s book on the Principles and Power of Vision and discovered the vision and purpose for my life and how to fulfil it. The book has influenced every major life decision I have made since then.

KUMBA In May 2018, my mum suffered a massive stroke. Thankfully, I was home that morning, getting ready to leave for the office. I heard her mumbling my name and immediately rushed her to the hospital. I had noticed that the muscles in the right part of her body had weakened, affecting her speech and movements. After her admission in the ICU, I sat thinking about how quickly one’s life can be turned inside out. Earlier that morning, my mum and I had been chatting away happily, yet a few hours later she was fighting for her life. The next morning the doctors told me that she was expected to recover and, breathing a sigh of relief, I promised myself to make the most of every second I have with the ones I love. That day I decided to laugh more, love more, play more and worry less.

What is your favourite quotation?

EDITH We only have one life because we are not in a video game.

ODUNAYO “However difficult life may seem, there is always something you can do and succeed at.” — Stephen Hawking

FLORENCE The first is, “I can do all things through God, who strengthens me.” I also like, “With determination and perseverance, pave the way for success.” Finally, I find “The best way to predict the future is to create it” to be highly motivating.
“With determination and perseverance, pave the way for success”

GLORIA This would be the poem ‘Our Deepest Fear’ by Marianne Williamson. It reads, “Our deepest fear is not that we are inadequate. Our deepest fear is that we are powerful beyond measure. It is our light, not our darkness, that most frightens us…We are all meant to shine as children do. It’s not just in some of us; it is in everyone. And as we let our own lights shine, we unconsciously give other people permission to do the same. As we are liberated from our own fear, our presence automatically liberates others.” – Marianne Williamson

KUMBA Ralph Waldo Emerson’s comment “Do the thing you fear and the death of fear is certain.”

Why Africa must embrace the 4th industrial revolution

by Bitange Ndemo

The Fourth Industrial Revolution (4IR) heralds a new opportunity for Africa to leapfrog and catch up with the rest of the world. If it misses this opportunity, it will be doomed forever.

First, let me discuss the disruptive technologies that will play a key role in Africa's renaissance. The 4IR will largely be driven by, but not limited to, the following technologies: Blockchain, Artificial Intelligence (AI), Robotics, Internet of Things, 3D printing, 5G and many others.

> "Nations that have leveraged technology to precipitate exponential growth have built the requisite ICT infrastructure."

Each of these technologies, or a combination of them, presents a great opportunity to solve some of the pressing problems on the continent. To function effectively, these technologies require an Information and Communications Technology (ICT) infrastructure.

Nations that have leveraged technology to precipitate exponential growth have built the requisite ICT infrastructure.

The phenomenal growth of some African economies, following the entry of fibre optic cables into Africa towards the end of the first decade of 21st century, demonstrates the positive impact of investing in the right ICT infrastructure.

Recent studies from the Alliance for Affordable Internet (A4AI) highlight the fact that Investment in the ICT sector is perceived as a private sector activity — and this model is showing its limits when it comes to connecting the unconnected.

Kenya, for example, defied this model and chose to encourage a public private partnership (PPP) that both extended connectivity and enabled affordability.

ENABLING POLICY ENVIRONMENT

Infrastructure alone doesn't bring accessibility and affordability of connectivity. In Africa, there is always a need for an enabling policy environment but many African states have persisted in a skewed policy environment that continues to undermine the potential in Africa's burgeoning youth population.

Specifically, fiscal policies are now being used to limit access to ICTs as a strategy to stifle freedom of speech. Where they fail on policy, they deliberately shut down the Internet at will.

In my view, such policy actions delay Africa's development. Broadband is a human rights issue, since the Internet has become a platform for virtually everything including education, entrepreneurship, collaboration, news and even online money transactions.

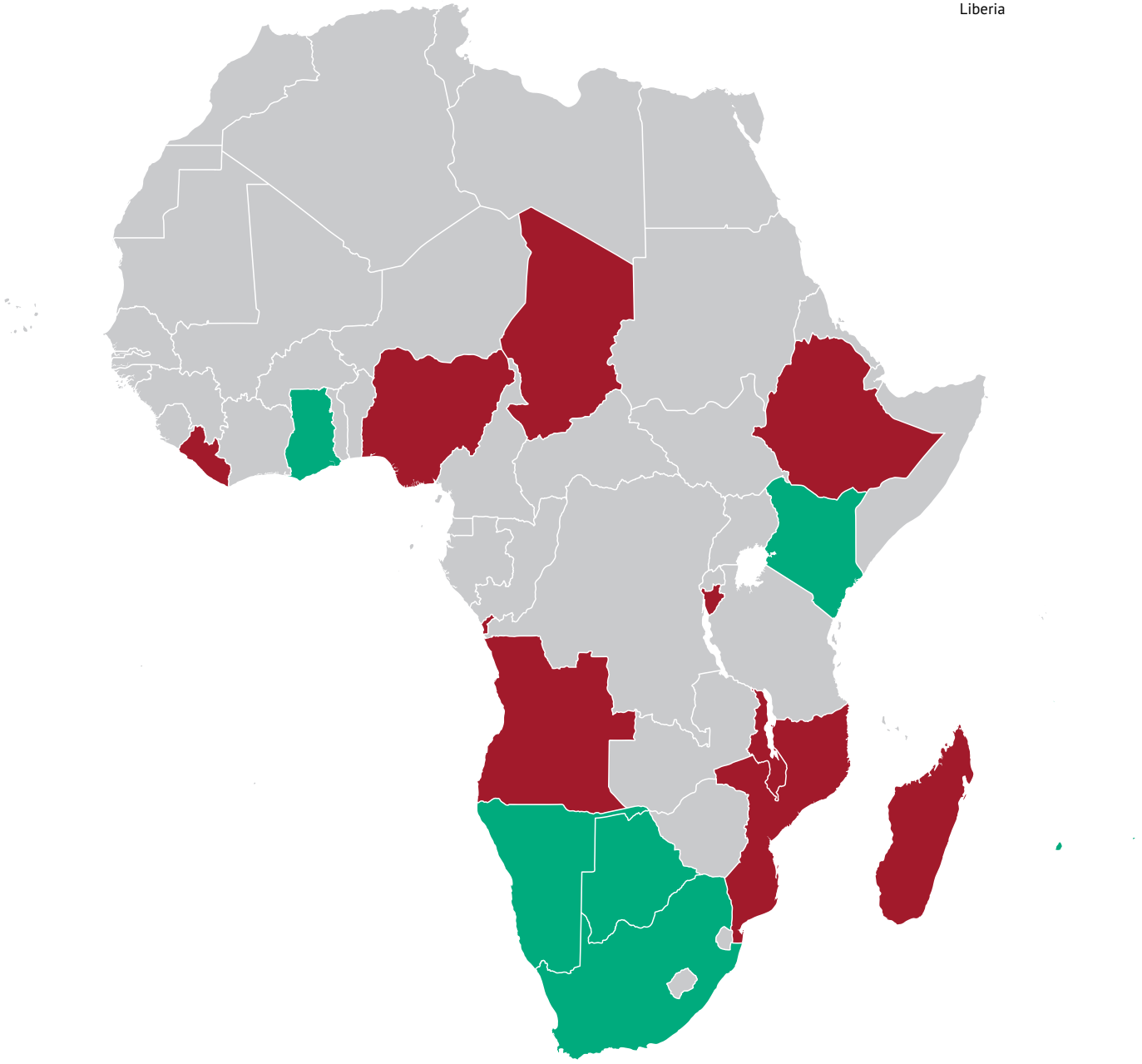
Social media platforms have become havens for free speech as well as crowdfunding for small startups. New applications especially from the emerging technologies are disrupting the continent positively and improving on productivity like never before.

A World Bank conference about the State of Readiness for the 4th Industrial Revolution and Digital Economy in Africa, held on May 19th 2019 in Kigali, Rwanda, revealed that only six F1 African countries, that is, South Africa, Kenya, Mauritius, Ghana, Namibia and Botswana can be classified to be ready for the 4IR.

Eleven ICT indicators and 4 education indicators were used to determine readiness but, overall, the outcome was a

F1: Countries by levels of preparedness

MOST PREPARED	LEAST PREPARED
Botswana	Angola
Ghana	Burundi
Kenya	Chad
Mauritius	Ethiopia
Namibia	Madagascar
South Africa	Malawi
	Mozambique
	Nigeria
	Liberia



Source: World Bank

A former Permanent Secretary of Kenya's Ministry of Information and Communication, **Bitange Ndemo** is Professor of Entrepreneurship at the University of Nairobi's Business School and Chairman of Kenya's Distributed Ledgers and Artificial Intelligence Taskforce, which is developing a road map for the country's digital transformation. He is also an advisor and Board member to several organisations including Safaricom, Mpesa Foundation and Research ICT Africa.

disappointment, considering the importance of leveraging these technologies to deal with debilitating problems on the continent.

Food waste for example, is a major problem in Africa where more than 40 per cent of post-harvest food is lost before consumption. The cost of food in relation to household income is sometimes as high as 55 per cent.

In comparison, the average cost of food in relation to household income is less than 5 per cent.

One could argue that the high percentage of cost is a result of lower incomes in developing countries but this isn't the problem. This anomaly, however, is slowly being addressed, using emerging exponential technologies.

> "There isn't any manufacturing in Africa that AI will disrupt."

Blockchain, AI and IoT technologies are being used to streamline supply chains, removing unnecessary middlemen (in Africa most of the food is purchased from informal outlets which get their supplies via eight to ten middlemen) making the overall cost of food expensive.

A startup in Kenya, Twiga Foods, has successfully deployed technology to provide credit to farmers and link the farmers to markets, using more efficient logistics systems.

Research shows that at least 10 per cent of the population has a learning problem caused by either autism, dyslexia or attention deficit hyperactivity disorder (ADHD).

With the emergence of AI assisted adoptive learning, many of those who have these disorders can be helped early in the development process to give them a normal future life.

M-Shule, a school that leverages AI, is the first adaptive, mobile learning management platform designed to improve performance for millions of primary school students across Kenya and sub-Saharan Africa. This AI understands each individual child's competence, and delivers the right lesson for them at the right time.

All these are powerful examples demonstrating why we need 4IR. There are even more applications in healthcare, agriculture, transport and virtually all other sectors, but let me discuss a more pressing issue.

GROWING RESISTANCE

There is growing resistance to technologies, such as AI, and some African countries buying the narrative. They argue that AI would create massive unemployment.

This is perhaps the dumbest excuse we can advance to undermine the emerging technologies that have given Africa a second life to leapfrog and emancipate her people from the throes of poverty. There isn't any manufacturing in Africa that AI will disrupt.

On the contrary, new technologies create new jobs that never existed before and sometimes engender completely new industries, so that, in most cases, technology will create new jobs.

In place of these lazy arguments, Africa must seek to invest in digital learning programmes focusing on such areas as digital interaction, content creation, problem solving and safety, targeting all manner of skills for citizens, especially for consumers to understand the basics, skills for productive use of technology and developer skills, as well as e-leadership skills for an emerging digital economy.

4IR is underway and it is Africa's last opportunity to change the fortunes of its people.

Every African country must seek to accelerate infrastructure development through public private partnerships, create an enabling environment to increase accessibility and affordability of broadband and build the human capital essential for sustainable development of the continent.

AFRICAN EXPERTS EMPHATICALLY EXPRESS OPTIMISM REGARDING AI'S POTENTIAL

By Joe Graceman

The MIT Technology Review defines artificial intelligence as "the quest to build machines that can reason, learn, and act intelligently."

For Africa, a critical concomitant is how to assess the proper framing conditions for deployment of AI on a continent whose countries are considered "developing". In spite of some reservations primarily linked to possible job losses, African professionals generally reacted positively, when asked by eLearning Africa whether they view recent developments in the field of artificial intelligence as a threat or an opportunity for the continent. The respondents are experts and practitioners in the realms of education, technology, development, planning, consultancy, politics, administration, investing, business, academia and analysis.

Unfavourable comments overwhelmingly cited AI, and technology in general, as a potential Trojan horse, bearing the jeopardy of massive unemployment in the manufacturing sphere as a sample excuse to pass on its use. ICT champion Bitange Ndemo has proffered a stinging rebuke to these nabobs of negativism: "This is perhaps the dumbest excuse we can advance to undermine the emerging technologies that have given Africa a second life to leapfrog and emancipate her people from the throes of poverty. There isn't any manufacturing in Africa that AI will disrupt."

Overall, responses were upbeat, with 78.72% regarding AI as an opportunity, 18.59% as a threat, and 1.15% having no opinion.

One broad-gauged observer noted, "I see AI as an opportunity to upskill people around the world and in Africa in particular. Current knowledge and work will become obsolete in a few years and we need to be prepared for the consequences."

It was also clearly recognised that AI alone is no panacea to Africa's complex development obstacles. "We need to be clear what our goals are at all levels. These goals should be informed by our contextual needs - the vision we have for our children, our homes, communities, socioeconomic development. Once this clarity is achieved, AI can be engaged and utilised in such a way that it does not endanger but enhances our lives so that we are able to achieve our goals efficiently. Education and research are key to the use of AI."

AI's nature as a tool like many others was also alluded to. "Artificial intelligence is not a threat as some perceive it …, but a complementary effort for efficiency and effective delivery of services and products. Human resources will be always there and are responsible to control and implement artificial intelligence."

Regardless of their assessment, respondees obviously had Africa's colonial past in mind. "Much of AI is currently being developed in the West with Western agendas. Non-localised forms likely do not meet the needs of Africans, who may be trained on data that is not relevant to us … It nonetheless presents an opportunity if we Africans develop our own tools with ethical frameworks and appropriate policies, and implement participatory approaches."

The vast majority of those who offered their opinions apparently feel that precisely in Africa's youthful, dynamic, vibrant, intelligence-and-talent-rich, and fearless environment, a deus ex machina like AI could achieve the greatest breakthroughs in the shortest time.

"It was also clearly recognised that AI alone is no panacea to Africa's complex development obstacles."

To see the full survey, go to page 76

A sense of direction

Ndri Therese Assié-Lumumba and re-visioning education in Africa

by Harold Elletson

"Education," said Nelson Mandela, "is the key to everything." It is perhaps the most important key to the plans of both the African Union and the United Nations to end poverty and create a "transformed continent." So how does a top African educational theorist and intellectual see the challenges and opportunities ahead?

She is convinced of the central importance of both education and training at this juncture in African history.

Professor Ndri Therese Assié-Lumumba is one of Africa's leading thinkers about education and development. Born and raised in Cote d'Ivoire, she studied abroad in France, Canada and the United States. She arrived at Cornell University in the United States in 1991 and has stayed there ever since. Originally a Fulbright Senior Research Fellow and a Ford Foundation Fellow, she has developed not only a glittering academic career, but also a position as a senior adviser to numerous international development agencies, organisations and foundations. She is now one of Africa's most highly respected international academics and a global authority on comparative education.

She is convinced of the central importance of both education and training at this juncture in African history. And, in her personal view, the two are very closely interconnected.

CRITITAL THINKING AND VALUES

"Broadly defined," she says "education is the process for developing the full potential of individuals and groups in acquiring technical skills, critical thinking and values that give meaning to the purposeful and positive utilization of the competences toward social progress. In this sense, training which often consists in providing or acquiring technical skills should not be conceived or considered as void of critical thinking and values. While training is often associated with acquisition of "neutral" technical skills, any training can achieve its societal goals only if the grounded social factors and values for its constructive utilization are integrated in the process of learning such skills, whether it is in "teacher training colleges" or technical and vocational schools of any level of the educational systems."

The challenge for Africa is both to overcome the legacy of history and to do what is necessary to plan effectively to meet the new challenges and make the most of opportunities, such as Africa's growing, youthful population.

"Without envisioning history as destiny, along with its negative or positive implications on African education, it is important to examine current and future possibilities and prospects in education, taking into account the complexity of the colonial legacies and the challenges in managing effectively their tenacious impact on the conseptualisation, design, and functioning of educational institutions. For instance, political and educational authorities, academics, and educators in

general have pointed to language as a determinant of relevant education and efficiency in African education, starting from the formative years of early childhood and elementary school to higher education. The need to train enough teachers to respond to the demand of quality and relevant education to ensure that increasing population is transformed into demographic dividend, the gap in the contribution to knowledge production, creating conditions for employment of a vastly youthful population, promoting and sustaining gender equity in access to all levels of the education systems and jobs, are among the numerous challenges."

The role of technology in enabling African education and training to rise to these new challenges is very significant but she also feels it should not be overestimated.

"While technology should not be considered as a panacea, if it is used as a tool for well-designed instruction in schools, initial training and upgrading of teachers for pre-school to secondary school, knowledge production and dissemination, it can productively contribute to address some of these challenges."

Professor Assie-Lumumba had a traditional upbringing in Côte d'Ivoire and she considers herself fortunate to have been able to learn important lessons from both close family members and inspiring teachers from a very early age.

"The foundation of my education and the guiding values throughout my life were first acquired in my early formation in Côte d'Ivoire (original Boucle du Cacao), within the family…" she explains. "Later, educational settings with caring and inspiring teachers at the primary level played critical roles. My secondary school studies at Lycée Sainte Marie (newly created college where I started my secondary education) in Abidjan had a defining impact. My experiences in these contexts prepared me well for my higher education studies from Université d'Abidjan in Côte d'Ivoire, to Université Lyon II in France, the beginning of my doctoral studies at Université Laval in Canada to the University of Chicago (one of the most selective and demanding institutions of higher learning) in the United States to teaching at Cornell University in the State of New York in the US for almost 28 years and serving as the current President of the World Council of Comparative Education Societies (WCCES)."

"Educational settings with caring and inspiring teachers at the primary level played critical roles."

PERSEVERANCE

She is keen to emphasise that much of what she considers most important in what she learned was outside normal, textbook learning. She cites a "sense of direction and purpose, perseverance, hard work, caring for others" as important values, which "can be positive and emulating factors anywhere." Others might say that they are also the sort of key twenty-first century skills with which any progressive education system should try to equip young people.

A Professor of African and Diaspora Studies at Cornell, as well as being the President of the Comparative and International Education Society, she believes that African concepts of education are important not just for Africa, but they also offer potential benefits for the whole world.

"This concept can serve the world by fostering and promoting a world-wide guiding principle for social progress."

"The paradigm of Ubuntu (a Southern African term with its equivalents in other languages across the African continent) stipulates the necessity of conceiving life within a framework that acknowledges the factual interdependence between humans and their social as well as physical environment with all its living beings and organisms as well as seemingly inanimate entities. Life is essentially defined by an intricate web of direct and mediated connections to realities near and far, visible and invisible…

"Furthermore, if Africans can get their act together, they can not only solve problems on the continent and promote social progress in Africa, especially at this historical juncture of the Fourth Industrial Revolution, they can and ought to contribute to the advancement of humanity in promoting Ubuntu on the global stage, as a restorative universal moral compass. Certainly, as a holistic, human-centered, and environmentally conscious philosophy of life, this concept can serve the world by fostering and promoting a world-wide guiding principle for social progress. Of particular significance is the humanism model embedded in the Ubuntu paradigm. Firmly grounded on the cultural, thought, history, knowledge, and social organization that constitute the foundation for an African ethos, Ubuntu offers a tangible comparative advantage that can be applied in Africa and shared with the world, aimed at global collective wellbeing."

Perhaps it is this belief in Africa's inner strength and the value of what it has to offer that makes her optimistic about the continent's prospects.

"I am an optimist and my optimism, particularly for Africa, is guided by my strong belief that with political will and caring leadership, a sense of collective responsibility at all levels of society, to move forward and promote realistic reasons for everyone to have hope, we can change the reality and image of Africa in a few years."

In her book, Re-visioning Education in Africa: Ubuntu -Inspired Education for Humanity (Amoako and Assié-Lumumba, Palgrave MacMillan, New York 2018), she and her co-author argue that African regional and continental organisations and their leaders should assert themselves with confidence and act decisively with vision and a clear sense of direction at every level. In doing so, they could then reflect the will of the African people and their aspirations for a dignified life and social progress for all.

"The goals of the AAU in Agenda 2063 are consistent with these views," she says. However, she cautions that there been other efforts to drag Africa into the future.

"It is worth recalling that there have been other continental and global engagements before but they did not reach the targeted goals despite some positive results… The internal and external factors explaining the recurrent gaps between the stated goals and actual performance are numerous and complex. The most glaring ones relate to insufficient inconsistency in articulation and management of the idea of national projects within the global context of mobilisation and allocation of resources. Of critical importance is the application of values of serving as responsible stewards of Africa's own wealth so that even if global aid plays a role, development projects can have dependable African resources and generated wealth assured by political stability and peace."

This time, however, championed by the African Union, the effort is more powerful and determined than ever. With education at its core, it may be that, as Professor Assie-Lumumba believes, it will lead at last to the fulfilment of aspirations for a dignified life and social progress for all Africans.

"The time for excuses is over. It's time for action."

Max Bankole Jarrett looks at the challenges facing African leaders

The imminent arrival of the year 2020 is sharply focusing the minds of many global leaders and policy makers. It marks a third of the way to the ambitious deadline for meeting the 2030 Sustainable Development Goals (SDGs), which the global community set in 2015. Africa is no exception and indeed demands an exceptional focus for several reasons.

It's clear that achieving the global goals as a whole can only be achieved if they are comprehensively reached in Africa. Failure to meet all the targets in Africa will result in overall failure at the global level. It's that simple. Africa's future, to anyone seriously concerned about the future of the planet in the 21st century, can no longer be a marginal issue or an afterthought. It must be right at the centre of the 2030 goals effort at the global level. Tackling the African realities that have to be addressed is the key to collective global success.

The "special edition" progress report of the UN Secretary General, prepared in advance of the September 2019 gathering of Heads of State and Government to take stock of implementation of the SDGs, the first since they were agreed, highlights the urgency of stepping up the pace of meaningful global action. The Secretary General notes that, while there has been some progress, it is "not yet advancing at the speed or scale required", with "the most vulnerable people and countries (continuing to) suffer the most". The report, therefore, calls for "urgent, scalable multi-stakeholder action" in a series of areas and political leadership "to dramatically accelerate progress".

Essential actions include a greater focus on tackling inequality through special attention on the most vulnerable to ensure that no one is left behind as countries progress. Of particular relevance to this report are those related to enhancing "human capital", which the World Bank defines as "the sum of a population's health, skills, knowledge, and experience". The UN progress report notes that the learning environment, the capacities of teachers and the quality of education have not kept pace with the opportunities and challenges presented by rapid technological changes. In that context, the international community is encouraged to refocus its efforts to "improve learning outcomes for the full life cycle, especially for women, girls and marginalised people in vulnerable settings".

It is Africa's leaders, however, who must shoulder the greatest responsibility for inspiring action and directing the flow of resources that are necessary to transform the human capital of

Photo © David Dunkley Gyimah

"Africa is not a poor continent. It is an abundantly rich continent."

the continent. A focus on transformative action is critical now: action to invest more in Africa's people, especially its youth; to build robust, high quality education and health systems; to boost the productivity of future workers; and to create more enabling environments for entrepreneurs who play an essential role in creating the millions of jobs the continent needs so badly.

There has been much talk over the years. Many frameworks have been formulated. Countless meetings have been convened. New institutions have been created. It is already 20 years since the Sirte Declaration was adopted on 9 September 1999, by the Organisation of African Unity, announcing the establishment of the African Union (AU). Next came the creation of the New Partnership for Africa's Development (NEPAD) and the African Peer Review Mechanism (APRM). An overwhelmingly positive global response to this new institutional architecture was led by the G8 Africa Action Plan and the United Nations realignment of its Africa programmes and initiatives to support NEPAD framework implementation. Then on the 50th anniversary of the OAU the AU's Agenda 2063 was formulated setting out a framework vision for the future, "the Africa we Want". The AU/NEPAD Agency in turn was realigned to support Agenda 2063.

POTENTIAL $3TN MARKET

Most recently the AU successfully brokered the establishment of the new African Continental Free Trade Agreement (AfCFTA) which came into force on 30 May 2019. This agreement has the potential to create a $3tn single market on a continent where intra-Africa trade remains shockingly low at less than 20%. According to a 2019 report by the African Export-Import Bank (Afreximbank), although intra-African trade increased from 5 per cent in 1980 to 16 per cent in 2018, it remains low compared to intra-regional trade volumes recorded in Asia and Europe. "Potential" is the operative word here as many AfCFTA implementation specifics are still to be agreed at various levels.

All in all, it is fair to say that African leaders at the highest levels have made considerable progress in agreeing on a bold new vision of the future, as well as putting in place structures and signing agreements at the regional level to facilitate structural transformation and growth. Yet long lasting improvements in the lives of the majority of people on the continent remain to be seen. Inequality is rising, which is causing frustration and tensions. At the same time, Africa continues to experience high rates of population growth and its population is increasing in size relative to that of the rest of the world. Between 2017 and 2050, the populations of 26 African countries are projected at least

"Two and a half billion people, more than one in four inhabitants of the planet, will be African by 2050."

to double their current size. Two and a half billion people, more than one in four inhabitants of the planet, will be African by 2050. These Africans will be increasingly more urban. Additionally, Africa, which has the youngest age distribution of any region, will experience a rapid ageing of its population.

CRITICAL IMMEDIATE DECISIONS

As a result, there are concerns about the future state of the continent, if significant action is not taken now to respond to the needs of Africa's peoples. In its final policy report, "Making Progress Towards Attaining the Sustainable Development Goals in Africa", published in December 2017, the Africa Progress Panel, chaired by Kofi Annan, asked several pertinent questions that are worth reflecting on again here. They provide a useful context for an exploration of the critical immediate decisions that must be taken by leaders and policy makers in the nexus areas of education, training, and employability to contribute to stepping up the pace of progress towards the achievement of the SDGs and Agenda 2063:

Will Africans have the opportunity to live in dynamic, safe and productive modern cities? Or will they live in squalid urban slums?

Will their children have access to empowering and transformative education and employment? Or will they be illiterate and struggle to find meaningful and maximally productive work?

Will they farm their lands and oceans sustainably and efficiently enough to feed their own countries and continent and export their produce to the rest of the world? Or will they farm their lands and oceans inefficiently, leading to dependency and nutritional insecurity?

Will their natural wealth provide a revenue stream to help fund increased local investments in essential infrastructure (particularly in energy, transport, education and health), in social security and public services, and contribute to a wider economic transformation? Or will reserves of oil, gas and minerals be a "curse", leading to corruption and conflict?

Will they continue on their current journey to become united, innovative and empowered members of their national and international communities, working together as equals to make their nations, Africa, and the world more prosperous, equitable and sustainable? Or will they be bound to their governments and the international community as isolated "beneficiaries" of alien expertise and wealth?

Africa is not a poor continent. It is an abundantly rich continent. Nonetheless millions of its people continue to live in poverty amidst this plenty. Transforming the situation fast requires above all a change of approach by leaders and policy makers that places the enhancement of human capital at the very core of all their decisions.

As the World Bank notes in its report "From Mines and Wells to Well Built Minds", Africa's natural resources must be harnessed effectively into investments in Africa's people. Human capital is and will be the region's, and the globe's, most important resource in the 21st century. How this capital is protected, nurtured, enhanced and enabled will determine how the questions posed by the APP will be answered. We know now that Africa is facing three main transition trends:

1. Rapid demographic transition trends,
2. Concerning human security trends
(fuelled by an alarming rise in inequality and the impact of climate change)
3. Disruptive technological transformation trends (particularly the role of artificial/augmented intelligence and robotics in the fourth industrial revolution)

With the continent's increasingly urban population projected to grow from 1.3 billion to 3 billion by 2063 and its biggest country (by population), Nigeria, set to overtake the United States to become the third largest country in the world shortly before 2050, Africa's necessary structural transformation is increasingly unable to effectively keep up with the demographic pace of change.

> "Nigeria, set to overtake the United States to become the third largest country in the world shortly before 2050."

It's not just Africa's population that has been growing. Some of the world's fastest-growing economies are now in Africa. The first decade of the century saw notable progress on several key economic and financial indicators in Africa. In spite of this, Africa was unable to make significant sustainable long term capital. Capital it badly needs now, as in 2016, for the first time in twenty years, per capita income in Africa declined In particular, the continent did not transform the monetary gains of the

commodities super-cycle into lasting wealth, largely because it failed to make sufficient investment in human capital enhancement and employment generation. This failure has increased inequality in many countries, as revenues from gas, mining and oil resources widened the gap between rich and poor, as well as between urban and rural citizens.

So, while the economic growth in a majority of African countries over the past two decades reduced the gap in their per capita income compared to that of developed countries, inequality is still widening. It is forecast to widen further between the rich and poor within African countries if targeted action is not taken now. Failure to do so will fuel the worsening of human security trends.

> "This may necessitate a completely new way of looking at the link between education and the job market."

There will continue to be major disruptive technological changes globally in the years ahead. Africa needs to be a technology producer and not merely a consumer, if it is to benefit and create employment generating growth. A strong focus is needed on applying African technological solutions to African problems. This process will be largely youth driven, as Africa is becoming an increasingly youth dominated region. Tech hubs are already making a positive impact on economic growth. How this process is supported and enhanced by the decisions African policy makers take will be key to future, long-term success.

NEXT STEPS: TRANSFORMATION DECISIONS

In light of the above, it is clear that Africa's leaders must focus on enhancing human capital on the continent through a holistic approach that encompasses innovative linkages between education, training, and employability. Above all, these decisions have to be future and youth focused if they are to be "fit for purpose".

Half of Africa's people are already under 20 years old. Africa is set to be home to two in five of the world's children by 2050, and the number of people under 18 is estimated to increase by two-thirds to nearly one billion by 2050. Africa's working-age population is forecast to increase from 370 million adults in 2010 to over 600 million in 2030. Additionally, the share with at least secondary education is set to rise from 36 per cent to 52 per cent. This means between 15 million to 20 million increasingly educated young Africans are expected to be looking for jobs every year. All policy decisions have to be taken with these facts in mind.

In many cases this may necessitate a completely new way of looking at the link between education and the job market.

Education clearly plays a critical role in employment generation, wealth creation and poverty reduction. Yet Africa continues to face an education crisis that is a creating a drag on economic growth, reinforcing inequalities and fuelling societal tensions and political instability. The spark that lit the Arab spring was in North Africa where there have been persistent high levels of unemployment, as well as a poor match between education outcomes and the job market and ever increasing inequalities between the 'haves' and 'have nots.'

More must be done to tackle issues of inequality in African education, as well as to ensure more young people not only start school, but complete their schooling. Millions of African adolescents have not completed a basic education, making their transition to the world of work difficult and swelling youth unemployment. There is also a pressing need to invest more in improving the quality of education.

A strong focus must also be placed on the drivers of job creating growth and aligning education and training systems with them. What kind of education would enable Africa's youth to make their most effective contributions to the job market on the continent as it responds, for example, to the demands of the global 4th Industrial Revolution? To answer this question, a supply side perspective is needed that looks at the challenge of future labour markets. How should Africa tool or re-tool the supply side to match the new jobs? Leaders cannot afford to stick with education and training systems that were fit for the American and European industrial manufacturing age or even the more recent rise of China, India and other emerging economies over the past 30 years.

VISIONARY DECISIONS

The days of national economies where 30 to 40 per cent of employees are engaged in manufacturing are over. The growing IT and services sectors alone are not going to fill Africa's biggest job creation needs. Visionary decisions need to be taken on how best to harness the demographic transition, especially the rapid urbanisation of the continent and create job opportunities along the value chain in the agriculture and agro-business sector. This entails education, training, investment and a ran-

Max Bankole Jarrett with Kofi Annan
Photo © Jess Hurd/Africa Progress Panel (2014)

Max Bankole Jarrett is an Honorary Fellow at Murdoch University in Perth, Western Australia. In 2017 he served as the final Director-in-charge of the Geneva-based Africa Progress Panel, chaired by the Nobel Laureate and former UN Secretary – General, Kofi Annan. From 2014 to 2016, he served as the Deputy Director of the APP. He has three decades of professional experience in the field of international political and economic affairs, media production, and strategic communications. He began his career as a current affairs broadcaster with the BBC World Service in London in 1990. In 2001 he transitioned to the policy world to work as a speechwriter, communication team leader and senior programme management officer in the United Nations system (for 17 years). He received his B.Sc. (Hons) in Economics in 1990 from the London School of Economics and Political Science, and his M.A in African Studies (Specialism: The Political Economy of Africa) in 1996, from London University's School of Oriental and African Studies.

ge of incentives to ensure a massive increase in jobs to grow products, process them, market them and distribute them in Africa's fast growing megacities and across the region. The continent's potential to export its surplus also provides opportunities for significant employment growth.

Globally, the process of urbanisation has created hubs of innovation, new markets and productivity gains. However, this "urban dividend" is not automatic. Leaders must be more proactive in planning urbanisation in Africa. If this planning includes education and training specifically focused on the urbanisation process, a range of employment and entrepreneurial opportunities can be created for and by millions of young Africans. This could include massive opportunities in the retail, construction, entertainment and creative industries, as well as telecommunications, tourism, health care, waste management, integrated multimodal transport infrastructure and new low carbon modern energy systems.

Technology and youth talent have been core drivers of business growth and employment in Africa's most successful creative industries, such as music and film. Nigeria's "Nollywood" film industry surpassed Hollywood in 2009 to become the world's second largest by volume. A more comprehensive look at the potential contribution of the creative industries to Africa's growth and the subsequent setting up of a truly enabling education, training and entrepreneurial environment for this vibrant sector could result in major multiplier effects.

AVAILABILITY OF POWER

A visionary approach to the digital economy and technology could also be a game changer for education and employment in Africa. Digital technology is already proving its disruptive power in several parts of the continent to transform the supply and accessibility of energy, enhance the flow of money and financial services through mobile applications and increase farming and fishing productivity. Investments in the provision of digital STEM education (including for girls) could contribute significantly to scaling up this trend across the entire continent.

The digital economy will, however, need a steady supply of constant power. The availability of power is essential to raising productivity on the continent. As Kofi Annan writes in the 2017 APP publication "Lights, Power, Action": "The 620 million Africans who lack electricity can't wait – and shouldn't have to wait. Luckily, mini-grid and off-grid energy solutions are plentiful. Africans are rapidly adopting and adapting them, particularly to meet the needs of areas that are remote or neglected by the grid."

Finally, low labour productivity and poor infrastructure, which have made Africa an unattractive investment location, must be addressed, if African economies are to attract the job creating investment that is seeking new locations as the lower end of global manufacturing jobs move away from China. Low productivity must be tackled head on with investment to boost regional links and economic integration through improved infrastructure. At the same time, the infrastructure gap provides an opportunity for young Africans to be educated, trained and employed to deliver the projects the continent urgently needs.

African leaders can reap the benefits of vast opportunities if they act now. Enhancing human capital is essential to success. Policy ideas must be put into action. The continent has a massive demographic dividend potential, abundant natural resources and the ability to profit from the technological changes sweeping the globe. We must act now to create the future we want to see. As Kofi Annan said: "Now we must focus on implementation. The time for excuses is over. It's time for action".

Transforming Niger

Ibrahima Guimba Saidou and the vision of an African digital state

by Harold Elletson

Mahamadou Issouffou, the President of Niger, has the good fortune to have one of Africa's most uniquely talented public servants, Ibrahima Guimba-Saidou, at his side, as his Government sets about trying to turn one of the continent's most rural countries into a modern digital economy.

Guimba-Saidou is President Issoufou's special adviser and, the full extent of his accomplishments is little short of astonishing.

> "Education is not just to learn but to be balanced also. It's about getting the right balance between body, mind and spirit."

For starters, with more than 20 years of professional experience at senior levels in the global telecommunications sector, he is perhaps uniquely well qualified in government circles in the field of information and communications. A former senior executive with leading telecoms companies, including SES Astra and Intelsat, he studied mathematics and physics at the University of Niamey in Niger, has a degree in Electrical Engineering from the Ecole Polytechnique of Montreal and holds both a Master's degree in International Management and an MBA from the University of Maryland.

As if this were not enough to make you green with envy, he is also an accomplished sportsman who has played basketball for the national team of his country, been a forward for Olympic Football of Niamey (Niger's leading football team) when they came top of the league and won himself a brown belt in judo.

He was born in Agadez in northern Niger, started School in Zinder, before moving to Niamey, the country's capital city, where he grew up. His family were educated and reasonably affluent.

"I am the son of the first telecommunications engineer in the country," he says, "and mum was a medical doctor. So we were quite an intellectual family. My education was based around science and knowledge. But also sports. I was encouraged to have balance in my school life."

Sport became an important part of his life and he was particularly passionate about football.

"I have played in first division football. I played football for about five years. I even played at times two games on the same day! I still do a workout and I still play twice a week in Niamey."

His emphasis on the importance of sport reflects his view that education is about more than just learning.

"It is absolutely important," he says. "Education is not just to learn but to be balanced also. It's about getting the right balance between body, mind and spirit. This is what guides the way I function. Religion plays a role too. It helps me to cope and to reflect."

EGOVERNMENT STRATEGY

He joined the Government of Niger in 2016 as the High Commissioner for ICT, a cabinet level position. The following year, he became a board member of Niger Telecom and Chief Executive of the National Agency for the Information Society (ANSI), reporting to the President and responsible for spearheading Niger's drive to become a digital society. He also represents

Niger on the Steering Committee of the Smart Africa Alliance, a group of 24 countries committed to the development of a knowledge economy in Africa through affordable access to Broadband and Information and Communications Technologies. Guimba-Saidou is also the chairperson of the board of the national incubator (CIPMEN) and an advisory board member of the African Development University (ADU).

> "You cannot do well running business as it is and using old-fashioned approaches."

His various roles give him responsibility for Niger's eGovernment strategy, as well as the power to turn a vision of what a modern, digitally connected African state could be like into reality. His enthusiasm is infectious. At the root of it is a belief in the opportunity to empower Africans to change the continent for the better.

"For the continent and for Niger, the challenge is to seize the lifetime opportunity before us. Really, it's about the demographic dividend. The youngest population on the continent is in Niger. That's where we need to put our focus. In the past, the focus was on natural resources. That's not the case any more. If we are able to focus on people, that is what is going to be most important – investing in our human capital."

He is convinced that technology and education are the keys to unlocking the potential of Africa's 'human capital' – the talent, resourcefulness and productive capacity of its people. He knows there will have to be radical change, if Africa is to seize the opportunity facing it.

"When you look at the mass of the continent, you cannot do well running business as it is and using old-fashioned approaches... It is important that you build connectivity to facilitate access to knowledge that will lead to capacity building, training and even access to good healthcare systems. After all, better health means fewer sick days and then we can produce more and increase the GDP of the continent."

On the face of it, the challenge facing Niger is enormous and seemingly overwhelming. The ITU's annual report on Internet and mobile connectivity, 'Measuring the Information Society,' describes Niger as one of the least-connected countries in Africa. Much of the country is covered by the Sahara Desert and over 80 per cent of its citizens live in rural areas.

"In the capital city, there is only 6 per cent of the population," says Guimba-Saidou, "unlike other African countries where the population is spread across the country. The low density of our population means we don't have the opportunity to make typical economies of scale."

SMART VILLAGES

One important way the Government is trying to deal with the F2 problem is through its so-called 'Niger 2.0' Smart Villages project, which is being coordinated by Guimba-Saidou's ANSI. It is, as he says, "a project that puts technology at the service of development," aiming to improve Internet access in rural areas through improved broadband and allowing for a massive expansion of digital services.

"We decided to build digital roads," he says. "We are working as one government and we have one programme. We need

F2: Smart SDG village model

Niger's SMart Villages preoject is very ambitious and aims to connect around 15.000 villages

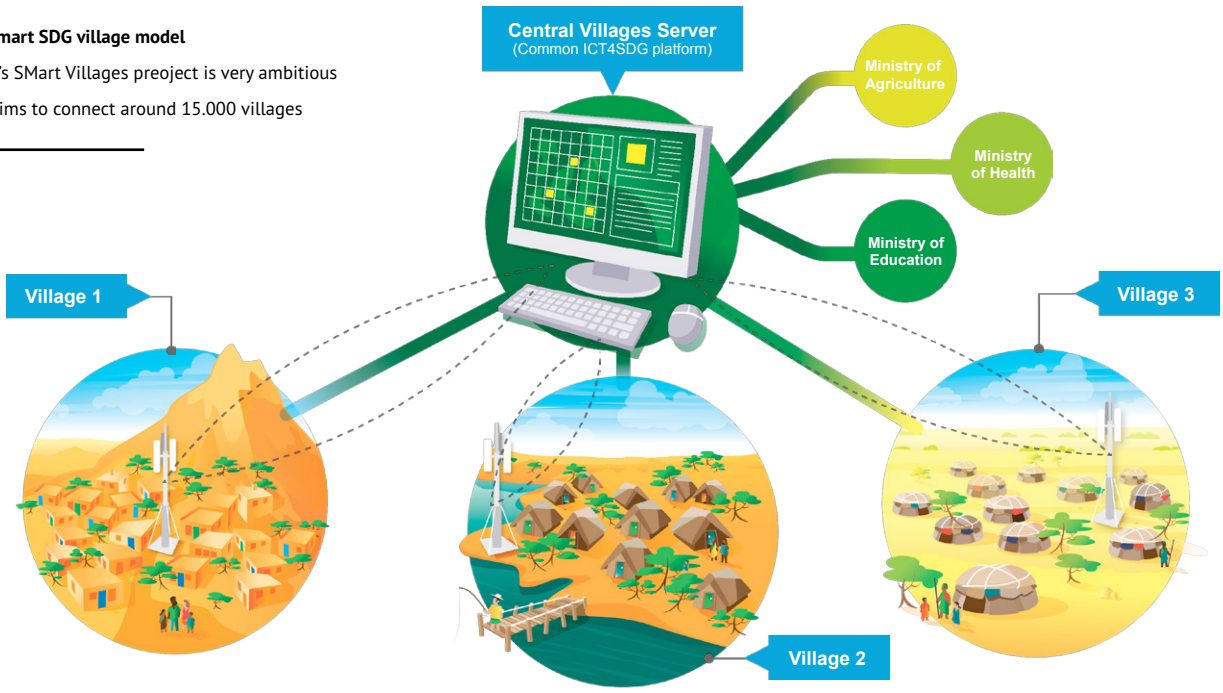


Photo © ANSI

to optimise the resources we have. So we are building a digital road into the villages and we have all our services riding on that highway. We are bringing international partners into the equation. We can also do telemedicine and train farmers through the same programme. We can provide farmers with weather forecasts and information about prices. We can also address security challenges and provide a platform for e-commerce, so that villagers can advertise goods they produce and we can give them access to markets. They can even get access to government services."

ANSI is working to develop the Smart Villages project with the ITU and an array of other organisations, including the World Health Organization (WHO), the Food and Agriculture Organisation (FAO), UNESCO, UNICEF, UNDP, the Worldbank and the Digital Impact Alliance (DIAL). Guimba-Saidou is confident that it will play a major role in achieving the UN Sustainable Development Goals (SDGs) in Niger, allowing for a more comprehensive approach to delivering services than might have been possible with a more traditional approach.

"We are focussing on connectivity within the country and internationally within the region, making a way for the distribution of content. We want to facilitate local services in villages, which are loaded with educational content, as well as with other content. It will be free content, made available through free wifi but allowing for premium services to be made available for a small payment.

"There will be local MOOCs in the villages. We need to contextualise the content and make sure that it is relevant. There will be a lot of farming and farms content, so that farmers can directly apply the knowledge they gain to improving yields and so on."

He believes that the Smart Villages project has been possible precisely because of Niger's poverty and lack of traditional infrastructure. Rather like Estonia, the former Soviet country which turned itself into a digital hub by turning its back on its rundown industrial past, Niger has the chance to start from scratch and develop a brand new, modern, digital infrastructure.

"We don't have any legacy issues," he says. He is planning a visit to Estonia in October and is "keen to learn from their experience."

HUMAN CAPITAL

Fundamentally, it is the combination of human capital, connectivity and education that Guimba-Saidou believes will transform his country and the continent, unleashing the potential for untapped reserves of innovation, creativity and entrepreneurship.

"You can clearly see education is at the centre of everything. We have really capable people and well trained, skilled people help to cement democracy. Intelligent people can have intelligent conversations and focus. Skilled youth will be able to take advantage of the fourth industrial revolution. We can le-

apfrog our competitors. Access to education has become cheap. Education is a fertiliser, a booster for other resources."

The Small Villages project is very ambitious and it involves several ministerial departments working together. Although connectivity has improved markedly in many African countries, it is still a formidable problem in Niger. Only around 50 per cent of the population has a mobile phone subscription. Fewer than 5 per cent have access to the Internet. Nonetheless, the plan is digitally to connect around 15,000 villages in Niger, in order to speed up and facilitate the connection of more than 85 per cent of the population.

> "We will connect the unconnected."

"It's our flagship programme in Niger," says Guimba-Saidou proudly. "We will connect the unconnected."

The Small Villages project is being implemented against a background of initiatives to develop a single digital market in Africa and an African Continental Free Trade Area (AfCFTA).

"The African Continental Free Trade Area is a process, a journey. It is going to happen. The train has left the station."

He sees huge advantages for both businesses and workers. "For ordinary citizens, being able to travel freely is a massive advantage; for businesses, being able to move goods without taxes. They'll be able to sell goods online anywhere on the continent without having to travel. There'll be much cheaper energy and production lines will improve. Companies will have access to a larger customer base. It is really opening a huge opportunity for ordinary citizens. Therefore, education is very important and there will be an increased demand for skilled workers."

SPREADING EDUCATION

African businesses are going to have to wake up soon to the implications of a common free trade area and start to prepare. "It's all about the quality of the manpower you have. Businesses need to invest in education and training. Large employers need to prepare for it. Wages are going to be impacted and a good engineer in Niger, for example, may decide to go to Kenya."

Niger has a long way to go before Guimba-Saidou's dreams of spreading education across the country become reality but the process has begun in earnest and he speaks with real enthusiasm about projects, large and small, and the progress that Niger has already made.

"We are not yet where we wanted to be but we can already see the benefits. When I compare the benefits of our schools pilots with traditional schools, the effects are mindblowing. Now we are working on making digital devices more affordable. There are imaginative start-ups. One start-up – a virtual pro-

Connectivity depends on energy
Photo © Adobe Stock/Cheryl Ramalho

fessor – makes access to education even easier. It has created a system for students to get access to education online.

"And take the city of Fachi, for example. It wasn't even connected before. It has 4,000 inhabitants. Now it is connected. A project has started and we're already seeing improvements. It provides free training in work for teachers. They can't cope with the demand already. People are willing to pay. Students are asking for it.

"There is a strong commitment from African leaders to work together."

"There's another project – on the last Saturday of the month, there is a boot camp on technology and schools send their students. They even started a track in February for younger kids. They were initiated to coding from scratch. Demand is increasing. Now they're doing it in remote cities, not just in the capital."

These developments make Guimba-Saidou "cautiously optimistic," not just about Niger's future but about Africa's too. He believes that Africa will be transformed by 2063, just as the African Union hopes.

"There is a strong commitment from African leaders to work together," he says, "Stronger than before. Uganda, Rwanda and Kenya already have a free trade zone and it's working well. There is ECOWAS too. Combined with strong leadership at the AU level, we are on the right track. There really is a chance of it happening.

"We'll soon have a single passport for the continent. The same as the EU passport."

The biggest challenge now, he thinks, is to manage the development of Africa's human resources and to make "access to knowledge become easier."

He explains his caution.

"My caution is because technology is like a double edged sword. If it is not well managed, youth may use it for something else. If they do, if it's not introduced in a controlled environment and if people are not made aware of the implications, it could lead to disaster. We have to ensure we are careful how we introduce technology and how we connect the dots."

Managing expectations is important too.

"People think that because you introduce technology, things will change overnight. But it is not so."

And he has a word of caution about education too. It may, as he says, be a fertiliser that boosts resources and encourages growth but "when you spread fertiliser, weeds can grow too. That's why we need good content."

Lifelong learning and a new African mindset

Rob Vember talks to Professor Shirley Walters about the need for a more holistic approach to lifelong learning

Africa has the youngest workforce in the world while simultaneously holding the distinction of being the least skilled. This despite increased investment in skills building, and education expenditure increasing sevenfold over the last three decades according to the World Bank. While the world looks to 'reskill' to account for digital disruption, the statistics suggest Africa still grapples at a foundational level. The disconnect between resource input and outcomes suggests a more fundamental problem.

Lifelong learning advocate Shirley Walters, Professor Emerita and founding director of the Division of Lifelong Learning at the University of the Western Cape in Cape Town, offers one plausible reason for the problem – it's philosophical. The more holistic approach to lifelong learning, which she advocates, is perhaps more likely to nurture individuals and communities to be more accepting of change, and produce critical thinkers more likely to adapt accordingly; the kind of mindset widely considered most suited to a world beset with disruption.

What is your notion of Lifelong learning?

I take a very inclusive notion of it, almost a literal notion. It's about learning from birth to death. It includes all forms of learning, whether it's formal, informal, non-formal. It's the whole spectrum, and I would argue all education and training is within a lifelong learning framework because the whole way that you go about, the way you think about your education and training systems is impacted if you have a lifelong learning philosophy and approach.

Is it your experience that that is not conventional wisdom?

People and governments often equate it to adult education. All other forms of learning before you're classified an adult is often excluded, so even universities, colleges, vocational colleges, preschools, would not necessarily see themselves as part of a lifelong learning framework. It makes no sense to have lifelong learning equal to adult learning and education. It's lifelong, it's life-wide, it's life deep. Each step in your life course impacts the next step.

Have you seen a change or move towards this more holistic view of lifelong learning?

I think the UNESCO Institute for Lifelong Learning is promoting this much more inclusive idea. They tend to advocate for this more inclusive notion more than any other institution that I'm aware of.

One of the biggest challenges we have in Africa - terminology does matter - often you get lifelong learning equals adult learning and education, and adult learning and education for some equals adult literacy, so you get a complete emasculation of the understanding of what it is.

> "A lot depends on the kinds of leadership you have and the understandings that people have."

I've spent 30 years of my life trying to campaign for a much richer, denser understanding of it. It is a global battle but I suppose, because we have so many people, because of the vast inequalities, and vast poverty, and lack of basic schooling for so many millions of people, you get this real anxiety about literacy, and of course ICT can change the understanding of literacy itself.

A lot depends on the kinds of leadership you have and the understandings that people have, and because of our demographic profiles in Africa where 60 per cent of the population is under 24, we have an obsession with children, so politically it's important,

Feminist scholar and activist Prof. Shirley Walters worked in Adult and Continuing Education at the U. of Western Cape from 1985 until she retired in 2014. She has earned numerous international awards and continues to work and travel professionally both across Africa and the rest of the globe.

you've got to ensure that they're kept busy - that might be a bit of a cynical view - you have to do something for the kids, and you don't worry about 75 per cent of people's lives.

In South Korea, where the demographic profile of the population is increasingly much older, they have a huge issue with how to engage their population into the future because it's a completely inverted pyramid to the one we have. They have huge investments in education and training, and learning - learning cities, learning villages. The same also in Japan. It's fascinating how demographic profiles do impact how people actually grasp these ideas. In China you have colleges for mature people – third age. These are serious undertakings because they know that you have got to keep your population engaged. There'll be debates about what you keep them engaged in.

Do you see the need within Africa for any particular kind of engagement specific to our context?

I am very concerned with the climate crises we are confronted with globally. As southern Africa, we are a climate change hotspot. My argument is that lifelong learning at this point is absolutely critical in terms of the future of the planet. If you are not going to teach people across all generations how to conserve water, how to adapt to different climatic conditions, how to grow things under different conditions, we are going to see more violence; more people in a very desperate situation. And with that comes the economy, food sovereignty, and people needing to be engaged in their livelihood. The question of the climate crisis is too important to leave to politicians; we've all got to be involved.

I know we don't always act rationally in many ways but the more we can be supported in trying to understand why is it that the rains aren't coming, or why is it that we cannot plant at this time anymore, the better. Your everyday livelihood and your health could be impacted.

What potential do you see technology having that perhaps we're not yet taking advantage of?

People being able to access data about health, agriculture, work opportunities, career guidance and so forth. A lot is being done in patches, and of course we need to get costs of mobile data down. One has to think imaginatively of how to incentivise the use of ICT. Unless you're going to change the material conditions in which to use ICT, it's very difficult to imagine how we are really going to ramp up the idea of the use of mobile technology.

Historically, in the narrow view of education as something aimed at youth, particularly in Africa, the responsibility of provision seems to lie with government. Looking at a more literal application of lifelong learning as you suggest, can we infer that it's not just the responsibility of the state?

Absolutely. In a way you have to look at the totality of the society. Look at media for example. Radio, television, the Internet, are owned by a whole range of interests. One has to think about lifelong learning, including all of the education and training institutions across the whole spectrum, many of them are supported by government but you have all work places that need to have a lifelong learning orientation. The state must play a really important role in developing the environment in which it can happen.

A very important aspect of learning is that people learn what matters to them. If something matters to you, you will find a way of learning it. The narrow notion of exactly what skills we're going to need, of course it's important from a societal point of view but we also have to understand that if people are given the encouragement, if the approach is that people will learn what they need to learn if I help them; If you affirm the fact that all of us can learn at any stage in our lives, and you don't have to be in a school to learn, you will unleash a lot of the potential.

It's a mindset, and of course many governments don't encourage their citizens to be thinking people anyway because controlling them is easier if they don't think. I'm emphasising that element because I think it's such an important part of giving citizens the authority and the power to get on with it but you need to create an enabling environment for them to do it. My emphasis is not to deny that we need particular kinds of skills but just taking a more philosophical view on what lifelong learning actually means, and how we can unleash it as opposed to how to control and contain it.

Diane Malikane

The smart African woman leading Smart Africa's 'Education for All' ICT programme

Smart Africa is a bold initiative by African Heads of State and Government to accelerate sustainable socioeconomic development on the continent and create a knowledge economy through affordable access to Broadband and Information and Communications Technologies. The Chairman of the Board of Smart Africa, Rwandan President Paul Kigame, says that "the creation of Smart Africa is a testimony of our resolve to put in place the right policy and regulatory environment that will encourage partnerships, entrepreneurship, job creation and knowledge sharing. Our move towards an ICT and knowledge driven economy together intends to increase Africa's competitiveness in the global economy. ICTs have the ability to level the global playing field, unlock human capital and harness its full potential."

Education is at the heart of SMART Africa's plans and as a Consulting Project Manager for the Smart Africa Secretariat, DIANE MALIKANE SUGIRA is in charge of Education for all through ICT, the Smart Africa Scholarship Fund and the Africa Smart Women & Girls Initiatives. We asked her about her work and Smart Africa's role in improving access to education

What are the main problems facing women, girls and marginalised communities in accessing education in Africa?

More girls in Africa are attending school than ever before. However, despite this progress, women and girls continue to face multiple barriers, such as the impact of poverty, gender-based violence and gender stereotyping, which all hamper their access to education.

UNESCO estimates that 130 million girls between the age of 6 and 17 are out of school and, out of 15 million girls of primary-school age, 50 per cent in sub-Saharan Africa will never enter a classroom.Poverty remains the most important factor determining whether girls can access education. For example, in Nigeria, only 4 per cent of poor young women in the North West can read, compared with 99 per cent of wealthier young women in the South East. Studies consistently show that girls who face multiple disadvantages, such as low family income, living in remote or underserved locations, disability or belonging to a minority ethno-linguistic group, are far behind in terms of access to, and completion of, education. Violence also negatively impacts access to education and a safe environment for learning.

Did you personally encounter discrimination, prejudice or obstruction in your education or career?

No, I was not discriminated against or obstructed in my education. However, in my career, some years have been so difficult

"The maternity leave is too short and in some organisations the flexibility to work virtually is not yet introduced."

after maternity leave. For example, the maternity leave is too short and in some organisations the flexibility to work virtually is not yet introduced, yet with new technology other mechanisms can be used, in order to ensure the organisation's performance.

Why do you think education is important?

Education is important because it enables an individual to develop personally, socially and economically. It contributes to the socio-economic development by impacting people's lives significantly. Paul Tudor Jones, self-made billionaire entrepreneur, investor, and philanthropist said "intellectual capital will always trump financial capital." It is one of the most significant investments a country or an individual can make.

Despite this, education costs are still high and innovation in this field will probably lead to eventual demonetisation. We are at the beginning of a period of what the famous futurist Peter Diamandis calls the 'rapid demonetisation,' in which technology makes previously expensive products or services much cheaper or even free. Many higher educational institutions, for example, have legacy costs to support several layers of hierarchy and to maintain their campuses. The new institutions are finding ways to significantly reduce costs by offering their services exclusively on-line, with an emphasis on demand-driven skills. As goods and services become more and more demonetised, knowledge becomes more and more valuable.

Now consider those who work hard throughout their career but don't take time out of their schedules to learn constantly. These people will be the new "at-risk" group. They risk being stuck at the bottom of the global competition and losing their jobs to robot automation.

How can technology help women and girls to overcome barriers that prevent them from accessing education?

Smart Africa has various initiatives to promote access to education, including the scholarship fund flagship programme which was initiated in 2015 with the aim of supporting talented African students in the ICT Sector. Since its inception, the Secretariat was able to raise $1,600,000 from its member countries and partners like ITU. The flagship programme's main purpose is to bridge the skills and talents gap, in order to make Smart Africa goals a reality; reduce the digital divide between Member States, promote meritocracy and gender equality; partner with African Centres of excellence and other strategic partners, and establish a co-financed fund with targeted partners.

The scholarship fund raised throughout the past four years has supported 82 African students from different countries to pursue Masters and Certification level training at the best ICT Centres of Excellence, including Carnegie Mellon University (CMU- Africa), Higher Multinational School of Telecommunications (Ecole Supérieure Multinationale des Télécommunications ESMT - Senegal) , United Kingdom Telecommunications Academy (UKTA) and the United States Telecommunications Training Institute (USTTI). Students were selected according to their academic merit and leadership potential, with a focus on gender balance.

"Africa has the youngest population which is an advantage other continents lack for the future."

We are also connecting primary and secondary schools, as well as universities, to broadband by partnering with stakeholders, in order to increase connectivity at all levels, starting with schools with electricity.

We are engaging with partners for various initiatives, like GIZ/BMZ for a project in eLearning, namely "Africa Cloud - My space of learning" aiming to support innovative digital knowledge products and learning opportunities reach people from diverse backgrounds in eight Member States of Smart Africa as a pilot project. The project aims to reach especially young people in rural and remote-areas via digital tools and will focus towards four target-groups (i) young entrepreneurs and start-ups, (ii) young people getting into professional life,

Diane Malikane Sugira is an honorary lifetime member of the National Business Association in partnership with the Institute for Economic Empowerment for Women. She holds a Masters degree in Communication Management from UKTA & KIST, and a BSc in Computer Engineering and Information Technology from Kigali Institute of Science and Technology (now the University of Rwanda).

(iii) young farmers in rural areas, as well as (iv) digital development practitioners. We also have a partnership with TATA Communication for the "Africa Skill" Programme, which aims to train engineers of the member states on a variety of next-generation technologies including FTTX network design and operations, Cyber Security Response & Operations (CSRO), Smart Cities & Internet of Things, Cloud computing & Big Data and Robotics & Artificial intelligence.

And we are supporting the ICT capacity building flagship led by the Republic of Burkina-Faso.

You have been involved in initiatives on skills development. How do you think African countries and businesses can ensure that young Africans have the skills they need for the future?

African countries have started to get prepared for the skilled workforce needed for the future, although most countries face different development challenges. Nevertheless, to reinforce the human capital investment, we must not just develop the skills needed today, but also start building the skills needed to successfully leverage the technological advances of the future. As documented in the African Union's recently adopted continental education strategy for Africa 2016-2025, the overall pyramid of African education as it stands shows a fairly broad base, at 79 per cent adjusted net enrolment in primary school (up from 59 per cent little more than a decade ago), equivalent to 144 million African school-age children now accessing primary education. However, enrolment at secondary level drops to 50 per cent and only 7 per cent of young people are enrolled in tertiary education. Currently African college graduates with a STEM degree represent 2 per cent of the continent's total university-age population but they are increasingly needed across a wide variety of industries. The figure is still low, yet many jobs require basic and more advanced STEM literacy.

In addition, Africa has the youngest population which is an advantage other continents lack for the future. Human capital in Africa, if it is educated and prepared, is an important asset for the continent and the rest of the world.

The World Economic Forum's human capital index finds that sub-Saharan Africa currently only captures 50 per cent of its human capital potential, compared to a global average of 65 per cent. With more than 60 per cent of its population under the age of 25, sub-Saharan Africa is the world's youngest region. By 2030, the continent's working-age population is set to increase by two-thirds to over 600 million in 2030. Overall, sub-Saharan Africa's younger generations are considerably more educated with a much higher productive employment potential, for instance in Nigeria, Botswana, Benin, Uganda, Malawi.

Overall, are you optimistic about the future for your country and Africa?

Yes, I believe that, in the future, Rwanda and the entire African economy will grow strongly and access to basic needs of life for the well-being of all will be assured. However, people should work hard towards this huge revolution.

Do you share the African Union's vision that Africa will be a „transformed continent" by 2063? What do you think Africa will be like in 2063?

Smart Africa shares the same vision with the African Union about a transformed continent by 2063. By 2063 Africa will be transformed into a single digital economy and reap the benefits of the 17 Sustainable Development Goals

What do you think Africa will be like for women and girls in 2063?

By 2063, all harmful social practices and barriers to women's and girls' access to education, health care, entrepreneurship and innovation will be considerably reduced. Women and girls will benefit from equal access and opportunities in all areas of life. Rwanda in Africa has shown the way by having over 50 per cent female leaders in parliament. There will be education for all and gender equality by 2063.

Fake News

Understanding the scourge from an African perspective

by Jimmy Kainja

Fake news' has so many facets that a precise definition is very difficult. Global Digital Partners[1] warn that while 'fake news' is commonly used to mean false information, the term is inadequate for the following reasons: first, not all information considered fake is entirely false, often there is a mixture of truth and lies. This might include issues like context, misleading headlines etc. Second, not all information that is false and misleading falls under the scope of what is considered to be news. Third, the term 'fake news' does not consider the intention of those sharing the information. Fourth, the term has been hijacked by politicians who often use it to discredit true information and news, which they dislike.

In a handbook for journalism education and training[2], UNESCO argues that the term 'fake news' should not be used to refer to news in the first place because "the term 'news' means verifiable information in the public interest, and information that does not meet these standards does not deserve the label of news. In this sense then, 'fake news' is an oxymoron." Similarly, the British government has opted to use terms disinformation and misinformation and not 'fake news'[3].

Disinformation refers to information, which is false, inaccurate and has been deliberately created and spread to mislead. Misinformation refers to information, which is false and inaccurate but might not have been deliberately created and spread to deceive others. This is an important distinction. Yet, it is too academic for an average person and it is too cumbersome and tedious for everyday conversation. So the use of the term 'fake news' has persisted even within academia and the media.

While definitional issues are academic, 'fake news' has a real impact on people's lives, as well as on structures of governance. Yet, the nature of 'fake news' takes different dimensions across the world. This article discusses 'fake news' from an African perspective; this is done in the full knowledge of the diversity of the African continent, which at the same time also has a lot of shared experiences among its people.

'FAKE NEWS' MATTERS

Fears of 'fake news' are well founded. This is because of the centrality of information in societies. Information is a key organising and developmental factor and it helps hold societies together. Systems of governance, especially democracies, depend on people's participation in public affairs to function well, and people need correct information, in order meaningfully to participate in public affairs. People need correct information to make meaningful personal decisions, as well as decisions affecting the public. Media institutions that are independent of any financial and economic control are best-placed to provide this information. In the past, traditional media have been entrusted with this role. This is why in 1787 Edmund Burke[4] called them "the fourth estate."

> "Fears of 'fake news' are well founded. This is because of the centrality of information in societies."

However, the new media have proved disruptive to traditional media. New media have allowed ordinary people to create and distribute their own information. Anyone with access to the Internet, a computer or a smartphone is a potential journalist and news distributor. The popularity of social media platforms,

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such as Facebook, has hugely compromised traditional media's business model, as advertisers follow audiences online, where the traditional media have so far failed to find a viable business model to compete with social media platforms. The revenue of social media giants, such as Facebook and Google, hugely outstrips that of traditional media.

> "New media have allowed ordinary people to create and distribute their own information."

Emily Bell, Director of the Tow Centre for Digital Journalism at Columbia's Graduate School of Journalism, notices that "the relationship between news organisations and platform companies has become far closer far more quickly than anyone predicted. The increasing influence of the handful of West Coast companies is shaping every aspect of news production, distribution and monetisation.[5]" Unfortunately, information on social platforms is not subjected to the professional journalistic standards expected of traditional media. On these platforms, news judgment is left to algorithms and not humans.

The emergence of 'post-truth' politics in the West has created a conducive environment for 'fake news'. 'Post-truth' is "a situation in which people are more likely to accept an argument based on emotions and beliefs, rather than on facts[6]." The 'post-truth' era is synonymous with Brexit in Britain and the election of Donald Trump in the United States of America. In his 2018 book, *Post-Truth: How Bullshit Conquered the World*, James Ball[7] notices that 2016 marked the dawn of post-truth politics in the West. People are consuming information that confirms their biases, even if such information does not square up with any truth.

James Ball observes that people are likely to believe information from someone they know or admire, and social media offers an opportunity for people to follow those they know and admire. A BBC study[8] on fake news in Africa established that people share 'fake news' for the following reasons: 1) people tend to trust the sender of information, while not caring about the source of it. 2) Most people find reading difficult but sharing information is easier and attractive. This means people share information they have not read and therefore cannot tell about its authenticity. 3) For most people, sharing information is socially validating. This matters more to people than caring about the nature of information being shared.

THE AFRICAN CONTEXT

Just as elsewhere, Africa is also grappling with 'fake news,' particularly during critical times such as elections, civil and socio-political unrest, when information is mostly needed. For instance, 'fake news' was a big problem during Kenya's 2017 elections[9], it has manifested itself in Malawi during the post elections protests[10]; and it has also featured during the recent wave of xenophobia attacks in South Africa[11].

However, 'fake news' in Africa has a different context from the 'developed nations,' as discussed above. George Ogola[12] argues that "Africa has a long history of fake news after years of living with non-truth." He bases his argument on how post-colonial African governments quickly "invested heavily in state-owned media," in order to control public communication. In the age of the state, controls have evolved, today including

Internet shutdowns and over-the-top taxes, which limit access to information, as well as civic participation.

For much of Africa, public access to information is at the mercy of the government. As of 2017, only 22 countries in Africa had passed access to information laws.[13] State control of information and lack of access to information has two problems: first, it creates an information vacuum for rumours and 'fake news' and, second, citizens have no means to verify rumours and 'fake news', thereby remaining victims of 'fake news'.

> "For much of Africa, public access to information is at the mercy of the government."

It is also important to note that rumours or 'fake news' do have some advantages in places where there is no access to information. For instance, in 2016, Malawi's President, Peter Mutharika was unaccounted[14] for over 30 days after attending the United Nations General Assembly in Washington. This sparked rumours online that the President was very ill, others even speculated that he had died.[15] These rumours forced the government to release official information, asserting that the president was alive and in "robust" health. The BBC followed this with a BBC African Debate programme in Malawi. While the BBC did not officially connect the hosting of programme with the president's issue, from the context of the programme, it was apparently clear that this was the reason.

There is a fine line between 'fake news' and genuine rumours emanating from a lack of information. As seen here, rumours can be critical in forcing governments to release information of public interest. African governments' reluctance to release information creates an unhealthy information vacuum and a general environment of mistrust. This makes it difficult for people to differentiate 'fake news' from real information and this has a very long history, beyond social media. Lack of access to information means that people have no means to debunk 'fake news'.

WHAT IS TO BE DONE?

There is a growing number of fact-checking organisations in Africa. But these are very limited, given the context of the problem on the continent. Most of these fact-checkers are online, while the majority of Africans affected by 'fake news' lack affordable access to the Internet. Even where people have access to fact-check information, it is difficult to undo what people have heard. Nonetheless, fact-checking is a noble cause and it should be encouraged, regardless of the low impact.

Governments must provide access to information or else 'fake news' will continue to fill the information gap. Providing access to information is the best means to enable people to debunk fake news.

James Ball points out the importance of teaching media literacy in schools, and I suggest this as one of the ways forward as well. Ball points out that "most school systems include at least some tuition on things expected to be good for public health or citizenship … there's a good case for adding some basic tools of media literacy to that list – how to evaluate sources, how to judge claims by basic rules of thumb…"

> "Governments must provide access to information or else 'fake news' will continue to fill the information gap."

1 Global Partners Digital, accessed 17th September 2019: https://www.gp-digital.org
2 Journalism, 'fake news' and Disinformation, accessed 17th September 2019: https://en.unesco.org/sites/default/files/journalism_fake_news_disinformation_print_friendly_0.pdf
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Africa's new continental free trade agreement

Significant, necessary and potentially transformative

by Max Bankole Jarrett

"The end of the beginning". Winston Churchill's cautiously optimistic view of the position following the battle of El Alamein may perhaps offer the best way to describe and understand the importance of the entry into force in May 2019 of the African Continental Free Trade Agreement (AfCFTA). With over 54 member States of the African Union (AU) as signatories, it is (based on the number of participating countries) the world's largest new free trade agreement since the formation of the WTO[1]. It covers "trade in goods, trade in services, investment, intellectual property rights and competition policy"[2].

The pace of travel from the moment the decision was taken up to now has been impressive and faster than many other regional and international trade negotiations. Africa agreed on a new free trade area in just over six years, setting in motion new momentum towards the ultimate destination of creating an African single market of over a billion people. To put things in a global context: the WTO multilateral Doha Development Round has still not concluded, over 17 years after these trade talks began. It took eight years for Canada and the European Union to conclude their free trade area. In Asia, negotiations between countries involved in the Regional and Comprehensive Economic Partnership have been underway for more than six years. Meanwhile in the Americas, discussions on the Free Trade Area of the Americas stalled after 12 years.

IMPLEMENTATION PRIORITIES

The entry into force of AfCFTA is a 'gamechanger' in Africa's economic integration process and just as important as the establishment of the Africa Union was on the political integration agenda of the continent. Yet there is so much work still to be done before the benefits of the deal are felt by most Africans. Member states now move to the second phase of negotiations, during which they will focus on progressively eliminating their tariffs and non-tariff barriers to trade in goods between each other; progressively liberalising their trade in services; and cooperating on investment, intellectual property rights and competition policy. The pace and final outcome of these trade talks are far from clear at the moment. Based on past experience, there is also some cause for concern on how fast they will proceed. Indeed, so many continental African agreements have stalled at the implementation stage, that Rwanda's President Paul Kagame, who spearheaded the most recent AU reform process has referred to "the crisis of implementation".[3]

> "Despite its positive impact on growth, freeing up trade often entails costs and the benefits of liberalisation may not be evenly distributed."

Specifically, in order to implement the new continental free trade agreement, signatories are to reduce 90 per cent of their "nonsensitive" tariffs on goods over a period of between 5 and 15 years. The rate is to depend on whether a country is classified as developing or least developed. Several countries remain reticent about the benefits of opening up at this stage and being classified (some would say) so simplistically. Thus, a group of six (G6) member States of the AU, Ethiopia, Madagascar, Malawi, Sudan, Zambia and Zimbabwe also classify for

African leaders discuss the establishment of a continental free trade area at the AfCTFA SUmmit in Kigali, Rwanda in March 2018. Photo © African Union Commission

what is termed "special and differentiated treatment" under the agreement. A wish to protect the growth of local manufacturing and other industries remains among the reasons for this G6 position. Despite its positive impact on growth, freeing up trade often entails costs and the benefits of liberalisation may not be evenly distributed, with earnings and employment negatively affected in some industries and countries.[4] The IMF therefore recommends that trade policies be combined with structural reforms to strengthen the competitive advantage of economies.

It is not yet clear whether the 90 per cent figure refers to total product lines or to the share in the country's total value of imported products.[5] Uncertainties also surround how the final 10 per cent of tariffs are to be handled. This will be at the heart of the negotiations around the details of the AfCFTA reform process which is expected to be fully implemented by 2035. Thus, all in all, despite the great leap forward in 2019, the end of the road is still not in sight. Much will depend on how the negotiations fare over the next 12 months.

WIDE RAMIFICATIONS

In the area of the trade in goods alone, the United Nations (ECA)[6] estimates that AfCFTA liberalisation reforms could see an increase in the share of intra-African trade over two decades, from the start of the AfCFTA in 2020 and 2040, of nearly 40 per cent to over 50 per cent. The AfCFTA provisions on investment promotion, facilitation and protection could spur a scaling up in the investments needed to restructure Africa's economies. The provisions on competition policy, meanwhile, could enable fair competition and those on intellectual property rights catalyse increased innovation.

AfCFTA is a subject of significance to stakeholders in the education, skills and employment sector due to its potential impact on the liberalisation and unification of the learning and jobs space on the continent. Africa's process of economic integration and structural transformation has long been slowed by a mismatch between available skills and the needs of Africa's labour markets.[7] Often this has been due to low rates of labour and skills mobility on the continent. This is a notable hurdle to faster economic growth. Labour mobility has also been impeded by the non-compatibility, non-recognition and non-comparability of skills, educational qualifications and experiences across Africa.

> "For many businesses in Africa it is often easier to employ a skilled non-African expatriate than a skilled African expatriate."

In that regard, the momentum towards the free movement of Africans on the continent could now be very positively affected by AfCFTA. While the Common Electronic Biometric African Passport was launched in July 2016 and the AU Protocol on Free Movement of Persons, Right of Residence and Right of Establishment adopted in January 2018, the pace in gaining country ratifications has so far been slow. A 2019 Mo Ibrahim Foundation report notes that success in creating a single African market will "provide a conducive environment for easing one of the biggest obstacles the continent is facing: professional mobility and skills portability". The Foundation highlights the "immense potential for the continent to exploit, considering that the majority of African migrants choose to stay on the

continent and 70% of sub-Saharan migrants move within Africa. However, for many businesses in Africa it is often easier to employ a skilled non-African expatriate than a skilled African expatriate".[8] According to the latest Assessment of Regional Integration in Africa (ARIA IX)[9] over 53 per cent of the continent's GDP came from services in 2017. Freeing up trade in services could remove significant bottlenecks to job generating growth and labour mobility on the continent.

Additionally, there is now potential to promote greater regional cooperation in higher education and related training sectors. This is much needed. The AU's movement of persons protocol provides a legal basis for a continental qualifications framework. AfCFTA's protocol on trade in services meanwhile seeks to "create a single liberalised market for trade in services" through establishing a framework for the progressive liberalisation of service sectors, as well as a framework of common disciplines. If adopted, these protocols should make it significantly easier for Africans to move in search of education and training, as well as to look for job opportunities that best match their skills and experience. At the same time, increased human capital mobility would allow businesses to better source the right talent and skills from a wider pool of potential applicants.

POSSIBLE NEXT STEPS FOR EDUCATORS

Without a doubt, much more action is required on several fronts to ensure the expected positive outcomes. Primarily, the education and skills training sector on the continent needs to respond and adapt proactively to the new environment being created by AfCFTA, with special attention being placed on how to make the most of free movement to better align the economically active talent and skills that can drive increases in productivity with the labour and skills gaps in different sectors and markets in Africa. Education and advocacy around AfCFTA associated mobility will also be very important as some source countries might fear loss of local working age talent and skills, while some in recipient countries might fear increased competition from other Africans who are perceived as "foreigners".

The AU's ten-year Continental Education Strategy for Africa (CESA 2016–2025), could serve as a notable central pillar for engagement of educators and trainers with AfCFTA. It seeks to establish a system of educating and training people capable of achieving the AU's vision and ambitions. By refocusing and harmonising Africa's education and training systems, it plans to scale up the generation of knowledge, competence and skill innovation at the national, regional and continental levels.

The labour supply in Africa is projected to increase by 198 million by 2030.[10] How the continent maximises that potential and ensures a true demographic dividend from its ongoing demographic transition will depend, in part, on how the opportunities now provided by the AfCFTA are seized to enable a massive enhancement of human capital on the continent. Priorities include increasing investment in training and skills development in agri-processing, skill intensive manufacturing

> "The labour supply in Africa is projected to increase by 198 million by 2030."

industries (e.g. apparel production), ICT and tourism.[11] In light of the rapid rise in the contribution of the services sector to Africa's total GDP, human capital investments need to be focused on associated future trends and sectors. The World Bank's new *Human Capital Index (HCI)*, presented in the 2019 *World Development Report*,[12] highlights that the future workforce productivity of countries with the lowest human capital investment today is estimated to be only a third or half as productive as it could be.

Africa simply cannot afford to miss out on any potential productivity gains offered by the changing global context. African countries need to push through swiftly with the implementation of all major frameworks they have agreed to, in order to ensure that they don't. These include those focused on promoting professional mobility, such as the continent-wide *African Qualifications Framework* and the *Intra Africa Mobility Scheme (IAMS)*, which aims at improving the skills and competences of students and staff through enhanced mobility between countries.

The entry into force of AfCFTA in 2019 has refocused minds on the entire continental integration process. Its speedy implementation will be critical to success across the board.

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Seeing the digital age

Senegalese photographer Alun Be believes digital technology has changed the world's view of Africa

Born in Senegal and raised in France, West Africa and the United States, Alun Be trained as an architect before switching to photography and turning heads with his remarkable pictures and portraits. He tells us how digital technology and education are changing Africa.

Tell us about your training and how you were first attracted to photography.

I am a self-taught photographer. I used to take my mother's camera in secret and I bought black and white films at the age of 13 or 14. It is a passion that I practiced in my spare time and later in parallel with my architectural studies.

How is art perceived in Senegal?

In Senegal, living off an artistic activity is not perceived positively. This is the case in many societies because it is often associated with a certain economic precariousness. Even more so in Senegal, being an artist is considered like being a 'marginal', like someone who is not really integrated into society. Despite the precarious social status of the artist, Western societies make art a deeply rooted part of their culture, which is not the case in Senegal, where only some people show a particular interest in art.

Why is education important, especially in Africa?

The basis of development is necessarily education. I often have the feeling that things are done backwards in Africa. Monuments or symbols of wealth such as statues, airports or the Senegalese train line currently under construction, to take a specific example, are out of step with real primary education needs. Why build a train when a large part of the Senegalese population, with a still high illiteracy rate, is not ready to become a regular user? The Senegalese population is not socially educated to use it, in terms of safety instructions for example. Education is at the heart of development issues. More than large construction projects, it is education that builds a country.

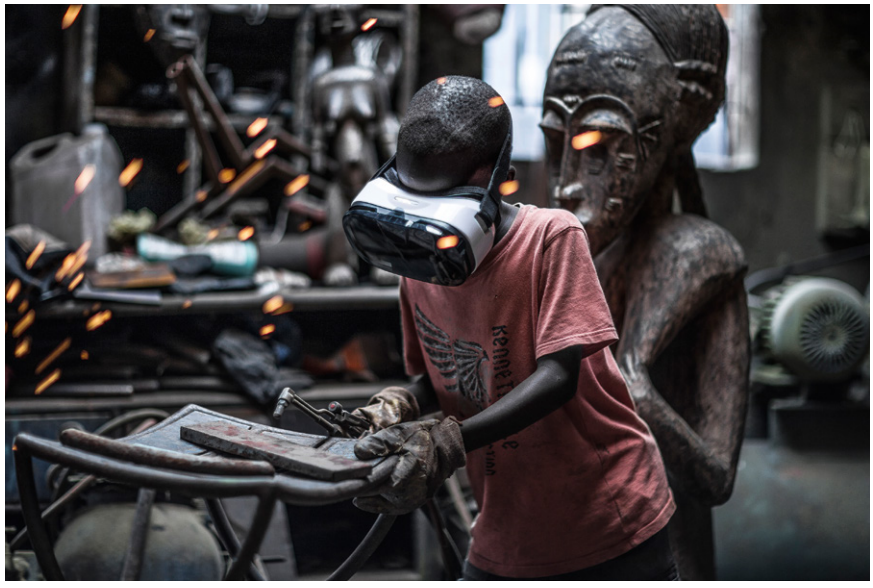
Your work focuses on technology and in particular virtual reality. Why? What issues are raised by technology and virtual reality?

VR's glasses symbolise the advent of the contemporary digital age. Digital technology affects life's rites of passage (travel, instruction, discovery of duality within each of us). My photographs ask the following question: how do new generations build themselves through this access to information that technology offers us?

“The basis of development is necessarily education.”

CULTIVATION – THE BOY WHO READS IN THE DESERT

One of the statues represents a Malian empire specialised in astronomical sciences. This implies that we are obliged to start from scientific knowledge that has a solid foundation to use technology as a tool and not as an identity or an end in itself.

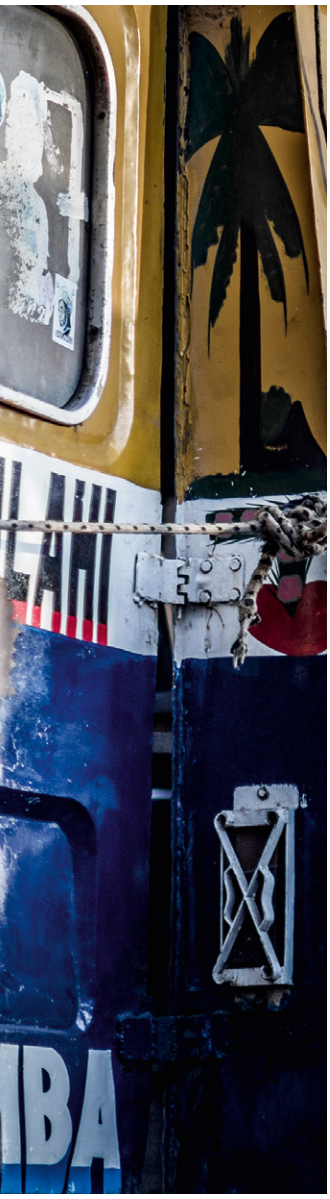


SAVOIR FAIRE –THE BOY WELDER

Once you realise its potential, you implement it. Get out of theory to be in creation to move from the stage of being to that of a creator.

ETHOS – THE LITTLE GIRL ON THE OLD MAN'S LAP

Also known as „Transmission", this photo brings together three things in harmony: the young and the old, the man and the woman and the digital and the traditional. The message being that technology is truly ambiguous, it cannot be fully trusted. We must refer to the past in order to be able to detach ourselves from this technology and make it a tool instead of identifying with it and thus dehumanizing ourselves.



KINSHIP – THE BUS

Kinship refers to the notion of „human family". What happens at the other end of the continent affects the other end of the planet. The whole continent is linked; expanding its human family makes it possible to build better. This photo is the contemporary visual representation of African expression that says that alone, we go fast and together, we go far.

How will technology change education in Africa?

Digital technology has already profoundly changed Africa and the world's view of Africa. Technology has first allowed Africans to get to know Africa better and then the whole world to look at Africa better. Thanks to technology, Africans have the means to show Africa through their own eyes, which was not the case before. All the photos, all the images used to come from foreigners who would interpret these images from a Western point of view and build their own African image.

How can photography contribute to change in society?

Photography fills this lack of knowledge that an outside viewer may have of a place that he or she does not know in depth. He will be able to see it on the surface, whether it is the artificial or superficial aspect (Airbnb, Club Med) or on the other hand the ultra-traditional aspect (isolated village) but he will not be able to recognize the deep social realities of the country. Photography, through its exaggerations, can transcribe nuanced and lost truths, obvious to the inhabitants but unknown to strangers.

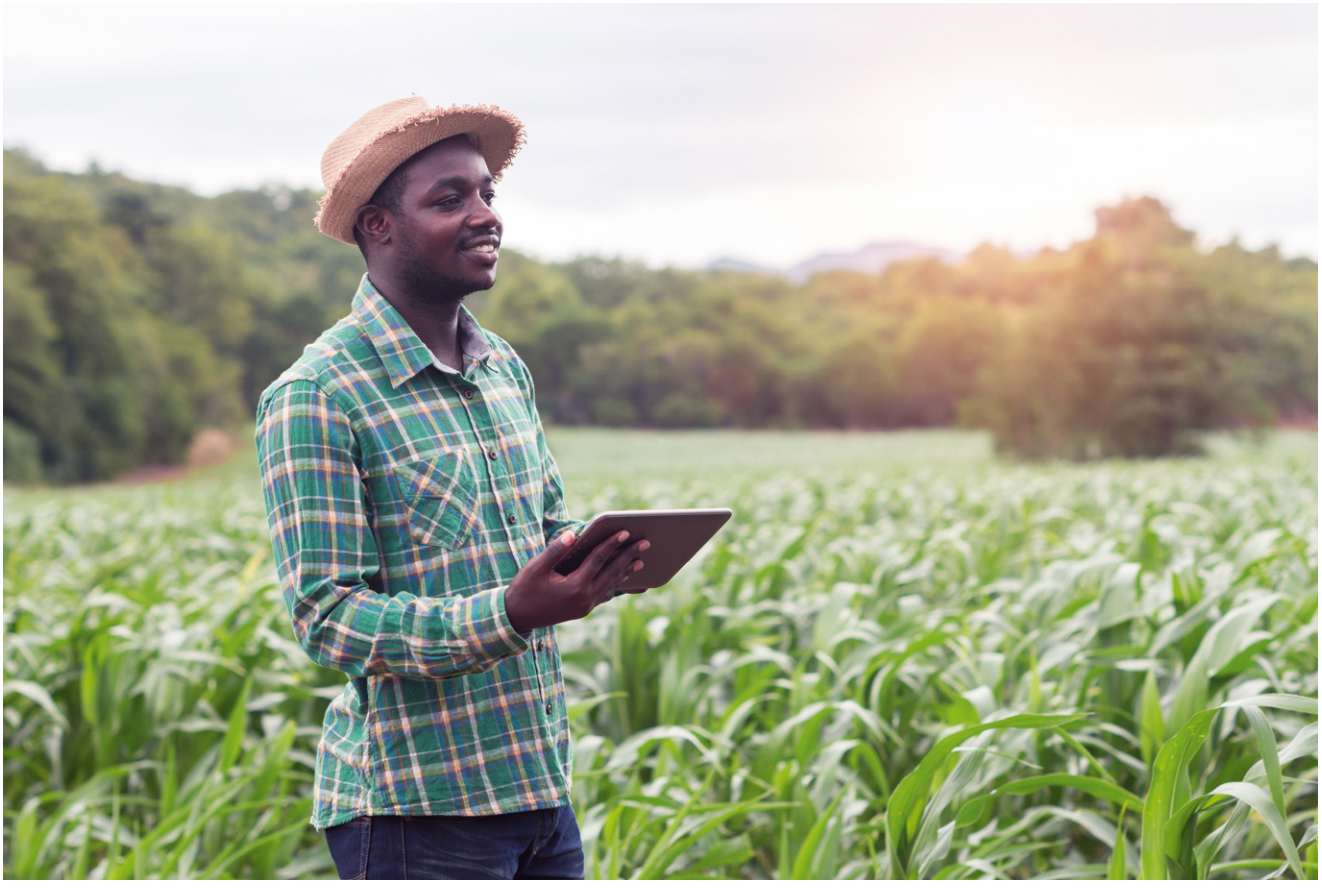
This lack of knowledge is reflected in the notion of Afrofuturism. As soon as a technologically advanced object is associated with the African context, we speak of Afrofuturism. However, these objects are not at all futuristic, they are contemporary objects. In any shopping centre where it is possible to buy a computer in Senegal, you can also easily find a virtual reality headset.

What will Africa look like in 2063?

In 2063, we will not speak of the African continent in the way we do it today because the world will finally have understood that what is happening in Africa has as much impact on the world as any other place on the planet. The evolution of Africa is already affecting the rest of the world.

"My photographs ask the following question: how do new generations build themselves through this access to information that technology offers us?"

Feeding the 9 billion



How digitalisation and transformative agriculture could help Africa feed itself and the planet

"Agriculture can help reduce poverty, raise incomes and improve food security for 80 per cent of the world's poor."

World Bank

by Harold Elletson

In the great African dream of a 'transformed continent' by 2063, agriculture plays a big role. It is at the heart of the 'goals and priorities' established by the African Union as part of the organisation's 'Agenda 2063' master plan for "transforming Africa into the global powerhouse of the future" and delivering inclusive and sustainable development. Several of the AU's key goals focus on agriculture, nutrition and sustainability.

It could not be otherwise. The World Bank estimates that "agriculture can help reduce poverty, raise incomes and improve food security for 80 per cent of the world's poor, who live in rural areas and work mainly in farming." A leading financier of agriculture, with US$ 6.8 billion in new IBRD/IDA commitments in 2018, the World Bank considers agriculture one of the most powerful tools to end extreme poverty and feed the estimated 9.7 billion people who will live on earth by 2050. The bank estimates that growth in the agriculture sector is likely to be up to four times more effective at raising the incomes of the world's poorest people. In 2014, agriculture accounted for one third of global gross domestic product.

In Africa, a significant portion of the workforce, perhaps even the majority, is still employed in agriculture. And more than 70 per cent of them are women. In terms of employment, agriculture is still by far the most important economic sector in Africa.

"In most African countries, the agricultural sector employs an average of 54 per cent of the working population," according to a 2017 report by the Brookings Institution, which analysed statistics produced by the ILO and others. "In Burundi, Burkina Faso, and Madagascar, more than 80 per cent of the labour force works in agriculture. Still, there are a few outliers — such as Angola, South Africa, and Mauritius — where the agricultural sector only employs 5.1, 4.6, and 7.8 per cent of the population, respectively. In these countries, the service sector employs more than 60 per cent of the working population."

DEMOGRAPHIC CHALLENGE

Both the challenge and the opportunity for African agriculture are clear. The challenge is enormous and, like the Hydra of Greek mythology, it seems to have many heads. There is the huge demographic challenge presented by Africa's burgeoning population and the need to ensure that it can be fed. This is no small task. Already, even without the demographic explosion predicted for the coming decades, one in every four undernourished people in the world lives in Africa, which, in spite of all the economic progress of the past decade, is the only continent where the absolute number of under-nourished people has increased over the last 30 years.

"Astonishingly for a continent so blessed with natural wealth, Africa is a huge importer of food."

There is the challenge of urbanisation and the fact that, as traditionally skilled workers leave the land to seek better paid employment in towns and cities, agriculture is still failing to

Photo © 123rf/arrowsmith2

Photo © 123rf / Rafal Cichawa

> "The continent has enough arable land to feed the planet."
>
> Akinwumi Adesina, the President of the African Development Bank

present an attractive option as a career choice for younger people. And, as youngsters head for the cities, many of those left producing food in rural areas are often unable to feed themselves. Paradoxically, as a recent report by NEPAD observed, "Food insecurity is a problem that affects the rural world more than cities because the people producing food often do not make enough to feed their families due to the lack of adequate access to means of production (land, manure, tools), and rural communities are poorer and struggle to buy the food they are missing."

There are trade barriers and imbalances too. Astonishingly for a continent so blessed with natural wealth, Africa is a huge importer of food. Imported products represent 1.7 times the value of exports. Africa imports food that competes with the produce of its own farming sector: dairy products, meat and cereals, among others. The reason, or at least part of it, is that agriculture is geared towards national markets.

Although regional trade has increased a little, the level of trade between African countries in food and agricultural products is still low - much lower than it need be. Regional trade in many important agricultural products is severely affected by artificial barriers to trade, tariffs, red tape, corruption and market fragmentation. Such barriers to trade have a direct effect on food security and the ability of Africa to feed itself.

FOOD INSECURITY

Then, of course, there is climate change. The stark reality is that Africa is facing the increasingly severe effects of climate change on agriculture at the same time as it tries to deal with the urgent need to increase productivity in the sector. The UN's Food and Agriculture Organisation says that sub-Saharan Africa needs to double, and perhaps even triple, current levels of productivity to meet demand and prevent food insecurity. As African agriculture tries to meet these targets, climate change is already seriously affecting the sector with floods, droughts, fires and a range of new pests.

> "It is certainly true that there is now a widespread understanding of the importance of agriculture in securing Africa's long-term future."

Yet, in spite of the enormity of the challenge, there are grounds for optimism too.

If nothing else, African agriculture represents a massive opportunity. The continent's productive capacity remains substantially unexploited. Much of Africa, indeed most of it, is extremely fertile. Africa has 60 per cent of the world's uncultivated arable land and only 8 per cent of it is under managed development.

"The continent has enough arable land to feed the planet, ie 9 billion people by 2050," observed Akinwumi Adesina, the President of the African Development Bank and a former Minister of Agriculture in Nigeria. "The only problem is that we cannot eat potential."

Yet Adesina clearly believes that Africa will make the most of the potential. He has repeatedly claimed that Africa's future

billionaires will make their money from agriculture and he is not the only one who believes that African agriculture is ripe for investment.

It is certainly true that there is now a widespread understanding of the importance of agriculture in securing Africa's long-term future. The UN, the African Union, the World Bank and the African Development Bank are among the long list of international organisations to have proclaimed their awareness of the need to transform African agriculture as one of the key elements in the transformation of the continent.

TRANSFORMATIVE TECHNOLOGY

There have been real and significant achievements. Agricultural productivity has been growing steadily throughout most of Africa since the 1980's. And there have been serious attempts to deal with some of the structural obstacles affecting Africa's ability to feed itself. Regional organisations, such as ECOWAS, SADC, ECCAS and EAC, have developed agricultural policies and frameworks for cooperation to boost food production and cross-border trade.

And the increasingly realistic prospect of an African Continental Free Trade Area (AfCFTA) holds out the possibility of a real boon for African food producers with the long-awaited removal of barriers to trade and the creation of a pan-African single market for goods and services.

Yet, what can really transform African agriculture, is technology. Already the use of mobile phones to transmit information by text about markets, prices and weather conditions, together with education about best practice, has begun to contribute to improved yields and greater efficiency. Specific developments, such as blockchain and digitalisation in general have huge potential.

Blockchain, the system on which crypto-currencies are based, essentially involves the creation of a shared ledger to record assets and transactions. It has the potential to bring about major improvements in areas such as food safety, traceability, logistics, reducing transaction costs and opening new markets.

There are problems with blockchain for agriculture though, not the least of which is that simply establishing an effective system is a massive undertaking, to which everyone involved would have to commit, and it is probably at least five years away from being established anywhere but the potential is definitely there. And it could undoubtedly have a huge impact on the ability of African producers to get their goods to market and feed consumers.

DIGITALISATION

Digitalisation, in general, is leading the process of transformative agriculture and the trend is set to continue. Digitalisation for agriculture (D4Ag) "can be a game changer in supporting and accelerating agricultural transformation across the continent," according to the Technical Centre for Agricultural and Rural Cooperation (CTA).

"An inclusive, digitally-enabled agricultural transformation could help achieve meaningful livelihood improvements for Africa's smallholder farmers and pastoralists," says CTA Director, Michael Hailu. "It could drive greater engagement in agriculture from women and youth and create employment opportunities along the value chain."

Progress so far has been slow to serve the small farmers who produce 80 per cent of Africa's agricultural output but the opportunity is clearly there and in 2019 both the EU-AU Task Force on Rural Africa (TFRA) and the Global Forum for Food and Agriculture (GFFA) highlighted the transformative potential of digitalisation. TFRA reported that the EU considers "digitalisation to be a game changer in transforming smallholder agriculture in Africa: improving productivity, profitability and resilience of the agri-food system and by opening opportunities for youth and women to profitably engage in agriculture and agribusiness. However, to unleash the power of digitalisation in agriculture, governments, development partners and the private sector need to ramp up investment and provide the enabling environment that would allow scaling up of digital innovations across the agricultural value chain."

CTA has been a longstanding champion of D4Ag and Michael Hailu has no doubt that investment in African agriculture can transform the potential of smallholder farmers to meet the continent's growing food needs.

"With the right policies, innovation and investment," he says, "the continent's agriculture could be transformed into a powerhouse not only to feed a growing population but to create decent employment for millions of young people."

Harold Elletson is a journalist and communications adviser. He has been a member of the advisory board of eLearning Africa since its earliest days. He is a member of Britain's National Farmers Union and owns a small farm in the North of England.

Beauty from waste

A young Ivorian is making great art from old mobile phones

by Harold Elletson

The Victorian poet Gerard Manley Hopkins thought beauty was everywhere, even in the simplest things. "Glory be to God for dappled things," he wrote. "For skies of couple-colour as a brinded cow; For rose-moles all in stipple upon trout that swim; Fresh-firecoal chestnut-falls; finches' wings; Landscape plotted and pieced – fold, fallow, and plough; And all trades, their gear and tackle and trim."

It was not a new or original thought. In fact, the idea of finding beauty in the commonplace has been around for thousands of years and is probably as old as the philosophy of aesthetics. The great Chinese thinker Confucius, who was born in 551 BC, certainly thought about it a great deal.

"Everything," he concluded, "has beauty but not everyone sees it."

One person who has seen it – and in a most extraordinary form – is the Ivorian artist Mounou Desire Koffi. He has found it in one of its most unlikely, improbable manifestations – the piles of electronic waste that have been dumped in parts of west Africa. A twenty-four year old artist, whose works have already begun to catch the eye of international collectors, he takes the communications industry's detritus – the disused circuit boards, wires and connectors – and turns them into works of art that make a powerful comment on Africa, technology and the effect of modernity on the planet. Many of his paintings are portraits and what is often striking about them is the way in which he somehow manages to instill meaning, expression and humanity into the convoluted mish-mash of circuitry.

His interest in waste as an art form was first sparked when he saw children in a street in Abidjan, the capital of Côte d'Ivoire, playing with disused mobile telephones, which they had found on a nearby rubbish dump. He remembered how he too would play with his childhood friends with abandoned telephones that were just lying around in the street.

> "From a very young age we easily found these phones, obviously broken, as they were lying on the ground in the streets everywhere."

"From a very young age we easily found these phones, obviously broken, as they were lying on the ground in the streets everywhere, we imitated adults and played a lot with those broken phones that people just threw on the street after using them. Indeed, if the phone has some signal issues, it is easier and cheaper to throw it away and buy a new one right after to be connected again, making street waste containing loads of these old phones."

He studied painting and drawing from an early age and discovered his love for art when he was still in primary school.

"My first realisation about taking arts seriously and considering it professionally was when I won a drawing contest at the end of primary school and was told by the organisers about the possibility of entering an art school in Abidjan, which I didn't know about.

Mounou Desire Koffi... takes the communications industry's detritus – the disused circuit boards, wires and connectors – and turns them into works of art...

"I went to high school at the INSAAC (Institut National Supérieur des Arts et de l'Action Culturelle), a school that trains artists and promotes all kind of arts in Côte d'Ivoire. It offers a course for youngsters... that combines all sorts of different art disciplines (music/visual and plastic arts). I chose to specialise in painting, as I have always drawn a lot. By entering this course, I was already sure what specialisation I wanted to follow there.

> "I would go into the slums to collect broken phones myself and integrate them into my paintings."

"The art contest was sort of a trigger for me. I worked hard to enter this high school, spent all my time drawing but also getting to discover the possibilities and history of visual arts during my free time. I took visual arts as a subject alongside other traditional subjects needed for my middle school graduation. During this time, I didn't ask myself any other question or consider any alternatives. I did everything I could to prepare my application in high school the best I could."

Although as a child, he drew inspiration from much of what he saw around him, objects, including mobile phones, often attracted his attention and became the focus of his work.

"I didn't have a specific topic of drawing, I was inspired by everything I saw around me in my daily life: animals, life scenes, markets. I also used objects as models to draw, like my sister's phone or her glasses and, in general, objects that we use a lot in our daily life."

Later, as he completed his studies in art at high school, he began to look for different forms and materials to use in his work.

"I was originally inspired by more or less everything but, as my interests in arts progressed, even though I was focused on painting and drawing, I wanted to add an original element to it that would give my work more meaning. As such, the cell phone was a really interesting object because it's an absolutely necessary thing in Africa, an object very close to us...

"Later on during my studies I told myself that I should integrate a meaningful object to my work and thought: 'why not use these phones again and give them a second life through art?' This idea came really naturally with my continuing interest in 'everyday life' related art pieces."

BROKEN PHONES

He began to collect discarded mobile phones to use in his pictures but soon he was producing so much art and it was proving so popular that he had to recruit a team of people to help him. Together they have helped to change attitudes towards waste and recycling.

"I would go into the slums to collect broken phones myself and integrate them into my paintings. As I needed more, I later on decided to recruit a team of people, 5 people who actually live in these areas and know about dumpsites, so that they would help me collect broken phones. By doing so, they can directly raise awareness about waste issues among their family and friends, as well as acting to reduce the amount.

"Before working with me, they were making a small wage by selling some electronic parts of these devices. When I offered them way more money than they were making until now just to collect these phones, they got really motivated and committed. They started to bring more and more phones, sometimes thous-

ands of phones every week. It was such a successful business for them that other people started to collect phones themselves to help my team out."

Electronic waste continues to be a huge problem in West Africa and, with the spread of technology, it is set to continue. Yet it is a mistake to lay the blame entirely at the door of unscrupulous western corporations. According to a recent report by the United Nations Environment Programme, 85 per cent of the e-waste dumped in West Africa is produced in the region.

70 TONNES OF E-WASTE

Mounou thinks that, until recently, local people had not begun to appreciate the problem but now attitudes are changing.

"Here there is not the same conception of recycling and waste sorting. Nowadays there are many initiatives taken to change this lack of interest in waste issues. People and officials now make efforts to reduce the amount of garbage the country is making."

He is right - a recent initiative by Ericsson and MTN to organise e-waste collection and raise awareness in Abidjan, which was supported by the Ivorian Government, resulted in the collection and disposal of more than 70 tonnes of e-waste. Now the Government, together with other stakeholders, is examining the feasibility of long-term processes to manage waste more sustainably.

In spite of his concerns about e-waste, Mounou is far from being anti-technology. He recognises the importance of new technological solutions and their significance in plans, such as the African Union's Agenda 2063, to transform the prospects of ordinary Africans.

"People and officials now make efforts to reduce the amount of garbage the country is making."

"Technology is getting more and more important," he says. "Everybody is connected nowadays. The ambitions of the African Union are realisable. Technology is part of the everyday life and work of people."

The pace of change over the course of the ten years since he was at school has been rapid and he can see the effect it is having on education.

"Back then, children and youngsters didn't have phones or technology in the educational system. Even for me it was still very new as a child. Now even in primary school, children have

Agbogbloshie is the world's largest e-waste dump, a former wetland in the suburb of Accra, Ghana.
Photo © Alberto Sabellico

Alberto Sabellico is a Multidisciplinary Designer. In 2014 he graduated at Quasar Design University of Rome, Habitat Design course, where he experimented with different approaches to design. Currently besides developing independent projects, he lives and works between Rome and Milan. Constant research, an experimental approach and strong artistic sensitivity are the focus of his work. Multimateria is a project started in 2016. Initially as a series of artworks and analog collage. Through an investigation into the recycling of E-waste, Multimateria offering an insight into how art/design can be an invaluable agent for change. Currently, he's making jewels using electronic waste. His mission is to help the poorest people and the countries most affected by accumulation of E-waste, especially Africa.
www.albertosabellico.com

Technology has certainly helped Mounou and not only in the form of the electronic waste that forms the material of much of his work.

Mounou is optimistic about the future and not just because he believes that Africa will solve the problem of e-waste but because technology contributes to the spread of both education and art.

"People take me as an example that it is possible as a youngster to be recognised for your work in the arts."

access to these technologies. From what I see in painting workshops for kids, being connected helps them get information from the Internet very quickly.

"Youngsters even have a better knowledge of technologies than older generations; they have a certain curiosity and a new sense of autonomy from looking for information online by themselves and not asking for assistance. In presentations, for instance, pupils are only given a theme or subject and are free to use whatever source of information they want. Whereas, in the past, they had one source - a textbook. This new and simplified access really affects positively the education of younger generations."

Technology has certainly helped Mounou and not only in the form of the electronic waste that forms the material of much of his work. Social media too have played an important role in building his profile and spreading awareness of his work. Now he is not only a major figure in Côte d'Ivoire's contemporary art scene, but he is building an international following too. And the Internet provides access to an appreciative, international market for his work.

"In Côte d'Ivoire I am an inspiration for several people," he says, "my classmates, younger students and pupils, who are ambitious to make a living from the arts. I contributed towards an increasing acknowledgment of the artistic professions in Côte d'Ivoire, which is the reason why younger generations get motivated. People use me sometimes as an example because I didn't wait before starting my career. I used a lot of social media, like Facebook and Instagram, to make myself a name. That's how it started.

"People started to understand that if you are creating something artistic and you intend to start a career, you also need to make it public by your own means and, if people like it, they will share it. This enthusiasm about my work motivated me to meet new people, visit exhibitions and work harder to prepare new projects. People take me as an example that it is possible as a youngster to be recognised for your work in the arts. I'm happy in the way that this allowed many new artists to emerge and get a visibility they would never have got otherwise."

Social media and the Internet are helping to increase awareness of other African artists too and the growing interest is not just from wealthy European collectors. Mounou is optimistic about the future and not just because he believes that Africa will solve the problem of e-waste but because technology contributes to the spread of both education and art.

"The influence of art is getting greater and greater; people are getting conscious that art is finding its place in African society. Before that, it was more difficult, collectors were systematically Europeans or coming from western countries in general. Nowadays, I know some young Ivorians and Africans who have started to collect art. People understand that art is a great part of Ivorian culture. Young people who start creating feel more confident and get motivated now that society is supporting artistic fields and giving art a real legitimacy. I'm certain that in 10 to 20 years there will be far more African artists and African art collectors."

We may be on the cusp of a new age of African art, boosted by technology, and, who knows, perhaps this remarkable young Ivorian will soon be as famous as Modigliani, Mondrian, Klee or even Picasso.

More than making money

Rob Vember looks at how entrepreneurship should be more inclusive

African solutions to African problems. This was the rallying cry of Ghanaian economist George Ayittey in 1994 in response to Somalia's societal breakdown and the general crisis in sub-Saharan Africa. Local relevance remains critical when addressing Africa's numerous wicked problems. The importance of education in addressing the continent's challenges is well documented and uncontested but is that local relevance sufficiently embedded in the curricula and pedagogies of those entrusted to facilitate learning?

Sub-Saharan Africa's population is expected to double by 2050, with more than half of the global population growth between now and then projected to occur on the continent. Within the next 10 years its working-age population is set to increase to over 600 million. The need for prioritising job makers and cultivating entrepreneurial mindsets has never been more important. The difficulty, within the African context, is separating the social from the economic. The World Economic Forum report on The Future of Jobs and Skills in Africa: Preparing the Region for the Fourth Industrial Revolution calls on Africa's educators to "design future-ready curricula that encourage critical thinking, creativity and emotional intelligence". This cannot be done in a vacuum independent of the contextual environments they inhabit.

It's been more than 70 years since Myles Mace created the first course in entrepreneurship at Harvard Business School. Nearly two decades ago, some argued the discipline was at the threshold of maturity in the United States, citing among other reasons the standardisation of teaching approaches in the industry. This time of relative curriculum uniformity in the US coincided with a burgeoning business management studies industry in the developing world, primed to adopt a cookie-cutter approach to their offering.

> "The need for prioritising job makers and cultivating entrepreneurial mindsets has never been more important."

HIGH FAILURE RATES

With a discipline so established, why do we continue to see such high failure rates? Of course, not all who start an enterprise receive formal business education but ICT would certainly have made these kinds of learning materials more widely accessible over time. Yet, one of the biggest inhibitors to micro, small, and medium enterprise (MSME) growth on the continent is our general lack of knowledge or understanding of the sector.

All micro enterprises, in theory, are pushed to do so for survival, not because they are attracted to particular opportunities, according to Bitange Ndemo, Professor of Entrepreneurship at the University of Nairobi's Business School. These enterprises fall victim to imitators, and so inevitably perish. 96 per cent of enterprises on the continent are either micro, small, or medium, with the micro share at almost 80 per cent. Very few move to become small, very few small become medium, and almost none become large. Ndemo cites the need for education that steers entrepreneurs in the direction of identified opportunity, and champions the use of ICT and big data in doing so. Acquiring this data reinforces the need for context specific research and understanding.

"In the African context, can we really afford to have entrepreneurship without prefixing the 'social'? "

Could the problem with generic entrepreneurship education be its focus on wealth creation without paying attention to adding real social value; this being the focus of social entrepreneurship. François Bonnici, Head of the Schwab Foundation for Social Entrepreneurship questions the notion of promoting entrepreneurship for entrepreneurship's sake without thinking about the inclusive nature of it. Bonnici wonders whether we've been going about it the wrong way and suggests "maybe we should be identifying the industry sectors we want to grow, and make investments in the sectors along an entire value chain. Then you might actually get a little bit of a synergy in the system and, if we really want to ramp up, that makes more sense. If it is sector specific, the knowledge and expertise is concentrated and you can call on mentors from that specific field, there's a lot more synergy in the value chain".

The most animated debate I encountered during my MBA journey, was about the legacy of colonialism and its remnants within the institution under discussion. Arguably the more enraging debate took place thereafter, outside of the lecture venue, with colleagues failing to understand why the initial debate was relevant or necessary in a business school setting to begin with. These colleagues were not alone in their discontentment. A report on Fighting Poverty through Management Education: Challenges, Opportunities, Solutions conducted in 2011 cited perceived barriers and obstacles to the study of

STACEY BREWER INTERVIEWED BY ROB VEMBER

SPARK Schools, and the story of South African Stacey Brewer's management studies journey may be the kind of conscientious entrepreneurial education we need.

With a BSc degree in Human Kinetics and Ergonomics, Brewer decided to follow the path of her friends by enrolling in a Masters degree in order to "go overseas and get a decent job," while pursuing her love for travel. The decision to do a Masters of Business Administration was not at the time related to any particular desire to pursue business interests. Less than a decade later, SPARK Schools operates 21 schools (20 primary schools and 1 high school), educating over 10,500 children, and aims to open a further 28 schools over a 5 year period starting in 2021.

Stacey Brewer, the young traveller who took an MBA and landed up with a successful education start-up describes her journey...

So why the education sector?

It was definitely just through the exposure of doing the MBA. It was the last industry in a million years I would ever have thought I'd get involved in. I was just absolutely horrified that we spend so much money on education in South Africa, yet we rank bottom of the world based on various competitiveness reports. You always sort of know we have a problem but I was fortunate enough to receive great schooling and university education. But I was absolutely horrified when they showed us what was going on in education in South Africa. I thought this is unacceptable. Being exposed through the MBA, plus professors really encouraging us and asking us, as future business leaders, what are we doing to sort out the problems in the country? And then I did my thesis on a sustainable financial model for low fee private schools, and that's where the launch of SPARK really came from.

What particular course or component of the course dealt with education that made such an impression on you?

It was my macroeconomic lecturer showing us all the numbers and stats. It was just pretty scary, and I didn't realise how bad education was in the country. If we're prioritising it as a nation, how can we be getting it so wrong? At the same time I saw the emergence of low fee private schools which is really a market driven solution where parents are voting with their feet to send their children to private schools over free government schools. I thought there's got to be something there. How can we start offering something that's affordable to the country in terms of government's price point but start competing internationally. I don't feel it's always the case that money is a problem, rather how we utilise money correctly that can drive the right outcomes. We benchmark our total cost to educate on government's total cost to educate.

Of course you're operating on completely different scales compared to government but why have you been able to get it so right compared to the results we're otherwise seeing in the public schooling system?
What makes us so different and how we're to deliver our education at our price point is because of our actual education model, that's where the innovation lies. We follow a blended learning, or personalised learning, model which is technology that has been integrated into the schooling system that drives cost efficiencies for us to operate at our price point but it also creates a very data rich environment for us to differentiate our instruction.

What specifically are you referring to when talking about technological integration?
We currently follow two types of learning models. Our lab rotation, which is Grade R to Grade 3 or K to 3; at a high level the children get introduced to a concept in the classroom, they then leave the classroom and go into a learning lab, which is a computer room where they interact with adaptive software to allow for extension review and reinforcement of what's happened in the classroom. Then they feed back into the classroom. So we gather data from the learning lab and from the classroom to inform instruction.
We then follow a flex model which is from grade 4 to 7, where each child is on their own rotation moving through different modalities of learning depending on their level of competence. So they can move from direct instruction to independent online learning to a peer collaboration as some examples. Overall, the scheduling drives the cost efficiencies for us to do what we do and as I mentioned, the data rich environment gives us a lot of information, so we can really differentiate and target intervention per each child's needs.

In terms of the kids that you're teaching, what are your objectives? The continent has specific needs. We have a dire skills shortage. Are you specifically trying to steer kids in a particular direction?
We're focusing on mastery, especially when it comes to maths and literacy but we also want to expose our kids to as much as possible. Even in grade 1, we give them coding opportunities. We're preparing them for whatever the world looks like next. We also have a huge focus on social and emotional learning, which is really around how you interact with each other, how you manage yourself. All that character development is essential. As long as we are creating well rounded socially aware, smart enough people that have the ability to make the right choices and continue to learn, we feel they will be able to adapt and make the changes they need to. Internally, we say to the kids, "don't even think about what profession you want to do but what problem you want to solve." That's how people should be thinking, so we have to make sure that it's completely integrated.

poverty as the lack of funding to include discussions about the subject in educational programmes, as well as the lack of time to develop teaching materials or lack of room within the curriculum. Questions around legitimacy of inclusion were also raised.

In the African context, can we really afford to have entrepreneurship without prefixing the 'social'? Japanese industrialist, engineer and founder of the Honda Motor Company, Soichiro Honda famously noted: "Action without philosophy is a lethal weapon; philosophy without action is worthless."

Rob Vember, a part of South Africa's media landscape for more than fifteen years, is a multi-award-winning broadcaster who focuses on intercultural communications. He holds a BA in Journalism, Media Studies, and Political Studies, and an MBA from the University of Cape Town's Graduate School of Business. Rob works at the Washington, D.C.-based Global Business School Network on improving management and entrepreneurial skills in the developing world.

Stacy Brewer has committed herself to improving the quality of children's education in South Africa. The process of earning an MBA got the ball rolling and resulted in her thesis on a sustainable financial model for a network of disruptive, low-fee private schools. Stacy is the founder and CEO of SPARK schools, whose 21 locations today serve more than 10,000 "scholars", as the pupils are called. Her vision is to one day make the country a global leader in pre-tertiary learning.

Unleashing the potential of eLearning for a sustainable digital future

by Zeinab El Maadawi

Egypt's Zeinab El Maadawi specialises in eLearning strategy. She looks at how a digital future can be made sustainable.

Digital transformation has been thoroughly investigated as an enabler for a sustainable and climate resilient future. Meanwhile, the rapid advancement of automation and Artificial Intelligence (AI) calls for a transformation of traditional education systems and work place training. For decades, the mandate of traditional education has been to serve theoretical knowledge acquisition and, occasionally, practical applications that would increase the potential employability of learners. However, such a mandate does not seem to work any more in our VUCA (Volatile, Uncertain, Complex, and Ambiguous) world.

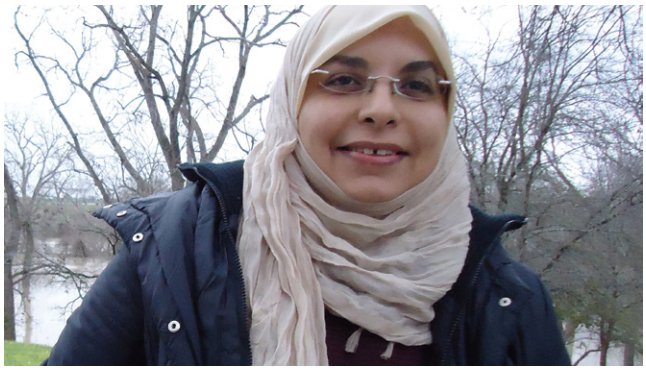
CRUCIAL SKILLS

One study shows that college students do not think they will be prepared for work after graduation. Furthermore, research shows that current business leaders emphasise their need for resilient workers who feel comfortable with navigating different roles and tasks, while dealing with smart technologies. In rapidly changing digitally-intensive work environments, a mindset of "agile learning" is becoming one of the crucial skills required by next generation learners. This feature was defined by the leading futurist Alvin Toffler, who said "the illiterate of the 21st century will not be those who cannot read or write, but those who cannot learn, unlearn and relearn".

In its 2019 flagship report, "Towards our Common Digital Future", the German Advisory Council on Global Change (WBGU) explains that technical innovation does not automatically translate into sustainability transformations and there is a need to place digitalisation at the service of sustainable development. On the other hand, sustainability education that is well integrated within traditional curricula would pave the way towards a sustainable digital future. In order to equip learners with the appropriate set of skills needed to thrive in the digital age while maintaining sustainable solutions, significant transformation of the education system is required. This would involve constellations of diverse groups of stakeholders, including policy makers, technology leaders, educational practitioners and researchers. It should be driven by innovative technology-enabled learning that aims to cultivate a new format of "learning workers".

> "Sustainability education that is well integrated within traditional curricula would pave the way towards a sustainable digital future."

In an era demarcated by interaction between artificial and human intelligence, it seems prudent to emphasise the value of digital education to realise Sustainable Development Goal 4 (SDG4) that targets inclusive and equitable quality education



and promotes lifelong learning opportunities for all, thus reinforcing the value of "leave no one behind". If made accessible to a wide audience, digital learning can empower unprivileged populations at risk of getting left behind during the fourth industrial revolution. One example is #eSkills4Girls, a G20 initiative that aims to tackle the existing gender digital divide particularly in low income and developing countries and to increase the access of women and girls in the digital world, while boosting relevant education and employment opportunities. In fact, innovation seems to have no geographical limitations and a quick look at the World Bank map for tech hubs and incubators in Africa reveals the linkages between digital innovation, entrepreneurship, job creation, and sustainable employments. Digital entrepreneurship combines start-up buildings skills such as risk-taking, flexibility and complex problem solving with a skillset for new and emerging digital technologies, such as data analytics, cloud, social media, and digital marketing. Sometimes, the latter skills are referred to as SMAC - social, mobile, analytics and cloud.

> "Digital skills alone are not sufficient for competitiveness in a complex globally-oriented world."

DIGITAL ENTREPRENEURSHIP

However, digital skills alone are not sufficient for competitiveness in a complex globally-oriented world. Intellectual skills, sometimes described as the "brainpower", remain one of the most distinguishing features of best performing learners or workers. Robots and AI machines might be efficient to optimise old ideas but organisations most need creative employees capable of solving problems with relevance and novelty. In its 2018 future of work report, the World Economic Forum declared a list of prominent intellectual skills continuing to grow by 2022, which include analytical thinking, innovation, originality,

> "Robots and AI machines might be efficient to optimise old ideas but organisations most need creative employees capable of solving problems with relevance and novelty."

Prof. Dr. Zeinab El Maadawi is an educator, researcher and eLearning expert at Cairo University, Egypt

initiative, critical thinking, negotiation, flexibility, attention to detail, self-regulation, and complex problem-solving.

"By identifying fundamental skills needs, and mapping the upcoming technological and ecological change, only then would elearning be an enabler for positive change."

A third category of skills in need is related to environmental stewardship and nature based solutions. Building on the outcomes of UNFCCC Resilience Frontiers 2019, a "desirable climate-resilient future is portrayed as a world in which the basic needs of a growing world population are met in an environmentally sustainable way with a growing global change in consciousness towards a nature-first culture". 'Fridays for Future' is an example of a global youth movement that urges not only political decision makers but all stakeholders including education policy makers to take action and collaborate for a sustainable future. This necessitates rethinking education to promote learning environmental stewardship which embodies responsible planning and management of resources through experiential and ecological learning. Education and training enabled by new and emerging technologies could play a crucial role in re-connecting human beings to nature and promoting the regeneration of both resilient communities and natural ecosystems. For example, UNDP is leading a project that aims at using spatial computing, such as immersive AR and VR, for experiential learning about climate change and visualisation of responsible climate actions. By validating spatial orientation and linking it to nature-inspired solutions, learners can experience a wide set of skills such as curiosity, observation, navigation, reflection and imagination.

Therefore, educational leaders should harness the added value of digital technologies for creating new learning ecosystems that improve the relevance, accessibility, and quality of education and training. This would imply considering new formats of credentials and micro-degrees for lifelong learning as a means of unbundling education. Building up independent self-regulated learning is a key factor in ensuring that "working learners" are adaptable with increasingly capable machines. By identifying fundamental skills needs, and mapping the upcoming technological and ecological change, only then would elearning be an enabler for positive change.

eLA Survey

Feeling good but more action needed

The eLearning Africa Report shows both optimism and concern

by Harold Elletson

The overall mood among African educators and technology experts is optimistic but there is concern too about the lack of progress in key areas. Confidence that Africa's transformation is just around the corner is accompanied by anxiety that much remains to be done, if real progress is to be made towards meeting the UN SDGs and the African Union's 2063 targets.

More than two thirds (72 per cent) of respondents to the eLearning Africa Report Survey say they consider the African Union's vision of Africa as a 'transformed continent' to be "realistic." In contrast, 65 per cent think that African countries are still not making sufficient progress towards achieving the key UN SDG of ensuring universal access to quality education.

In September this year, the eLearning Africa Report questioned more than 900 education and technology professionals, administrators and investors working in countries, large and small, across Africa. Their responses provide a fascinating snapshot of opinion about the progress African governments and businesses are making on the road to 2030 and 2063.

"Africa has a great human capital potential," said one respondent. "If the African countries implement modern eLearning solutions to bring quality education and training to their human capital, they can catch up with the rest of the world and be in leading positions in various areas."

"If our youth are empowered, believe in their own self-worth and think creatively, Africa will be an inspiration to other continents with new inventions and original African solutions benefitting all," said another.

The mood of optimism among respondents is palpable but so is the sense of anxiety that the dream of a 'transformed continent' may fade away because not enough is being done to make change a reality in key areas.

> "The mood of optimism among respondents is palpable but so is the sense of anxiety."

SDG 4 is perhaps the most important of the UN sustainable development goals and the disappointment about the lack of progress towards realising it is striking. It seems too that the further up the educational ladder you look, the greater the belief that insufficient progress is being made. 56 per cent of respondents do not believe that African countries are doing enough to ensure that, by 2030, all girls and boys will complete free primary and secondary education. However, the percentage of those believing that not enough has been done to improve access to higher education and vocational training or further education is as high as 65 per cent.

72%

say they consider the African Union's vision of Africa as a 'transformed continent' to be "realistic."

65%

think that African countries are still not making sufficient progress towards achieving the key UN SDG of ensuring universal access to quality education.

FRUSTRATION AND CONFIDENCE

In spite of these concerns and the accompanying frustrations about their causes, there is an extraordinarily high level of optimism in two key areas: confidence about the future prospects of African youth and an obvious belief in the power of technology (often even in some of its most controversial forms) to provide important new educational solutions.

As many as 85 per cent of respondents are optimistic about the prospects for Africa's young people. There is optimism too about the benefits of technology in education and an apparent belief that its advantages outweigh any possible disadvantages. 86.5 per cent of respondents think that teachers will have to make much greater use of technology over the next 50 years and a substantial majority believe that even some of the most controversial developments in the pipeline, such as brain-to-brain communication, virtual reality 2.0 and full sensory virtual learning will be widely used in education in Africa within 20 years. 79 per cent see the use of artificial intelligence in education as an opportunity, rather than a threat. Respondents commented that AI could "help learning to be scaled and easily accessible," "there are many AI start-ups in Africa that should be able to maximise their potential through AI" and "agriculture is a fertile area for AI innovation." Equally, there is a belief that sensitivities about data are perhaps overrated and choices about the use of technology in education are fundamentally educational rather political ones.

Unsurprisingly, there is a widespread belief in the importance of technology in solving some of the most pressing problems relating to access to education. 94 per cent of respondents think technology has a significant role to play in improving access to education and training for women and almost exactly the same number (93.5 per cent) think it is important for improving access for people in rural areas to education and training.

Frustration comes largely from a feeling that both political leaders and, in some cases, employers are failing to make the most of the new opportunities. 15 per cent of respondents think that a "lack of political will" is the most significant factor restricting access to education and training in Africa. And 37 per cent consider technical issues, such as a lack of communications infrastructure and connectivity, which are largely the result of a failure of political decision-making, are the most significant reason.

Whilst nearly everyone (98.5 per cent) thinks that workplace learning and lifelong learning are likely to be important in equipping Africans with the skills they will need in the future, most respondents (55.5 per cent) think that employers are unaware of the opportunities digital education offers for workplace learning and training.

> **"Their optimism is encouraging. But their obvious anxiety should be a serious cause of concern for political leaders."**

The survey does not set out to be a reflection of opinion in the wider population, although it may indeed reflect popular opinion on some issues. It is, nonetheless, valuable and important. It reflects the views of a group of people across Africa, who are all committed to, and involved in, bringing about transformative change in the key areas of education and technology in one way or another. Their optimism is encouraging. But their obvious anxiety should be a serious cause of concern for political leaders. If they want to make progress towards the UN and AU targets of 2030 and 2063 respectively, they should listen to what this unique network of people at the forefront of technology assisted learning in Africa saying.

eLA Survey background

Which African country/ies do you work in?

NORTH AFRICA

Algeria: 14
Egypt: 36
Libya: 9
Mauritania: 15
Morocco: 29
Tunisia: 30
Western Sahara: 6

Number of people working in North Africa

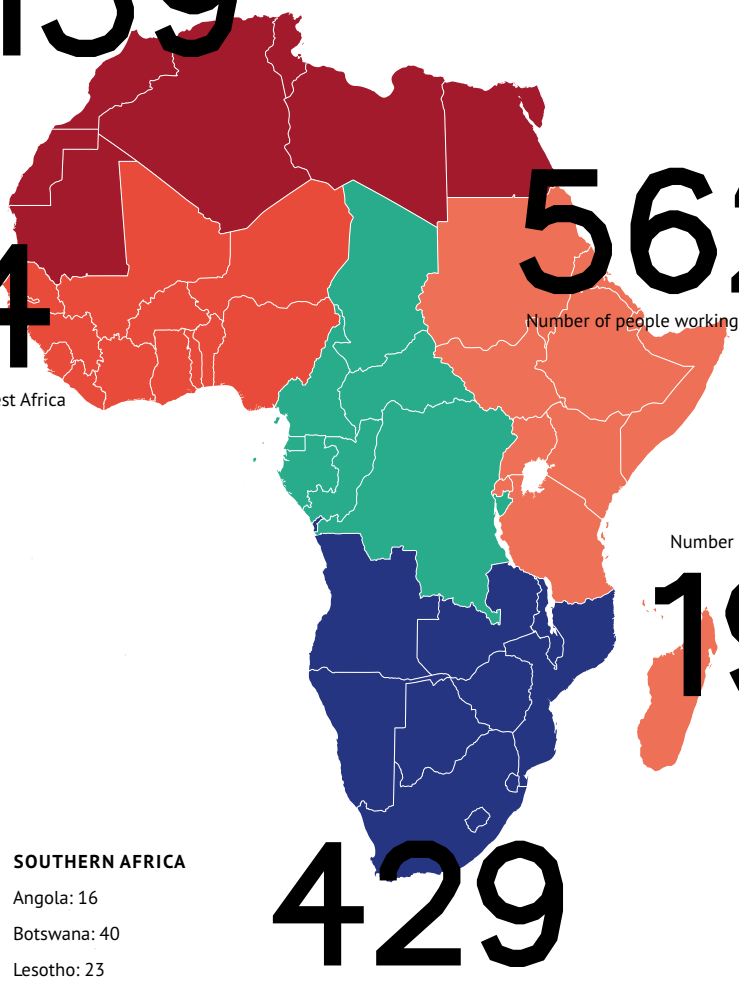
139

554

Number of people working in West Africa

WEST AFRICA

Benin: 35
Burkina Faso: 28
Cabo Verde: 9
Côte d'Ivoire: 52
Gambia: 24
Ghana: 79
Guinea-Bissau: 11
Guinea: 18
Liberia: 18
Mali: 36
Niger: 17
Nigeria: 135
Senegal: 52
Sierra Leone: 22
Togo: 18



562

Number of people working in East Africa

EAST AFRICA

Comoros: 12
Djibouti: 12
Eritrea: 9
Ethiopia: 63
Kenya: 115
Madagascar: 15
Mauritius: 24
Rwanda: 73
Seychelles: 10
Somalia: 18
South Sudan: 20
Sudan: 24
Tanzania: 72
Uganda: 100

Number of people working in Central Africa

196

CENTRAL AFRICA

Burundi: 23
Cameroon: 49
Central African Republic: 12
Chad: 15
Congo: 20
Congo (DRC): 47
Equatorial Guinea: 8
Gabon: 17
São Tomé and Príncipe: 5

SOUTHERN AFRICA

Angola: 16
Botswana: 40
Lesotho: 23
Malawi: 33
Mozambique: 37
Namibia: 50
South Africa: 124
Zambia: 54
Zimbabwe: 42
Kingdom of Eswatini: 10

429

Number of people working in Southern Africa

We asked over **900 professionals and experts** working in various countries (sometimes more than one) around Africa for their views about key issues affecting education, training, development and technology.

What is your gender?

♀ 32%

♂ 68%

How old are you?

36-55 years	<35 years	>55 years	Other
50%	14%	27%	9%

What is your job description?

41%

Educators, Researchers, Trainers

12%

Civil Servant, Administrator

10%

ICT Specialist, Advisor, Consultant

9%

Project manager

5%

Policy Adviser

7%

Industry & Business Managers, Consultants

Other

16%

HR/Personnel, Marketing Director, Communications Director, Corporate Planner, Sales Director

eLA Survey answers

Access to education and training

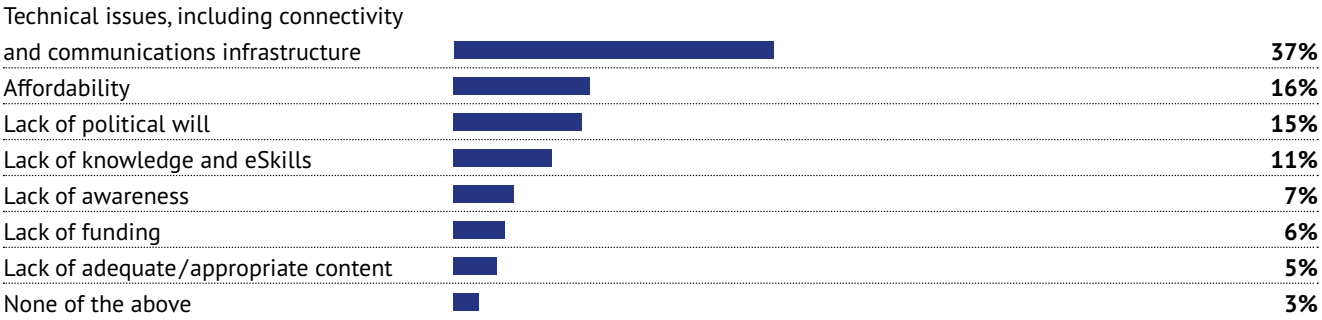
UN SDG 4 – The United Nations Development Programme set a number of 'sustainable development goals' to be achieved by 2030. SDG 4 aims to bring about universal access to quality education. Do you consider that African countries are making sufficient progress towards ensuring that by 2030 all girls and boys complete free primary and secondary education?

UN SDG 4 – Do you consider that African countries are making sufficient progress towards ensuring the provision of equal access to affordable vocational training?

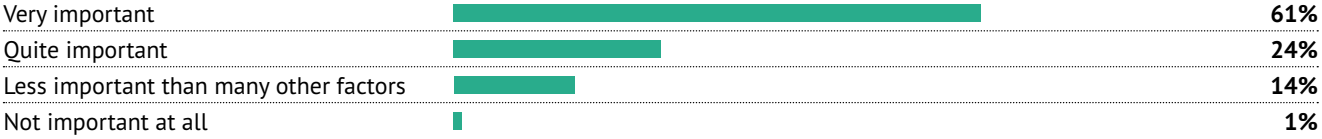
UN SDG 4 – Do you consider that African countries are making sufficient progress towards achieving universal access to a quality higher education?

We asked respondents for their views about progress towards UN SDG 4 and other key issues relating relating to access to education and training.

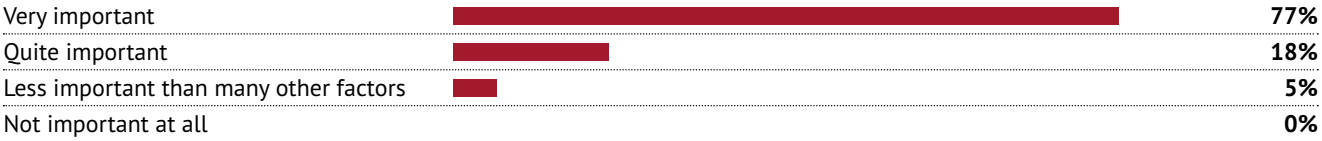
ACCESS – Which of the following factors do you consider is currently most significant in restricting digital access to education and training in Africa?



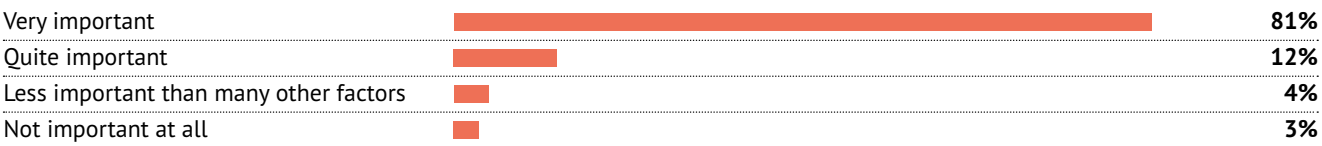
LOCAL CONTENT AND LANGUAGES – How important do you consider access to local content and content produced in local languages for training and workplace learning?



RURAL DEVELOPMENT – How significant do you consider digital technology to be in improving access to education and training for people in rural areas?

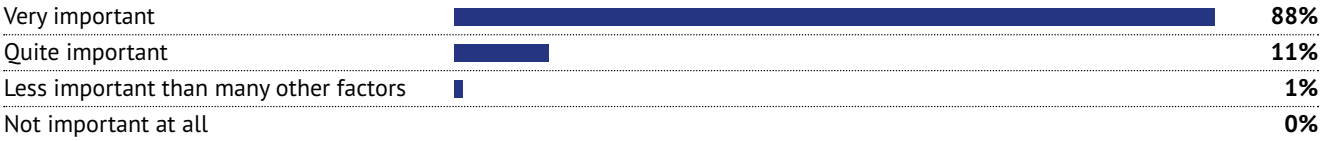


EQUAL ACCESS – How significant do you consider digital technology to be in improving access to education and training for women?

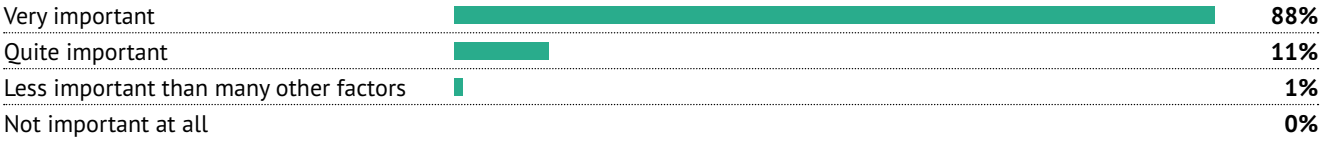


Lifelong, informal and workplace learning

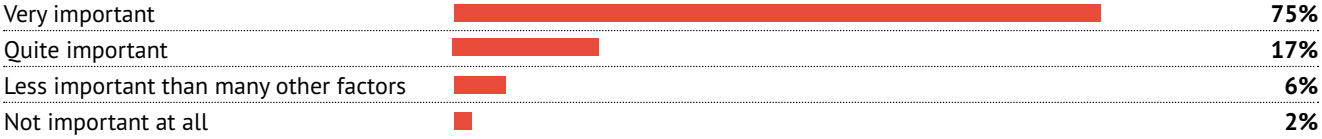
LIFELONG LEARNING – How important do you think that lifelong learning and workplace learning are likely to be in the future in equipping Africans with the skills they need?



WORKPLACE LEARNING – In your view, how important is digital technology in enabling employers and institutions to facilitate lifelong learning and workplace learning?



INFORMAL LEARNING – In your view, how important is informal learning likely to be in the future in equipping Africans with the skills they need?

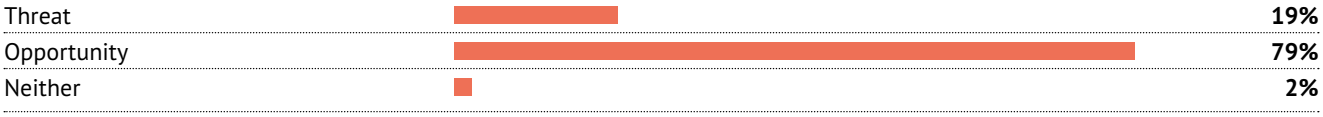


EMPLOYERS' AWARENESS – Do you think that employers in Africa are aware of the opportunities for improved workplace learning and training presented by digital learning?

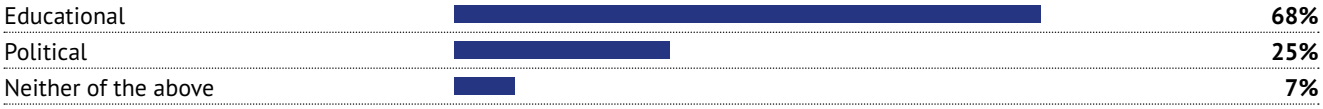
AU AGENDA 2063 – Do you consider that the African Union's vision of Africa as a 'transformed continent' by 2063 is realistic or unrealistic?

Technology and the future

AI – In general, do you see recent developments in the field of artificial intelligence as a threat or an opportunity for Africa?



TECHNOLOGY AND ETHICS – Some commentators argue that technology is not ethically or politically neutral, particularly in areas such as the use of data. Do you consider the use of technology in education to be primarily an educational choice or a political one?



TEACHERS – How do you think technology will affect the role of teachers in Africa over the next 50 years? Which of these statements best reflects your opinion?

New technology will largely replace teachers.

10%

Teachers will have to make much greater use of new technologies.

87%

Technology will have little or no impact on the leading role of teachers.

3%

THE FUTURE AND TECHNOLOGY – Do you think that within the next 20 years major developments in technology, such as, for example, brain-to-brain communication, virtual reality 2.0 and full sensory virtual learning, will be widely used in education and training in Africa?

YOUTH – Overall, are you optimistic or pessimistic about the prospects for Africa's young people?


PROSHOT
2017

Education, leadership and prayer

Harold Elletson meets Nigeria's Bishop Abiodun Olusegun Ogunyemi

In a corner of northern Nigeria, an Anglican bishop is the leader of a Christian community in a predominantly Muslim Hausa and Fulani region. He is convinced that education is the key to better relations and social change.

Four years ago, shortly after the election of Muhammudu Buhari as President of Nigeria, a bomb exploded outside the government offices in the northern city of Zaria. It was detonated by a female suicide bomber who murdered 25 people in the attack. Her victims included a 2 year old child and several primary school teachers, who were queuing outside the building in the city's Sabon Gari district, looking for work under the new administration. The explosion exposed the ethnic and religious tensions simmering beneath the surface in northern Nigeria, where the terror group Boko Haram has sought to stir up hostility between Muslims and both Christians and adherents of other religions.

Bishop Abiodun Olusegun Ogunyemi is the Bishop of the Anglican diocese of Zaria, which lies at the heart of the rural province of Kaduna. Zaria is one of the ancient kingdoms and emirates of northern Nigeria. Formerly known as Zazzau or Zegzeg, it traces its history as a kingdom back to the eleventh century when King Gunguma founded it as one of the seven Hausa Bakwai ('true' Hausa states). It is the southernmost of the Hausa states and was once a destination for Saharan caravans and a centre of the Hausa slave trade. Islam was introduced to the kingdom in 1456 and the traveller Leo Africanus recorded the aftermath of its conquest by Muhammad I Askia of the Songhai Empire in 1512.

Today Zaria, in common with much of Northern Nigeria, has a predominantly Muslim population. It is also a rural, savannah area, one of Nigeria's leading producers of cotton for export but also of many other crops, including tobacco, soybeans and sugar cane. Cattle, poultry and sheep are among the livestock raised for meat.

"A bomb exploded outside the government offices in the northern city of Zaria. It was detonated by a female suicide bomber."

RURAL POPULATION

So, perhaps the two most significant challenges facing the region are strengthening community cohesion and meeting the needs of a rural population. Bishop Abiodun is convinced that education has a vitally important role to play in both.

"Education can… help in scientific and technological development," he says. "It can… promote a healthy and fruitful country. It can also promote political and social development.

The processes of development will ultimately bring people together."

Education, he believes, is the key to both development and peace in northern Nigeria.

"Education the world over has improved the quality of living of citizens in a country by exposing the people to processes of growth and development. Education should teach and provide the means of transportation and information technology. Education should improve the health status of the people and provide the engine for growth and development. The rural area will therefore be opened… Education is expected to deliver the people from ignorance and promote peaceful co-existence." However, it is not as simple as that. There are many problems blocking the path of those who seek to use education to transform the region.

"Anglican schools in Nigeria are not sufficiently technology driven. In fact, many schools do not have anything to do with computers. I was in Kenya some time ago and I was ashamed that Nigeria is far behind Kenya in the pursuit of technology in schools."

"Unfortunately in Nigeria and Africa, the blood of religion and tribe is thicker than education. People's allegiance is first and foremost to their tribe and religion and not to the benefit of education. Among all continents, Africa has the largest tribal groups. This has affected very negatively the process of integration and cohesion among people…"

On the whole, Anglicans in the region enjoy good relations with their Muslim neighbours but attempts in the past by the church to promote greater integration have failed.

"The Diocese of Zaria relates very well with our Muslim neighbors and we attend the same schools and the same markets. Currently we are not involved in any major inter faith dialogue programme because all attempts in the past did not work well… the Muslims in Nigeria have been largely poisoned by their politicians to be suspicious of… programmes organised by the church. It will interest you to note that most of the religious crises in Nigeria are caused by educated people. The people in the forefront of religious crises may be poor uneducated people but their sponsors are mainly educated politicians."

He believes that the best way to solve the problem is to introduce a programme of "proper civic education apart from Science and the Arts" throughout the country.

"Education has been badly affected by religious crisis in Africa and particularly in Nigeria. Like I said…, the majority of those involved in religious intolerance are educated people. However, I think African government(s) must design a new curriculum on Civic Education and must be made compulsory in all educational institutions."

Terrorist groups, such as Boko Haram, "will continue to be (a problem) unless governments in Africa design a system of government that promotes cohesion and integration."

Anglican schools could play a useful role in developing a new approach and forging stronger links between communities but they are often hamstrung by a lack of funds.

POVERTY AND INTOLERANCE

"The major handicap is poverty and religious intolerance which has destroyed many schools and makes education very unattractive in some societies. The Anglican schools have the duty to promote (civic education). Their challenges are mainly the funds to build schools and the religious intolerance which has destroyed many schools. In my diocese we have a school project whose architectural drawings are ready but there is paucity of funds to build."

The lack of funding also affects schools' access to technology, itself a key factor in spreading the benefit of education and promoting integration.

"Anglican schools in Nigeria are not sufficiently technology driven. In fact, many schools do not have anything to do with computers. I was in Kenya some time ago and I was ashamed that Nigeria is far behind Kenya in the pursuit of technology in schools." The two major problems facing schools, he says, are "accessibility and affordability."

Education is close to the Bishop's heart not only because he believes it is the key to solving many of Africa's most difficult problems, but also perhaps for more personal reasons.

"I was born in 1962 to an educated family. My father was then a teacher in a primary school but later became the head of

"It will interest you to note that most of the religious crises in Nigeria are caused by educated people."

a secondary school... My mother...remained a primary school teacher till she died."

He was brought up in a rural area and remains close to his roots in the countryside.

"I am the first born and had three sisters and a brother. My parents worked in several villages before retiring from active service; so I spent most of my formative years in a rural area. That actually prepared me for my present involvement in rural evangelism and mission."

"I was ordained in June 1989 in Kaduna Diocese and was immediately posted to teach in a seminary. I accepted to be ordained in the Anglican communion for some reasons, namely, I was born, baptized and confirmed as Anglican. Though later I left for some other denominations where I gave my life to Christ and this has given me a lot of exposure to what happens in other denominations. I accepted ordination also because God brought me back miraculously to the Anglican Communion and I felt very called to work within this church to bring revival and growth to the system."

Bishop Abiodun believes that teaching is one of the main functions of his role, together with a duty to campaign for social justice.

THE DUTY OF A PRIEST

"It is the duty of a priest to preach, teach and admonish the people. It is his duty to care and protect the people. It is also his duty to visit and provide for the people depending on his ability to do so. It is also his duty to be a prophet to his society, i.e. to speak against injustice and confront government to do what is right. He does this by speaking on behalf of God to the people. He is actually the conscience of the nation."

As well as being a rural area, Zaria is also home to one of Nigeria's largest universities. "Yes, my diocese is largely rural but it is also academic because more than 40% of the diocese are lecturers and students from the Ahmadu Bello University," he says.

In spite of the presence of the university and in common with many rural parts of Africa, where the majority of the workforce in agriculture are women, access to education for women and minorities remains a big problem.

"Very little has been done to bring education and technology to women and minority communities in Africa."

Expanding education and making it available through technology to everyone is a task that is both a challenge and an opportunity. There are many others facing Nigeria and the Bishop does not hesitate to list them. The main challenges are "inter-tribal conflict and violence, which is the major problem on the African continent; social and political dislocation; poverty and a lack of educational development; (and) the apparent impossibilities of running a western style democracy."

The challenges are so great that sometimes he doubts that western democracy can work "because Africa is largely rural, poor, uneducated and ignorance and poverty are the order of the day."

However, even in his gloomiest moments, he sees huge opportunities, among which he includes "reaching out to people of other faiths," "nation building along tribal and ethnic lines," "social and political cohesion in the Nigerian nation" and "promotion of cross-cultural ideas and education."

His faith makes him an optimist. "Africa," he says, "needs prayer and better leadership."

Optimism with a dash of realism

"I'm a big believer in our potential and our capacity. But I'm acutely aware of the need for us to translate this potential into action."

Africa has largely been a bystander during previous industrial revolutions, with some arguing she has missed out on the most recent two altogether. Many learned observers of the continent now point not only to the need for the continent to embrace the fourth industrial revolution, but also to the necessity to pursue and even lead it. What though, might the fifth industrial revolution look like?

Respondents to this publication's survey on what Africa might look like in 2063 were divided. Their responses could be categorised as The Economist 2000 versus The Economist 2011 – Africa is either "the hopeless continent", or it is "rising." One comment did stand out: "Not useful to speculate", a monostich perhaps worthy of its own periodical cover. For those who dare speculate, responses centred on Africa's human capital with honourable mentions for infrastructure development, technological advances, and the impact of climate change.

These themes too featured prominently in my discussion with self-professed Afro-optimist, Dr. Njeri Mwagiru, Senior Futurist at the Institute for Futures Research (IFR) at Stellenbosch University in South Africa.

Before looking ahead, it is perhaps prudent to look at the past and present. What is your bird's eye view of the continent as it stands today?

In general I take an optimistic view of the continent with a good dash of realism. I'm a big believer in our potential and our capacity. But I'm acutely aware of the need for us to translate

Rob Vember meets leading futurist Dr Njeri Mwagiru and hears how a fifth industrial revolution could begin in Africa

this potential into action and into realised, improved lifestyles and improved economies on the continent. We live in a complex, accelerating and ambiguous environment and while there have definitely been improvements, if we look at post-colonial Africa as a timeframe, for instance, there is still a lot of work to be done but I do believe we can achieve the vision we have for ourselves.

Do you think, as a vision, Agenda 2063 is the right one? Does it encapsulate the right elements of the direction the continent should be taking?

As the only vision we have for the continent, I think it is a fantastic architecture for us to build on but I do feel it is a vision and a document that needs to be located in policies and actions on the ground. It is a vision that was really a combination of community inputs (and) leadership will. So, I think as a document that is a product of a certain participatory process, it is highly commendable but we do need to think practically about how we're going to implement and achieve the aspirations that Agenda 2063 highlights.

What are our main policy challenges?

A key issue that we need to engage with on the continent, and we are seeing some movement in this direction, is the 4th Industrial Revolution and the increasing move towards digitisation in the international context. I think this holds both opportunities and risks for Africa: in terms of the digital divide, where still about half our population is not connected to the Internet at all. Not through mobile phone technology, not through broadband, not through Internet connection. And the majority of this population are women, and women in the rural areas. Women in the rural areas are also some of our largest contributors to the economy in terms of the work that they do, also in terms of their contributions to raising African families, African communities, and the next generations of Africans – African experts, African leaders.

There's a lot of work to be done if we're going to leverage our lack of legacy infrastructure. We're highly underdeveloped from certain perspectives, at least in terms of the previous industrial revolutions, we're highly underdeveloped in terms of Africa. It gives us potential – the popular phrase is – to leapfrog or, rather, to digitise and engage with the 4th industrial revolution possibly at a faster rate than other regions. However, we would need to see increased investments; increased engagements in terms of support systems in this area. While I celebrate that we have around 440 active tech hubs on the continent, globally tech expenditure is still at its lowest in Africa. So we're not engaging with the pace and rate of change that would propel us to the forefront of our development potential as of yet.

> "Women in the rural areas are also some of our largest contributors to the economy in terms of the work that they do."

What role do the regional economic zones play in achieving this agenda?

As the African Continental Free Trade Agreement (AfCFTA) comes into play we'll begin to see clearer indications of the comparative strengths of each region and I feel that each African region has a unique contribution to make to the wellbeing of the whole. We're seeing a lot of tech innovation within the Eastern African community. We're seeing strong moves towards economic integration in that area, and I think that will become a very strong hub in terms of innovation, creativity, and tech based innovations. In West Africa, we're also seeing strong moves of migration within West Africa, so I feel a lot of the workforce might be based in that region and their mobility towards other parts of Africa will mean that there's a distribution of the skills and talent throughout the continent. The Central and North regions of Africa are very good at sustaining innovations in hostile or arid environments. There are knowl-

Dr. Njeri Mwagiru is Senior Futurist at the Institute for Futures Research at Stellenbosch University. She co-founded a research and business development organisation that has facilitated institutional partnerships between UN bodies and South African universities and is an editor on African Business Futures. She holds a Masters in International Relations from the University of the Witwatersrand and earned a PhD in Business Administration from the University of Cape Town Graduate School of Business

edge systems and values here that we could greatly integrate as we move more into climate change realities. Definitely within the Central and Southern African region we see strong institutional and policy environments that can also inform the way the rest of the continent operates specifically around SADC. The constitutions of the countries within Southern Africa, democracies that have been established within Southern Africa are among the strongest in the region, and there are a lot of political lessons that could be learned from this region by other African countries.

You have mentioned our lack-of-infrastructure legacy. With an enormous infrastructure deficit, where should we focus our attention looking ahead?

This is a contentious point. I think it is contentious because, on the one hand, Africa is obviously looking to develop its economies at the fastest rate possible, and we have recently discovered quite substantial pots of natural gas and oil in different regions of the continent and there's lots of excitement at the potential of developing these industries in a way that would benefit our economic growth. On the other hand, the world is experiencing a climate crisis. There's a strong need for Africans to move into the green economy, to move towards green societies, a strong need for Africa and the rest of the world. But Africa is slated to be a region that will suffer specifically difficult impacts in terms of climate change because of our geographical positioning but also because of our readiness to respond to climate hazards and climate disasters.

We are seeing a lot of development still towards coal industries. Developments based on fossil fuel industries as well, possibly more than may be advisable, given the current climate crises but, as I mentioned, this could be understood in the context of the also desperate need for Africa to uplift its populations, leveraging on the current economic structures and opportunities. However I would really like (to say), as a futurist, it is important for us to consider future generations, and to consider the sustainability of the industries we're putting into place now. I do feel that more focus on green energy would reach a wider spread of Africa's population, leverage on our environmental benefits in terms of wind, solar, water, as well as geothermal power, that we're able to generate, and would prefer to see more investment in this area. However it is going to take a mind-shift, and a certain level of commitment to balance the trade-offs between moving into green economies as opposed to leveraging off of fuel based industries that currently already exist.

The conversation is really around the priorities. Is it a priority for the continent to move towards green economies and green societies? The dichotomy here could be questioned but this is the debate I am perceiving. Or is the priority for governments to utilise the fastest route for poverty uplift? It's a question of prioritising trade-offs in the short term vis-à-vis trade-offs in the long term.

Acknowledging, as always, that it is particularly difficult to speak of the continent as a single unit but what does the economic structure of a future Africa look like?

Internationally, I believe there's increased integration of our economic systems and structures as they run now, regardless of the philosophies, so whether we speak to capitalism or socialism, in terms of the practical application and implementation, we're not really seeing either of these systems function in a way that's contributing towards individual, and social freedoms; individual and social uplift, as well as individual and social accountability. So, I think the conversation around a new economy is critical and there is a strong anticipation that the foundations and core informing elements of this new economy will come from the continent. And, at the IFR, our director has begun a conversation around what we're calling the 5th Industrial Revolution which may not be industrial at all but will be people-centred and people centric and I think Africa is definitely at the forefront of introducing an alternative economic system that builds on the strengths of the economic systems we've experienced so far. So it's not a matter of burn it all down and rebuild, I think it's a matter of pulling out the positive elements of how we operate, whether its capitalist elements, or socialist elements, or anarchy elements, or greed elements, and combining them in a way that centres the person, and centres the community, and centres a diverse person, and diverse communities in a way that's mutually beneficial.

2063

Towards an African future

"The future is very uncertain. It will be very difficult to predict what the future will be like..."

2063 is Africa's date with destiny. It is the year chosen by the African Union as the target date for the fulfilment of amitious plans to turn Africa into a 'transformed continent,' free from poverty, disease and conflict. African leaders have signed up to the plans, which were set out in the AU's Agenda 2063.

"It is the continent's strategic framework that aims to deliver on its goal for inclusive and sustainable development and is a concrete manifestation of the pan-African drive for unity, self-determination, freedom, progress and collective prosperity pursued under Pan-Africanism and African Renaissance," according to the African Union. "The genesis of Agenda 2063 was the realisation by African leaders that there was a need to refocus and reprioritise Africa's agenda from the struggle against apartheid and the attainment of political independence for the continent which had been the focus of The Organisation of African Unity (OAU), the precursor of the African Union; and instead to prioritise inclusive social and economic development, continental and regional integration, democratic governance and peace and security amongst other issues aimed at repositioning Africa to becoming a dominant player in the global arena."

It is a hugely ambitious project and one that, if it works, will indeed transform Africa. There are signs of progress but is enough being done? Will Africa be truly transformed by 2063? What will it be like to live and work in the 'transformed continent?'

We asked over 900 people across Africa for their views of the future. They provided a fascinating range of opinion and insight, some of it alarming, much of it encouraging and inspiring. This is what some of them had to say...

“ A big shanty compound; with a mix of technology but poorly planned.

The best place to be in the world.

At the current rate, Africa's natural resources may be plundered and the skilled workforce may end up relocating.

Africa will be a hub of research based education through different inventions and innovations.

Two generations from now, Africa will be more diverse, more unequal, much better developed, still chaotic and very exciting. It will remain the youngest, most challenging and most diverse continent on the planet.

Africa's confidence is growing. As it grows more African initiatives will emerge, building solutions embedded in the context of the African continent in all its diversity. Change only happens by the people and for the people of a group or region.

Unless (there is) an accelerator programme for skills development backed by a strong elementary and secondary school programme, Africa will still be lagging behind.

A continent with a vast majority of the population so educated but with only a handful living well of because of the corruption hovering over the continent.

Most optimistically: much bigger population, environmentally stable, universal education, good health facilities, low unemployment, high digital competence, providing new economic opportunities. major global political and economic player. Most pessimistically: much bigger population, environmental degradation, inadequate education and health provision, high unemployment, poor digital infrastructure, and limited influence in the world. Most realistic: somewhere between the two, with very significant differences between different countries. Africa will have improved in terms of infrastructural development in relative terms. However, due to low investment in education and training particularly in higher learning, Africa will suffer a secondary form of colonialisation where all knowledge creation processes, curriculum design and learning content will come from the developed world.

Firstly, as a patriotic African son, I go with our leaders that the 50-year Agenda will transform Africa into a global powerhouse of the future. However, every country should demonstrate sufficient commitment, operationalise those strategic plans, involve all hands and disseminate the idea to all nooks and corners of Africa.

Africa will be the economic power house of the world. Most of the working population will be in Africa.

A continent with good leadership.

With a revitalised agriculture sector supported by ICT, African countries will achieve the dream of a transformed continent 2063.

Well connected in terms of technological infrastructure, fairly industrialised, but with greater disparity between the rich and those in abject poverty. There will likely be strife due to intolerant religious views, unless balanced and fair religious education is provided along the way.

I think (if not addressed) the urban areas in Africa will have a difficult time sustaining themselves due to overpopulation and lack of sufficient public services and infrastructure. More efforts need to be made in developing peri-urban and rural areas to avoid the attraction of people seeking to move to large cities.

Much as it is now; hesitant leadership with agendas that are narcissistic, with very little interest in modernising its cultures. The importance of process and system will still elude the continent, with ill discipline and lack of accountability the result.

With such natural resources and an economy relying mostly on agriculture, Africa will become the food supplier for the rest world by 2063. Whether this is an opportunity rather than a threat, depends on transparency, equality, land governance and good management.

Africa will be united and prosperous.

By 2063, Africa will be centre of world trade, like one country with no border restrictions, though densely populated but has turned her much endowed natural resources into more productive use.

A small percentage of the population with extremely high wealth, a growing middle class, and a vast number of dislocated, impoverished people operating in conditions of war, famine and desperation as a result of massive climate change impacts. But these include a rapidly growing base of well educated people because learning will be available to all via personal mobile devices (which will be ubiquitous) and data access will be effectively universal and free.

A global hub for entrepreneurs & start up movement.

I think in 2063, Africa will a be prosperous and peaceful continent, with inclusive growth and sustainable development.

A crowded, crowded nightmare; a civilizational, ecological, and humanitarian train-wreck, ...because crucially needed information is being hidden from, and/or forcibly or delinquently denied to today's gigantic rising generations of Under-20s whose very lives and futures and planetary systems are threatened.

Africa will lead the world.

Africa will have many graduates from universities with theoretical knowledge but who will lack skills and competencies for the job market.

Will be digitally transformed. Then you will have the necessary skills for the digital economy.

A transformed continent, meeting the needs of its people. A globally active continent contributing to and combating challenges facing the world.

With a revitalised agriculture sector supported by ICT, African countries will achieve the dream of a transformed continent 2063.

How to keep studying in a revolution

by Mahid Abdulkarim

Mahid Abdulkarim is a school student in Sudan. Last year he witnessed a revolution in his country. He explains what it was like to try to carry on studying in the midst of political turmoil and how technology helped him to keep learning...

Sudan recently went through a revolution where citizens successfully (after blood, sweat and tears) overthrew Omar al-Bashir and his government, which had ruled for 30 years.

I got to witness this happening because I was in Sudan from the first day the protests began.

The protests started off on a weekly basis. Thursdays were protest days. Missing one day of school wasn't a major problem, but it definitely affected my learning. As April 6th came around the corner, it would become more of a daily activity, people would leave work at 1 pm to protest, university students that were free at 1 pm would also protest, and now going to school would become dangerous.

April 6th: The protest is officially a daily 24 hour sit-in outside the presidential palace. The Sudanese armed forces had become dangerous and it was not safe for children to go to school. This is where the use of ICT became something extremely important for me. School wasn't an option and it didn't look like it would be anytime soon. I went from having a 2 day weekend, to a 4 day weekend, and now it was a 7 day holiday. Schools closed despite most children being behind on their studies.

I managed to finish my syllabus online, I downloaded past papers, I watched videos on how to solve certain problems; videos about physics and what would happen if I added pressure to this object and more educational videos.

I felt bad for all the kids who didn't have access to ICT devices and wifi because they'd have to rely on their books to study and catch up before the new school year started. This is unfortunate because, for most kids, it's hard to teach themselves new topics and just read off a book and try to understand everything that they read.

Sudan's military shut down all personal access to Internet... except for one. So a wifi by the name of Sudatel was the only lasting piece of Internet access for private use. Of course, it had high demand and wifi was terribly slow. Also around 2 in 10 middle class families had this wifi. This caused another problem and brings up another question. How will students access online courses?

Learning websites should have online features, or apps, in which they can have downloaded coursework and material that a student with minimal access to Internet can make use of.

> "...now going to school would become dangerous."

After 2 weeks of this hassle I managed to flee the country (something Omar al-Bashir didn't manage to do). I travelled to the USA. Strangely enough, I ran into another problem. My school's lack of eLearning support. The school website had nothing related to my syllabus that could help me study. Interactive learning provided to the student by the school is very important, it modifies the student's learning experience to where it's custom. Something the school could have done to introduce interactive eLearning was to have a tab on their website that would guide students to a great learning experience...from home. Such as a revision guide, some questions ordered by difficulty, or an atlas to another website that tells you when you're wrong, offers hints to help and provides different strategies to solve a problem, so the student can choose the one they are most comfortable with. These are examples that help growth. Which brings me to say that there is nothing more important than a customised learning experience.

eLearning is the future, and the future is tomorrow. Some want eLearning to shape a better future for their kids or grandkids, but I want it to shape a better future for everyone.

A future and present where we aren't so dependent on teachers, so we can allow them to teach in a stress free environment, where they can focus instead on creating more material and better programmes.

eLearning for wildlife conservation

And how it addresses 5 of the United Nations' Sustainable Development Goals

By Guy Pfeffermann

Training and skills for wildlife conservation are important subject for Africa not only because they underpin important industries, such as tourism, but also because, at a time when biodiversity and habitats are being threatened as never before in human history, the importance of conserving Africa's unique natural heritage is greater than ever. Training the conservation workforce is vital and so is raising public awareness of the importance of the issue. Both involve education. Guy Pfeffermann of the non-profit organisation Management Skills for Wildlife Conservation looks at how eLearning is bringing new solutions to a big problem.

Africa is home to a rich and diverse animal, plant, and marine biodiversity that provides critical ecosystem services to drive the continent's economy and serve as buffers to climate change. However, the continent is experiencing a dramatic loss of biodiversity. By 2100, climate change alone could cause the loss of over half of African bird and mammal species, as well as trigger a 20 – 30 per cent decline in lake productivity (the plant and animal life produced by a lake), and a significant loss of plant species. Even more immediate are the ongoing threats to African biodiversity from natural habitat loss and degradation (especially from agricultural expansion), direct overexploitation of wildlife and fishery species (including from illegal hunting and trade), and the spread of certain non-native invasive species. This loss of biodiversity affects livelihoods, water supply, food security and lessens resilience to extreme events, particularly for people living in rural areas who are often the poorest.[1]

CATASTROPHIC INCREASE

Wildlife poaching has abated recently in some countries, but only after years of catastrophic increase. Since the start of the poaching crisis around 2010, South Africa's Kruger National Park's rhino population fell by roughly one half, with some 2,600 poacher incursions annually.[2] In Kenya, elephant poaching increased to about 350 a year until 2012, before declining to some 150 in 2014. Adding to these challenges, during the last year, Namibia, Botswana and parts of South Africa have been experiencing one of the worst periods of drought in decades.

> "The continent is experiencing a dramatic loss of biodiversity."

Perhaps the most dramatic recent decline in the elephant population occurred in Tanzania, from 316,300 in 1979 to 43,330 in 2014[3], a drop of 60 per cent in five years.[4] Even Botswana, where wildlife is traditionally very well managed, has been attacked by poachers.

"When communities see tangible benefits from wildlife tourism, they help immeasurably in identifying and deterring poachers."

At least 87 elephants were killed for their ivory in Botswana in 2018, according to the conservation nonprofit Elephants Without Borders, which discovered the carcasses. It's a sharp and disturbing increase in poaching for a country that has been considered elephants' last stronghold in Africa, says Mike Chase, the organisation's director. "It came as a complete shock that we were discovering elephants that were poached deep within Botswana, within some world-renowned tourist concessions," he says. "It was completely unexpected".

THE IMPORTANCE OF GOOD CONSERVATION MANAGEMENT

Besides the loss to bio-diversity, declines in wildlife herds pose very serious economic risks, because the economic benefits of wildlife conservation are enormous for many African countries. Last year, 1.5 million tourists visited Tanzania; over 2 million came to Kenya, mostly for wildlife sighting, earning the country more than US$150 million. Wildlife tourism is also very important to the economies of South Africa, Botswana, Namibia and many others. The benefits in revenue and employment accrue mainly to local tourism service providers, national parks, local communities, other local providers, national tour operators, and the national governments.[5]

At last year's eLearning Africa conference in Kigali I moderated a discussion panel on the theme of Management Education for Wildlife Conservancies. The presenters deplored that hardly anything was being done to educate the conservancy workforce, especially in training leaders and managers. Indeed, almost all conservation funding is going to two areas: natural sciences and anti-poaching para-military hardware.

Yet conservancies themselves are voicing clear demands for locally-relevant leadership and management education. Among other domains, this includes management planning, anti-poaching management, business plan development, community relations, fundraising and conflict management. These demands echo what development economists have recognized for years: the quality of leadership and of day-to-day management is a powerful driver of social and economic progress.

ELEARNING CAN HELP

Even modest efforts to build such capacity, especially in the non-profit and government sectors, can improve outcomes significantly. The spectrum of Africa's wildlife conservancies confirms this view. Some conservancies have virtually eliminated poaching, for example Lewa Wildlife Conservancy and Ol Pejeta Conservancy near Mount Kenya; indeed, these conservancies have brought the black rhino and Grévy's zebra back from the brink of extinction.

At the other end of the spectrum, massive poaching is continuing in other parts of Africa. Besides different national policies, what stands out is the clear difference in the quality of leadership between successful and less successful conservancies. In particular, successful conservancies have, over the years, worked hard at aligning the aspirations of local communities with the aims of wildlife conservation. When communities see tangible benefits from wildlife tourism, they help immeasurably in identifying and deterring poachers. I heard a story which touched me deeply of a community elder who had a sculpture of a rhino made and placed in front of the school house. The message was clear to all: your children go to school because you protect rhinos.

What role might eLearning play in addressing the enormous challenges of training the very dispersed and rural wildlife conservancy work force? A successful initiative would address five of the United Nations' Sustainable Development Goals: Quality Education, Decent Work and Economic Growth, Sustainable Cities and Communities, Climate Action, and Life on Land.
Before focusing on wildlife conservation, I worked for 15 years

Guy Pfeffermann is the President of Management Skills for Wildlife Conservation, a non-profit organisation, working with wildlife conservancies, educators, learning technologists, and researchers to develop and disseminate locally relevant and scalable management training programmes.

as founder and CEO of the Global Business School Network, which improves access to quality, locally-relevant management and entrepreneurship education for the developing world. Of GBSN's 100 member business schools, 14 are in Africa. In my experience the key to success in any innovative initiative lies in identifying strongly committed, highly capable persons, who are leaders in their respective fields, and helping to convince them to come together around a challenging mission.

NECESSARY SKILLS

The same goes, I think, for bringing needed skills to wildlife conservancies. Since last year's eLearning Africa session on management education for wildlife conservancies, I have been very fortunate to be able to meet with key champions who, working together as a virtual team, may show a path to scaling up quality, relevant, leadership and management education.

> "The question was: how could its impact be scaled-up?"

They include: Dickson Kaelo, CEO of The Kenya Wildlife Conservancies Association (KWCA), whose membership includes most Kenyan conservancies; Allan Ward, who developed a remarkably effective leadership and management programme for communities; NRT, which is working successfully with community conservancies, instilling sound governance and helping to secure funding; and KINEO, a global learning technology company. More partner organisations which espouse similar goals will join in the effort, building on a promising start.

Allan Ward produced a unique Conservancy Managers Handbook, which was published by KWCA. The question was: how could its impact be scaled-up? KINEO came up with a generous offer of charity staff time, putting the Handbook online, accessible on computers, tablets and, most relevant to increasing the reach of training, mobile phones. Eventually it may be translated into several key African and other languages. This is how eLearning may reach large numbers of conservancy leaders and managers around the world. The effort could not be more timely: according to the Global Assessment Report of IPBES, the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services, one million species are threatened with extinction, most within decades.

As of now, very few educational programmes exist that are geared to local languages, to communities that are distant from cities, and have few financial resources, and weak or no access to the Internet. In the words of Tom Lalampaa, CEO of Kenya's Northern Rangelands Trust, which works with many community conservancies: "The need is for experiential learning, not the conventional academic approach. How to run the conservancy as a business as opposed to a social entity. How you communicate, how you introduce change gradually and steadily, how you ensure that you are taking the right people on board and engage with the communities. Above all, good governance – which is part of good management - is key to success; it is the engine that drives conservation, especially in a community approach, because you are carrying thousands of people with you".

The message to the development community is loud and clear: increased funding will be needed in order to create affordable eLearning training programmes which marry mobile access with experiential learning.

The African EdTech Directory©

The African EdTech Directory highlights indigenous African EdTech & eLearning companies – for Africa, in Africa and by Africa.
It shows the variety, innovation, technical proficiency and ambition of Africa's growing EdTech sector. The companies listed below were founded in an African country and have their headquarters in an African country. This is an initial list based on a self-reporting survey. In the future, we will publish a more comprehensive list and intend to include a more robust set of inclusion criteria.

COMPANY	COUNTRY	WEBSITE
9jacodekids	Nigeria	www.9jacodekids.com
abcCode	Cameroon	www.abccode.org
Accelerated	Ethiopia	www.accelerated.co
African Resources Training Group	South Africa	www.artg.co.za
African Storybook	South Africa	www.africanstorybook.org
Afriedx	Mauritius	www.afriedx.org
Agricomm	Zambia	www.agricomm-media.com
Akili Mambo	Kenya	www.akilimambo.com
Arabic Homeschooling Network	Egypt	www.youtube.com/channel/UCfZOMyHQ1bc7qFIaQwFVR0g/feed
Arifu	Kenya	www.arifu.com
Avila EdTech	Nigeria	www.myavila.me
Axiomlearn	Nigeria	www.axiomlearn.com
Bacprep	Côte d'Ivoire	www. bacprep.com
BeBlocky	Ethiopia	www.beblocky.com
BKTechouse	Rwanda	www.bktechouse.rw
Bluebic	Nigeria	www.bluebic.com
Bora teacher	Côte d'Ivoire	www.borateacher.com
Brainshare	Uganda	www.facebook.com/BrainShareApp
Braniacs	Nigeria	www.brainiacs.com.ng
Brck	Kenya	www.brck.com
CA Southern Africa	South Africa	www.ca.com/za
Caysti	Cameroon	www.caysti.org
CCPP Africa	Kenya	www.ccppafrica.org
Chalkboard Education	Ghana	www.chalkboard.education
CIS Learning	Kenya	www.cislearning.org
Clock Education	South Africa	www.clock.education
Cogique Education	Mali	www.cogique.org

If you would like to be featured in this list or have your listing updated, please contact us at info@elearning-Africa.com

Please see descriptions of Service/Product and Pricing Model on page xxx.

	SECTOR									TARGET AUDIENCE												SERVICE / PRODUCT																		PRICING MODEL								
	Kindergarden	Primary education	Secondary education	Higher education	Further education	Vocational	Adult education	Workplace learning	Children	Students	Adult learners	Parents	Teachers	Schools	Companies	Governments	Tertiary Institutions	LMS	Study Tool	Online Learning	School Administration	Online to Offline	Tech Learning	Next-Gen Tools (t)/Schools (s)	Classroom Engagement	Course Materials	Career Development	Language Learning	Test Prep	Search	Early Childhood Education	User pays	Subscription	Commercial	Store	Institution pays	Marketplace	Donor	Funded	Sponsored	Non-profit (n), unclear (u), loan (l)	App available
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COMPANY	COUNTRY	WEBSITE
Colnn	Egypt	www.colnn.com
Concourat (Education Media Company)	Morocco	www.concourat.com
CourseHub	Egypt	www.courseshub.net
Damelin Online	South Africa	www.damelinonline.co.za
Daptio	South Africa	www.dapt.io
DavtonLearn	Nigeria	www.davtonlearn.com
DbSE	Egypt	www.dbse.co
Digiskool	Kenya	www.digiskool.co.ke
Digital Frontier	South Africa	www.digitalfrontiersinstitute.org
Digital School Technologies	Senegal, Côte d'Ivoire	www.facebook.com/digitalschooltechnologies
DirassaTic	Algeria	www.dirassatic.info
e-Karanta (iDEV Tech)	Senegal	www.idevtech.africa/e-karanta
ELearning with Eswatini	Kingdom of Eswatini	www.facebook.com/E2Eswatini
Earlybird Educare@Work	South Africa	www.earlybirdeducare.co.za
eCampus	Ghana	www.ecampus.camp
Ecolia Labs	Cameroon	www.ecolialabs.org
Edacy	Senegal	www.edacy.com/home
EDGE Learning Media	South Africa	www.edgelearningmedia.com
Edtech Nigeria	Nigeria	www.edtech.com.ng
EduAir Box	Cameroon	www.eduairbox.com
Educall	Morocco	www.educall.ma
Educate!	Uganda	www.experienceeducate.org
Education 4.0 (Ed4.0)	Morocco	www.ed40.org
Educlick	Cameroon	www.educlick.africa
Edurecords	Nigeria	www.edurecords.com
Edusko	Nigeria	www.edusko.com
EduVation	Egypt	www.eduvation.org
Eduworx	South Africa	www.eduworx.co.za
Eduze	South Africa	www.eduze.com
EDVES	Nigeria	www.edves.net/about
Efiwe	Nigeria	www.efiwe.com.ng
Elearning	Zimbabwe	www.elearning.co.zw
eLimu	Kenya	www.e-limu.org
eLimu Tanzania	Nigeria	www.scholarx.co
Elimutanzania	Tanzania	www.elimutanzania.com
Elom	South Africa	www.elom.org.za
Eneza Education	Kenya, Ghana, Côte d'Ivoire	www.enezaeducation.com
Ennovate Lab	Nigeria	www.ennovatelab.com
Entlaaq	Egypt	www.entlaaq.com
Etudesk	Côte d'Ivoire	www.etudesk.com
Exquitec	Nigeria	www.exquitec.com

SECTOR								TARGET AUDIENCE									SERVICE / PRODUCT														PRICING MODEL										
Kindergarten	Primary education	Secondary education	Higher education	Further education	Vocational	Adult education	Workplace learning	Children	Students	Adult learners	Parents	Teachers	Schools	Companies	Governments	Tertiary Institutions	LMS	Study Tool	Online Learning	School Administration	Online to Offline	Tech Learning	Next-Gen Tools (t)/Schools (s)	Classroom Engagement	Course Materials	Career Development	Language Learning	Test Prep	Search	Early Childhood Education	User pays	Subscription	Commercial	Store	Institution pays	Marketplace	Donor	Funded	Sponsored	Non-profit (n), unclear (u), loan (l)	App available
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COMPANY	COUNTRY	WEBSITE
Extraclass	Nigeria	www.extraclass.ng
Extramarks	South Africa	www.extramarks.co.za
Eyecity	Nigeria	www.eyecity.ng
FlexiSAF	Nigeria	www.flexisaf.com
Foster Digital	Namibia	www.fosterna.com
Fundi	South Africa	www.fundi.co.za
FundoLinker	Zimbabwe	www.fundolinker.com
Fundza	South Africa	www.fundza.co.za
Funzani Quiz	Mozambique	www.facebook.com/Funzani-1015635708590211
Gebeya	Ethiopia	www.gebeya.com
GetSmarter	South Africa	www.getsmarter.com
Glowdom	Namibia	glowdom.com
gradesmatch	South Africa	www.gradesmatch.co.za
HABAKA	Madagascar	www.habaka.org
Hail A Tutor	Nigeria	www.hailatutor.com
Homeclass	Nigeria	www.homeclassnigeria.com
HyperionDev	South Africa	www.hyperiondev.com
IDEA Digital Education	South Africa	www.ideaonline.com
IDEMBE Ltd	Rwanda	www.idembe.com
IES	Nigeria	www.imperialedtech.com
Ikizamini	Rwanda	www.ikizamini.com
Ilewemi	Benin	www.ilewemi.com
iLycée (Education Media Company)	Morocco	www.ilycee.com
iMadrassa	Algeria	www.imadrassa.com
inAble	Kenya	www.inable.org
Innovak	Côte d'Ivoire	www.innovakci.com
Innovito	Egypt	www.innovito.com
InSIST Global	Gambia	www.insistglobal.com
Inspirelll – Inspire Labs (Elham Education)	Libya	www.inspirelll.com
iSchool	Zambia	www.ischool.zm
iWhiz	South Africa	www.mobile.iwhiz.co.za
JBS	Kenya	www.jbs.co.ke
Kaino	Uganda	www.kaino.africa
Kamaleon – T@ablet Comunitário	Mozambique	www.tabletcomunitario.org/mz and www.kamaleon.co.mz
Karatou Post Bac	Niger	www.ilants.com/ptta-portfolio/karatou-postbac
KekeliLab	Togo	www.kekelilab.education
Khodcourse	Egypt	www.khodcourse.com
Kongosoft	Republic of the Congo	www.kongosoft.com
Kotivu	Nigeria	www.kotivu.org
Krystal – MySkool Portal	Nigeria	www.krystaldigitalng.com and www.myskoolportal.com.ng
Kytabu	Kenya	www.kytabu.com and www.kytabu.org

	SECTOR										TARGET AUDIENCE									SERVICE / PRODUCT																	PRICING MODEL								
	Kindergarden	Primary education	Secondary education	Higher education	Further education	Vocational	Adult education	Workplace learning	Children	Students	Adult learners	Parents	Teachers	Schools	Companies	Governments	Tertiary Institutions	LMS	Study Tool	Online Learning	School Administration	Online to Offline	Tech Learning	Next-Gen Tools (t)/Schools (s)	Classroom Engagement	Course Materials	Career Development	Language Learning	Test Prep	Search	Early Childhood Education	User pays	Subscription	Commercial	Store	Institution pays	Marketplace	Donor	Funded	Sponsored	Non-profit (n), unclear (u), loan (l)	App available
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COMPANY	COUNTRY	WEBSITE
Language Learning	Ethiopia	www.langbot.io
Lead In Guides	Nigeria	www.leadinguides.com
LearnHub Africa	Nigeria	www.learnhub.africa
Learning Factory	Zimbabwe	www.study.co.zw
LetsLearn	Nigeria	www.letslearn.ng
Lightbulb Education	South Africa	www.lightbulbeducation.co.za
Ltrain	South Africa	www.ltrain.co.za
Lumenlabs	Kenya	www.lumenlabs.cc
M-Shule	Kenya	www.m-shule.com
mAcademy	Nigeria	www.mylearningacademy.com/learner
Marj3	Egypt	www.marj3.com/en
Mavis Education	Nigeria	www.maviseducation.com/books-materials
Mindset Learn	South Africa	www.mindset.africa
Mindsky	Rwanda	www.mindsky.com
mJangale	Senegal	www.mjangale.com
Moringa school	Kenya	www.moringaschool.com
Mtabe	Tanzania	www.twitter.com/mtabeapp
Muva Mexe	Mozambique	www.muvamoz.co.mz
Mwabu	Zambia	www.mwabu.com
MyJobPass	Tanzania	www.myjobpass.com
Nafham	Egypt	www.nafham.com
Nkyea	Ghana	www.nkyea.com
Obami	South Africa	www.obami.com
Opencollab	South Africa	www.opencollab.co.za
Orama	Mauritius	www.avrplato.com/mobile-apps
Orcas	Egypt	www.orcas.io
Oschool	Côte d'Ivoire	www.oschool.ci
Oto Courses	Egypt	www.otocourses.com
Otrac	Nigeria	www.otrac.ng
Pass.ng	Nigeria	www.Pass.ng
Praekelt Dig-it	South Africa	www.praekelt.org/digit
PraxiLabs	Egypt	www.praxilabs.com
Prepabac.ma (Education Media Company)	Morocco	www.prepabac.ma
Prepclass	Nigeria	prepclass.com.ng
PrimalTutor	Nigeria	www.primaltutor.com.ng
Qelasy	Côte d'Ivoire	www.facebook.com/pg/qelasypageofficielle
Quillo	South Africa	www.books.quillo.io/app/about
Raadaa	Nigeria	www.raadaa.com
Re:learn	Nigeria	www.relearn.ng
Rethink Education	South Africa	www.rethinkeducation.co.za
Ruzivo Digital learning	Zimbabwe	www.ruzivodigitallearning.co.zw

	SECTOR										TARGET AUDIENCE								SERVICE / PRODUCT															PRICING MODEL								
	Kindergarden	Primary education	Secondary education	Higher education	Further education	Vocational	Adult education	Workplace learning	Children	Students	Adult learners	Parents	Teachers	Schools	Companies	Governments	Tertiary Institutions	LMS	Study Tool	Online Learning	School Administration	Online to Offline	Tech Learning	Next-Gen Tools (t)/Schools (s)	Classroom Engagement	Course Materials	Career Development	Language Learning	Test Prep	Search	Early Childhood Education	User pays	Subscription	Commercial	Store	Institution pays	Marketplace	Donor	Funded	Sponsored	Non-profit (n), unclear (u), loan (l)	App available
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COMPANY	COUNTRY	WEBSITE
Schoolap	Democratic Republic of Congo	www.schoolap.com
Schools Compass	Nigeria	www.schoolscompass.com.ng
Schools Focus	Nigeria	www.schoolsfocus.net
Sciencia	Tunisia	www.sciencia.tn
Sea Monster	South Africa	www.seamonster.co.za
See Box	South Africa	www.seebox.co.za
Sewema	Benin	www.sewema.com
SheCodes	Libya	www.shecodes.ly
Shikapa	Nigeria	www.shikapa.com/#/home
Shule direct	Tanzania	www.shuledirect.info
Simplified CBT	Nigeria	www.acbt.com.ng
Sisanda Tech	South Africa	www.sisanda.net
Siyavula	South Africa	www.siyavula.com
SkillUp	South Africa	www.skilluptutors.com
Skolera	Egypt	www.skolera.com
Skools	Nigeria	www.skools.ng
Slatecube	Nigeria, Lesotho, South Africa	www.slatecube.com
SmartZed	Zambia	www.facebook.com/smartzzambia
Snapplify	South Africa	www.snapplify.com
Softcom	Nigeria	www.softcom.ng
Studenthub	South Africa	www.thestudenthub.co
Studiacademy	Tanzania	www.studi.co.tz
Studysearch	Nigeria	www.studysearch.co
Syafunda	South Africa	www.syafunda.co.za
SYL Schoolmate	Nigeria	www.sylmultimedia.com
Tahrir Academy	Egypt	www. tahriracademy.org
Tangerine	Kenya	www.tangerinecentral.org
Teachers Around Me	Nigeria	www.teachersaroundme.com.ng
Tech4Kids Academy	Mozambique	www.tech4kidsmz.com
TechLab	Burkina Faso	www.techlab-bf.org
Techno Kids Center	Botswana	www.facebook.com/technokidsc
Terisys	Mali	www.terisys.com
The Clicking Generation	Botswana	www.theclickinggeneration.com
The Education Support Forum	South Africa	www.tedsf.org/learn/all-courses
Think Digital College	South Africa	www.thinkdigitalcollege.co.za
TIAT	South Africa	www.tiat.co.za
Tootree	Côte d'Ivoire	www.tootreeweb.com
Tqween	Egypt	www.www.tqweem.com
Traindemy	Nigeria	www.traindemy.com
Tunapanda	Kenya	www.tunapanda.org
Tuteria	Nigeria	www.tuteria.com

	SECTOR										TARGET AUDIENCE									SERVICE / PRODUCT															PRICING MODEL								
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COMPANY	COUNTRY	WEBSITE
Tutor Tavern	Zambia	www.tutortavern.com
Tutorng	Nigeria	www.tutor.ng
Tyro	Egypt	www. tyro-app.com
U-App	South Africa	www.uapp.co.za
Ubongo	Tanzania	www.ubongo.org
Ubongo	Tanzania	www.ubongo.org
Ubongokids	Tanzania	www.ubongokids.com
UMAMI	Egypt	www.umami-learning.com
Uthini	South Africa	www.uthini.tech
Virtual University of Côte d'Ivoire	Côte d'Ivoire	www.uvci.edu.ci
W3tutor	Nigeria	www.w3tutor.org
WebLab	Cape Verde	www.weblab.gov.cv/faq
Wedecider	Chad	www.wedecider.com
WeThinkCode	South Africa	www.wethinkcode.co.za
WomenEdTech	Benin	www.womenedtech.com
Xander Apps	South Africa	www.xander.co.za
Yo7ka Anna	Egypt	www.yo7ka-anna.com/en
Young Elites	Nigeria	www. youngelitesnigeria.org
Zaio	South Africa	www.zaio.io
Zedupad	Zambia	www.iconnect.zm/zedupad.html
Zenafri	Nigeria	www.lizziescreations.com
Zomila	South Africa	www.zomila.co.za
Zovu	Togo	www.zovucorp.com

SERVICE/PRODUCT	DESCRIPTION (AS PER CB INSIGHTS*)
Learning Management System (LMS)	Connect students/teachers/parents, monitors, tracks, provides content
School Administration	Tools for school administrators to support teachers, manage records, and implement school policy
Online Learning	Host online educational content
Tech Learning	Online tools that teach programming and other IT skills
Language Learning	Provide language learning tools/courses
Study Tools	Provide study tools that use technology to solidify and/or expedite the learning process.
Test Preparation	Digital-learning platforms focused on standardised testing
Course Materials	Companies that operate online marketplaces for textbooks and other course materials, or convert content for educational purposes
Classroom Engagement	Products that make classroom experiences more engaging to students.
Next-Gen Study Tools	Digitally-enhanced study tools
Next-Gen Schools	Offer alternatives to traditional education experiences
Career Development	Provide enterprises and individuals with educational content for professional advancement, including financial training
Search	Help students and parents research schools and their curricula.
Online to Offline	Digital platforms that connect students with live tutors or in-person programming, Educational toys and games for small children.

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PRICING MODEL	DESCRIPTION
User pays	The user pays, often one time fee
Subscription	User pays subscription model
Commercial	The company has a commercial aspect that offsets the costs of the EdTech branch
Store	There is a physical product they sell
Institution pays	The school pays for teacher/student access
Marketplace	The company takes a transaction fee, often used by tutoring companies
Donor	Individual donations requested on the page
Funded	Mostly financed through funding programmes, foundations etc, instead of private donors
Sponsored	Corporations pay for student or school access

*www.cbinsights.com/research/ed-tech-market-map-company-list and www.cbinsights.com/research/ed-tech-startup-market-map

Finding funds

Andrew Rosthorn introduces our guide to the who, where and how of ICT and education funding in Africa

As far as anyone knows, it was Father Strickland, an English Jesuit priest talking in 1863, who first said that "A man may do an immense deal of good, if he does not care who gets the credit for it."

A small plaque on President Ronald Reagan's desk offered the same message in 1981: "There is no limit to what a man can do or where he can go if he does not mind who gets the credit."

The names of those ready to pay good money for good things in African education without minding who gets the credit are therefore precious.

Lesotho...has been spending 12,4% of its GDP on education, currently the highest percentage of an African country.

These are the development banks, the foreign government agencies, the non-governmental organisations, the international educational trusts and the two great international organisations that were created in the ruined world of 1946, Unicef in New York and UNESCO in Paris.

Our list includes also the names of enlightened billionaires like the Hungarian-American George Soros who stands personally ready to fund teaching and learning in Africa, just as Africa's own educationalists and information and communication technology teachers [ICT] begin to take credit for pushing their governments into spending an average of almost 5% of their gross domestic products [GDPs] on education.

That percentage is now close to European and American averages: 5.12% in Switzerland, 6.1% in the USA, 6.2% in the United Kingdom, 6.3% in New Zealand.

When the Organisation for Economic Cooperation and Development [OECD] reported in 2017 that the United States of America had actually reduced spending on education as a percentage of GDP by 3% between 2010 and 2014, the OECD researchers found that only one single African country had reduced spending on education in any year since 2000.

That sad exception was the war-torn Central African Republic, estimated by the Thomson Reuters Foundation to be the worst country in the world in which to be young.

By contrast, Lesotho, a high-altitude landlocked kingdom of 2.33 million people entirely surrounded by South Africa, has been spending 12.4% of its GDP on education, currently the highest percentage of any African country.

The OECD found that spending on education and ICT in African nations had risen by an average of 5% and in Burundi and Mozambique it had been increasing by an average of 12% annually since 2000.

2000 was the year the World Education Forum gathered in Senegal to construct the Dakar Framework for Action. The forum aimed to achieve Education For All [EFA] by 2015. With UNESCO's help, they attempted to meet the learning needs of "all children, youth and adults".

Maris O'Rourke, a former Secretary of Education in the New Zealand government was Director of Education for the World Bank during the Dakar forum. She helped to compose the text of the Dakar Framework for Action, with its promise to "leave no country thwarted by a lack of finance to implement EFA."

FUNDS FOR EDUCATION

Education budgets in the sub-Saharan countries had grown between 1980 and 2000 at a dismal annual average of 1%. A Fast Track Initiative [FTI], helping the African countries to

create sound national plans and co-ordinating fund mobilisation between the donors probably helped sub-Saharan spending on education to grow by 4.6% between 1999 and 2008.

Foreign aid increased by 35% but it is now believed that two thirds of the encouraging growth in funds for education had actually come from national economic growth rather than foreign donors.

Nevertheless, there are still several countries where the foreign aid share of the education and ICT teaching budget is over 50%, notably Guinea, Mali, Rwanda and Zambia.

Dr Birger Fredriksen, Senior Fellow at the Results for Development Institute [R4D] in Washington DC thinks that the percentage of foreign aid in the education budgets in sub-Saharan Africa will decline but foreign donors may become even more important as the donor specialists target those many African groups who miss education by having no political voice in their nation state.

African Development Bank (AfDB)

The AfDB offers resources for investment and policy advice with technical assistance to support development efforts. Funding is available for private and non-profit sectors in three major areas: supporting centres of excellence; ensuring infrastructure and training in specific areas, such as agriculture and engineering, as well as strengthening links with labour markets.

The African Education Fund (AEF) is a unique, Africa-initiated education fund with innovative financing. Its main purpose is to provide strategic support towards the development of more efficient and effective education systems across Africa.
www.afdb.org/en

The Aga Kahn Development Network

For more than a hundred years the Aga Khan Development Network (AKDN) has worked to ensure that students of all ages have access to quality learning opportunities. The Network operates programmes and institutions that span the educational ladder, from early childhood programmes to primary and secondary schools, from vocational studies for youth and adults to university degrees and continuing professional development. Each year, the AKDN reaches two million learners across 16 countries. Aga Khan Education Services AKES provides quality pre-school, primary and secondary education services to students in Africa, Asia and the Middle East. The foundations of the present system were laid by Sir Sultan Mahomed Shah Aga Khan III, who established over 200 schools during the first half of the 20th century, the first in 1905 in Mundra and Gwadar in South Asia, and in Zanzibar in East Africa. Today AKES schools and programmes benefit over 85,000 students.
www.akdn.org/

Agence Française de Développement (AFD), Organisation Internationale de la Francophonie (OIF) & Agence Universitaire de la Francophonie (AUF)

France's development agency provides numerous funding opportunities for fair and robust projects in the countries where French is spoken. In the last few years the AFD has strengthened its commitment to education in line with the Global Partnership for Education, supporting projects that will increase access to school, particularly for girls, improving learning outcomes and capacity building programmes. Bilateral projects which reform national vocational training policies are also carried out, with the AFD working in recent years with Burkina Faso, Cameroon and Democratic Republic of Congo. Debt Reduction and Development Contracts (C2D) for eligible countries are another key form of aid for the AFD. Côte d'Ivoire has received 93 million euros in recent years as part of a C2D project which covers primary, secondary, vocational and higher education.

The Organisation Internationale de la Francophonie and the Agence Universitaire de la Francophonie are another important source of funding for Francophone countries in Africa. They recently launched the 100,000 teachers for Africa programme, which aims to use digital technologies to consolidate the teaching of French, and teaching in French, on the African continent.
www.afd.fr/home; www.francophonie.org/; www.auf.org/

The Australian Agency for International Development (AusAID)

AusAid has dedicated 15.9% of its 4 billion 2019-2020 budget to education. Its focus is partners development in the Indo-pacific region, with a sharper focus on their immediate neighbourhood – in a belief this is where they can make the most impact. It offers the Middle East and Africa scholarship awards for which up to 294 people benefit. It partners with international organisations and trusted NGOs to award grants. It focuses its aid disbarments to their investment priorities and as such, it centres on two developmental outcomes i.e. supporting private sector development and strengthening human development.
www.dfat.gov.au/about-us/corporate/portfolio-budget-statements/Documents/2019-20-aus-aid-budget-at-a-glance.pdf

BMZ – Federal Ministry for Economic Cooperation and Development

Promoting education is a priority area of German development policy. The 2030 Agenda for Sustainable Development and its Goal 4 on education constitute the international framework for the activities of the Federal Ministry for Economic Cooperation and Development (BMZ) in the education sector.

Promoting education in Africa is a priority area of German development policy. The 2030 Agenda for Sustainable De-

velopment and its Goal 4 on education constitute the international framework for the activities of the Federal Ministry for Economic Cooperation and Development (BMZ) in the education sector. Germany provides support for all areas and forms of education and learning, from early learning through primary and secondary schools, to vocational and higher education, and adult education. The main aims of this support are to ensure equal access to education and improve the quality of education services. Important cross-cutting issues are gender equality and inclusive education that takes the diversity of learners into account and excludes no one. The BMZ also supports non-school, non-formal education activities. These forms of learning are geared to specific work and life situations and also reach people who have not previously had access to the formal education system. They include adult literacy classes, training programmes for apprentices in micro-enterprises, and health and nutrition courses for young mothers.
https://www.bmz.de/en/issues/Education/bildungsfoerderung_deu/index.html

British Government Department for International Development (DFID)
The DFID offers a number of development funds and bilateral programmes in Africa. The recent 'Innovation for Education' project in Rwanda, which included the theme of technology in education, was a good example of the possibilities for the funding of eLearning on the continent.

Women's empowerment is also an important theme - The Girls' Education Challenge (GEC), for example, funds strategic partnerships and projects which improve learning opportunities for girls in remote or marginalised communities, encouraging technical innovation in 14 different African countries. Connecting Classrooms grants allow schools in 17 African countries to link with UK schools, providing an interactive online platform for collaboration, grants for teachers to visit their partner schools and professional development for teachers and school leaders.
https://www.gov.uk/government/organisations/department-for-international-development

Commonwealth Foundation
Through its Education Section, the Commonwealth Secretariat works to develop appropriate tools, mechanisms and publications and facilitate their adoption by providing technical assistance. Key areas of focus are multi-grade teaching, supporting gender-responsive schools, looking at achievement of both girls and boys, inclusive education, policy-level engagement through the Fast Track Initiative, and addressing dynamics and implications of teacher migration through the Commonwealth Teacher Recruitment Protocol. The Foundation offers grants of up to £200,000 over four years in support of innovative project ideas and approaches that seek to strengthen the ability of civic voices to engage with governments and have the potential to improve governance and development outcomes through their active participation. The selection process is highly competitive and selected projects will have been designed to undertake work that has the potential to lead to one or more of the outcomes. The Foundation's programme teams are all involved in shaping the focus of the call for proposals. An internal review process, including long-listing by the Grants team followed by a short-listing process involving all programme teams, prepares a final list of applications that is then submitted to the Grants Committee. Final decisions on which projects to support are made by the member states represented on the Foundation's Grants Committee.
https://commonwealthfoundation.com/grants/

Danish International Development Agency (DANIDA)
Denmark is one of only five countries in the world that has exceeded the UN target of spending 0.7% of Gross National Income (GNI) on development assistance. DANIDA's activities in Africa aim at reducing poverty and creating employment for the young people entering the labour market. Denmark has diplomatic missions in 12 African countries – Burkina Faso, Ethiopia, Ghana, Kenya, Mali, Mozambique, Nigeria, South Africa, Tanzania and Zambia.

A recent project with the South African Department of Higher Education and Training is enhancing the ability of Further Education and Training (FET) colleges to provide technical education and skills development responsive to the needs of industries, SMEs, communities and students.
http://um.dk/en/danida-en/

Dubai Cares
Dubai Cares plays a key role in helping achieve the United Nations Sustainable Development Goal (SDG) 4, which aims to ensure inclusive and quality education for all and promote lifelong learning by 2030, by supporting programmes in early childhood development, access to quality primary and secondary education, technical and vocational education and training for youth, as well as a particular focus on education in emergencies and protracted crises.

Funding is available for 'integrated, impactful, sustainable and scalable primary education programmes', which aim to help form a global partnership for development in accordance with Millennium Development Goal 8.

The "Adopt a School" initiative has brought quality primary education to 15 schools in Palestine, Nepal, Senegal, and Mal-

awi, funded by corporations and individuals who believe in the power of education to transform lives. The funding package covers school infrastructure, books, latrines and teacher training. Apart from Palestine, the scheme funds donors in groups up to 15 to travel on volunteer visits in support of the adopted schools. http://www.dubaicares.ae/en

European Union (EU)

Through the Joint Africa-EU strategy, the EU acts in partnership with the continent to improve tertiary education by funding the mobility of students and scholars.

The EU Emergency Trust Fund for Africa seeks to achieve stability by addressing root causes of irregular migration and displaced persons. EUTF for Africa works in the Sahel and Lake Chad, the Horn of Africa and North Africa and supports vocational training.

www.ec.europa.eu/trustfundforafrica/index_en

www.ec.europa.eu/europeaid/sectors/human-development/education_en

15 university networks, involving more than 120 partners from 37 African countries, organise academic mobility across the African continent in the framework of the Nyerere Programme. A third phase of the Mwalimu Nyerere African Union Scholarship Scheme helps African graduates, post-graduates and teaching staff move freely between universities and is receiving receiving EU backing of €45 million under the tenth European Development Fund. Around 250 students will be supported annually as they engage in exchange programmes between universities in African, Caribbean and Pacific countries.

www.africa-eu-partnership.org/en/success-stories/boost-african-university-students-nyerere-programme

Bill & Melinda Gates Foundation

The Gates Foundation is the largest private foundation in the world and part of the worldwide community working towards the success of the United Nations Sustainable Development Goal 4 which seeks a quality education for all children. The foundation has just announced a commitment of $68 million over four years "on providing education systems with better information, evidence, tools, and approaches that can help improve primary and secondary education" The emphasis will be on foundational learning in primary grades. They say, "While we currently focus on India and a few sub-Saharan African countries, we hope these resources will be of interest to other geographies."

www.gatesfoundation.org/What-We-Do/Global-Policy/Global-Education-Program

DVV International

DVV International is the Institute for International Cooperation of the German Adult Education Association, the largest further education providers in Germany, working for "Education for everyone, lifelong, worldwide." DVV operates with 200 partners in over 30 countries. DVV is currently partnered with the Ministry of Education in Ethiopia where 20 million adults in a total population of 90 million are illiterate. A three-year adult education project in Tunisia, in line with Tunisia's strategy for literacy, non-formal and adult education, is being funded until 2021 by the German Federal Ministry for Economic Co-operation and Development [BMZ].

www.dvv-international.de/en/

FHI 360

FHI 360 is a non-profit human development organisation dedicated to improving lives in lasting ways by advancing integrated, locally driven solutions. FHI 360 operates in over 70 countries with experts in education, health, gender equality, nutrition, environment, economic development, civil society, youth, research and technology. Beginning in 2000 with the USAID-funded Strategies for Advancing Girls' Education (SAGE) project, FHI 360 staff have been continuously implementing girls' education and gender equality projects. FHI 360 implemented the flagship USAID girls' education project called the Ambassadors Girls Scholarship Program (AGSP). Building on lessons learned from SAGE and AGSP, FHI 360 developed the Four Pillars PLUS model for girls' education, which has since attracted funding from multiple bilateral, private and corporate sponsors.

www.fhi360.org

The Ford Foundation

The Ford Foundation works across a section of sectors including technology and society, social justice and cimate change. Their International Fellowships Program supported advanced studies for social change leaders from the world's most vulnerable populations. The programme was established in 2001 with an initial grant of $280 million—the largest single grant in the foundation's history. By 2013, more than 4,300 fellows from 22 countries—spanning Asia, Africa, Latin America, Russia, and the Middle East—completed graduate or postgraduate degree programmes.

For the year 2019 alone, they have awarded 707 grants to 596 grantees totalling almost $200 million. the foundation's approach has been characterised by a continuous emphasis on building institutions and networks, investing in individuals and leadership, and supporting new ideas. Grants are open to the

public with proposals which address their seven programme areas focused on inequality.

In West Africa, their programs are centred on Natural Resources & Climate change and Gender, Racial & Ethnic justice, helping provide access to finance for women entrepreneurs.
www.fordfoundation.org

The German BACKUP Initiative – Education in Africa

BACKUP Education offers African partners quick, flexible and demand-oriented support in avoiding bottlenecks and filling funding gaps when applying for and using funds from the Global Partnership for Education (GPE) with an overall term spanning 2011 to 2020. African education ministries and civil society organisations can apply for support from BACKUP Education in various forms:

Fast Access Mode (up to EUR 20,000): funding for national capacity development activities, for example through participation in training courses or conferences (max. EUR 10,000 per person)

Consultancy Mode (up to EUR 50,000): funding for expert advice on applying for or implementing GPE funds. Project Mode (up to EUR 100,000): funding for larger-scale projects with various activities for applying for or implementing GPE funds.

As of February 2018, 186 applications by African education ministries and civil society organisations, covering activities in 39 African countries, have been supported.
www.giz.de/en/worldwide/15707.html

Deutsche Gesellschaft für International Zusammenarbeit (GIZ)

As a federally owned enterprise, GIZ supports the German Government in achieving its objectives in the field of international cooperation for sustainable development. GIZ implements vocational education and training initiatives for youths and young adults, such as the Skills Initiative for Africa. The objective is to equip them with appropriate skills to meet the demands of the labour market, especially the private sector. Activities include developing educational institutions, integrating companies into practical, cooperative vocational training schemes and supporting start-up centres. Furthermore, GIZ supports the exchange of expertise and information on a wide range of subjects, ranging from education for sustainable development, via climate change and sustainability, health and research.
www.giz.de/en/worldwide/africa.html

Global Affairs Canada

Global Affairs Canada leads the government of Canada's international development and humanitarian assistance, amounting to $5 billion in official development assistance in 2016-17. Canada joined the Global Partnership for Education in 2007. At the United Nations General Assembly in New York in 2018, Prime Minister Trudeau joined President Macron of France and the British prime minister in a plan to break down the barriers to the education of girls. Justin Trudeau had doubled funding for the GPE and stressed the need for the education of girls during conflict and crisis: "Educating girls isn't just something we should do, it is the most powerful lever not just to improve the world, but change the kind of world we are growing up in." Canada is adopting a Feminist International Assistance Policy to eradicate poverty and build a more peaceful, more inclusive and more prosperous world by promoting gender equality and empowering women and girls. Canada focuses efforts in sub-Saharan Africa on ten countries: Benin, Burkina Faso, Democratic Republic of Congo, Ethiopia, Ghana, Mali, Mozambique, Senegal, South Sudan and Tanzania and helps to fund the African Development Bank. Five of the world's twenty fastest growing economies are in sub-Saharan Africa.
www.international.gc.ca/world-monde/international_relations-relations_internationales/africa-afrique/index.aspx?lang=eng

Global Partnerships for Education (GPE)

Global Partnerships for Education helps governments finance the implementation of robust education sector plans that improve equity and learning. GPE leverages the financial support of donor countries, international organisations, the private sector and philanthropy to strengthen education systems in developing countries. GPE's 2020, aims to mobilise more and better financing for education by attracting additional donors to education, seeking increased financing from traditional donors, and advocating for increased domestic funding of education.

Since 2003, GPE has provided grants totalling US$5.3 billion: to partner developing countries to develop and implement their education sector plans, to civil society organisations to advocate for education for all and to partner organisations to support research and share best practices to resolve education challenges. In 2018, GPR launches a new financing and funding framework (FFF), which includes a mix of funding mechanisms to increase and leverage financing for education and deliver on the ambition of GPE 2020. Various types of grants are available to support education in their partner countries and globally.
www.globalpartnership.org/funding/gpe-grants

Hewlett Foundation

The institution awarded more than $400 million in grants in 2018 with a longstanding emphasis on education. $200 million was directed to higher education in Africa through partner or-

ganisations and institutions in Africa. 2018 saw over 160 grants awarded to a tune of $54 million towards education alone. Two backbone strategies are the Open Educational Resources, aimed at access provision to teachers and students worldwide and its K-12 Teaching and Learning programme.

The foundation awarded half a million dollars for November 2019 to the South African Institute for Distance Education, a non-profit organisation committed to enabling successful open learning through initiatives such as OER Africa. The OER Africa project will support a collaboration with African higher education institutions and organisations to develop professional competences and skills in creating and using OER. This work will enable educators to implement OER to improve the quality of teaching and learning.
www.hewlett.org/

Institute of International Education (IIE)
The IIE provides opportunities for students and scholars around the world. It supports flagship educational and cultural exchange programmes on behalf of the U.S Department of State and collaborates with multiple organisations to award grants to institutions.

It operates on three core foundations; Advance Scholarships, Build Economies and Promote Access to Opportunity. One of their flagship programmes is the TechWomen grants which addresses STEM education, advocacy for Women and Girls. In 2018, 616 fellows from 22 countries were supported by TechWomen with $3,000 cash grants each.

It manages 200+ programmes worldwide, including the Fulbright, Carnegie African Diaspora Fellowships – awarding grants. It represents a database of sponsors awarding scholarships to students from all over the world. Additionally, it supports scholars and students threatened by conflict and unrest in their home countries.
www.iie.org/

Irish Aid
Ireland is one of the world's highest aid donors when ranked as a percentage of gross national income and Irish Aid works with education ministries in the partner countries of Mozambique, Unganda, Zambia and Lesotho aimed at achieving universal primary education and lifelong education for girls and young women. "We recognise the fundamental right to education and we direct about 10% of our budget annually to education activities in our partner countries."
www.irishaid.ie/what-we-do/our-priority-areas/education/education-overview/

Japan International Cooperation Agency (JICA)
JICA is running a Master's Degree and Internship Programme of African Initiative for Youth, known as the ABE Initiative, in which young African men and women have been invited to take master's degree courses at Japanese universities and experience internships in Japanes companies. The "target partcipants" are young individuals working in African private sector businesses, young civil servants and young African teachers and instructors in African colleges, universities and research institutions who are "expected to contribute to Africa's development through joint research and development with Japanese companies." 1219 young Africans have so far taken up the three year courses.

JICA 's office in Egypt runs 720 training courses for 3,861 African trainees, in health, agriculture, water management, infrastructure, and business management. Celebrating the success of the Egypt – Japan education partnership, Yoshifumi Omura of JICA said in August 2019 that the Japanese agency's 30 African offices are providing comprehensive support for African partner countries in "curriculum development, teacher learning assessment, educational development, and construction of schools."
www.jica.go.jp/english/

Korea International Cooperation Agency KOICA
KOICA has doubled its development funding for Africa, supporting socio-economic development, especially in sub-Saharan Africa and the least developed countries, by accelerating their democratisation and freedom. It plans to expand bilateral grants from 24% to 35% by the year 2020. In 2016, KOICA provided 166 million dollars to partner countries of Africa, accounting for 17.3% of their total project expenses. After studying the partner country's level of economic development, needs and cultural diversity, they design special strategies. In the sub-Saharan countries KOICA is concentrating on education, healthcare, agriculture and fishing. KOICA has opened 16 offices in Africa and plans to send ICT and education experts to establish new offices in other African states.
www.koica.go.kr/sites/koica_en/index.do

Kuwait Fund
The Kuwait Fund was the first institution in the Middle East to take an active role in international development aid. Education projects have been running since 2001 and the Kuwait Fund has a strong relationship with Africa. Current projects include loans for the building of two polytechnic agrarian science institutes in Mozambique, four technical institutes in Uganda, and the development of 27 primary and secondary schools in Kenya.
www.kuwait-fund.org/en/web/kfund/home

MacArthur Foundation

MacArthur Foundation supports creative people, effective institutions, and influential networks building a more just, verdant, and peaceful world. It coordinates three main awards which are 100&change – which funds a single proposal to the tune of $100 million, MacArthur award for creative & effective institutions, an annual award that recognises exceptional Foundation grantees and the MacArthur Fellows for creative potentials.

Specifically, it supports people and organisations working to address a variety of complex societal challenges. Grants are available for wide-ranging proposals that meet their grant making guidelines.

www.macfound.org/

Mastercard Foundation

One of the largest foundations in the world, it works almost exclusively in Africa to advance learning. Established in 2006, it operates independently under the governance of its own board of directors, running the Mastercard Foundation Scholars Program that is intended to develop Africa's next generation of leaders. Financial support is given to the scholars including tuition fees, accommodation, and materials. The foundation operates in 26 African countries with current funding opportunities for leaders in Teaching, Innovations in Secondary Education. The main areas of focus are financial literacy and inclusion, youth development and education.

Applications for funding are accepted annually for the benefit of any citizen in any of the countries where the foundation operates. Grants are not made to members of the general public for independent projects.

www.mastercardfdn.org

Norwegian Agency for Development Cooperation (Norad)

Norway is a significant donor, doubling funding for education aid in ten years. Norwegian aid goes to Africa through international organisations. Government white paper number 25 of 2013 aimed at nothing less than world leadership in the effort to secure primary education to all the children in the world. Norway has been a member of the Global Partnership for Education since 2001 and the University of Oslo is working with Norad funding in Gambia as Gambia's ministry of education pilots an education information management scheme (EMIS) in targeted districts for collection of data for analysis and decision making.

Norad is active in Tanzania with EPINAV (Enhancing Propoor Innovations in Natural Resources and Agricultural Valuechains) supporting thirty master's degree students and five doctoral degree students.

www.norad.no/en/front/countries/

Open Society Foundations

The Open Society Foundations created by the Hungarian – American George Soros, are the world's largest private funders of independent groups campaigning for justice, democratic governance and human rights. George Soros opened his first international foundation in Hungary in 1984. Today, the Open Society Foundations support a vast array of projects in more than 120 countries, providing thousands of grants every year through a network of national and regional foundations and offices.

The first Soros foundation in Africa started giving scholarships to black South African students in 1979, before the end of Apartheid. The Open Society Foundations have been funding an Early Childhood Programme in Liberia since 2007. The national childhood development system includes a national curriculum and a training system for teachers. The foundations also support colleges and universities in the Soros spirt of "access to education for all."

www.opensocietyfoundations.org/what-we-do/regions/africa

Rockefeller Foundation

Its regional office oversees the foundations work across Africa, which includes initiatives in youth employment, health and philanthropy. Its flagship initiative is the Digital Jobs Africa to train and scale demand-driven skills for youth. An investment of $100 million to this initiative, more than 150,000 youths have been trained and a further 455,000 connected to jobs. The foundation also supports research that showcase the business and social values of impact sourcing and partners with government and industry to create an environment for impact sourcing to flourish in the regions where they work. The foundation also supports a range of partner organisations to scale impact sourcing – particularly in Africa, where the foundation sees growing youth unemployment. It works with partners to provide skills training to high-potential, disadvantaged youths through demand driven training.

www.rockefellerfoundation.org/about-us/offices-contact-us/nairobi-kenya/

Swedish International Development Cooperation Agency (Sida)

The Swedish International Development Cooperation Agency, Sida, is a government agency working on behalf of the Swedish parliament and government, with a mission to reduce poverty in the world.

Particular attention is given to gender equality to education initiatives that improve gender equality.

www.sida.se/English/where-we-work/Africa

Swiss Agency for Development and Cooperation (SDC)

Basic education and vocational training is a key sector for the SDC, which aims to help provide education to all members of society, with a particular focus on helping the most disadvantaged groups. The SDC has been a partner in the Global partnership for Education since 2009 and is lead donor in local education groups in Chad where a Strategy for Education and Literacy has been running since 2013 and has been extended with Swiss funding to 2020.

The education group in Chad, chaired by the Secretary General of the education ministery includes trade unions and civil society leaders along with donors, such as Agence Française du Développement (AFD), the Islamic Development Bank (IsDB), the World Bank, and United Nations bodies, including the World Food Program (WFP), Unicef, UNESCO and UNHCR.

In Mali SDC funded fast track schooling for nomadic children, applying the „pedagogy of text" approach pioneered in 1987 by Enfants du Monde according to the declaration that "every child has a right to quality education". In Zamblan community agro-pastoral training centres SDC funds gave an education to 11,100 children who had gone missing from school.

www.eda.admin.ch/sdc

UNESCO

UNESCO, the Paris-based United Nations Educational, Scientific and Cultural Organisation with 139 members nations is chasing a target known as Education 2030, expressed in the 2015 Incheon declaration for the delivery „inclusive and equitable quality education and promote lifelong learning opportunities for all". They will convene a global meeting „Educating for an Inclusive and Sustainable Future" in Tunisia in December 2019 after four years of „Transforming Education in Africa" fostering human and social development in Mozambique, Rwanda and Zimbabwe, through information and communication technology (ICT), especially mobile learning. The funding beneficiaries have been teachers and students, primary and secondary public schools, higher education institutions, policy-makers, educational administrators and leaders on a UNESCO-Korea Funds-in-Trust budget of $6 million.

www.en.unesco.org/themes/ict-education/kfit

Unicef

Unicef supports anyone in any country that can generate evidence on how and where to make the most effective investments for children, particularly in West and Central Africa: "The region accounts for one-third of the global total of primary school age children and one-fifth of lower secondary age children who are out of school. Children and adolescents caught up in humanitarian emergencies are especially vulnerable to missing out on schooling or dropping out of school permanently. The region also lags behind in gender equality in education: for every ten boys enrolled in primary school, there are only nine girls. These differences get bigger as children progress through the school system. Many children do not get the best start in life. Only one in four children in the region has access to early childhood learning, care, and stimulation. This means that they start first grade at a disadvantage, not ready to tackle the demands of primary education. Another challenge is the quality of education. Even pupils who complete basic education face a slim chance of high-quality learning. This is despite the need for quality education to help prepare children with the skills, knowledge, values, and attitudes required for success in the 21st century.

https://www.unicef.org/wca/what-we-do/education

United States Agency for International Development (USAID)

United States Agency for International Development (USAID) USAID, with Ausaid and World Vision is assisting the Government of South Africa, now spending 5% of GDP on education.

USAID supports a School Capacity & Innovation Programme to strengthen classroom and school management, concentrating on primary grade reading as a measure of performance where the New York-based ELMA Foundations match USAID funding on a one-to-one, co-funded basis.

www.usaid.gov/education

United Nations Girls' Education Initiative (UNGEI)

The United Nations Girls' Education Initiative (UNGEI) is committed to accelerating action on girls' education to realise „a world where all girls and boys are empowered through quality education to realise their full potential and contribute to transforming societies where gender equality becomes a reality." By 2030, the UNGEI partnership aims to support:

- Countries to achieve measurable change in girls' education and gender equality; and
- Global and national development agendas to reflect emerging concerns on girls' education and gender equality, especially for the most marginalised.

UNGEI is committed to responding to the urgency of action needed to tackle issues for today's generation of girls. It believes in strengthening linkages and complementarity with other partners, networks and coalitions to maximise resources and results for girls' education and gender equality.

www.ungei.org/index.php

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www.usaid.gov/education

The Varkey Foundation

The Varkey Foundation has trained 46,000 teachers, improved school leadership in over 3,000 schools, and transformed learning quality for more than 1.6 million pupils. Nominations for its Global Teacher Prize 2020 closed on October 14. The million dollar award was established in 2014 to "recognise and celebrate the impact that teachers have around the world – not only on their students but on the communities around them."
In Ghana, the Varkey Foundation runs an Instructional Leadership Programme with highly trained professional teachers guiding inexperienced teachers in local schools to raise standards. Nine per cent of Ugandan primary school teachers have now had some ILP training from the 2,654 instructional leaders certified by the Varkey Foundation.
www.varkeyfoundation.org

The World Bank

The World Bank works on education on education programmes in more than 80 countries, helping them to reach SDG4, the United Nations' Sustainable Development Goal 4 aiming to „ensure inclusive and equitable quality education and promote lifelong learning" in a world where 262 million children and youths aged 6 to 17 were out of school in 2017. The World Bank Group is the largest external financier of education in developing countries, from pre-primary and primary education through higher education, $45 billion in education since 2000. The bank arranged official development assistance [ODA] for scholarships amounting to $1.3 billion in 2017, two thirds coming from institutions in Australia, Japan and the European Union.

On October 5, World Teachers' Day, when they celebrate „the only profession that determines how all other professions will do", Tara Beteille, leader of the World Bank's Teachers Thematic Group, revealed that the Bank has been working closely with the Democratic Republic of Congo, Mauritania and Ethiopia to improve teacher preparation: „The World Bank Group will continue to work closely with countries to reform teacher policies and programs so that every classroom has a competent, empowered, and motivated teacher."
www.worldbank.org/en/topic/education/brief/the-global-partnership-for-education-and-the-world-bank-group-the-facts

Country profiles

Education and technology statistics and analysis from across Africa

The eLearning Africa Country Profiles section is a guide to recent developments relevant to education, training, governance, development and technology in Africa. It is not exhaustive but it does provide some useful statistics and a snapshot of the political and economic situation, together with an assessment of progress in education and technology.

Whilst Africa is not a single country, although it may soon be a single market, it is clear that the continent is advancing steadily. It is still a long way from being the 'transformed continent' that the African Union believes it will become by 2063 but progress is being made. In almost every country, it seems that there is an awareness of the importance of the combination of education and technology, coupled with at least some understanding of what needs to be done.

The sources informing the country profiles varied, but followed some of the same patterns. Each country's profile set out to consider four factors: political situation, economic situation, educational initiatives and ICT initiatives. Some profiles combine education and ICT and some feature the political and economic analysis or information in the same paragraph. However, all follow the same research methodology. Sources included African governments, a variety of news organisations, the World Bank, UNICEF, the Global Partnership for Education, USAID and other development organisations, together with many other institutions,such as the Oxford Business Group. All sources are mentioned in the text or in the lists of key statistics.

ACRONYMS

WB: World Bank

DR: Digital Report

UIS: UNESCO Institute for Statistics Database

Algier

Algeria

With ambitions to be a gateway between Africa and Europe, the People's Democratic Republic of Algeria attracts global attention in politics, economics and infrastructure. Following a fourth term, President Abdelaziz Bouteflika resigned in April 2019. Abdelkader Bensalah, formerly the speaker of the upper house of parliament, is now interim president, until elections scheduled for the 12th of December this year. Algeria has remained a regional counterterrorism stronghold despite political tension and growing extremism in the Sahara.

Education infrastructure remains a priority for the country, with impressive results. With high enrolment rates, free education across the primary, secondary, and higher levels, and gender parity across the primary, secondary, and tertiary levels, Algeria sets a strong example for the region. In spite of this, international organisations, including the World Bank, have said that the country must now focus on improving the quality of education through teacher training and lesson development, as it ranked 68 out of 70 in the 2016 PISA assessments.

The World Economic Forum has suggested that, in order to cope with a large quantity of individuals entering the labour market over the next few years, Algeria's economy needs to grow by 6% annually. At present, 95% of the economy is accounted for by natural gas and oil. The priority for the future is developing an advanced digital economy, as this will create jobs and decrease Algeria's reliance on oil as prices continue to drop. Current ICT initiatives include Law No. 18-04, adopted in June 2018, which established a new fund for the ICT sector, connecting 560 zones that were previously unprofitable for network operators. This law is expected to continue to increase competition, and attract virtual network and mobile operators to the market. Such initiatives have allowed Algeria to move up 20 positions to 130th out of 193 UN Member states in the UN E-Government Survey 2018.

Despite the fact that telecoms still dominate the ICT sector in Algeria, digitisation, diversification, and cybersecurity efforts are combining to create a positive outlook, according to the Oxford Business Group's 2018 report. Algeria is a large market that is ideally located between developing and developed countries, and has ample opportunities in developing its digital economy to allow for increased competition and provide jobs for an educated workforce, to turn it into a regional leader.

ICT & INFRASTRUCTURE

Internet users (% of population) **47.7** (WB 2018)
(% of individuals using the Internet)
68.1 (males), 50.3 (females) (ITU 2018)
Fixed broadband subscriptions (per 100 people)
7.7 (WB 2017)
Monthly active users on Facebook **22 million**
62% (males), 38% (females) (DR 2019)
Monthly active users on Instagram **4.4 million**
59 % (males), 41% (females) (DR 2019)
Mobile subscriptions (per 100 people)
111.0 (WB 2018)
Television companies Government-owned: ENTV [Canal Algerie, Algerie 3, Amazigh tv 4, Coran tv 5]; Independent: Chorouk TV
Radio stations Government-owned: Radio Algerienne

EDUCATION

Government expenditure on education total (% of GDP) **4.3** (WB 2008)
Primary enrolment (% gross) **111.7** (WB 2018)
Primary completion rate total (% of relevant age group) **106** (WB 2018)
Secondary enrolment (% gross) **97** (WB 2010)
School enrolment Gender parity index (GPI)
Primary (gross) **1.0**
Secondary (gross) **1.0**
Tertiary (gross) **1.5** (WB 2017)
Expected years of school
11 (male), **11.8** (female) (WB 2017)
Out of school rate for children of primary age
0.35 (UIS Database 2018)
Literacy rate (UIS 2017)
Males (15-24), **97.59%,** Females (15-24) **97.25%**
Males (25-64) **89.38%,** Females (25-64) **76.40%**
Unemployment (% of total labour force)
12.1 (ILO 2018)

SOCIETY & POLITICS

Date of independence 3 July 1962 (from France)
Style of government Semi-presidential republic
Leader(s) Interim President Abdelkader Bensalah (since April 2019)
Next Election Presidential election, 12 December 2019
Proportion of seats held by women in national parliament **26%** (WB 2018)
Population total (millions) **42.23** (WB 2018)
Population growth rate (annual) **2.0%** (WB 2018)
Fertility rate total (births per woman) **2.7** (WB 2018)
Mortality rate under 5 (per 1,000 live births)
24 (WB 2018)
Life expectancy at birth total (years) **76** (WB 2018)
GDP (PPP) (millions) **659,686.58** (WB 2018)
GDP growth rate (annual) **2.1%** (WB 2018)
GDP by sector (% of GDP)
agriculture 12%, industry 37% (WB 2018)
Languages Arabic (official), French, Berber
Major religion(s) Islam
Monetary unit Algerian Dinar

Angola

Luanda

The Republic of Angola, in southwest Africa, has both a diverse landscape and diverse neighbours, sharing borders with the Democratic Republic of the Congo, Zambia, and Namibia. Angola has overcome political obstacles following its independence from Portugal in 1975 and the conclusion of a 27-year civil war in 2002. The country has maintained political stability since then, creating a constitution in 2010 which established a presidential parliamentary system. President Joao Lourenco was elected in September 2017 and the country's first local elections are planned for 2020. Angola has also become a peacemaker in its region, committing to economic and political sanctions against Great Lakes rebel groups and mediating tensions between Uganda and Rwanda in July 2019.

President Lourenco and his administration have embraced reforms in order to grow Angola's economy, resulting in a tight monetary policy and a substantial budget surplus in 2018. The Government has also implemented laws to enhance private sector growth and taken steps to reform public utilities, utility tariffs and subsidies. Although macroeconomic stability is increasing, Angola's economy is affected by lower oil prices and production levels. The oil sector accounts for one third of GDP and about 90% of all exports. However, Angola is a rising star in information and communication technology, hosting ANGOTIC, the Angola ICT forum, in June 2019. Both the Vice President of Angola, Dr. Bornito de Sousa Baltazar Diogo, and the Minister of Telecommunications and Information Technologies, Mr. José Carvalho da Rocha, made remarks at the forum's inauguration which highlighted the importance of investment in ICT and the role of ICT in public services.

After suffering the effects of civil war, the education infrastructure in Angola is growing. From 2000 to 2017, Angola's Human Development Index (HDI) value, a United Nations metric used to measure a country's wellbeing, has increased from 0.387 to 0.581. This is due to a commitment from the government to enhance the quality of education, which includes fostering gender parity in access to education. Projects from organisations such as the World Bank to train educators and work on inclusiveness have been welcomed by the government.

ICT & INFRASTRUCTURE

Internet users (% of population) **14.3** (WB 2018)
(% of individuals using the Internet by gender) **22.4 (males)**, **20.2 (females)** (ITU 2014)
Fixed broadband subscriptions (per 100 people) **0.33** (WB 2017)
Monthly active users on Facebook **3.5 million**
60% (males), 40% (females) (DR 2019)
Monthly active users on Instagram **380 thousand**
57% (males), 43% (females) (DR 2019)
Mobile subscriptions (per 100 people) **44.7** (WB 2018)
Television companies State owned: Televisao Publica de Angola; Private station: TV Zimbo
Radio stations Government-owned: Radio Nacional de Angola

EDUCATION

Government expenditure on education total (% of GDP) **3.5** (WB 2010)
Primary enrolment (% gross) **113.3** (WB 2018)
Primary completion rate total (% of relevant age group) **40** (WB 2010)
Secondary enrolment (% gross) **51** (WB 2018)
School enrolment Gender parity index (GPI)
Primary (gross) **0.9** (WB 2015)
Secondary (gross) **0.6** (WB 2016)
Tertiary (gross) **0.8** (WB 2016)
Expected years of school
8.7 (male), **7.1** (female) (WB 2017)
Proportion of schools with access to the Internet for pedagogical purposes (UIS 2016)
Primary schools **2.7%**
Secondary schools **16.7%**
Literacy Rate (UIS 2013)
Males (15-24) **84.86%,** Females (15-24) **70.59%**
Males (25-64) **79.37%,** Females (25-64) **47.13%**
Unemployment (% of total labour force) **7.3** (ILO 2018)

SOCIETY AND POLITICS

Date of Independence
11 November 1975, from Portugal
Style of government Unitary presidential republic
Leader President Joao Lourenco
Proportion of seats held by women in national parliament **31%** (WB 2018)
Population total (millions) **30.81** (WB 2018)
Population growth rate (annual) **3.3%** (WB 2018)
Fertility rate total (births per woman) **5.6** (WB 2018)
Mortality rate under 5 (per 1,000 live births) **81** (WB 2018)
Life expectancy at birth total (years) **62** (WB 2018)
GDP (PPP) (millions) **198,444.95** (WB 2018)
GDP growth rate (annual) **-2.1%** (WB 2018)
GDP by sector (% of GDP)
agriculture 10%, industry (WB 2018)
Languages Portuguese (official), Bantu and other African languages
Major religion(s) Christianity
Monetary unit kwanza

Benin

Porto-Novo

Since its transition to democracy in the 1990s, Benin has enjoyed relative stability, in spite of allegations of political corruption. President Patrice Talon, a multi-millionaire cotton executive, was elected in 2016, and ran on a promise to tackle both this corruption and cross-border terrorism. He has also championed initiatives for free market reforms.

Benin's economy, although heavily reliant on re-export and transit trade with Nigeria, as well as on agriculture, has managed to accelerate GDP growth from 5.6% in 2017 to 6.9% in 2018. Investments in public infrastructure and in the service sector were significant factors contributing to growth. The education and health sectors account for a significant share of public expenditure. However, the World Bank suggests that greater efficiency in this spending is needed, in order to in order to distribute resources more equitably and diminish poverty rates.

A project by the World Bank approved $100 million in July 2019 from the International Development Association to support the government's efforts to improve access to ICT in rural areas of the country and to promote the use of digital solutions to agricultural problems. This project, entitled the 'Digital Rural Transformation Project', aims to increase the productivity and competitiveness of the agricultural and ICT sectors. 1.6 million smallholder farmers and 560,000 workers from across the rice, maize, shea and vegetable supply chains are expected to benefit from this project.

Investment in education, by the World Bank as well as the Government, has lowered dropout rates and improved Benin's ranking on the human development index, which now stands at 127 out of 157 countries. The conclusion of a 2014-2019 project by the World Bank in rural areas of Benin has shown that this is likely to be best accomplished not only through the curriculum, but also by providing necessary resources, such as a meal for children who trek multiple miles to get to and from school. In Benin, the establishment of canteens providing lunch has reduced absenteeism and dropout rates, provided 89,000 children in 25 communes with hot meals from local providers. Continued investment in education will yield results that not only benefit students in the short-term, but improve the human capital of Benin in the long-term.

ICT & INFRASTRUCTURE

Internet users (% of population) **78.5** (WB 2018)
Fixed broadband subscriptions (per 100 people) **0.26** (WB 2017)
Monthly active users on Facebook **1.2 million 67% (males), 33% (females)** (DR 2019)
Monthly active users on Instagram **160 thousand 70% (males), 30% (females)** (DR 2019)
Mobile subscriptions (per 100 people) **14.1** (2018 WB)
Television companies
State-run Television du Benin [ORTB]
Radio stations National & regional state-owned stations, many private providers

EDUCATION

Government expenditure on education total (% of GDP) **4.0** (WB 2016)
Primary enrolment (% gross) **126.6** (WB 2018)
Primary completion rate total (% of relevant age group) **81** (WB 2018)
Secondary enrolment (% gross) **9** (WB 2018)
School enrolment Gender parity index (GPI)
Primary (gross) **0.9** (WB 2017)
Secondary (gross) **0.8** (WB 2016)
Tertiary (gross) **0.4** (WB 2016)
Expected Years of School (WB 2017) **9.8 (males), 8.9 (females)**
Out-of-school rate for children of primary age **2.79%** (UIS 2018)
Literacy Rate (UIS 2017)
Males (15-24) **69.76%,** Females (15-24), **51.94%**
Males (25-64) **47.71%,** Females (25-64) **22.45%**
Unemployment (% of total labour force) **2.1** (ILO 2018)

SOCIETY & POLITICS

Date of Independence 1 August 1960, from France
Style of government Presidential republic
Leader President Patrice Talon
Proportion of seats held by women in national parliament **7%** (WB 2018)
Population total (millions) **11.49** (WB 2018)
Population growth rate (annual) **2.7%** (WB 2018)
Fertility rate total (births per woman) **4.9** (WB 2018)
Mortality rate under 5 (per 1,000 live births) **98** (WB 2018)
Life expectancy at birth total (years) **61** (WB 2018)
GDP (PPP) (millions) **27,799.33** (WB 2018)
GDP growth rate (annual) **6.9%** (WB 2018)
GDP by sector (% of GDP) **agriculture 23%, industry 21%** (WB 2018)
Languages French (official), Fon and Yoruba, indigenous languages
Major religion(s) Indigenous beliefs, Christianity, Islam
Monetary unit CFA franc

Botswana

Gaborone

Following its independence from the United Kingdom in 1966, Botswana was one of the world's poorest countries. Today it is one of Africa's success stories – with a stable multi-party democracy and a booming mineral economy. Following the end of his five year term, President Ian Khama stepped down in April 2018 and Vice-President Mokgweesi Eric Masisi assumed the Presidency. President Masisi will stand in the next general election, scheduled for October 2019.

Botswana's economy has grown by an average of 5% per annum over the past decade, making it one of the world's fastest growing economies. While vulnerable to international market fluctuations due to reliance on commodities, the country's economic growth will continue to grow and be driven by mining activity, construction, investment in the services sector, and larger public investments. However, unemployment has remained high. Suggestions from the World Bank include reforming public institutions to allow for private sector job creation, entrepreneurship, and creating opportunities for unemployed youth. Although education expenditure is among the highest in the world, and includes nearly universally free primary education, it has not created a skilled workforce.

Education initiatives still need to become a greater priority, to encourage long-term investment in reducing youth unemployment and to foster entrepreneurship. The last World Bank project on Education in Botswana was concluded in September 1992, and provided primary and secondary school classrooms, as well as vocational training centres. Further investment in curriculum, teacher training, and ICT initiatives could yield greater results.

A major project for ICT in education in the country with partnership from UNESCO, entitled 'The Botswana Education and Training Sector Strategic Plan' (ETSSP 2015-2020) has been launched. ETSSP has five thematic programmes from early childhood to tertiary and vocational educations: 1) Lifelong Learning, 2) Information and Communications Technology, 3) Curriculum Development, 4) Human Resource Development, and 5) Education Management and Information System reform. This project involves an ICT literacy report, extensive surveying of existing ICT presence in education, and education reform across all age groups and with good gender parity.

ICT & INFRASTRUCTURE

Internet users (% of population) **41** (WB 2018)
(% of individuals using the Internet by gender) **40.5 (males), 33.8 (females)** (ITU 2014)
Fixed broadband subscriptions (per 100 people) **1.42** (WB 2018)
Monthly active users on Facebook **990 thousand** **51% (males), 49% (females)** (DR 2019)
Monthly active users on Instagram **110 thousand** **50% (males), 50% (females)** (DR 2019)
Mobile subscriptions (per 100 people) **141.4** (WB 2018)
Television companies State-owned Botswana Television [BTV]; Privately owned Gaborone Broadcasting Company [GBC]
Radio stations National state-owned radio: Radio Botswana and Radio Botswana 2; some private stations

EDUCATION

Government expenditure on education total (% of GDP) **9.6** (WB 2009)
Primary enrolment (% gross) **109.4** (WB 2009)
Primary completion rate total (% of relevant age group) **98** (WB 2009)
Secondary enrolment (% gross) **78** (WB 2008)
School enrolment Gender parity index (GPI)
Primary (gross) **1.0** (WB 2014)
Tertiary (gross) **1.4** (WB 2017)
Expected years of school **8.0 (male), 8.8 (female)** (WB 2017)
Out-of-school rate for children of primary age **11.05** (UIS 2014)
Primary schools **2.7%**
Secondary schools **16.7%**
Literacy Rate (UIS 2013)
Males (15-24) **95.94%,** Females (15-24) **99.40%**
Males (25-64) **86.74%,** Females (25-64) **88.50%**
Unemployment (% of total labour force) **17.9** (ILO 2018)

SOCIETY AND POLITICS

Date of Independence
30 September 1966, from Britain
Style of government Parliamentary republic
Leader President Mokgweetsi Masisi
Next Election General election, 23 October 2019
Proportion of seats held by women in national parliament **10%** (WB 2018)
Population total (millions) **2.25** (WB 2018)
Population growth rate (annual) **2.2%** (WB 2018)
Fertility rate total (births per woman) **2.7** (WB 2018)
Mortality rate under 5 (per 1,000 live births) **38** (WB 2018)
Life expectancy at birth total (years) **68** (WB 2018)
GDP (PPP) (millions) **41,888.35** (WB 2018)
GDP growth rate (annual) **4.5%** (WB 2018)
GDP by sector (% of GDP) **agriculture 2%, industry** (WB 2018)
Languages English (official), Setswana, Kalanga, Sekgalagadi, indigenous languages
Major religion(s) Christianity, indigenous beliefs
Monetary unit Pula

Burkina Faso

Ouagadougou

Land-locked in the Sub-Sahara, Burkina Faso has limited natural resources and is experiencing increasingly challenging security conditions, such as more frequent terrorist attacks. The Sahel Alliance, established in 2017 by the European Union, France, Germany, the United Nations Development Programme, the African Development Bank, and the World Bank, has gathered support for Burkina Faso and the surrounding countries with security efforts and regional stabilisation. Burkina Faso held 'Flintlock 2019', a multinational military exercise involving over 2,000 service members from more than 30 African and western partner nations from February to March 2019. In February 2019, President Roch Kabore assumed the role of rotating president of the G5 Sahel.

In spite of the challenges to national security and an increase in oil prices, economic growth remained at 6% throughout 2018. The services sector, including telecommunications, financial services, and international events, is promising. Cotton is the country's most important cash crop, and gold exports have also become an important facet of the economy in recent years, but the instability and volatility of the prices of these crops could prove difficult in the future. Continued investment in ICT is to the credit of the Government and to President Kabore – Burkina Faso was the first country in the region to launch an open data initiative, and an ambitious project, 'eBurkina', backed by President Kabore, aims to bring eGovernment to rural and underserved areas, allowing the country to become a centre of online innovation and digitally connect a widely spread population. The eBurkina project is supported by the Government and by the World Bank, and will digitally connect public agencies, schools, and health facilities; register all children and create a unique digital ID for each citizen; improve education, health, and agriculture by developing eEducation, eHealth, and eAgriculture services; and promote a vibrant ICT industry, through investments in incubation centres, innovation and research and development.

Education is also a priority for the country. A project in coordination with the World Bank, entitled the 'Burkina Faso Higher Education Support Project', aims to strengthen higher education institutions to increase access and deliver quality education in rural areas. This includes the establishment of the Virtual University of Burkina Faso, supporting competitive grants, and supporting faculty development, among other initiatives. The Minister of Higher Education and Scientific Research of Burkina Faso, Mr. Alkassoum Maiga, told the State of Africa 2018 conference that the country had established a successful centre for generating new technologies, a National Centre for Scientific Research and Technology.

ICT & INFRASTRUCTURE

Internet users (% of population) **15.9** (WB 2018)
Fixed broadband subscriptions (per 100 people) **0.06** (WB 2017)
Monthly active users on Facebook **1.3 million 75% (males), 25% (females)** (DR 2019)
Monthly active users on Instagram **110 thousand 70% (males), 30% (females)** (DR 2019)
Mobile subscriptions (per 100 people) **93.5** (2018 WB)
Television companies: Government-owned Television Nationale du Burkina; one privately operated television station
Radio stations: State-owned Radiodiffusion-Television du Burkina [RTB], many private stations

EDUCATION

Government expenditure on education total (% of GDP) **4.2** (WB 2015)
Primary enrolment (% gross) **93.7** (WB 2018)
Primary completion rate total (% of relevant age group) **64** (WB 2018)
Secondary enrolment (% gross) **38** (WB 2018)
School enrolment Gender parity index (GPI)
Primary (gross) **1.0** (WB 2017)
Secondary (gross) **1.0** (WB 2017)
Tertiary (gross) **0.5** (WB 2017)
Expected Years of School (WB 2017) **6.6 (males), 6.4 (females)**
Out-of-school rate for children of primary age **20.66%** (UIS 2018)
Proportion of schools with access to the Internet for pedagogical purposes (UIS 2018)
Primary schools **0.1%**
Secondary schools **1.6%**
Literacy Rate (UIS 2017)
Males (15-24) **61.79%,** Females (15-24), **54.67%**
Males (25-64) **44.39%,** Females (25-64) **22.21%**
Unemployment (% of total labour force) **6.1** (ILO 2018)

SOCIETY & POLITICS

Date of Independence 5 August 1960, from France
Style of government Semi-presidential republic
Leader President Roch Marc Kabore
Proportion of seats held by women in national parliament **11%** (WB 2018)
Population total (millions) **19.75** (WB 2018)
Population growth rate (annual) **2.9%** (WB 2018)
Fertility rate total (births per woman) **5.3** (WB 2018)
Mortality rate under 5 (per 1,000 live births) **81** (WB 2018)
Life expectancy at birth total (years) **61** (WB 2018)
GDP (PPP) (millions) **39,010.01** (WB 2018)
GDP growth rate (annual) **6.5%** (WB 2018)
GDP by sector (% of GDP) **agriculture 29%, industry 20%** (WB 2018)
Languages: French (official), Sudanic languages
Major religion(s): Indigenous beliefs, Islam, Christianity
Monetary unit: CFA franc

Burundi

In recent years, Burundi, a land-locked country in the Great Lakes region, has been challenged by political instability, high poverty rates, food insecurity, and a heavy reliance on international aid. The country withdrew from the International Criminal Court in 2017, rejected the deployment of 228 UN police officers in the country, and refuted findings of deterioration in the socioeconomic and humanitarian situation in a UN Special Envoy report. In October 2018, 140 foreign non-governmental organisations were suspended and given new registration obligations, resulting in only 93 returning to work following their acceptance of these requirements.

In spite of these challenges, the economy is recovering from a 2015-2016 recession, growing at 1.6% in 2018 as compared with 0.5% in 2017, -0.6% in 2016, and -3.9% in 2015. The World Bank emphasises that the creation of budgetary resources to finance public investment and the strengthening of the financial sector, as well as overcoming political challenges, are necessary conditions to continue growth and achieve the stability of pre-recession levels.

Aid for strengthening education in Burundi continues, with an example in the 'Early Grade Learning Project' backed by the IDA. This project, established in May 2018, aims to reform the entire education system, in order to improve completion rates and the quality of education, by creating a nine-year primary education programme.

Current ICT initiatives in Burundi include the COMGOV project, backed by the Ministry of Communications to create a data and application server, and a website and government mail server; a national health plan using ICT from the Ministry of Health, including an eHealth Enterprise Architecture to establish a health datacentre and intranet between health facilities, among other initiatives; and a website to support data exchange in relation to agriculture, livestock farming, and environmental issues from the Ministry of Agriculture. There is also an ambitious initiative named the 'Burundi Education and Research Network', which to date has connected 15 universities to the Internet and is expanding to connect some Government institutions.

ICT & INFRASTRUCTURE

Internet users (% of population) **5.6** (WB 2018)
(% of individuals using the Internet by gender) **3.9 (males), 1.5 (females)** (ITU 2017)
Fixed broadband subscriptions (per 100 people) **0.04** (WB 2017)
Monthly active users on Facebook **470 thousand 67% (males), 33% (females)** (DR 2019)
Monthly active users on Instagram **41 thousand 64% (males), 36% (females)** (DR 2019)
Mobile subscriptions (per 100 people) **54.5** (WB 2018)
Television companies Government-owned: Burundi National Radio and Television [RTNB]
Radio stations Government-owned: Burundi National Radio and Television [RTNB]; some private radio stations

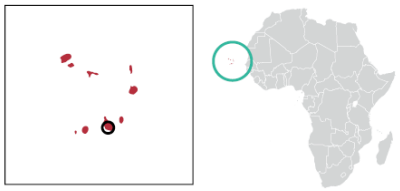
EDUCATION

Government expenditure on education total (% of GDP) **4.3** (WB 2017)
Primary enrolment (% gross) **126.2** (WB 2018)
Primary completion rate total (% of relevant age group) **70** (WB 2018)
Secondary enrolment (% gross) **50** (WB 2018)
School enrolment Gender parity index (GPI)
Primary (gross) **1.0** (WB 2014)
Secondary (gross) **1.0** (WB 2017)
Tertiary (gross) **0.4** (WB 2017)
Expected years of school **7.7 (male), 7.3 (female)** (WB 2017)
Out-of-school rate for children of primary age **6.39** (UIS 2018)
Proportion of schools with access to the Internet for pedagogical purposes (UIS 2018)
Primary schools **0.1%**
Secondary schools **1.6%**
Literacy Rate (UIS 2017)
Males (15-24) **61.79%,** Females (15-24) **54.67%**
Males (25-64) **44.39%,** Females (25-64) **22.21%**
Unemployment (% of total labour force) **6.1** (ILO 2018)

SOCIETY AND POLITICS

Date of Independence 5 August 1960, from France
Style of government Semi-presidential republic
Leader President Roch Marc Kabore
Proportion of seats held by women in national parliament **11%** (WB 2018)
Population total (millions) **19.75** (WB 2018)
Population growth rate (annual) **2.9%** (WB 2018)
Fertility rate total (births per woman) **5.3** (WB 2018)
Mortality rate under 5 (per 1,000 live births) **81** (WB 2018)
Life expectancy at birth total (years) **58** (WB 2018)
GDP (PPP) (millions) **8,301.4** (WB 2018)
GDP growth rate (annual) **1.6%** (WB 2018)
GDP by sector (% of GDP)
agriculture 31%, industry 12% (WB 2018)
Languages French (official), Kirkundi, Swahili
Major religion(s) Christianity, Islam
Monetary unit Burundi Franc

Cabo Verde



A stable democracy, Cabo Verde is located off the west coast of Africa, and is an archipelago of ten islands, nine of which are populated. The current Government of Cabo Verde, which has been in office since 2016, is led by President Jorge Carlos Fonseca, formerly the Minister of Foreign Affairs from 1991-1993. Cabo Verde has a Freedom Rating of 1, making it a prime example of free democracy in Africa.

The country's economy is mainly driven by tourism. Challenges include geographical factors, due to the population being spread across nine islands; connectivity issues, as well as service delivery problems across the energy, water, education and health sectors. Another challenge was met in 2017, when a year-long drought affected the agricultural sector, which employs 15% of the population. The World Bank suggests rebuilding fiscal buffers to absorb future shocks, as well as diversification within and beyond the tourist sector and more flexible labour markets. Cabo Verde is socially progressive, and has developed a number of social initiatives in partnership with international organisations, such as the World Bank 'Social Inclusion Project'.

The country has also partnered with the World Bank and other international organisations on projects in the education sector. One such project is the 'Cabo Verde Education and Skills Development Enhancement Project', which supports basic education reform, but also provides scholarships to 2,000 young Cabo Verdeans in priority training programmes. With good gender parity across primary to tertiary school enrolment, Cabo Verde also sets an example in the region for equal rights to education. Another important factor in education is access to ICT and ICT literacy; and the country has Internet access for educational purposes in some primary schools and across all secondary schools.

ICT initiatives are imperative for Cabo Verde, due to the reliance on the service sector in the economy. Huawei, the Chinese ICT company, is assisting NOSi, Cabo Verde's Operational Information Society Nucleus, in an eGovernment project. This project has already achieved the creation of a national data centre, providing information services for the government, enterprises and institutions of Cabo Verde and some surrounding countries; the development of backbone networks and wireless broadband; and the establishment of 21 telepresence videoconferencing systems for the government. In the second phase of the project, Huawei and NOSi also developed the integrated ICT training system WebLab with the Cabo Verde Ministry of Education, in order to support ICT talent and promote social information sharing and development.

ICT & INFRASTRUCTURE

Internet users (% of population) **57.2** (WB 2018)
(% of individuals using the Internet by gender) **59.4 (males), 56.9 (females)** (ITU 2017/18)
Fixed broadband subscriptions (per 100 people) **2.74** (WB 2017)
Monthly active users on Facebook **260 thousand** **52% (males), 48% (females)** (DR 2019)
Monthly active users on Instagram **66 thousand** **52% (males), 48% (females)** (DR 2019)
Mobile subscriptions (per 100 people) **112.1** (WB 2018)
Television companies State-owned [RTC], two foreign owned
Radio stations RTC, Radio Barlavento, Radio Clube do Mindelo

EDUCATION

Government expenditure on education total (% of GDP) **5.2** (WB 2017)
Primary enrolment (% gross) **95.9** (WB 2018)
Primary completion rate total (% of relevant age group) **81** (WB 2018)
Secondary enrolment (% gross) **83** (WB 2018)
School enrolment Gender parity index (GPI)
Primary (gross) **0.9** (WB 2017)
Secondary (gross) **1.1** (WB 2017)
Tertiary (gross) **1.4** (WB 2017)
Out-of-school rate for children of primary age **6.45** (UIS 2018)
Proportion of schools with access to the Internet for pedagogical purposes
Primary schools **1.9%** (UIS 2018)
Secondary schools **100%** (UIS 2017)
Literacy Rate (UIS 2014)
Males (15-24) **98.11%,** Females (15-24) **98.73%**
Males (25-64) **92.38%,** Females (25-64) **84.18%**
Unemployment (% of total labour force) **12.3** (ILO 2018)

SOCIETY AND POLITICS

Date of Independence 5 July 1975, from Portugal
Style of government Unitary semi-presidential republic
Leader President Jorge Carlos Fonseca
Proportion of seats held by women in national parliament **24%** (WB 2018)
Population total (millions) **0.54** (WB 2018)
Population growth rate (annual) **1.2%** (WB 2018)
Fertility rate total (births per woman) **2.3** (WB 2018)
Mortality rate under 5 (per 1,000 live births) **17** (WB 2018)
Life expectancy at birth total (years) **73** (WB 2018)
GDP (PPP) (millions) **4,075.38** (WB 2018)
GDP growth rate (annual) **5.5%** (WB 2018)
GDP by sector (% of GDP)
agriculture 5%, industry, 19% (WB 2018)
Languages Portuguese (official), Crioulo
Major religion(s) Christianity
Monetary unit Cabo Verdean Escudo

Cameroon

Under the leadership of President Paul Biya since 1982, Cameroon has enjoyed relative stability. However, outside forces such as Boko Haram continue to pose challenges in the far North of the country and a secessionist insurgency in the Anglophone regions (North West and South West) has caused the deaths of 400+ civilians and 200+ military, gendarmerie, and police officers.

Cameroon also faces challenges to its economic stability. A growing population coupled with a low rate of poverty reduction has created an increase in the number of poor people in Cameroon. Poverty is also increasingly concentrated, with 56% of poor people living in the northern regions, which are already rife with conflict. A fall in oil prices has also triggered an economic crisis in the Central African Economic and Monetary Community (CEMAC), in which Cameroon is the largest economy. However, an increase in natural gas and growing demand for agricultural products from Chad, the Central African Republic, and Nigeria have caused a rebound, boosting economic growth. The World Bank suggests that Cameroon's real GDP should grow by 8% by 2035, through macroeconomic and fiscal discipline, the reduction of debt and management of public investment, efficiency improvement in the education sector, increased and better spending in the health sector, and strengthened social protection programmes.

The World Bank is already partnering with the Government to increase efficiency in the education sector, through the 'Cameroon Education Reform Support Project'. This project aims to increase equitable access to education, provide fiscal incentives for high performance, and improve the quality of education among other goals. It also supports the large influx of refugees in Cameroon's host communities.

The World Bank currently has a 'Cameroon ICT Sector Reform Project' in the pipeline, to capitalise on the increasing value of ICT in the country. In January, Headlines for ICT initiatives include a launching of feasibility studies for a Cameroonian space programme, the opening of a Tunisian startup branch, and the financing of a start-up incubation project by the Bolloré group. Several promising ICT initiatives have been developed in the education sector: the International Journal of Education and Development using Information and Communication Technology (IJEDICT) states that 96.23% of public primary school pupils and secondary school students are taught ICT lessons, and 100% of Teacher Training Colleges teach ICTs to student teachers. However, IJEDICT also emphasises that much of this teaching is 'theoretical' due to a lack of resources.

ICT & INFRASTRUCTURE

Internet users (% of population) **23.2** (WB 2018)
(% of individuals using the Internet by gender) **27.4 (males), 19.2 (females)** (ITU 2017)
Fixed broadband subscriptions (per 100 people) **0.18** (WB 2017)
Monthly active users on Facebook **35 million 58% (males), 42% (females)** (DR 2019)
Monthly active users on Instagram **470 thousand 60% (males), 40% (females)** (DR 2019)
Mobile subscriptions (per 100 people) **83.7** (WB 2018)
Television companies State-owned: CRTV Tele; many privately owned stations (not fully licensed)
Radio stations Several public radio stations, regulated by CRTV; about 20 privately owned radio stations

EDUCATION

Government expenditure on education total (% of GDP) **3.1** (WB 2017)
Primary enrolment (% gross) **113.2** (WB 2018)
Primary completion rate total (% of relevant age group) **70** (WB 2018)
Secondary enrolment (% gross) **62** (WB 2018)
School enrolment Gender parity index (GPI)
Primary (gross) **0.9** (WB 2017)
Secondary (gross) **0.9** (WB 2016)
Tertiary (gross) **0.8** (WB 2016)
Expected years of school **9.5 (male), 8.7 (female)** (WB 2017)
Out-of-school rate for children of primary age **4.98** (UIS 2016)
Proportion of schools with access to the Internet for pedagogical purposes (UIS 2016)
Secondary schools **23.1%**
Literacy Rate (UIS 2017)
Males (15-24) **87.72%,** Females (15-24) **82.41%**
Males (25-64) **81.31%,** Females (25-64) **69.50%**
Unemployment (% of total labour force) **3.4** (ILO 2018)

SOCIETY AND POLITICS

Date of Independence 1 January 1960, from France; 1 October 1961, from Britain
Style of government Dominant-party presidential republic
Leader President Paul Biya
Next Election Parliamentary elections expected October 2019
Proportion of seats held by women in national parliament **31%** (WB 2018)
Population total (millions) **25.22** (WB 2018)
Population growth rate (annual) **2.6%** (WB 2018)
Fertility rate total (births per woman) **4.6** (WB 2018)
Mortality rate under 5 (per 1,000 live births) **84** (WB 2018)
Life expectancy at birth total (years) **59** (WB 2018)
GDP (PPP) (millions) **95,091.74** (WB 2018)
GDP growth rate (annual) **3.9%** (WB 2018)
GDP by sector (% of GDP) **agriculture 14%, industry 26%** (WB 2018)
Languages English (official), French (official), languages of Bantu, Semi-Bantu, and Sudanic groups
Major religion(s) Christianity, Islam, Indigenous beliefs
Monetary unit CFA Franc

Bangui

The Central African Republic

Following the Central African Republic's (CAR) first democratic elections in 2016, Faustin Touadera has been president, and Abdoul Meckassoua is the head of the National Assembly. The CAR still suffers from some internal displacement and an outpouring of refugees following the 2013 crisis – by early 2018, about 688,000 citizens were internally displaced and 546,000 were refugees in neighbouring countries. Many citizens also need government assistance: in 2018 the World Bank estimated that 2.5 million people (more than half of the population) were in need of support. This prompted the country's government and the World Bank to collaborate on a Humanitarian Response Plan in 2018.

Economic recovery is vital for the stabilisation of the country. Private consumption of goods and services, along with contributions from the Government, have contributed the most to this growth. Investment in social protection is needed – the CAR ranked 188th out of 188 countries in the 2017 Human Development Index. The World Bank says that most of the poor people in the CAR work in agriculture, and instability following an escalation of conflict in 2017 has prevented farmers from tending their fields, has undermined food security, and has hindered the recovery of the agricultural sector. However, exports of diamonds, wood, cotton production and cotton exports may increase in coming years, leading to increased economic growth. If the security situation stabilises, this would increase the speed of the country's economic recovery.

The World Bank and other international organisations have helped to install emergency projects to create educational opportunities for citizens in the CAR. The 'Central African Republic Emergency Basic Education Support Project', backed by the World Bank, is increasing access to quality basic education, providing school-level infrastructure, enhancing teaching effectiveness, and strengthening service delivery. Further investment from the government in education will be necessary to secure an increase in enrolment rates and to encourage gender parity.

The Central African Backbone (CAB) project, financed by the World Bank and in partnership with the African Development Bank, was launched in 2012 and is increasing the rate of penetration of high-speed Internet by expanding network coverage across the Central African region. It is made up of onward terrestrial fibre connections linked to an undersea optical fibre cable system on the African west coast. Continued investment in ICT initiatives, both in this project and in country, will have positive effects across education and society.

ICT & INFRASTRUCTURE

Internet users (% of population) **4.3** (WB 2018)
Fixed broadband subscriptions (per 100 people) **0.05** (WB 2015)
Monthly active users on Facebook **110 thousand 69% (males), 21% (females)** (DR 2019)
Monthly active users on Instagram **10 thousand 73% (males), 27% (females)** (DR 2019)
Mobile subscriptions (per 100 people) **25.2** (WB 2018)
Television companies Government-owned Radio-Television Centrafrique [RTV]
Radio stations State-operated Radio Centrafrique; a small number of private radio stations

EDUCATION

Government expenditure on education total (% of GDP) **1.2** (WB 2011)
Primary enrolment (% gross) **105.7** (WB 2018)
Primary completion rate total (% of relevant age group) **42** (WB 2018)
Secondary enrolment (% gross) **18** (WB 2018)
School enrolment Gender parity index (GPI)
Primary (gross) **0.8** (WB 2016)
Secondary (gross) **0.7** (WB 2017)
Tertiary (gross) **0.4** (WB 2012)
Literacy Rate (UIS 2017)
Males (15-24) **47.80%,** Females (15-24) **28.71%**
Males (25-64) **50.36%,** Females (25-64) **24.53%**
Unemployment (% of total labour force) **6.5** (ILO 2018)

SOCIETY & POLITICS

Date of Independence 13 August 1960, from France
Style of government Provisional republic
Leader President Faustin-Archange Touadera
Next Election Presidential elections scheduled 27 December 2020
Proportion of seats held by women in national parliament **9%** (WB 2018)
Population total (millions) **4.67** (WB 2018)
Population growth rate (annual) **1.5%** (WB 2018)
Fertility rate total (births per woman) **4.8** (WB 2018)
Mortality rate under 5 (per 1,000 live births) **122** (WB 2018)
Life expectancy at birth total (years) **53** (WB 2018)
GDP (PPP) (millions) **4,066.85** (WB 2018)
GDP growth rate (annual) **4.3%** (WB 2018)
GDP by sector (% of GDP) **agriculture 34%, industry 18%** (WB 2018)
Languages French (official), Sangho
Major religion(s) Christianity, Islam, Indigenous beliefs
Monetary unit CFA Franc

Chad

N'Djamena

A land-locked country in central Africa, Chad has had political and ethnic tensions since gaining independence from France in 1960. Conflicts in neighbouring countries and the impact of climate change, through desertification and the drying up of Lake Chad, have also created instability. President Idriss Deby was elected for a fifth term in 2016, and his party, the Patriotic Salvation Movement, have remained in power. Parliamentary elections and general elections have been postponed due to a lack of funds, following an economic recession caused by lower oil prices.

These lower oil prices, combined with a weak security environment in the country, have created a recession that is expected to cause poverty to rise to 39.8% by this year. Cuts in public expenditure, together with a loss of income caused by disruptions in the cross-border livestock trade with Nigeria, have also contributed to the recession. However, some modest growth has been achieved in the agricultural sector, which constitutes the primary sector of employment for Chadians.

Investment in social protection is needed – Chad ranked 186th out of 188 countries in the 2017 Human Development Index. It hosts about 400,000 refugees, 4% of the country's population, and has both returnees and internally displaced people who need humanitarian assistance. The World Bank projects that the current economic and financial crisis will increase the number of poor people from 4.7 million to 6.3 million between 2012 and 2019.

Investment in education is also urgently needed. School enrolment does not reflect good gender parity, literacy rates are low, and the rate of out-of-school children is high. The World Bank 'Chad Education Sector Reform Project Phase 2' has been active since 2013, and is working on improving the quality of education in primary, secondary, and upper secondary schools. Reforms in access to education and educational resources must also be made.

While ICT resources are more accessible in urban areas, Chad faces challenges to expand access to rural areas. Planned projects to build out the national backbone, including the World Bank financed and African Development Bank-backed Central African Backbone (CAB) project, should help increase coverage.

ICT & INFRASTRUCTURE

Internet users (% of population) **6.5** (WB 2018)
Fixed broadband subscriptions (per 100 people) **0.07** (WB 2018)
Monthly active users on Facebook **130 thousand 85% (males), 15% (females)** (DR 2019)
Monthly active users on Instagram **19 thousand 79% (males), 21% (females)** (DR 2019)
Mobile subscriptions (per 100 people) **42.7** (WB 2018)
Television companies Government-owned Tele Tchad; Catholic Church-owned Voix du Paysan; private station FM Liberte
Radio stations State-operated Radiodiffusion Nationale Tchadienne [RNT]

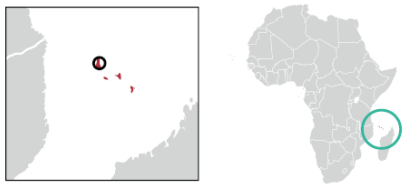
EDUCATION

Government expenditure on education total (% of GDP) **2.9** (WB 2013)
Primary enrolment (% gross) **88.1** (WB 2018)
Primary completion rate total (% of relevant age group) **42** (WB 2018)
Secondary enrolment (% gross) **23** (WB 2018)
School enrolment Gender parity index (GPI)
Primary (gross) **0.8** (WB 2016)
Secondary (gross) **0.5** (WB 2016)
Tertiary (gross) **0.2** (WB 2014)
Expected years of school **5.6 (male), 4.3 (female)** (WB 2017)
Out-of-school rate for children of primary age **26.48** (UIS 2016)
Literacy Rate (UIS 2015)
Males (15-24) **40.69%,** Females (15-24) **22.39%**
Males (25-64) **28.45%,** Females (25-64) **9.55%**
Unemployment (% of total labour force) **2.2** (ILO 2018)

SOCIETY & POLITICS

Date of Independence 11 August 1960, from France
Style of government Dominant-party presidential republic
Leader President Idriss Deby
Proportion of seats held by women in national parliament **15%** (WB 2018)
Population total (millions) **15.48** (WB 2018)
Population growth rate (annual) **3%** (WB 2018)
Fertility rate total (births per woman) **5.8** (WB 2018)
Mortality rate under 5 (per 1,000 live births) **123** (WB 2018)
Life expectancy at birth total (years) **53** (WB 2018)
GDP (PPP) (millions) **30,410.49** (WB 2018)
GDP growth rate (annual) **2.6%** (WB 2018)
GDP by sector (% of GDP) **agriculture 46%, industry 14%** (WB 2018)
Languages French (official), Arabic (official), Sara, more than 120 different languages and dialects
Major religion(s) Islam, Christianity
Monetary unit CFA Franc

Comoros



Located in the Indian Ocean north of Madagascar is the archipelago of Comoros, a country made up of three volcanic islands, whose President is Azali Assoumani, a former leader of one of the 20 coups d'état, which the country has experienced since independence from France. President Assoumani will stay in office until 2030 following the passing of a July 2018 referendum, which suspended the rotating presidential system.

In spite of the difficult history of Comoros in the recent past, the Government has introduced a series of fiscal and structural reforms.

The economy grew by 2.8% in 2018, due to an improvement in electricity and the growth of the telecoms sector. The World Bank forecasts that it will have 3.2% real GDP growth between 2019 and 2020, largely due to the strength of public investment in infrastructure. The African Development Bank Group has also completed projects aiming to build private-sector capacity and competition, in order to further strengthen the economy.

Primary enrolment in Comoros is high and there is good gender parity across the primary and secondary levels. However, there is still a high rate of out-of-school children of primary age. In May 2018, Comoros received a grant of $2.3 million from the Global Partnership for Education to focus on improving primary education. This grant aims to strengthen governance and data, improve the management of ministry officials, train teachers, and promote inclusive education. The Comoros government already allocates between 24% and 27% of its budget to the education sector and plans to increase this to 30% by 2020. Students in some primary and secondary schools have access to the Internet for pedagogical purposes (8% of primary schools, 11.1% of secondary schools), but this could increase with the arrival of a high speed cable in Moroni, which will advance the telecoms sector of the Comoros economy.

ICT initiatives in Comoros may be difficult to achieve, but they are neither impossible nor non-existent. The World Bank is currently funding a project entitled, the "Comoros Regional Communications Infrastructure Programme", which promotes market integration, sector liberalisation, and financing Comoros' membership and participation in the FLY cable. As of 2018, Comoros ranked 164 out of 176 countries in terms of ICT sector development, according to the ITU ICT Development Index. By assisting the telecoms sector in Comoros, the World Bank hopes to make telecommunications more affordable to Comorians and to build a foundation that will create a more functional and efficient economy locally and with international partners.

ICT & INFRASTRUCTURE

Internet users (% of population) **8.5** (WB 2018)
Fixed broadband subscriptions (per 100 people) **0.18** (WB 2018)
Monthly active users on Facebook **170 thousand 63% (males), 37% (females)** (DR 2019)
Monthly active users on Instagram **9.8 thousand 64% (males), 56% (females)** (DR 2019)
Mobile subscriptions (per 100 people) **57.6** (WB 2018)
Television companies State-owned ORTC
Radio stations State-owned ORTC; a few private stations

EDUCATION

Government expenditure on education total (% of GDP) **4.3** (WB 2015)
Primary enrolment (% gross) **99.4** (WB 2018)
Primary completion rate total (% of relevant age group) **77** (WB 2018)
Secondary enrolment (% gross) **56** (WB 2018)
School enrolment Gender parity index (GPI)
Primary (gross) **1.0** (WB 2017)
Secondary (gross) **1.1** (WB 2017)
Tertiary (gross) **0.8** (WB 2014)
Expected years of school **8.6 (male), 8.3 (female)** (WB 2017)
Out-of-school rate for children of primary age **14.68** (UIS 2017)
Proportion of schools with access to the Internet for pedagogical purposes
Primary schools **8.0%** (UIS 2017)
Secondary schools **11.1%** (UIS 2017)
Literacy Rate (UIS 2017)
Males (15-24) **78.24%,** Females (15-24) **78.30%**
Males (25-64) **60.19%,** Females (25-64) **44.14%**
Unemployment (% of total labour force) **3.7** (ILO 2018)

SOCIETY & POLITICS

Date of Independence 6 July 1975, from France
Style of government Federal presidential republic
Leader President Azali Assoumani
Proportion of seats held by women in national parliament **6%** (WB 2018)
Population total (millions) **0.83** (WB 2018)
Population growth rate (annual) **2.2%** (WB 2018)
Fertility rate total (births per woman) **4.3** (WB 2018)
Mortality rate under 5 (per 1,000 live births) **69** (WB 2018)
Life expectancy at birth total (years) **64** (WB 2018)
GDP (PPP) (millions) **2,353.70** (WB 2018)
GDP growth rate (annual) **2.8%** (WB 2018)
GDP by sector (% of GDP) **agriculture 30%, industry 12%** (WB 2018)
Languages Arabic (official), French (official), Comoran
Major religion(s) Islam
Monetary unit Comoran Franc

Kinshasa

The Democratic Republic of the Congo

The Democratic Republic of the Congo (DRC) is the largest Francophone country in Africa, and one rich in natural resources, such as arable land, minerals, and precious metals. However, continuing conflict, political instability and an economic recession from 2015-2017 have limited its growth. The current president, President Felix Tshisekedi, won the December 2018 elections with 38.5% of the vote, following the end of Joseph Kabila's 2001-2019 presidency.

The economy has expanded since the end of the recession, growing by 4.1% in 2018. This was driven by the recovery in mining activity and an upturn in global demand for copper and cobalt, as well as strengthened public financial management. The World Bank suggests investing at higher rates in the public sector, to ensure sustained and inclusive growth in the long-term. DRC has one of the highest extreme poverty rates in sub-Saharan Africa, with 73% of its population living in extreme poverty.

Education initiatives are extremely important in the DRC. USAID iterates that 3.5 million children of primary school age are not in school, and of those that are, 44% start late. Only 67% of children who enter first grade will complete sixth grade, and of those who reach sixth grade, only 75% will pass the final exam. USAID and the DfID have jointly funded an education plan to support the government's education and training strategy, to improve outcomes, train teachers, and create accelerated learning programmes for out-of-school youth.

An ICT initiative built together by the World Bank, local NGOs and communities, and the DRC Ministry of Primary, Secondary, and Professional Education, called 'Allô, Ecole!' has been changing the lives of both parents and children within the country's education system. The platform is voice activated, and enhances governance in the education sector by collecting and sharing data with stakeholder groups. Parents can use their mobile phones, even if they have a low level of literacy, to oversee their children's education and target areas for improvement. ICT is not only essential for the classroom and for the economy, but for communication between individuals and larger forces of positive change.

ICT & INFRASTRUCTURE

Internet users (% of population) **8.6** (WB 2018)
Fixed broadband subscriptions (per 100 people) **0** (WB 2017)
Monthly active users on Facebook **2.6 million 66% (males), 34% (females)** (DR 2019)
Monthly active users on Instagram **230 thousand 69% (males), 31% (females)** (DR 2019)
Mobile subscriptions (per 100 people) **43.5** (WB 2018)
Television companies One state-owned station, several private
Radio stations Two state-owned radio stations; more than 100 private radio stations

EDUCATION

Government expenditure on education total (% of GDP) **1.5** (WB 2017)
Primary enrolment (% gross) **108** (WB 2018)
Primary completion rate total (% of relevant age group) **70** (WB 2018)
Secondary enrolment (% gross) **46** (WB 2018)
School enrolment Gender parity index (GPI)
Primary (gross) **1.0** (WB 2015)
Secondary (gross) **0.6** (WB 2015)
Tertiary (gross) **0.6** (WB 2014)
Expected years of school **9.5 (male), 8.9 (female)** (WB 2017)
Out-of-school rate for children of primary age **26.48** (UIS 2016)
Literacy Rate (UIS 2015)
Males (15-24) **90.96%,** Females (15-24) **79.71%**
Males (25-64) **88.21%,** Females (25-64) **62.72%**
Unemployment (% of total labour force) **4.2** (ILO 2018)

SOCIETY & POLITICS

Date of Independence 30 June 1960, from Belgium
Style of government Semi-presidential republic
Leader President Felix Tshisekedi
Proportion of seats held by women in national parliament **9%** (WB 2018)
Population total (millions) **84.07** (WB 2018)
Population growth rate (annual) **3.2%** (WB 2018)
Fertility rate total (births per woman) **6** (WB 2018)
Mortality rate under 5 (per 1,000 live births) **91** (WB 2018)
Life expectancy at birth total (years) **60** (WB 2018)
GDP (PPP) (millions) **78.227.72** (WB 2018)
GDP growth rate (annual) **5.8%** (WB 2018)
GDP by sector (% of GDP) **agriculture 19%, industry 44%**(WB 2018)
Languages French (official), Lingala, Kiswahiki, Kikongo, Tshiluba, Lingala, Kingwana
Major religion(s) Christianity, Islam
Monetary unit CFA Franc

Republic of the Congo

The Republic of the Congo is a country covered in large swaths of tropical forest and arable land, with abundant mineral resources and hydrocarbon reserves. It ranks among Africa's top 10 oil producers. The country is led by President Denis Sassou Nguesso, who has been in power since the 1997-1999 civil war, and has been re-elected in several elections. He and his Prime Minister, Clément Mouamba, were most recently re-elected in March 2016. Security situations in the Pool region of the country have become more stable, and as a result, displaced peoples are returning to their original homes, and the movement of goods and people is increasing.

Following an economic crisis due to a steep fall in oil prices in mid-2014, the country is recovering through an increase in oil production, and the growth of the ICT and manufacturing industries. The World Bank is working with the Congolese Government to improve governance, build human capital, and diversify the economy away from oil to ensure growth.

In the education sector, primary enrolment is high and there is good gender parity, but primary completion and secondary enrolment are not as high as they could be. Gender parity is alsomale-dominated in the secondary and tertiary levels of education. The Global Partnership with Education's education sector strategy for the country, in partnership with UNICEF and the Ministry of Education, aims to give all children a basic 10-year education, including primary, lower secondary, and technical schooling, ensuring an adequate response by education to the economy's needs, by preparing high school students for higher education, and by instilling science and economics into curricula; and by enhancing the management of the education sector, to ensure the government possesses the tools needed to implement future education strategies. The Global Partnership for Education also states that the Congolese government intends to increase its funding to education up to 20% before 2025.

To aid in the growth of the ICT sector in the country, the World Bank has a 'Support to Enterprise Development and Competitiveness Project', which promotes investments in the sector (as well as others) and encourages entrepreneurship as a pathway out of poverty. Continued growth in the ICT sector will encourage the economy to diversify away from oil, but will also have rippling effects in social benefits, such as education.

ICT & INFRASTRUCTURE

Internet users (% of population) **8.7** (WB 2018)
Fixed broadband subscriptions (per 100 people) **0.01** (WB 2017)
Monthly active users on Facebook **670 thousand 63% (males), 37% (females)** (DR 2019)
Monthly active users on Instagram **74 thousand 64% (males), 56% (females)** (DR 2019)
Mobile subscriptions (per 100 people) **96.1** (WB 2018)
Television companies Government operated TV Congo
Radio stations 2 government-owned stations, 1 national [Radio Congo], 1 local [Radio Brazzaville]; several private stations

EDUCATION

Government expenditure on education total (% of GDP) **4.6** (WB 2015)
Primary enrolment (% gross) **106.9** (WB 2010)
Primary completion rate total (% of relevant age group) **67** (WB 2010)
Secondary enrolment (% gross) **52** (WB 2012)
School enrolment Gender parity index (GPI)
Primary (gross) **1.1** (WB 2012)
Secondary (gross) **0.9** (WB 2012)
Tertiary (gross) **0.8** (WB 2013)
Expected years of school **8.6 (male), 9.0 (female)** (WB 2017)
Literacy Rate (UIS 2017)
Males (15-24) **85.34%,** Females (15-24) **78.74%**
Males (25-64) **86.34%,** Females (25-64) **73.43%**
Unemployment (% of total labour force) **10.4** (ILO 2018)

SOCIETY & POLITICS

Date of Independence 15 August 1960, from France
Style of government Presidential republic
Leader President Denis Sassou Nguesso
Proportion of seats held by women in national parliament **11%** (WB 2018)
Population total (millions) **5.24** (WB 2018)
Population growth rate (annual) **2.6%** (WB 2018)
Fertility rate total (births per woman) **4.6** (WB 2018)
Mortality rate under 5 (per 1,000 live births) **48** (WB 2018)
Life expectancy at birth total (years) **65** (WB 2018)
GDP (PPP) (millions) **29,641.55** (WB 2018)
GDP growth rate (annual) **1%** (WB 2018)
GDP by sector (% of GDP) **agriculture 7%, industry 53%** (WB 2018)
Languages French, Indigenous languages
Major religion(s) Christianity, indigenous beliefs
Monetary unit CFA Franc

Yamoussoukro

Côte d'Ivoire

Cote d'Ivoire is one of the major economies of West Africa but it is an economy recovering from crisis. From the end of the 2010-2011 post-electoral war, however, the country has taken advantage of its abundant natural resources to grow its economy. It is the world's largest producer and exporter of cocoa beans and cashew nuts, and also a significant exporter of coffee and palm oil. The economy has expanded by an average of 8% per year since 2011, which makes it one of the fastest growing economies in the world during this period. The World Bank suggests, however, that this progress may be difficult to sustain with the country facing a dual challenge: both maintaining a rapid growth rate, and making the economy more inclusive while reducing imbalances.

There remains relative political stability in the country, despite some concerns about the forthcoming elections in 2020. The current president, Alassane Ouattara, has nonetheless made an effort to continue improving the country, and declared 2019 as the "year of social actions". This initiative includes making social services available and affordable, creating youth employment opportunities, and hiring 10,000+ teachers across primary and secondary schools. These plans have been met with some resistance; but public investment in human capital is needed.

There are many government-initiated education reform strategies, such as a decentralisation strategy launched in 2014 to cope with a shortage of universities. Prime Minister Amadou Gon Coulibaly has worked with construction company Evol Immobilier Senegal to renovate the University of San Pédro, which will be able to welcome 20,000 new students in August 2020. Universities will also be built in the cities and areas of Bondoukou, Adiaké, Abengourou, Dabou, Daoukro and Odienné after 2020. The University of Bondoukou is expecting to enrol at least 3000 students in September 2020.

ELearning is also playing an important role in the changing face of higher education in the country: the Virtual University of Côte d'Ivoire was launched in 2015, and in 2018 partnered with France Université Numérique and the Agence Universitaire de la Francophonie to establish an online course with unlimited participation and open access. The Oxford Business Group also note that other eLearning platforms are emerging, identifying qLearn and Eduqas, which educate entrepreneurs and provide educational support, respectively.

ICT in Côte d'Ivoire also plays a large role in healthcare, such as the app N'Drin, created by Ivorian engineer Etche Noël N'Drin. The app sends SMS to parents, to remind them to vaccinate their children and warn of diseases such as Ebola.

ICT & INFRASTRUCTURE

Internet users (% of population) **43.8** (WB 2018)
(% of individuals using the Internet by gender) **56.6 (males), 19.2 (females)** (ITU 2017)
Fixed broadband subscriptions (per 100 people) **0.59** (WB 2017)
Monthly active users on Facebook **4.3 million**
Monthly active users on Instagram **640 thousan**
Mobile subscriptions (per 100 people) **130.7** (WB 2018)
Television companies State-controlled Radiodiffusion Télévision Ivoirienne [RTI], satellite
Radio stations 2 national [RTI], many private local stations

EDUCATION

Government expenditure on education total (% of GDP) **4.4** (WB 2017)
Primary enrolment (% gross) **98.8** (WB 2018)
Primary completion rate total (% of relevant age group) **73** (WB 2018)
Secondary enrolment (% gross) **50** (WB 2018)
School enrolment Gender parity index (GPI)
Primary (gross) **0.9** (WB 2017)
Secondary (gross) **0.8** (WB 2017)
Tertiary (gross) **0.7** (WB 2016)
Expected years of school **7.5 (male), 6.6 (female)** (WB 2017)
Out-of-school rate for children of primary age **6.18** (UIS 2016)
Literacy Rate (UIS 2017)
Males (15-24) **63.64%,** Females (15-24) **53.03%**
Males (25-64) **49.65%,** Females (25-64) **35.03%**
Unemployment (% of total labour force) **2.5** (ILO 2018)

SOCIETY & POLITICS

Date of Independence 7 August 1960, from France
Style of government Multiparty presidential regime
Leader President Alassane Ouattara
Next Election General election, scheduled 31 October 2020
Proportion of seats held by women in national parliament **11%** (WB 2018)
Population total (millions) **25.07** (WB 2018)
Population growth rate (annual) **2.6%** (WB 2018)
Fertility rate total (births per woman) **4.8** (WB 2018)
Mortality rate under 5 (per 1,000 live births) **89** (WB 2018)
Life expectancy at birth total (years) **54** (WB 2018)
GDP (PPP) (millions) **105,456.66** (WB 2018)
GDP growth rate (annual) **7.4%** (WB 2018)
GDP by sector (% of GDP) **agriculture 20%, industry 25%** (WB 2018)
Languages French, Indigenous languages
Major religion(s) Islam, Christianity, Indigenous beliefs
Monetary unit CFA Franc

Djibouti

Djibouti

Djibouti, led by President Ismail Omar Guelleh, is a small country, located in eastern Africa. It borders the southern entrance of the Red Sea, giving it access to busy shipping lanes; and it hosts military bases of France, the United States, Japan, and the North Atlantic Treaty Organisation (NATO), as well as other foreign forces.

Owing to its small size, the country's economy is limited in its ability to diversify production. This, in turn, ensures that the country is heavily reliant on foreign markets, making it extremely vulnerable to sudden market changes. Djibouti relies completely on imports to meet its food needs. However, the economy is powered by one of the most sophisticated port-complexes in the world, which is a massive international trade hub. Trade through the port is expected to grow and the World Bank expects that developing the country's natural assests, such as marine resources, could increase tourism. The World Bank also suggests that by investing in the infrastructure of undersea telecommunications cables, new service industries could develop, which would aid in diversifying the economy and strengthening the country against its vulnerability to global market trends.

The Government of Djibouti also recognises a need to invest in its economy by investing in education. The 2010-2019 education sector plan, in partnership with the Global Partnership for Education and UNICEF, has six goals, including but not limited to developing pre-school education in collaboration with the private sector, the community, and public institutions to focus on students from rural and impoverished backgrounds; eliminating gender disparity in primary and secondary education; and reforming secondary education, technical and vocational education and training to ensure the relevance of training to the labour market. Additional funding for the plan, from the World Bank and Educate a Child, has been given in July of this year to integrate refugee schools and children into the country's mainstream education system.

ICT initiatives in the country range from education to access to ICT for the general public. ICT initiatives in higher education, such as the UNESCO-supported University of Djibouti ICT Competency Framework for teaching staff, give teachers the tools to teach in the digital age. Government strategies include increasing access to IT services for the whole population, reducing telecommunications costs, and expanding telecommunications as a conduit for action against illiteracy and poverty. The Djiboutian Agency for ICT Regulation regulates the domestic ICT sector.

ICT & INFRASTRUCTURE

Internet users (% of population) **55.7** (WB 2018)
(% of individuals using the Internet)
59.9 (males), 51.6 (females) (ITU 2017)
Fixed broadband subscriptions (per 100 people)
2.55 (WB 2017)
Monthly active users on Facebook **200 thousand**
63% (males), 38% (females) (DG 2019)
Monthly active users on Instagram **26 thousand**
59 % (males), 41% (females) (DG 2019)
Mobile subscriptions (per 100 people)
39 (WB 2018)
Television companies government-owned: Radio Television of Djibouti [RTD]
Radio stations government-owned: RTD

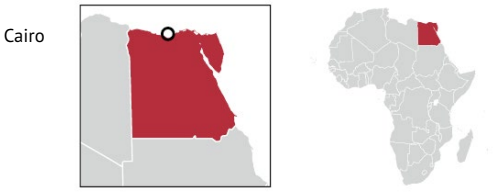
EDUCATION

Government expenditure on education total (% of GDP) **4.5** (WB 2010)
Primary enrolment (% gross) **65.1** (WB 2018)
Primary completion rate total (% of relevant age group) **60** (WB 2018)
Secondary enrolment (% gross) **47** (WB 2018)
School enrolment Gender parity index (GPI)
Primary (gross) **0.9** (WB 2018)
Secondary (gross) **0.8** (WB 2018)
Tertiary (gross) **0.7** (WB 2011)
Out-of-school rate for children of primary age **32.97** (UIS 2019)
Unemployment (% of total labour force) **11.1** (ILO 2018)

SOCIETY & POLITICS

Date of Independence 27 June 1977, from France
Style of government Republic
Leader President Ismail Omar Guelle
Proportion of seats held by women in national parliament **26%** (WB 2018)
Population total (millions) **0.96** (WB 2018)
Population growth rate (annual) **1.6%** (WB 2018)
Fertility rate total (births per woman) **2.8** (WB 2018)
Mortality rate under 5 (per 1,000 live births) **62** (WB 2018)
Life expectancy at birth total (years) **63** (WB 2018)
GDP (PPP) (millions) **2,342.71** (WB 2018)
GDP growth rate (annual) **6.0%** (WB 2018)
GDP by sector (% of GDP) **agriculture 2%, industry 16%** (WB 2018)
Languages French, Arabic, Somali, Afar
Major religion(s) Islam
Monetary unit Djiboutian franc

Egypt



Egypt is a large and influential country with a long history, dating back to 3000 BC. The current president and former defence minister, President Abdel Fattah el-Sisi, could remain in power until at least 2030, following the passing of a constitutional referendum this April.

President Sisi's government has introduced tough economic policies with the goal of making the economy prosper in the long term, with some positive results. GDP grew by 5.3% in 2018, up from an average of 4.3% in the three previous years. Increased efforts to invest publicly, boosted private consumption and exports of goods and services has contributed to this GDP growth. However, these economic reforms have had an adverse effect on the poor. In accordance with suggestions from the World Bank, the Government has increased its short-term social protection measures, such as higher allocations of food smart cards, and launched reforms in the health and education sectors.

Reforms in the education sector include providing education in emergencies. UNICEF has partnered with the Ministry of Education and Technical Education and other NGOs to support affected refugee populations at the community level. Refugee and migrant children are supported from the pre-primary to post-basic level, through education grants, the distribution of materials and the provision of teacher training, with a focus on life skills, to promote social integration. Other projects include a partnership between the ministry and USAID, which has established two Science, Technology, Engineering and Mathematics (STEM) high schools, and is now supporting the development of teacher education programmes at five public universities to develop highly capable STEM teachers for the STEM high schools.

ICT plays a huge role in Egypt and, in August 2019, the Egyptian Silicon Industries Company and Silicon Waha signed a deal to increase the Egyptian production of smartphones. Mobile subscriptions are on the rise and there are 105.5 mobile subscriptions for every 100 people. Egyptians are active on social media, with 39 million active users on Facebook.

ICT & INFRASTRUCTURE

Internet users (% of population) **45** (WB 2018)
(% of individuals using the Internet)
52.4 (males), 41.3 (females) (ITU 2018)
Fixed broadband subscriptions (per 100 people)
5.35 (WB 2017)
Monthly active users on Facebook **39 million**
64% (males), 36% (females) (DR 2019)
Monthly active users on Instagram **11 million**
58 % (males), 42% (females) (DR 2019)
Mobile subscriptions (per 100 people)
105.5 (WB 2018)
Television companies State-run: 2 national and 6 regional terrestrial networks, 20 private satellite channels
Radio stations State-run about 70 stations; 2 private stations

EDUCATION

Government expenditure on education
total (% of GDP) **3.8** (WB 2008)
Primary enrolment (% gross) **105** (WB 2018)
Primary completion rate total (% of relevant age group) **95** (WB 2018)
Secondary enrolment (% gross) **86** (WB 2018)
School enrolment Gender parity index (GPI)
Primary (gross) **1.0** (WB 2017)
Secondary (gross) **1.0** (WB 2017)
Tertiary (gross) **1.0** (WB 2016)
Expected years of school
11.0 (male), 11.2 (female) (WB 2017)
Out-of-school rate for children of primary age
0.65 (UIS 2018)
Proportion of schools with access to the Internet for pedagogical purposes
Primary schools **47.6%** (UIS 2016)
Secondary schools **49.1%** (UIS 2016)
Literacy Rate (UIS 2016)
Males (15-24) **89.48%,** Females (15-24) **86.81%**
Males (25-64) **74.10%,** Females (25-64) **60.48%**
Unemployment (% of total labour force)
11.4 (ILO 2018)

SOCIETY & POLITICS

Date of Independence 28 February 1922, from Britain; 18 June 1956, end of British influence
Style of government Republic
Leader President Abdel Fattah al-Sisi
Next Election Parliamentary elections expected 2020; Presidential elections expected 2022
Proportion of seats held by women in national parliament **15%** (WB 2018)
Population total (millions) **98.42** (WB 2018)
Population growth rate (annual) **2.0%** (WB 2018)
Fertility rate total (births per woman) **3.2** (WB 2018)
Mortality rate under 5 (per 1,000 live births) **22** (WB 2018)
Life expectancy at birth total (years) **72** (WB 2018)
GDP (PPP) (millions) **1,219,509.68** (WB 2018)
GDP growth rate (annual) **5.3%** (WB 2018)
GDP by sector (% of GDP) **agriculture 11%, industry 35%** (WB 2018)
Languages Arabic
Major religion(s) Islam, Christianity
Monetary unit Egyptian Pound

Malabo

Equatorial Guinea

Equatorial Guinea (EQG) is the only former Spanish colony in sub-Saharan Africa. There is a mainland island, Rio Muni, and small islands including Bioko, Annobon, Corisco, Elobey, and others. The capital, Malabo, is located on the island of Bioko. There is plenty of arable land and abundant mineral resources, such as gold, diamonds, uranium and oil. President Teodoro Obiang Nguema Mbasogo, has been in power since 1979. His political party, the Partido Democratico de Guinea Ecuatorial (PDGE) has had absolute executive power.

President Obiang has taken advantage of the country's rapid economic growth. Following the discovery of large oil reserves in the 1990s, EQG became the third-largest producer of oil in sub-Saharan Africa. However, after the oil price drop, the country was hit by the full extent of the Central Africa Economic and Monetary Community (CEMAC) crisis due to its large reliance on oil. The country's development plan in the medium-term includes targeting economic diversification, such as the development of fisheries, agriculture, tourism, and finance; and poverty reduction.

Education initiatives need to focus on primary enrolment and completion, as well as the reduction of the high rate of out-of-school children. A focus on education at higher and further levels is also required, such as vocational and technical training, to aid in diversifying the economy. Partnership with other countries, such as EQG's burgeoning partnership with China, could be fruitful. The China Road and Bridge Corp has recently introduced programmes to support students from EQG, as well as other African countries, to study in China.

The ICT sector in EQG still needs development. UNDP has contributed to this development, most recently completing a project in 2017, providing technical assistance and financing for job creation in rural and peri-urban areas and provincial centres offering access to ICT. Seven centres were set up, one in each province of EQG.

ICT & INFRASTRUCTURE

Internet users (% of population) **26.2** (WB 2018)
Fixed broadband subscriptions (per 100 people) **0.15** (WB 2017)
Monthly active users on Facebook **65 thousand 71% (males), 29% (females)** (DG 2019)
Monthly active users on Instagram **23 thousand 64 % (males), 36% (females)** (DG 2019)
Mobile subscriptions (per 100 people) **44.7** (WB 2018)
Television companies 1 state-owned TV station, 1 private TV station
Radio stations 1 state-owned radio station, 1 private radio station

EDUCATION

Government expenditure on education total (% of GDP) **2.2** (WB 1998)
Primary enrolment (% gross) **61.6** (WB 2018)
Primary completion rate total (% of relevant age group) **41** (WB 2018)
Secondary enrolment (% gross) **23** (WB 2000)
Out-of-school rate for children of primary age **55.30** (UIS 2015)
Literacy Rate (UIS 2013)
Males (15-24) **97.72%,** Females (15-24) **98.70%**
Males (25-64) **97.58%,** Females (25-64) **93.00%**
Unemployment (% of total labour force) **9.2** (ILO 2018)

SOCIETY & POLITICS

Date of Independence 12 October 1968, from Spain
Style of government Republic
Leader President Obiang Nguema
Proportion of seats held by women in national parliament **20%** (WB 2018)
Population total (millions) **1.31** (WB 2018)
Population growth rate (annual) **3.7 %** (WB 2018)
Fertility rate total (births per woman) **4.6** (WB 2018)
Mortality rate under 5 (per 1,000 live births) **90** (WB 2018)
Life expectancy at birth total (years) **58** (WB 2018)
GDP (PPP) (millions) **30,725.01** (WB 2018)
GDP growth rate (annual) **-2.9%** (WB 2018)
GDP by sector (% of GDP) **agriculture 2%, industry 57%** (WB 2018)
Languages Spanish, French
Major religion(s) Christianity
Monetary unit CFA Franc

Eritrea

Asmara

Following its independence from Ethiopia in 1993, President Isais Afwerki has governed Eritrea. In the referendum vote for independence, he was elected both as president and as chairman of parliament, giving him control of the executive and legislative branches of government. His People's Front for Democracy and Justice (PFDF) is the sole political party in the country and legislative elections have never been held since independence. The UN has been highly critical of the Eritrean regime in the recent past, as have international human rights organisations. A 2015 report by the UN referred to "systematic, widespread and gross human rights violations, forcing hundreds of thousands to flee the country."

Economic development in Eritrea has often been interrupted due to conflict with Ethiopia throughout its history. Following a 30 year war, renewed conflict seven years later, and a contested border in 2007, tensions remain high. Border security and heightened mobilisation have taken over the government's priorities, and have consequently impeded development efforts in the nation. According to Human Rights Watch, every Eritrean must serve an indeterminate period of national service, "with many ending up serving for well over a decade."

However, Eritrea has a comprehensive National Education Sector Plan for the years 2018-2022, with aid from the Global Partnership for Education and with UNICEF. This plan is structured in three components: equitable access to general, adult, and technical and vocational education; improved quality and relevance of education at all levels; and strengthened institutional capacity. This plan was developed by a technical team of experts at the Ministry of Education, after the completion of a comprehensive sector analysis in 2017. Education quality has improved significantly since 2013, and should continue to do so. A German Bundestag visit to primary schools in the Horn of Africa region also found grounds for hope that quality education will reduce conflict in the long-term, and as a result, Germany doubled its contribution to GPE in 2018 and 2019.

ICT also plays a significant role in education in Eritrea. A recent partnership between the University of Eastern Finland, Aalto University, and the Eritrea Institute of Technology (EIT), has established a wireless network and an EdTech lab at EIT. The project included two learning visits to Finland for EIT staff, to learn from Finnish practices, companies, and institutions. The project presented its successful results at the Institute of Electrical and Electronics Engineering (IEEE) AFRICON 2017, giving EIT participation and support from international forums, and to link EIT to existing African and global ICT initiatives.

ICT & INFRASTRUCTURE

Internet users (% of population) **1.3** (WB 2018)
Fixed broadband subscriptions (per 100 people) **0.02** (WB 2017)
Monthly active users on Facebook **54 thousand 57% (males), 43% (females)** (DR 2019)
Monthly active users on Instagram **6.8 thousand 63 % (males), 37% (females)** (DR 2019)
Mobile subscriptions (per 100 people) **13.7** (WB 2018)
Television companies S1 state-owned TV station
Radio stations 2 state-owned networks

EDUCATION

Government expenditure on education total (% of GDP) **2.1** (WB 2006)
Primary enrolment (% gross) **49.4** (WB 2018)
Primary completion rate total (% of relevant age group) **45** (WB 2018)
Secondary enrolment (% gross) **31** (WB 2018)
School enrolment Gender parity index (GPI)
Primary (gross) **0.9** (WB 2017)
Secondary (gross) **0.9** (WB 2017)
Tertiary (gross) **0.7** (WB 2016)
Out-of-school rate for children of primary age **47.01** (UIS 2017)
Literacy Rate (UIS 2017)
Males (15-24) **93.82%,** Females (15-24) **92.71%**
Males (25-64) **84.04%,** Females (25-64) **64.31%**
Unemployment (% of total labour force) **5.5** (ILO 2018)

SOCIETY & POLITICS

Date of Independence 24 May 1993, from Ethiopia
Style of government Single-party presidential republic
Leader President Isais Afwerki
Proportion of seats held by women in national parliament **22%** (WB 2018)
Population total (millions) **3.17** (WB 2018)
Population growth rate (annual) **1.6%** (WB 2018)
Fertility rate total (births per woman) **4.1** (WB 2018)
Mortality rate under 5 (per 1,000 live births) **43** (WB 2018)
Life expectancy at birth total (years) **66** (WB 2018)
GDP (PPP) (millions) **6,758.84** (WB 2018)
GDP growth rate (annual) **2.2%** (WB 2018)
GDP by sector (% of GDP) **agriculture 14%, industry 22%** (WB 2018)
Languages Tigrinya, Tigre, Arabic, English
Major religion(s) Islam, Christianity
Monetary unit Nakfa

Mbabane, Lobamba

Kingdom of Eswatini

The Kingdom of Eswatini, previously known as Swaziland, is ruled by King Mswati III, and is one of the world's last remaining absolute monarchies. Eswatini has very close linkages with South Africa. Under the Common Monetary Area (CMA) with Lesotho, Namibia, and South Africa, the Eswatini lilangeni is at par to the South African rand. Many Swazis live and work in South Africa, and send their wages to their families in Eswatini.

Eswatini has faced economic challenges in recent years, with growth slowing to 0.5% in 2018 from 1.9% in 2017. However, it is projected to recover slightly in 2019, supported by a recovery in the industrial sector and growth in the regional economy from South Africa.

Education initiatives are supported by the Ministry of Education and Training (MoET). An NGO that works in south western Africa, Bantwana World Education Initiative, works closely with the MoET to re-matriculate out-of-school youth and provide alternate educational pathways. An ICT initiative that Bantwana is piloting is an Early Warning System, which identifies youth at risk of dropping out of school through the use of mobile technology. The system is then able to indicate the key supports needed to retain these youth in the education system.

Other ICT initiatives in Eswatini include opening computer labs in high schools, and intensifying participation in regional initiatives. These initiatives include the South African Development Community (SADC) Regional Indicative Strategic Development Plan (RISDP), in which the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) plays a leading role. In a speech in February 2019, the Minister of Information, Communications, and Technology, Her Royal Highness Princess Sikhanyiso declared the launch of the "Enhancing Innovative Capacity for SDG Solutions Project", which will offer training, matching of advisors and mentors with entrepreneurs, and connection with broader networks.

ICT & INFRASTRUCTURE

Internet users (% of population) **30.3** (WB 2018)
Fixed broadband subscriptions (per 100 people) **0.59** (WB 2017)
Monthly active users on Facebook **230 thousand 55% (males), 45% (females)** (DG 2019)
Monthly active users on Instagram **35 thousand 47 % (males), 53% (females)** (DG 2019)
Mobile subscriptions (per 100 people) **76.29** (WB 2018)
Television companies State-owned; SA satellite services
Radio stations State-owned with 3 channels; 1 private

EDUCATION

Government expenditure on education total (% of GDP) **7.1** (WB 2014)
Primary enrolment (% gross) **105** (WB 2018)
Primary completion rate total (% of relevant age group) **86** (WB 2018)
Secondary enrolment (% gross) **72** (WB 2018)
School enrolment Gender parity index (GPI)
Primary (gross) **0.9** (WB 2016)
Secondary (gross) **1.0** (WB 2016)
Tertiary (gross) **1.0** (WB 2013)
Expected years of school **7.9 (male), 8.5 (female)** (WB 2017)
Out-of-school rate for children of primary age **17.41** (UIS 2017)
Proportion of schools with access to the Internet for pedagogical purposes (UIS 2016)
Primary schools **15.6%**
Secondary schools **69.3%**
Literacy Rate (UIS 2017)
Males (15-24) **94.30%,** Females (15-24) **96.70%**
Males (25-64) **86.69%,** Females (25-64) **89.00%**
Unemployment (% of total labour force) **22.5** (ILO 2018)

SOCIETY & POLITICS

Date of Independence 6 September 1968, from Britain
Style of government Monarchy
Leader King Mswati III
Proportion of seats held by women in national parliament **7%** (WB 2018)
Population total (millions) **1.14** (WB 2018)
Population growth rate (annual) **1%** (WB 2018)
Fertility rate total (births per woman) **3** (WB 2018)
Mortality rate under 5 (per 1,000 live births) **54** (WB 2018)
Life expectancy at birth total (years) **58** (WB 2018)
GDP (PPP) (millions) **12,181.83** (WB 2018)
GDP growth rate (annual) **0.6%** (WB 2018)
GDP by sector (% of GDP) **agriculture 9%, industry 35%** (WB 2018)
Languages Swazi, English (both official)
Major religion(s) Christianity, Indigenous beliefs
Monetary unit Lilangeni

Ethiopia

Addis Abeba

Ethiopia is Africa's oldest independent country, having never been successfully colonised. It is a founding member of the United Nations, and is the African base for many international organisations and NGOs, including the African Union. President Sahle-Work Zewde, is the country's first female president and she was elected in October 2018. There was political unrest in the country in June and July of this year, resulting in an Internet and mobile service blackout by the government.

Although Prime Minister Abiy Ahmed, recently awarded the Nobel Peace Prize, has made progress in human rights in the country, he and President Zewde's government contend with a rise of ethnic tension and violence, and over 3 million internally displaced peoples. Although Ethiopia is one of the fastest growing economies in its region, it is also one of the poorest. The government is looking to implement its second phase of its Growth and Transformation Plan, running in 2019-2020, which will continue to expand physical infrastructure though public investments, and turn the country into a manufacturing hub. This will create more jobs, and strengthen the economy. This plan paired with 'pro-poor' programmes and investments should also transform human capital in the country.

Ethiopia's education sector has steadily progressed over the last decade, jumping from 10 million learners to more than 25 million today. To continue this improvement, the Ministry of Education developed the 2015/16-2019/20 Education Sector Development Programme V with the Royal Norwegian Embassy, USAID, and the Global Partnership for Education. This includes six programmes, improving the management of the education system and the quality of general education, giving all children access to pre-primary education, creating a learning society to provide adult and non-formal education, producing a lower and middle level innovative workforce, and producing graduates who possess the knowledge and skills to continue to bolster the economy. This programme also focuses on eight issues that affect education: gender, special needs, HIV/AIDS, environmental protection, education in emergencies, school health and nutrition, and drug and substance abuse prevention.

ICT initiatives are important for the Ethiopian Government. In 2014, they requested the ICT sector unit of the World Bank to prepare a report on how ICT could be used to achieve a transformation in the Ethiopian economy and society. The report identified how to leverage ICT to foster private sector development, invest in public sector performance with ICT, use those investments in particular in agriculture and health initiatives, and ultimately how those efforts could lead to the emergence of an open innovation ecosystem. Since the release of the report, the World Bank has partnered with the Ethiopian Government on multiple projects to integrate ICT into several sectors.

ICT & INFRASTRUCTURE

Internet users (% of population) **18.6** (WB 2018)
Fixed broadband subscriptions (per 100 people) **0.05** (WB 2017)
Monthly active users on Facebook **6.1 million 70% (males), 30% (females)** (DR 2019)
Monthly active users on Instagram **360 thousand 64% (males), 36% (females)** (DR 2019)
Mobile subscriptions (per 100 people) **37.7** (WB 2018)
Television companies 1 public TV station broadcasting nationally
Radio stations 1 public radio broadcaster, few commercial radio stations, c. 12 community stations

EDUCATION

Government expenditure on education total (% of GDP) **4.7** (WB 2015)
Primary enrolment (% gross) **101.9** (WB 2018)
Primary completion rate total (% of relevant age group) **54** (WB 2018)
Secondary enrolment (% gross) **35** (WB 2018)
School enrolment Gender parity index (GPI)
Primary (gross) **0.9** (WB 2015)
Secondary (gross) **1.0** (WB 2015)
Tertiary (gross) **0.5** (WB 2014)
Expected years of school **8.1 (male), 7.6 (female)** (WB 2017)
Out-of-school rate for children of primary age **14.38** (UIS 2015)
Literacy Rate (UIS 2016)
Males (15-24) **73.52%,** Females (15-24) **71.97%**
Males (25-64) **53.27%,** Females (25-64) **31.15%**
Unemployment (% of total labour force) **1.8** (ILO 2018)

SOCIETY & POLITICS

Date of Independence Never colonised; in existence since 1st C. BC
Style of government Federal parliamentary republic
Leader President Sahle-Work Zewde
Next Election General elections expected 2020
Proportion of seats held by women in national parliament **39%** (WB 2018)
Population total (millions) **109.22** (WB 2018)
Population growth rate (annual) **2.6%** (WB 2018)
Fertility rate total (births per woman) **4.1** (WB 2018)
Mortality rate under 5 (per 1,000 live births) **59** (WB 2018)
Life expectancy at birth total (years) **66** (WB 2018)
GDP (PPP) (millions) **220,477.62** (WB 2018)
GDP growth rate (annual) **6.8%** (WB 2018)
GDP by sector (% of GDP) **agriculture 31%, industry 27%** (WB 2018)
Languages Amharic, Oromo, Tigrinya, Somali
Major religion(s) Christianity, Islam
Monetary unit Birr

Gabon

Libreville

Gabon, in central Africa, is rich in natural resources such as oil. It has been ruled for the past 51 years by the same family. Omar Bongo was President from 1968-2009, and his son, President Ali Bongo Ondimba, has been in power since his father's death in 2009. President Ondimba was re-elected in 2016 but his government faced an attempted coup in January 2019 while the president was convalescing in Morocco. The coup failed and President Ondimba is still in office. He has appointed Julien Nkoghe Bekale as Prime Minister.

Gabon is the fifth-largest oil producer in Africa. However, following a decline in its oil reserves, the country is pursuing a new economic strategy based on diversification. With assistance from the World Bank, the Government is looking to diversify the economy through increased public spending, agribusiness, and upgraded transport and communication networks. About 30% of the population is vulnerable, living with incomes below the minimum wage. Gabon hopes to improve its social policy by focusing on assisting the most vulnerable through integrated social programmes, helping low-income people develop income-generating activities, and reducing inequalities in access to basic public services such as education.

Education initiatives are important, not only for plans to diversify the economy, but also to improve Gabon's human capital. Projects to reform the curriculum include the opening of the Ecole Ruban Vert, a remarkable environmental education project initiated by the First Lady of Gabon, Sylvia Bongo Ondimba, and partners. The students at the school learn about sustainability, environmental protection and preservation, climate change, energy, recycling and upcycling, green business practice and acting responsibly from the beginning of their curriculum, which aligns with Gabon's 2025 sustainability goals. The school has students of over 23 nationalities, of whom a third are Gabonese. 20% of Gabonese students come from marginalised backgrounds and receive full scholarships to attend the school. Initiatives like this one, across schools in Gabon, could help prepare Gabonese youth to tackle Gabon's challenges in the future.

ICT initiatives are also extremely important, especially in health. A project entitled 'eGabon', backed by the World Bank, has been active since 2016, and has two development objectives. The first of these is to improve the timeliness and availability of information to support the delivery and management of public health services, and the second is to foster the development and roll-out of eHealth applications and services. By digitising Gabon's health care system, residents have been able to benefit from better treatment, fewer duplicate diagnostic tests, less unnecessary hospitalisation, and better diagnoses.

ICT & INFRASTRUCTURE

Internet users (% of population) **50.3** (WB 2017)
Fixed broadband subscriptions (per 100 people) **0.74** (WB 2017)
Monthly active users on Facebook **720 thousand 58% (males), 42% (females)** (DR 2019)
Monthly active users on Instagram **83 thousand 74% (males), 26% (females)** (DR 2019)
Mobile subscriptions (per 100 people) **131.5** (WB 2018)
Television companies 2 state-owned stations, a few private
Radio stations 2 state-owned stations, a few private

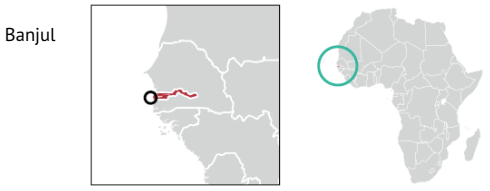
EDUCATION

Government expenditure on education total (% of GDP) **2.7** (WB 2014)
Primary enrolment (% gross) **138.7** (WB 2011)
Primary completion rate total (% of relevant age group) **74** (WB 2002)
Secondary enrolment (% gross) **52** (WB 2001)
School enrolment Gender parity index (GPI) Primary (gross) **1.1** (WB 2011)
Expected years of school **7.9 (male), 8.5 (female)** (WB 2017)
Literacy Rate (UIS 2017)
Males (15-24) **88.14%,** Females (15-24) **91.45%**
Males (25-64) **85.38%,** Females (25-64) **82.64%**
Unemployment (% of total labour force) **19.5** (ILO 2018)

SOCIETY & POLITICS

Date of Independence 17 August 1960, from France
Style of government Dominant-party presidential republic
Leader President Ali Ben Bongo Ondimba
Next Election General elections expected 2020
Proportion of seats held by women in national parliament **17%** (WB 2018)
Population total (millions) **2.12** (WB 2018)
Population growth rate (annual) **2.6%** (WB 2018)
Fertility rate total (births per woman) **3.7** (WB 2018)
Mortality rate under 5 (per 1,000 live births) **48** (WB 2018)
Life expectancy at birth total (years) **66** (WB 2018)
GDP (PPP) (millions) **37,961.34** (WB 2018)
GDP growth rate (annual) **1.2%** (WB 2018)
GDP by sector (% of GDP) **agriculture 5%, industry 45%** (WB 2018)
Languages French, Bantu-group languages
Major religion(s) Christianity
Monetary unit CFA Franc

The Gambia



The Gambia, a small country in West Africa, is surrounded by Senegal except for a 60km coastline on the Atlantic Ocean. It is led by President Adama Barrow, who defeated President Yahya Jammeh in December 2016, ending the previous president's 22-year leadership. President Barrow is a property developer and a member of the United Democratic Party, who won the election with more than 45% of the vote on the promise to revive the country's economy.

The Gambian economy relies largely on tourism, rainfall-dependent agriculture, and remittances. This makes it vulnerable to external shocks. However, GDP growth has increased from 4.6% in 2017 to 6.6% in 2018, due to strong recovery in tourism, trade, construction, and electricity provision. The World Bank identifies the country's long-term development challenges as its undiversified economy, small internal market, limited access to resources, lack of skills necessary to build effective institutions, high population growth, and lack of private sector job creation. However, projects supported by the World Bank and other international organisations through IDA and in cooperation with the government, in basic education, energy, public resources management and agriculture, should help The Gambia overcome these challenges.

Education initiatives in The Gambia include a $35 million grant from the World Bank and the Global Partnership for Education in 2018, which supports school-age children's access to early childhood development, basic education, and Majalis (Koranic centres). Around 411,000 school-aged children are projected to benefit from the programme. Majalis are especially important, because they deliver literacy and numeracy skills to school children, as well as to some out-of-school youth.

The Gambia is also keen to develop ICT. In August 2018, the country sought assistance through the Minister of Information, Communication and Infrastructure Ebrima Sillan and the Deputy Head of Mission from the High Commission of Gambia Kalifa Bojang from the Commonwealth Telecommunications Organisation (CTO) to strengthen and improve its ICT and related services for its citizens. ICT also plays a huge role in the Republic of The Gambia's Youth and Trade Roadmap 2018-2022. There is an effort to create a competitive ICT market, an ICT policy framework with support institutions, and investment in closing the ICT skills gaps, in order to create youth employment opportunities in ICT.

ICT & INFRASTRUCTURE

Internet users (% of population) **19.8** (WB 2018)
Fixed broadband subscriptions (per 100 people) **0.19** (WB 2017)
Monthly active users on Facebook **350 thousand 69% (males), 31% (females)** (DR 2019)
Monthly active users on Instagram **49 thousand 63% (males), 37% (females)** (DR 2019)
Mobile subscriptions (per 100 people) **141.2** (WB 2018)
Television companies state-owned, single-channel TV service
Radio stations 1 state-owned radio station, 4 private; international broadcasters

EDUCATION

Government expenditure on education total (% of GDP) **3.1** (WB 2016)
Primary enrolment (% gross) **100.2** (WB 2018)
Primary completion rate total (% of relevant age group) **70** (WB 2018)
Secondary enrolment (% gross) **57** (WB 2010)
School enrolment Gender parity index (GPI)
Primary (gross) **1.1** (WB 2018)
Secondary (gross) **1.0** (WB 2010)
Tertiary (gross) **0.7** (WB 2012)
Out-of-school rate for children of primary age **18.19** (UIS 2015)
Literacy Rate (UIS 2014)
Males (15-24) **70.74%,** Females (15-24) **64.45%**
Males (25-64) **59.03%,** Females (25-64) **29.95%**
Unemployment (% of total labour force) **8.9** (ILO 2018)

SOCIETY & POLITICS

Date of Independence 18 February 1965, from Britain
Style of government Dominant-party presidential republic
Leader President Adama Barro
Proportion of seats held by women in national parliament **10%** (WB 2018)
Population total (millions) **2.28** (WB 2018)
Population growth rate (annual) **2.9%** (WB 2018)
Fertility rate total (births per woman) **5.4** (WB 2018)
Mortality rate under 5 (per 1,000 live births) **64** (WB 2018)
Life expectancy at birth total (years) **61** (WB 2018)
GDP (PPP) (millions) **3,890.47** (WB 2018)
GDP growth rate (annual) **6.6%** (WB 2018)
GDP by sector (% of GDP) **agriculture 23%, industry 13%** (WB 2018)
Languages English (official), Mandinka, Wolof, Fula
Major religion(s) Islam, Christianity
Monetary unit dalasi

Ghana

Accra

In the past two decades, Ghana has steadily become a more stable and free democracy. It consistently ranks in the top three countries in Africa for freedom of speech and press freedom, and has solid and continuously improving social capital. President Nana Akufo-Addo, a former human rights lawyer, was elected in December 2016. His successes so far have included planting food crops, creating new jobs, and implementing free secondary education. Other campaign pledges he is working on include setting up factories in each of the 216 districts, providing one dam for every village, and providing free high school education.

Ghana's economic growth is predicted to increase to 7.6% in 2019, driven by the services sector and commodities. The country's three main export commodities – oil, gold, and cocoa – contributed to a trade surplus of 2.8% of GDP. However, risks and challenges identified by the World Bank include rescuing the country's energy sector from financial disarray. The sector currently faces high costs from excess power capacity and natural gas supply.

The Education Strategic Plan 2018-2030, developed by the Global Partnership for Education, UNICEF, and the Ministry for Education, is the sixth plan in a continuing series of education initiatives in Ghana. The main priorities of the plan are to improve access and equity, creating equal opportunity in access to education; quality, with achievement of high level standards; relevance, with learning and skills development tailored to individual, community, and national development needs; efficiency and effectiveness, with management of resources to achieve goals; and sustainability, to ensure balanced and continued development of the education sector. Education on the tertiary level is also important to the government of Ghana – at the State of Education in Africa 2018 Conference, Minister of State for Tertiary Education of the Republic of Ghana Professor Kwesi Yankah explained how reform of universities has extended to amending the laws governing private universities. He also explained how the Government has merged two accreditation boards into the Ghana Tertiary Education Commission, to ensure that both private and public universities operate under the same conditions, and that degrees received from either type of institution are equally recognised.

Ghana has supported ICT reform, recognising it as a driver of economy, since the early 2000s. Apart from growing mobile data subscriptions and 4G infrastructure, the country also benefits from increasing amounts of investors in ICT start-ups. If these initiatives spread to education, youth entering employment will have the skills to continue to diversify the economy.

ICT & INFRASTRUCTURE

Internet users (% of population) **0.2** (WB 2018)
Monthly active users on Facebook **5.5 million 64% (males), 36% (females)** (DR 2019)
Monthly active users on Instagram **1.4 million 63% (males), 37% (females)** (DR 2019)
Mobile subscriptions (per 100 people) **127.5** (WB 2018)
Television companies State-owned; several privately owned TV stations
Radio stations 2 state-owned radio networks; a large number of privately owned radio stations

EDUCATION

Government expenditure on education total (% of GDP) **4.7** (WB 2017)
Primary enrolment (% gross) **102.5** (WB 2018)
Primary completion rate total (% of relevant age group) **94** (WB 2018)
Secondary enrolment (% gross) **72** (WB 2018)
School enrolment Gender parity index (GPI)
Primary (gross) **1.0** (WB 2018)
Secondary (gross) **1.0** (WB 2018)
Tertiary (gross) **0.7** (WB 2017)
Expected years of school **11.5 (male), 11.7 (female)** (WB 2017)
Out-of-school rate for children of primary age **3.62** (UIS 2018)
Proportion of schools with access to the Internet for pedagogical purposes (UIS 2018)
Primary schools **8.4%**
Secondary schools **19.9%**
Literacy Rate (UIS 2017)
Males (15-24) **92.76%,** Females (15-24) **92.21%**
Males (25-64) **80.26%,** Females (25-64) **68.91%**
Unemployment (% of total labour force) **6.7** (ILO 2018)

SOCIETY & POLITICS

Date of Independence 6 March 1957, from Britain
Style of government Constitutional democracy
Leader President Nana Akufo-Addo
Proportion of seats held by women in national parliament **13%** (WB 2018)
Population total (millions) **29.77** (WB 2018)
Population growth rate (annual) **2.2%** (WB 2018)
Fertility rate total (births per woman) **3.9** (WB 2018)
Mortality rate under 5 (per 1,000 live births) **49** (WB 2018)
Life expectancy at birth total (years) **63** (WB 2018)
GDP (PPP) (millions) **141,045.91** (WB 2018)
GDP growth rate (annual) **6.3%** (WB 2018)
GDP by sector (% of GDP) **agriculture 20%, industry 31%** (WB 2018)
Languages English, Akan, Ewe
Major religion(s) Christianity, Indigenous beliefs, Islam
Monetary unit Cedi

Guinea

Guinea, in west Africa, is bordered by Guinea Bissau, Senegal, Mali, Sierra Leone, Liberia, and Côte d'Ivoire. President Alpha Condé was re-elected to his second term in October 2015.

Growth has continued to increase rapidly due to the mining sector. There are two main risks predicted by the World Bank to adversely affect the Guinean economy in the near future. The first of these is the need to sustain current macroeconomic and fiscal reforms, and the second is to ensure social and political stability. The legislative elections, slated for December this year, could slow down the effects of structural reforms, and weaken policy.

The Deutsche Gelleschaft für Internationale Zusammenarbeit (GIZ), the Global Partnership for Education, and the Guinean Government have partnered on two comprehensive plans to enhance the education sector: Guinea's Strategic Poverty Reduction Document (DSRP) and the transitional Education Sector Plan 2015-2017 (ESP 2015-2017), extended through 2018 and into 2019. The DSRP identifies education and training as a key sector, with four national priorities: 1) continuing to work towards universal primary education and expanding basic education; 2) improving the quality of teaching and learning at all levels; 3) developing training at the technical, vocational and higher education levels in line with national economic needs; and 4) strengthening governance in the education sector. The ESP 2015-2017 outlines objectives related to access, quality and governance, which include but are not limited to the following objectives: to accelerate access and improve retention, to increase school demand through establishing canteens and providing other resources, encouraging the enrolment and retention of girls, to improve access to higher education, and to invest in the creation and rehabilitation of schools for public training.

ICT is also important for education, and the Ministry of Education is developing its ICT unit to invest in capacity. The private sector is identified as an important partner in sharing its expertise with educational ICT initiatives. UNICEF identify logistical challenges that need to be overcome to establish ICT in education: a lack of network coverage and reliable power sources for schools, and maintenance of devices. They suggest that ICT should be used first to play a role at the teacher and principal level, to improve the quality of teaching, and to identify private sector partners such as Fundacíon Orange and the French Corporation.

ICT & INFRASTRUCTURE

Internet users (% of population) **11.4** (WB 2018)
Fixed broadband subscriptions (per 100 people) **0.01** (WB 2017)
Monthly active users on Facebook **1.9 million 60% (males), 40% (females)** (DR 2019)
Monthly active users on Instagram **220 thousand 68% (males), 32% (females)** (DR 2019)
Mobile subscriptions (per 100 people) **92** (WB 2018)
Television companies 1 state-run
Radio stations 1 state-run broadcaster, some private, several community

EDUCATION

Government expenditure on education total (% of GDP) **2.2** (WB 2017)
Primary enrolment (% gross) **92.4** (WB 2018)
Primary completion rate total (% of relevant age group) **61** (WB 2018)
Secondary enrolment (% gross) **39** (WB 2011)
School enrolment Gender parity index (GPI)
Primary (gross) **0.8** (WB 2016)
Secondary (gross) **0.7** (WB 2014)
Tertiary (gross) **0.4** (WB 2014)
Expected years of school **7.7 (male), 6.2 (female)** (WB 2017)
Out-of-school rate for children of primary age **21.91** (UIS 2016)
Literacy Rate (UIS 2013)
Males (15-24) **56.97%,** Females (15-24) **37.21%**
Males (25-64) **38.61%,** Females (25-64) **14.79%**
Unemployment (% of total labour force) **3.6** (ILO 2018)

SOCIETY & POLITICS

Date of Independence 2 October 1958, from France
Style of government Republic
Leader President Alpha Condé
Next Election Parliamentary elections expected November/December 2019
Proportion of seats held by women in national parliament **22%** (WB 2018)
Population total (millions) **12.41** (WB 2018)
Population growth rate (annual) **2.8%** (WB 2018)
Fertility rate total (births per woman) **4.8** (WB 2018)
Mortality rate under 5 (per 1,000 live births) **86** (WB 2018)
Life expectancy at birth total (years) **61** (WB 2018)
GDP (PPP) (millions) **32,652.00** (WB 2018)
GDP growth rate (annual) **8.7%** (WB 2018)
GDP by sector (% of GDP) **agriculture 18%, industry 30%** (WB 2018)
Languages French, Susu, Fulani, Mandingo
Major religion(s) Islam, Christianity, Indigenous beliefs
Monetary unit Guinean franc

Bissau

Guinea-Bissau

In spite of its small population of about 1.8 million, Guinea-Bissau is host to many different ethnic groups, languages, and religions. It is a fragile country, with frequent military coups and changes in government creating political instability since its independence from Portugal in 1974. However, its most recent elections were peaceful, ushering in a new parliament on March 10th of this year. All political parties given seats in the parliament expressed their willingness to work together to stabilise Guinea-Bissau over the next four years. The current president and former finance minister, Jose Mario Vaz, was elected in a run-off in May 2014.

The economy of the country declined to 3.8% in 2018 from 5.9% in 2017, in part due to lower cashew production as a result of weather changes. However, the World Bank expects the economy to rebound to 4.8% by 2020, assuming an increase in domestic demand, improvements in key infrastructure, and the maintenance of political stability. Further diversification of the economy would benefit Guinea-Bissau in the future, and bolster its resilience.

The Global Partnership for Education (GPE) and UNICEF are working together with the Government of Guinea-Bissau to improve education through the Plano Sectorial da Educação 2017-20205, which targets the improvement of access to basic education, quality and relevance of teaching and learning, the development of training fitting economic development needs, and the reinforcement of the sector's governance. A key part of this strategy has been dissemination to the wider community, which made ICT necessary. As a team, GPE, UNICEF, and the Ministry of Education conducted radio interviews and organised spots on the country's extensive community radio network. The interviews were divided into three parts: the purpose of the sector plan and its importance for Guinea-Bissau; the plan's main strategies and interventions; and the role of parents and communities in supporting the sector plan interventions.

ICT & INFRASTRUCTURE

Internet users (% of population) **3.9** (WB 2018)
Fixed broadband subscriptions (per 100 people) **0.03** (WB 2017)
Monthly active users on Facebook **150 thousand 68% (males), 32% (females)** (DR 2019)
Monthly active users on Instagram **12 thousand 72% (males), 28% (females)** (DR 2019)
Mobile subscriptions (per 100 people) **77.1** (WB 2018)
Television companies 1 state-owned, 1 Portuguese [RTP]
Radio stations 21 state-owned, several private, several community, international

EDUCATION

Government expenditure on education total (% of GDP) **2.1** (WB 2013)
Primary enrolment (% gross) **118.1** (WB 2010)
Primary completion rate total (% of relevant age group) **64** (WB 2010)
Secondary enrolment (% gross) **18** (WB 2000)
Literacy Rate (UIS 2013)
Males (15-24) **71.25%,** Females (15-24) **49.76%**
Males (25-64) **58.89%,** Females (25-64) **23.01%**
Unemployment (% of total labour force) **4.1** (ILO 2018)

SOCIETY & POLITICS

Date of Independence 24 September 1973 (declared); 10 September 1974 (recognised), from Portugal
Style of government Republic
Leader President Jose Mario Vaz
Proportion of seats held by women in national parliament **14%** (WB 2018)
Population total (millions) **1.87** (WB 2018)
Population growth rate (annual) **2.5%** (WB 2018)
Fertility rate total (births per woman) **4.6** (WB 2018)
Mortality rate under 5 (per 1,000 live births) **84** (WB 2018)
Life expectancy at birth total (years) **58** (WB 2018)
GDP (PPP) (millions) **3,366.06** (WB 2018)
GDP growth rate (annual) **3.8%** (WB 2018)
GDP by sector (% of GDP) **agriculture 47%, industry 13%** (WB 2018)
Languages Portuguese, Crioulo, African languages
Major religion(s) Indigenous beliefs, Islam, Christianity
Monetary unit CFA Franc

Kenya

Nairobi

Since 2010, Kenya has made reforms economically, structurally, and politically that have driven sustained growth, social development and political gains. President Uhuru Kenyatta was sworn in for his second and final five-year term on November 20th, 2017.

While economic growth faltered after the 2008 global economic recession, it has resumed rapidly in the last five years, reaching 5.7% in 2018, making Kenya one of the fastest growing economies in sub-Saharan Africa. Low oil prices and higher rates of tourism, as well as government-led infrastructure initiatives, have helped Kenya in its economic rebound. The World Bank says that a major goal for Kenya is to address challenges of poverty, inequality, governance, the skills gap between market requirements and the education curriculum, climate change, low investment and low productivity to achieve rapid and sustained growth rates.

Although Kenya has reached almost universal primary enrolment, there are still many obstacles to overcome in education. The Global Partnership for Education and UNICEF have partnered with Kenya's Ministry of Education to put together the National Education Sector Plan 2013-2018, which is now being introduced. Some key aspects of this plan are to provide equitable access to education and to instill a structure of tertiary education that fosters academic quality, rigour and research necessary for a knowledge-based society, expanding learning and employment pathways for Kenya's youth. A first-ever joint sector review of education programmes is scheduled for next summer, which will track progress on programme implementation to meet the Sustainable Development Goals.

Kenya has a well-developed Ministry of Information, Communications, and Technology, which lists the latest news and initiatives on its home page. Some of these headlines include 40 companies rushing for investment in Konza Techno City, a media city that is part of a government initiative to promote creative and cultural economy. The City is expected to contribute significantly to the general economy, by creating jobs for youngsters and socio-economic benefits that trickle down to local communities. The Ministry of ICT and the Ministry of Education are also partnering on the implementation of the Kenya Advanced Institute of Science and Technology (KAIST) funded by the Korea Economic Development Cooperation Fund (ECDF).

ICT & INFRASTRUCTURE

Internet users (% of population) **17.8** (WB 2018)
Fixed broadband subscriptions (per 100 people) **0.58** (WB 2017)
Monthly active users on Facebook **7.9 million 59% (males), 41% (females)** (DR 2019)
Monthly active users on Instagram **1.9 million 55% (males), 45% (females)** (DR 2019)
Mobile subscriptions (per 100 people) **86.1** (WB 2018)
Television companies 6 private, 2 state-owned channels
Radio stations 2 state-owned, many private, national and provincial

EDUCATION

Government expenditure on education total (% of GDP) **5.2** (WB 2017)
Primary enrolment (% gross) **105.3** (WB 2018)
Primary completion rate total (% of relevant age group) **102** (WB 2018)
Secondary enrolment (% gross) **58** (WB 2009)
School enrolment Gender parity index (GPI)
Primary (gross) **1.0** (WB 2016)
Secondary (gross) **0.9** (WB 2009)
Tertiary (gross) **0.7** (WB 2016)
Literacy Rate (UIS 2017)
Males (15-24) **87.59%,** Females (15-24) **88.08%**
Males (25-64) **83.98%,** Females (25-64) **75.28%**
Unemployment (% of total labour force) **9.3** (ILO 2018)

SOCIETY & POLITICS

Date of Independence 12 December 1963, from Britain
Style of government Republic
Leader Uhuru Kenyatta
Next Election General election, expected 17 August 2021
Proportion of seats held by women in national parliament **22%** (WB 2018)
Population total (millions) **51.39** (WB 2018)
Population growth rate (annual) **2.3%** (WB 2018)
Fertility rate total (births per woman) **3.8** (WB 2018)
Mortality rate under 5 (per 1,000 live births) **46** (WB 2018)
Life expectancy at birth total (years) **67** (WB 2018)
GDP (PPP) (millions) **177,893.89** (WB 2018)
GDP growth rate (annual) **6.3%** (WB 2018)
GDP by sector (% of GDP) **agriculture 34%, industry 16%** (WB 2018)
Languages Swahili, English
Major religion(s) Christianity
Monetary unit Kenya shilling

Lesotho

Lesotho is a small country, governed by a parliamentary constitutional monarchy. King Letsie III succeeded his father, King Moshoeshoe II in 1996, and has no legislative or executive powers. Prime Minister Thomas Thabane's party, All Basotho Convention, won early elections in June 2017. Prime Minister Thabane currently leads a coalition government made up of four parties. Currently, Lesotho is focusing on constitutional, security, parliamentary, judicial, public sector, economic, and media reforms, as suggested by the Southern African Development Community (SADC). Past political instability, as well as slow economic growth in the surrounding region, has negatively affected the economy. However, egrowth is projected to rise to 2.6% in 2019, after an increase in construction associated with the second phase of the Lesotho Highlands Water Project and the Lesotho Lowlands Water Development Project.

The Ministry of Education, in partnership with UNESCO and the Global Partnership for Education, has created an Education Sector Strategic Plan for 2016-2026. The country has made progress towards its goals of Education for All and Free and Compulsory Primary education. However, major challenges include poor retention rates, low learning outcomes, graduates with inadequate skills for the job market, high inefficiency within the education system, and poor school governance. The 2016-2026 plan aims to: reform the national curriculum and assessment system; improve access to early childhood care; increase access to quality free and compulsory basic education; increase access to secondary, technical and vocational education; improve the relevance of programmes at higher learning institutions; improve the effectiveness of non-formal education delivery; curb the spread of HIV and AIDS among, teachers, and learners by 2025; and improve strategic, planning and accountability at all levels.

Successful ICT initiatives often begin at the grassroots level. Thejane Malakane, a teacher at the Toloane Primary School in Maseru, Lesotho, began one such initiative. Mr. Malakane began teaching as an unqualified substitute teacher, but by impacting his students through his dedication, was offered a permanent position. He successfully received professional teacher training at a local college, and is now a voluntary trainer at the School Technology Innovation Centre (STIC) at the Lesotho College of Education, as well as a primary school teacher. Mr. Malakane uses ICT to solve some of the problems facing his students, such as children missing classes, due to having to cross rivers to get to school. Mr. Malakane began by recording his lessons, using mobile devices and playing them for the children when they came back to school. He noticed how children benefited from playing back his lessons and he started lending them mobile devices to play educational videos, using both offline and online tools to support his teaching. Mr. Malakane was a Mandela Washington Fellow in 2017, and is a finalist for the 2019 Global Teacher Prize.

ICT & INFRASTRUCTURE

Internet users (% of population) **29.8** (WB 2018)
Fixed broadband subscriptions (per 100 people) **0.22** (WB 2017)
Monthly active users on Facebook **320 thousand 47% (males), 53% (females)** (DR 2019)
Monthly active users on Instagram **36 thousand 44% (males), 56% (females)** (DR 2019)
Mobile subscriptions (per 100 people) **70.9** (WB 2018)
Television companies 1 state-owned
Radio stations 2 state-owned

EDUCATION

Government expenditure on education total (% of GDP) **6.4** (WB 2018)
Primary enrolment (% gross) **104.8** (WB 2018)
Primary completion rate total (% of relevant age group) **79** (WB 2018)
Secondary enrolment (% gross) **56** (WB 2018)
School enrolment Gender parity index (GPI)
Primary (gross) **1.0** (WB 2017)
Secondary (gross) **1.4** (WB 2017)
Tertiary (gross) **1.5** (WB 2015)
Expected years of school
8.4 (male), 9.1 (female) (WB 2017)
Out-of-school rate for children of primary age **2.43** (UIS 2017)
Literacy Rate (UIS 2013)
Males (15-24) **79.61 %,** Females (15-24) **93.97%**
Males (25-64) **65.08%,** Females (25-64) **85.46%**
Unemployment (% of total labour force) **23.6** (ILO 2018)

SOCIETY & POLITICS

Date of Independence 4 October 1966, from Britain
Style of government Parliamentary constitutional monarchy
Leaders King Letsie III, Prime Minister Thomas Thabane
Next Election Parliamentary elections expected June 2020
Proportion of seats held by women in national parliament **22%** (WB 2018)
Population total (millions) **2.11** (WB 2018)
Population growth rate (annual) **0.8%** (WB 2018)
Fertility rate total (births per woman) **3** (WB 2018)
Mortality rate under 5 (per 1,000 live births) **86** (WB 2018)
Life expectancy at birth total (years) **55** (WB 2018)
GDP (PPP) (millions) **6,794.55** (WB 2018)
GDP growth rate (annual) **1.5%** (WB 2018)
GDP by sector (% of GDP) **agriculture 6%, industry 32%** (WB 2018)
Languages Sesotho, English
Major religion(s) Christianity
Monetary unit loti

Liberia

Monrovia

Founded by freed American and Caribbean slaves in 1847, Liberia is one of Africa's oldest republics. However, it has had a politically unstable history, with a long-running civil war in the 1990s and an involvement in rebellions in neighbouring countries, such as Sierra Leone. Currently the country is led by President George Weah, a former footballer. He ran on a promise to improve the lives of Liberians by fighting corruption, reducing poverty and developing infrastructure. One result of these promises is the Government's ambitious Pro-Poor Agenda for Prosperity and Development (PAPD). The PAPD has four pillars: equitable opportunities in education, health, youth development, and social protection; a stable macroeconomic environment, enabling private sector-led economic growth, greater competitiveness, and diversification of the economy; a more peaceful, unified society that enables sustainable development; and an inclusive and accountable public sector.

In spite of these initiatives by the Government, the economy's growth has slowed in the last year, from 2.5% in 2017 to 1.2% in 2018, and is projected to slow even more in 2019 to 0.4%. While the mining sector supports minor growth, the non-mining sector contracted by 1.3%. Rubber production, a key cash crop, grew by 0% in 2018. Coupled with inflation, and a population growth rate of 2.6%, the economy will need to reverse this trend, in order to prevent increasing poverty rates.

The Ministry of Education has a partnership with the World Bank, as well as USAID and the Global Partnership for Education (GPE). The World Bank has established the 'Improving Results in Secondary Education (IRISE)' project in July of this year, with $47 million in funding. The strategic response created with USAID and GPE to challenges, such as poor learning outcomes, over age enrolment, and large numbers of out-of-school children is called the 'Getting to Best Education Sector Plan for 2017-2021'. This plan has nine programmes, which include: establishing effective school quality improvement and accountability systems; improving the efficiency and performance of the education management system; improving access to quality early childhood education; providing alternative education pathways for over age and out-of-school children and young people to prioritise gender and health across the education sector; and improving the relevance of technical and vocational education and training.

In 2018, the Government published the National ICT Policy 2018-2023, which aims to ensure the expansion of ICT infrastructure across the country, the development of eGovernment services and applications, and the provision of universal access to voice and Internet services.

ICT & INFRASTRUCTURE

Internet users (% of population) **8** (WB 2018)
Fixed broadband subscriptions (per 100 people) **0.19** (WB 2017)
Monthly active users on Facebook **550 thousand 59% (males), 41% (females)** (DR 2019)
Monthly active users on Instagram **89 thousand 59% (males), 41% (females)** (DR 2019)
Mobile subscriptions (per 100 people) **56.2** (WB 2018)
Television companies 3 private TV stations; satellite
Radio stations 1 state-owned; several independent regional

EDUCATION

Government expenditure on education total (% of GDP) **3.8** (WB 2017)
Primary enrolment (% gross) **93.8** (WB 2018)
Primary completion rate total (% of relevant age group) **65** (WB 2011)
Secondary enrolment (% gross) **36** (WB 2018)
School enrolment Gender parity index (GPI)
Primary (gross) **0.9** (WB 2016)
Secondary (gross) **0.8** (WB 2016)
Tertiary (gross) **0.6** (WB 2012)
Expected years of school **4.4 (male), 4.4 (female)** (WB 2017)
Out-of-school rate for children of primary age **21.36** (UIS 2017)
Literacy Rate (UIS 2013)
Males (15-24) **64.96%,** Females (15-24) **45.64%**
Males (25-64) **61.92%,** Females (25-64) **30.07%**
Unemployment (% of total labour force) **2** (ILO 2018)

SOCIETY & POLITICS

Date of Independence 26 July 1847, from the United States of America
Style of government Republic
Leader President George Weah
Proportion of seats held by women in national parliament **12%** (WB 2018)
Population total (millions) **4.82** (WB 2018)
Population growth rate (annual) **2.5%** (WB 2018)
Fertility rate total (births per woman) **4.5** (WB 2018)
Mortality rate under 5 (per 1,000 live births) **75** (WB 2018)
Life expectancy at birth total (years) **63** (WB 2018)
GDP (PPP) (millions) **6,295.13** (WB 2018)
GDP growth rate (annual) **1.2%** (WB 2018)
GDP by sector (% of GDP) **agriculture 37%, industry 13%** (WB 2018)
Languages English, 29 Mande, Kwa, or Mel linguistic group languages
Major religion(s) Christianity, Islam, Indigenous beliefs
Monetary unit Liberian dollar

Tripolis

Libya

After the ousting of long-term leader Muammar Gaddafi, Libya has fallen into political instability. Since 2014, the country has been divided into competing political and military factions, based in Tripoli and in the east of the country. Although Prime Minister Sarraj is the head of the internationally-recognised interim government, Gen. Haftar also has some international sponsors.

This political instability has negatively affected Libya's economy, especially in the oil and natural gas sectors. Improved political and security arrangements in late 2017 allowed for a brief doubling of the production of oil and some record growth after the recession; however, oil production then stagnated following an attack on the oil fields by eastern militias.

The World Health Organization (WHO) created its 2019 Humanitarian Response Plan for Libya, which includes a targeted plan for education. The plan targets over 71,000 individuals in high conflict areas, who are being mentally affected by trauma and distress. This plan aims to increase school attendance and performance, improve formal education by means of teacher training, provide more supplies for educators and prioritise mental health. So far, 3,285 out of 71,236 children have been provided with essential learning materials/school supplies; 1,499 out of 71,236 children are accessing education services; 23 out of 900 teachers and education personnel have been trained on protective pedagogy; and 3,899 out of 65,266 children have been receiving psychosocial/recreational activities in schools and learning spaces.

Since 2014, Libya's ICT initiatives have been put on the backburner due to political instability. Although Libya has one of the highest market penetration rates in Africa, with a mobile voice market approaching saturation, political instability has impeded growth in this sector.

ICT & INFRASTRUCTURE

Internet users (% of population) **21.8** (WB 2018)
Fixed broadband subscriptions (per 100 people) **4.99** (WB 2017)
Monthly active users on Facebook **4.4 million 61% (males), 39% (females)** (DR 2019)
Monthly active users on Instagram **1 million 55% (males), 45% (females)** (DR 2019)
Mobile subscriptions (per 100 people) **94.4** (WB 2018)
Television companies state-funded and private TV stations; some local; pan-Arab satellite
Radio stations state-funded

EDUCATION

Government expenditure on education total (% of GDP) **2.3** (WB 1999)
Primary enrolment (% gross) **103.6** (WB 2001)
Primary completion rate total (% of relevant age group) **108** (WB 2002)
Unemployment (% of total labour force) **17.3** (ILO 2018)

SOCIETY & POLITICS

Date of Independence 24 December 1951, from UN trusteeship
Style of government Transitional
Leaders Prime Minister Fayez Sarraj (head of the internationally-recognized government in Tripoli); Gen. Khalifa Haftar (leader of the Libyan National Army, which controls much of eastern Libya); Aghela Saleh (speaker of the House of Representatives based in the eastern city of Tobruk); Khalend Mishri (elected head of the High State Council in Tripoli)
Proportion of seats held by women in national parliament **16%** (WB 2018)
Population total (millions) **6.68** (WB 2018)
Population growth rate (annual) **1.5%** (WB 2018)
Fertility rate total (births per woman) **2.2** (WB 2018)
Mortality rate under 5 (per 1,000 live births) **12** (WB 2018)
Life expectancy at birth total (years) **72** (WB 2018)
GDP (PPP) (millions) **138,287.33** (WB 2018)
GDP growth rate (annual) **7.8%** (WB 2018)

Languages Arabic
Major religion(s) Islam
Monetary unit Libyan dinar

Antananarivo

Madagascar

Madagascar has experienced political turmoil in recent years, following attempts to impeach former president Hery Rajaonarimampianina. However, elections were held peacefully in January of this year, and President Andry Rajoelina won with 55.6% of the vote, promising to scale up economic growth and reduce poverty.

The economy grew by 5.2% in 2018, due to favourable weather conditions leading to an upturn in agriculture, and a successful service sector. This has not greatly reduced the poverty rate though. In 2014, it was at 77.7%, and in 2018, it was at 75.1%. Although agriculture experienced an upturn in 2018 and employs 80% of the population, it remains a volatile sector for growth, and is highly susceptible to adverse weather conditions.

Madagascar has had high dropout rates of primary school age children in the past, which has made the country a eligible for education initiatives, such as the World Bank's 'Madasgacar Basic Education Support Project'. UNICEF and the Global Partnership for Education have also partnered with the Ministry of Education to create the country's first medium and long-term education sector plan after the end of the 2018 political crisis. This plan spans the years 2018-2022 and aims to strengthen the management and governance of the education system while proposing solutions to existing disparities. The local group created and introduced a National Education Sector Support Platform (PNPSE) to assist in the completion of this project.

In 2018, Madagascar hosted 'Africa Code Week (ACW)', where teachers and parents received hands-on training on the open-source Scratch interface to enable them to introduce and sustain digital skills development in the classroom and at home. This is part of an effort of the African Development Bank, Madagascar, and other partners to establish ICT centres in schools and expand infrastructure, in order to eradicate poverty.

ICT & INFRASTRUCTURE

Internet users (% of population) **9.8** (WB 2018)
Fixed broadband subscriptions (per 100 people) **0.1** (WB 2017)
Monthly active users on Facebook **2.4 million 57% (males), 43% (females)** (DR 2019)
Monthly active users on Instagram **54 thousand 48% (males), 52% (females)** (DR 2019)
Mobile subscriptions (per 100 people) **34.1** (WB 2018)
Television companies State-owned TVM, private urban stations
Radio stations State-owned RNM, private urban stations

EDUCATION

Government expenditure on education total (% of GDP) **2.8** (WB 2014)
Primary enrolment (% gross) **43.8** (WB 2018)
Primary completion rate total (% of relevant age group) **68** (WB 2018)
Secondary enrolment (% gross) **37** (WB 2018)
School enrolment Gender parity index (GPI)
Primary (gross) **1.0** (WB 2016)
Secondary (gross) **1.0** (WB 2017)
Tertiary (gross) **0.9** (WB 2016)
Expected years of school **7.4 (male), 7.6 (female)** (WB 2017)
Out-of-school rate for children of primary age **1.96** (UIS 2018)
Proportion of schools with access to the Internet for pedagogical purposes (UIS 2018)
Primary schools **0.4%**
Secondary schools **5.6%**
Literacy Rate (UIS 2013)
Males (15-24) **81.72%,** Females (15-24) **80.68%**
Males (25-64) **75.43%,** Females (25-64) **69.72%**
Unemployment (% of total labour force) **1.7** (ILO 2018)

SOCIETY & POLITICS

Date of Independence 26 June 1960, from France
Style of government Republic
Leader President Andry Rajoelina
Proportion of seats held by women in national parliament **19%** (WB 2018)
Population total (millions) **26.26** (WB 2018)
Population growth rate (annual) **2.7%** (WB 2018)
Fertility rate total (births per woman) **4.1** (WB 2018)
Mortality rate under 5 (per 1,000 live births) **44** (WB 2018)
Life expectancy at birth total (years) **66** (WB 2018)
GDP (PPP) (millions) **42,916.80** (WB 2018)
GDP growth rate (annual) **5.2%** (WB 2018)
GDP by sector (% of GDP) **agriculture 20%, industr 23%** (WB 2018)
Languages Malagasy (official), French
Major religion(s) Indigenous beliefs, Christianity
Monetary unit Ariary

Malawi

Malawi is located in south eastern Africa, sharing borders with Mozambique, Zambia, and Tanzania. It is the home of Lake Malawi, one of the African Great Lakes and the southernmost lake in the East African Rift system. President Peter Mutharika, who was first elected in 2014, has been re-elected this year for a second term.

The country is currently in the third series of the Malawi Growth and Development Strategy (MGDS), a series of five year plans that contribute to long-term development goals, created in partnership with the World Bank. MGDS III, with the theme 'Building a Productive, Competitive and Resilient Nation', runs through to 2022 and focuses on education, energy, agriculture, health and tourism. Although the country has seen significant economic growth in the last decade, its economy relies on the agricultural sector, which is vulnerable to external shocks, such as weather and health. Energy shortages are also a challenge for Malawians, with only 11% of the population having access to electricity.

The United Kingdom's Department for International Development (DfID), the European Union, and the Global Partnership for Education have worked with the Ministry of Education to create the Education Sector Implementation Plan II. This plan addresses challenges such as inadequate school facilities, high pupil-teacher ratios, low learning achievements and a large capacity gap between school inspection and supervision. An impressive result in the last year was the recruitment of 8,000 teachers to reduce the student-teacher ratio.

Malawi has a '2014-2031 National ICT Master Plan', after being inspired by similar Master Plans from Rwanda, Kenya, Trinidad and Tobago, and Korea. The objective of this master plan is to implement the National ICT policy and achieve its objective of facilitating "the creation of an enabling environment for efficient, effective, and sustainable utilisation, exploitation and development of ICT in all sectors of the economy, including in rural and underserved communities, in order to attain an information-rich and knowledge-based society and economy". The specific objectives within this are as follows: to facilitate socio-economic growth and development by promoting the ICT industry and establishing ICT infrastructure; to achieve good governance and transparent government through ICT; to strengthen the country's global competitiveness; and to enhance the ability of citizens to use ICT.

ICT & INFRASTRUCTURE

Internet users (% of population) **13.8** (WB 2018)
(% of individuals using the Internet)
17.5 (males), 5.5 (females) (ITU 2016)
Fixed broadband subscriptions (per 100 people) **0.06** (WB 2017)
Monthly active users on Facebook **530 thousand**
70% (males), 30% (females) (DR 2019)
Monthly active users on Instagram **55 thousand**
62% (males), 38% (females) (DR 2019)
Mobile subscriptions (per 100 people) **41.7** (WB 2018)
Television companies 1 government-owned, two private TV networks
Radio stations 1 state-run; c. 12 private and community

EDUCATION

Government expenditure on education total (% of GDP) **4.0** (WB 2017)
Primary enrolment (% gross) **139.9** (WB 2018)
Primary completion rate total (% of relevant age group) **66** (WB 2010)
Secondary enrolment (% gross) **38** (WB 2018)
School enrolment Gender parity index (GPI)
Primary (gross) **1.0** (WB 2017)
Secondary (gross) **0.9** (WB 2017)
Tertiary (gross) **0.6** (WB 2011)
Expected years of school
9.4 (male), 9.4 (female) (WB 2017)
Literacy Rate (UIS 2013)
Males (15-24) **72.49%,** Females (15-24) **73.39%**
Males (25-64) **68.85%,** Females (25-64) **50.52%**
Unemployment (% of total labour force) **5.4** (ILO 2018)

SOCIETY & POLITICS

Date of Independence 6 July 1964, from Britain
Style of government Multiparty democracy
Leader President Peter Mutharika
Proportion of seats held by women in national parliament **17%** (WB 2018)
Population total (millions) **18.14** (WB 2018)
Population growth rate (annual) **2.6%** (WB 2018)
Fertility rate total (births per woman) **4.5** (WB 2018)
Mortality rate under 5 (per 1,000 live births) **55** (WB 2018)
Life expectancy at birth total (years) **64** (WB 2018)
GDP (PPP) (millions) **23,743.86** (WB 2018)
GDP growth rate (annual) **3.5%** (WB 2018)
GDP by sector (% of GDP) **agriculture 26%, industry 14%** (WB 2018)
Languages English, Chichewa (both official)
Major religion(s) Christianity, Islam
Monetary unit Malawi kwacha

Mali

Mali is one of the largest countries in Africa and, for much of its history, the northern city of Timbuktu was a key regional trading post and a centre of Islamic culture. However, its prominence has faded due to droughts, rebellions, a coup, and 23 years of military dictatorship until the first democratic elections in 1992. Currently, the former Prime Minister and Speaker of the National Assembly, Ibrahim Boubacar Keïta, is president. President Keïta was elected in September 2013 and re-elected in August 2018 on a promise to unify the country.

Mali ranked 182nd out of 188 countries in the Human Development Index in 2017, due to high rates of poverty caused by droughts and conflict. Economic growth has fallen for the third year in a row as a result of conflict as well. In response to economic challenges, the Government has limited public funding, which has negatively affected the health and education sectors, as well as many others. The World Bank aims to work in three development areas with the Government to restore economic growth and reduce the rate of poverty: agriculture, with the Fostering Agricultural Productivity Project; urban development, with the Urban Local Government Support Project; and social safety nets, with the Emergency Safety Nets Project.

Political instability has negatively affected education – between 2011 and 2013, progress from 2000-2010 was negligible. The primary enrolment ratio decreased from 92% to 83.5% (and in 2018, it further decreased to 80.1%), while the completion rate decreased from 62% to 59% (and has further decreased in 2018 to 50%). The Government, with UNICEF and the Global Partnership for Education had created the 'Programme intérimaire de relance du secteur de l'éducation et de la formation professionelle' to focus on improving quality, access and governance in the education sector. This project was initially supposed to cover 2015-2016 but was extended until 2017, and has received $200,000 in grant funds from the World Bank in 2018. The project's goals include supporting the preparation of a Ten Year Education Sector Plan.

Mali has made impressive gains in the ICT sector. The Government has made efforts to strengthen the ICT sector in Mali by deploying fibre-optic cables across the country and by adopting ICT strategies. A flagship government project is the Digital Complex of Bamako, which will feature a training institute, data centre, offices for ICT businesses, an incubator, and an exhibition hall. The Plan Mali Digital 2020, adopted in 2015, is a national digital economy strategy, which aims to further develop the ICT sector by 2020.

ICT & INFRASTRUCTURE

Internet users (% of population) **12.7** (WB 2018)
Fixed broadband subscriptions (per 100 people) **0.22** (WB 2017)
Monthly active users on Facebook **1.6 million 75% (males), 25% (females)** (DR 2019)
Monthly active users on Instagram **160 thousand 75% (males), 25% (females)** (DR 2019)
Mobile subscriptions (per 100 people) **118.8** (WB 2018)
Television companies 1 national public company, private international services
Radio stations 1 national public broadcaster, community radio

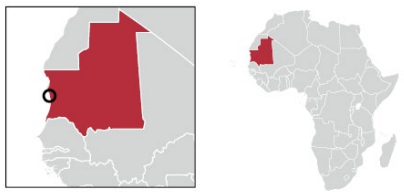
EDUCATION

Government expenditure on education total (% of GDP) **3.1** (WB 2016)
Primary enrolment (% gross) **80.1** (WB 2018)
Primary completion rate total (% of relevant age group) **50** (WB 2018)
Secondary enrolment (% gross) **41** (WB 2018)
School enrolment Gender parity index (GPI)
Primary (gross) **0.9** (WB 2017)
Secondary (gross) **0.8** (WB 201)
Tertiary (gross) **0.4** (WB 2015)
Expected years of school **6.0 (male), 5.1 (female)** (WB 2017)
Out-of-school rate for children of primary age **40.99** (UIS 2018)
Literacy Rate (UIS 2013)
Males (15-24) **57.83%,** Females (15-24) **43.40%**
Males (25-64) **42.74%,** Females (25-64) **17.89%**
Unemployment (% of total labour force) **9.6** (ILO 2018)

SOCIETY & POLITICS

Date of Independence 22 September 1960, from France
Style of government Republic
Leader President Ibrahim Boubacar Keita
Proportion of seats held by women in national parliament **9%** (WB 2018)
Population total (millions) **19.08** (WB 2018)
Population growth rate (annual) **3.0%** (WB 2018)
Fertility rate total (births per woman) **6.0** (WB 2018)
Mortality rate under 5 (per 1,000 live births) **106** (WB 2018)
Life expectancy at birth total (years) **58** (WB 2018)
GDP (PPP) (millions) **44,118.49** (WB 2018)
GDP growth rate (annual) **4.9%** (WB 2018)
GDP by sector (% of GDP) **agriculture 39%, industry 19%** (WB 2018)
Languages French, Bambara, Berber, Arabic
Major religion(s) Islam, Indigenous beliefs
Monetary unit CFA Franc

Mauritania



Mauritania, located in western sub-Sharan Africa, is a vast desert country with a complicated history. It has experienced many coups and recent political challenges have included unrest following the legislative, municipal, and regional elections held in September 2018. The most recent elections, however, were peaceful and took place this year. President Mohamed Ould Ghazouani took office in August 2019, becoming Mauritania's first successor to a democratically elected president.

In spite of past political challenges, the country's economy has been gradually recovering. An increase in growth in 2018 was driven by the telecommunications, transportation, and electricity sectors. Growth is projected by the World Bank to increase to 6.2% for the 2019-2021 period. However, some groups of Mauritanians have not benefited from this growth. The capital city, Nouakchott, has had continued levels of poverty, and the unemployment rate has not decreased either. Youth, women and children remain marginalised, despite perceived social progress.

The Agence Française de Développement, UNICEF, and the Global Partnership for Education have worked with the country's Ministry of Education to develop its second education sector plan, which will cover the 2011-2020 period. Challenges in the education sector include low quality basic education; low access to and quality of secondary education; weak involvement of civil society, local communities, and the private sector; low transition rate to secondary school; and a lack of qualified teachers in secondary school. Apart from addressing these challenges, the education sector plan will promote access to education for out-of-school children, develop technical and vocational training adapted to social and economic demand, and develop and implement a new management strategy.

Over the past fifteen years, efforts by the Government and the three telecommunications operators - Mattel, Mauritel, and Chinguitel – have improved digital connectivity and reduced the digital divide. The ITU lists Mauritania's recent ICT objectives as: to further develop far-reaching high-speed networks by licensing LTE services, to expand satellite broadband coverage, and to roll out fibre-to-home networks in the capital and main cities.

ICT & INFRASTRUCTURE

Internet users (% of population) **20.8** (WB 2018)
Fixed broadband subscriptions (per 100 people) **0.29** (WB 2017)
Monthly active users on Facebook **770 thousand 67% (males), 33% (females)** (DR 2019)
Monthly active users on Instagram **89 thousand 62% (males), 38% (females)** (DR 2019)
Mobile subscriptions (per 100 people) **92.2** (WB 2018)
Television companies 1 state-run with 3 channels; 5 private channels
Radio stations 1 state-run; several private stations

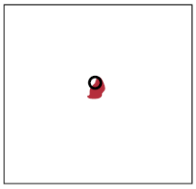
EDUCATION

Government expenditure on education total (% of GDP) **2.6** (WB 2016)
Primary enrolment (% gross) **95.4** (WB 2018)
Primary completion rate total (% of relevant age group) **68** (WB 2018)
Secondary enrolment (% gross) **32** (WB 2018)
School enrolment Gender parity index (GPI)
Primary (gross) **1.1** (WB 2017)
Secondary (gross) **1.0** (WB 2017)
Tertiary (gross) **0.5** (WB 2017)
Expected years of school **6.1 (male), 6.4 (female)** (WB 2017)
Out-of-school rate for children of primary age **19.69** (UIS 2018)
Literacy Rate (UIS 2013)
Males (15-24) **70.94%,** Females (15-24) **56.76%**
Males (25-64) **61.38%,** Females (25-64) **39.18%**
Unemployment (% of total labour force) **10.3** (ILO 2018)

SOCIETY & POLITICS

Date of Independence 28 November 1960, from France
Style of government Military Junta
Leader President Mohamed Ould Ghazouani
Proportion of seats held by women in national parliament **20%** (WB 2018)
Population total (millions) **4.4** (WB 2018)
Population growth rate (annual) **2.8%** (WB 2018)
Fertility rate total (births per woman) **4.6** (WB 2018)
Mortality rate under 5 (per 1,000 live births) **79** (WB 2018)
Life expectancy at birth total (years) **63** (WB 2018)
GDP (PPP) (millions) **18,449.71** (WB 2018)
GDP growth rate (annual) **3.6%** (WB 2018)
GDP by sector (% of GDP) **agriculture 24%, industry 24%** (WB 2018)
Languages Arabic (official), French
Major religion(s) Islam
Monetary unit ouguiya

Mauritius



Mauritius has one of Africa's highest per capita incomes, due to its success in diversifying the economy away from sugar exports and building up a strong outsourcing and financial services sector and a thriving tourism industry. The country is located on an archipelago in the Indian Ocean, and also boasts a stable democracy. Former Vice-President Paramasivum Pillay Vyapoory assumed the presidency in March 2018, following the resignation of President Ameenah Gurib-Fakim. President Vyapoory leads with Prime Minister Pravind Kumar Jugnauth, the successor and son of Sir Anerood Jugnauth, Mauritius' longest-serving Prime Minister. Parliamentary elections are expected to be held in late 2019 or early 2020.

Although the economy has grown in recent years, inequality has been on the rise. Public transfers by the Government have contributed to some mitigation, but women face higher unemployment and lower labour force participation rates than men; and youth unemployment stands at 22.1% due to a skills mismatch and the rising expectations of young labour market entrants. The World Bank completed a multi-hazard risk assessment in 2017 which estimated that Mauritius experiences a $110 million average loss per year from tropical cyclones and floods.

The education sector, however, remains a priority for the Government. The Minister of Education presented an ICT Strategy for the Education Sector in 2018. This strategy spans the pre-primary, primary, secondary, and tertiary education subsectors. There are four areas of focus within the strategy: Infrastructure and Connectivity; Enhanced Teaching/Learning and Pedagogical Content Development; Education Management; and Capacity-building and Professional Development. Each area of focus has projects implemented with partners, such as the Open University of Mauritius, the Commonwealth of Learning (COL), and the National Council of Education Research and Training (NCERT) of India. One project, in the primary focus area, will aim to align the integration of ICT into teaching and learning through the use of adapted tablets, which will encompass digital teaching methods, such as videos and e-books, interactive animations, hands-on activities, and drawing and creativity tools. All primary and secondary schools under the strategy are expected to be equipped with desktop computers in computer labs. Another project, in the tertiary focus area, will develop an Education Management Information System, which includes an e-Timetable Software and a Campus Management System.

ICT & INFRASTRUCTURE

Internet users (% of population) **55.6** (WB 2018)
(% of individuals using the Internet)
60.9 (males), 56.4 (females) (ITU 2018)
Fixed broadband subscriptions (per 100 people)
19.44 (WB 2017)
Monthly active users on Facebook **780 thousand**
55% (males), 45% (females) (DR 2019)
Monthly active users on Instagram **250 thousand**
52% (males), 48% (females) (DR 2019)
Mobile subscriptions (per 100 people)
145.4 (WB 2018)
Television companies State-run MBC with 13 stations, 2 pay-TV stations
Radio stations 1 state-run, some private

EDUCATION

Government expenditure on education
total (% of GDP) **5.0** (WB 2017)
Primary enrolment (% gross) **101.6** (WB 2018)
Primary completion rate total (% of relevant age group) **98** (WB 2018)
Secondary enrolment (% gross) **96** (WB 2011)
School enrolment Gender parity index (GPI)
Primary (gross) **1.0** (WB 2017)
Secondary (gross) **1.1** (WB 2017)
Tertiary (gross) **0.5** (WB 2017)
Expected years of school
12.2 (male), 12.8 (female) (WB 2017)
Out-of-school rate for children of primary age
1.3 (UIS 2018)
Proportion of schools with access to the Internet for pedagogical purposes (UIS 2018)
Primary schools **27.0 %**
Secondary schools **91.1%**
Literacy Rate (UIS 2013)
Males (15-24) **98.74%,** Females (15-24) **99.35%**
Males (25-64) **93.40%,** Females (25-64) **92.52%**
Unemployment (% of total labour force)
6.9 (ILO 2018)

SOCIETY & POLITICS

Date of Independence 12 March 1968, from the United Kingdom
Style of government Parliamentary democracy
Leaders Acting President Paramasivum Pillay Vyapoory, Prime Minister Pravind Kumar Jugnauth
Next Election Parliamentary elections expected December 2019 or early 2020
Proportion of seats held by women in national parliament **12%** (WB 2018)
Population total (millions) **1.27** (WB 2018)
Population growth rate (annual) **0.1%** (WB 2018)
Fertility rate total (births per woman) **1.4** (WB 2018)
Mortality rate under 5 (per 1,000 live births) **13** (WB 2018)
Life expectancy at birth total (years) **75** (WB 2018)
GDP (PPP) (millions) **29,999.20** (WB 2018)
GDP growth rate (annual) **3.8%** (WB 2018)
GDP by sector (% of GDP) **agriculture 3%, industry 18%** (WB 2018)
Languages English (official), Creole, French, Indian languages
Major religion(s) Hinduism, Christianity, Islam
Monetary unit Mauritian rupee

Morocco

Rabat

Morocco boasts a rich culture, due to its unique blend of Arab, Berber, European and African influences. Its major cities, such as Casablanca and Marrakesh, have an important place in popular culture, and attract droves of tourists annually. King Mohammed VI has ruled since 1999 and has broad authority over all branches of government, but the parliament and the Prime Minister have had expanded powers since the 2010 Arab Spring. The current prime minister, Saad-Eddine El Othmani, was appointed in March 2017. Prime Minister Othmani's government has made gains in rolling out pro-poor reforms, focusing on social protection programmes, job creation, and reducing economic disparities across the country.

Economic growth slowed from 4.1% in 2017 to 3% in 2018. This was in part due to a decline in agricultural value and in oil prices; however, growth still sprung from the mining sector. While the World Bank projects the economy will slow down further in 2019 to 2.9% because of the agricultural sector, it also predicts that growth will stabilise to 3.6% over the medium term.

The Government is currently working to develop a new model for the country based on enhanced educational and vocational training programmes. USAID works with the Moroccan Ministry of Education to address the challenges of high drop-out rates, low levels of pupil and teacher attendance, low literacy due to multilingualism, and a lack of professional development programmes. Impacts from this collaboration so far include: 12,000 students reached with a new reading method, over 340 teachers trained on the reading method and provided with instructional material kits, an implementation of educational software for deaf children, and the introduction of the first Early Grade Reading and Sign Language Assessment in 10 schools for deaf students.

ICT is an important sector for Morocco, as evidenced by the creation of the Digital Morocco Plan 2019. Supporting the Government is the World Bank, with projects under the Country Partnership Framework (CPF) it has with the country. The CPF has an overarching aim to harness the potential of new technology to promote entrepreneurship, productivity and e-government platforms. The World Bank and the Government expect this to boost economic growth and innovation. A project under the CPF, the Financial Inclusion and Digital Economy Development Policy Financing Project, will support the Government in leveraging digital technologies to transform Morocco's economy.

ICT & INFRASTRUCTURE

Internet users (% of population) **61.8** (WB 2018)
(% of individuals using the Internet by gender) **68.5 (males), 61.1 (females)** (ITU 2018)
Fixed broadband subscriptions (per 100 people) **3.86** (WB 2017)
Monthly active users on Facebook **17 million**
64% (males), 36% (females) (DR 2019)
Monthly active users on Instagram **4.4 million**
56% (males), 44% (females) (DR 2019)
Mobile subscriptions (per 100 people) **122.9** (WB 2018)
Television companies State-run SNRT runs 9 channels; 2 partly-privatized networks
Radio stations State-run SNRT (national and regional); some private

EDUCATION

Government expenditure on education total (% of GDP) **5.3** (WB 2009)
Primary enrolment (% gross) **112.3** (WB 2018)
Primary completion rate total (% of relevant age group) **93** (WB 2018)
Secondary enrolment (% gross) **80** (WB 2018)
School enrolment Gender parity index (GPI)
Primary (gross) **1.0** (WB 2017)
Secondary (gross) **0.9** (WB 2017)
Tertiary (gross) **1.0** (WB 2017)
Expected years of school
10.6 (male), 10.7 (female) (WB 2017)
Out-of-school rate for children of primary age **0.21** (UIS 2018)
Proportion of schools with access to the Internet for pedagogical purposes (UIS 2018)
Primary schools **79%**
Secondary schools **89.5%**
Literacy Rate (UIS 2013)
Males (15-24) **98.04%,** Females (15-24) **97.40%**
Males (25-64) **82.51%,** Females (25-64) **60.97%**
Unemployment (% of total labour force) **9.0** (ILO 2018)

SOCIETY & POLITICS

Date of Independence 2 March 1956, from France
Style of government Constitutional monarchy
Leaders King Mohammed VI, Prime Minister Saad-Eddine El Othmani
Next Election Parliamentary elections expected November 2021
Proportion of seats held by women in national parliament **21%** (WB 2018)
Population total (millions) **36.03** (WB 2018)
Population growth rate (annual) **1.3%** (WB 2018)
Fertility rate total (births per woman) **2.5** (WB 2018)
Mortality rate under 5 (per 1,000 live births) **23** (WB 2018)
Life expectancy at birth total (years) **76** (WB 2018)
GDP (PPP) (millions) **314,241.27** (WB 2018)
GDP growth rate (annual) **3.0%** (WB 2018)
GDP by sector (% of GDP) **agriculture 12%, industry 25%** (WB 2018)
Languages Arabic and Berber (official), French, Spanish
Major religion(s) Islam
Monetary unit Dirham

Maputo

Mozambique

Mozambique is located on the east coast of Africa, facing Madagascar, bordering Tanzania, Malawi, Zambia, Zimbabwe, South Africa, and Eswatini. Although the country gained independence from Portugal in 1975, it still suffers from political challenges arising from the 16-year civil war that ended in 1992. The ruling political party, the Front for the Liberation of Mozambique (Frelimo), and the opposition and former rebel movement, the Mozambique National Resistance (Renamo), have remaining tensions that affect their politics. A third party, the Mozambique Democratic Movement (MDM) also holds some power. The current president, Filipe Nyusi, is also the head of the Frelimo party, was sworn in as president in January 2015. Presidential, legislative, and provincial elections should take place in October 2019, and political tensions may rise during the voting period. Another political challenge to the country is an Islamist insurgency in the gas-rich province of Cabo-Delgado, which raises significant security concerns.

Economic conditions have improved slowly over time, despite commodity price shocks in 2015 and the impacts of cyclones Idai and Kenneth on agricultural production in 2019. The World Bank expects economic growth to rise to 4.2% by 2021, as rehabilitation efforts and large-scale investments in gas production could push growth. The discovery of off-shore natural gas could also fuel the economy; however, security challenges in the province of Cabo-Delgado could jeopardise this.

The 'ICT Transforming Education in Africa' is a 4-year project launched in 2015 to foster development through the use of information and communication technology and, in particular, mobile learning. This is part of the UNESCO-Korea Funds-in-Trust cooperation, has a budget of $6 million, and takes place in three countries in Africa: Mozambique, Rwanda and Zimbabwe. The Mozambique project aims to establish an e-school model to align learners' competencies with the new national curriculum; to make information for management administration easily accessible on-line and enhance communication between schools and their communities; to transform online distance learning from a paper based model to blended learning models; and to create an ICT Education policy with the Ministry of Education. Recent updates from the January-March 2019 report on the project include the following achievements: twenty-four 'champion teachers' created 45 lesson plans in eight subject areas for the establishment of 22 e-schools; 400 teachers received training on the pedagogical use of ICT In 16 provinces; and a five-day seminar on 'Empowering the next generation' was held in February 2019 at the Maluna Science and Technology park, attended by 200 students, 60% of whom were girls.

ICT & INFRASTRUCTURE

Internet users (% of population) **20.8** (WB 2018)
Fixed broadband subscriptions (per 100 people) **0.21** (WB 2017)
Monthly active users on Facebook **2.4 million 62% (males), 38% (females)** (DR 2019)
Monthly active users on Instagram **290 thousand 57% (males), 43% (females)** (DR 2019)
Mobile subscriptions (per 100 people) **40** (WB 2018)
Television companies 1 state-run; 1 private; RTP Africa [Portugal], TV Miramar [Brazil]
Radio stations State-owned national network, private & community stations

EDUCATION

Government expenditure on education total (% of GDP) **6.5** (WB 2013)
Primary enrolment (% gross) **105** (WB 2018)
Primary completion rate total (% of relevant age group) **46** (WB 2018)
Secondary enrolment (% gross) **35** (WB 2018)
School enrolment Gender parity index (GPI)
Primary (gross) **0.9** (WB 2017)
Secondary (gross) **0.9** (WB 2017)
Tertiary (gross) **0.8** (WB 2017)
Expected years of school **7.7 (male), 6.2 (female)** (WB 2017)
Out-of-school rate for children of primary age **6.07** (UIS 2016)
Literacy Rate (UIS 2016)
Males (15-24) **77.26%,** Females (15-24) **65.49%**
Males (25-64) **71.96%,** Females (25-64) **44.18%**
Unemployment (% of total labour force) **3.2** (ILO 2018)

SOCIETY & POLITICS

Date of Independence 25 June 1975, from Portugal
Style of government Republic
Leader President Filipe Nyusi
Next Election General election scheduled for 15 October 2019
Proportion of seats held by women in national parliament **40%** (WB 2018)
Population total (millions) **29.5** (WB 2018)
Population growth rate (annual) **2.9%** (WB 2018)
Fertility rate total (births per woman) **5.2** (WB 2018)
Mortality rate under 5 (per 1,000 live births) **72** (WB 2018)
Life expectancy at birth total (years) **59** (WB 2018)
GDP (PPP) (millions) **39,168.17** (WB 2018)
GDP growth rate (annual) **8.7%** (WB 2018)
GDP by sector (% of GDP) **agriculture 21%, industry 25%** (WB 2018)
Languages Portuguese (official), Indigenous languages
Major religion(s) Christianity, Indigenous beliefs, Islam
Monetary unit metical

Namibia

Namibia is a large and sparsely populated country on the west coast of Africa, sharing borders with Angola, Zambia, Botswana, and South Africa. Since gaining independence from South Africa in 1990, it has enjoyed a relatively stable political situation. President Hage Geingob was elected president in November 2014, while he was serving as independent Namibia's first prime minister. He is limited to two five-year terms. Prime Minister Saara Kuugongelwa-Amadhila was appointed in 2015, after serving as a finance minister for many years.

In spite of this political stability, poverty reduction rates are low and the economy has been in a recession since 2017. The World Bank predicts that economic growth could return in 2019 and reach up to 2% over the medium term, due to mining and construction activity. Higher uranium production in the Husab mine, as well as a revival of construction activity driven by the private sector, are key examples of possible pathways to growth. As the economy recovers, it will be imperative to act to reduce inequality, as women and youth continue to have fewer opportunities and higher unemployment rates.

Education, and career opportunities through education, are important to the Namibian Government; and they have made information readily accessible for students through ICT. The Ministry of Education, Arts, and Culture has a 'Student Portal' on its website, which hosts student forums, a career centre, library services, student loan applications, past exam papers, syllabi, and other resources. There are also sections for news and announcements, such as releases for nation-wide essay competitions and cultural events. The Ministry of Education has partnered with UNICEF and other organisations, such as USAID, in the past to create education sector plans, and announcements in the news section of the website also announce ministerial meetings regarding these plans and their rollouts.

ICT & INFRASTRUCTURE

Internet users (% of population) **36.8** (WB 2018)
Fixed broadband subscriptions (per 100 people) **2.6** (WB 2017)
Monthly active users on Facebook **620 thousand**
Monthly active users on Instagram **210 thousand**
Mobile subscriptions (per 100 people) **105.8** (WB 2018)
Television companies 1 private, 1 state; satellite & cable
Radio stations State-run radio in many languages, c. 12 private

EDUCATION

Government expenditure on education total (% of GDP) **3.1** (WB 2014)
Primary enrolment (% gross) **119.1** (WB 2018)
Primary completion rate total (% of relevant age group) **78** (WB 2018)
Secondary enrolment (% gross) **65** (WB 2007)
School enrolment Gender parity index (GPI)
Primary (gross) **1.0** (WB 2017)
Tertiary (gross) **1.8** (WB 2016)
Expected years of school **7.7 (male), 6.2 (female)** (WB 2017)
Out-of-school rate for children of primary age **1.52** (UIS 2018)
Literacy Rate (UIS 2017)
Males (15-24) **94.11%,** Females (15-24) **96.20%**
Males (25-64) **91.52%,** Females (25-64) **91.87%**
Unemployment (% of total labour force) **23.1** (ILO 2018)

SOCIETY & POLITICS

Date of Independence 21 March 1990, from South Africa
Style of government Republic
Leaders President Hage Geingob, Prime Minister Kuugongelwa-Amadhila
Next Election General election scheduled for 27 November 2019
Proportion of seats held by women in national parliament **46%** (WB 2018)
Population total (millions) **2.45** (WB 2018)
Population growth rate (annual) **1.9%** (WB 2018)
Fertility rate total (births per woman) **3.4** (WB 2018)
Mortality rate under 5 (per 1,000 live births) **44** (WB 2018)
Life expectancy at birth total (years) **65** (WB 2018)
GDP (PPP) (millions) **27,260.84** (WB 2018)
GDP growth rate (annual) **-0.1%** (WB 2018)
GDP by sector (% of GDP) **agriculture 7%, industry 29%** (WB 2018)
Languages English (official), Afrikaans, German, Oshibambo, Herero, Nama
Major religion(s) Christianity
Monetary unit Namibian dollar

Niger

Niamey

Niger is a large, landlocked country, with one of the largest populations and highest population growth rates in Africa. The current president, Mahamadou Issoufou, was elected in March 2016. Political challenges include tackling security threats such as Boko Haram, jihadist attacks, and drug trafficking. There has also been some political unrest, due to the ruling party's perceived suppression of the opposition.

The security crisis, coupled with low commodity prices, is weakening Niger's economy. Growth has moderately risen in spite of this and the World Bank has pledged to support Niger's economy through the implementation of stabilisation mechanisms and improved public investment management in pursuit of continued growth. The country's economy also has to be strong enough to address humanitarian concerns – Niger has a poverty rate of 44.1% and is hosting over 300,000 refugees and displaced persons. The Government has recently implemented a $40 million emergency plan but is seeking assistance from development partners to cope with immediate humanitarian needs.

Lack of access to education is a side effect of humanitarian crises. The education sector faces challenges, such as a high population growth rate, low enrolment rate, and a high dropout rate; access to, and completion of, education is especially lacking in vulnerable groups, such as girls in rural areas, children in nomadic areas, and children with disabilities. The European Union, UNICEF, and the Global Partnership for Education have worked with the Ministry of Education to develop the education and training sector plan for 2014-2024 to address these challenges. The series of priorities includes but is not limited to developing incentive programmes to increase girls' enrolment and retention, the implementation of an adequate school construction programme to meet to meet population pressures, and implementing a literacy and non-formal education programme to reach those who have never attended school or dropped out.

ICT initiatives are extremely important for the Government and Niger continues to find ways to develop its information society. The Government's policy is set out in the 2012 Sector Policy Paper on Telecommunications and Information and Communication Technologies, which has five axes: (1) the adaptation of the legal and institutional framework, (2) infrastructure development; (3) promotion of universal access to ICT services; (4) development of applications and content; and (5) strengthening ICT capacities. The sector has recently been reorganised by the creation of the National Agency for Information Systems (ANSI) under the supervision of the presidency.

ICT & INFRASTRUCTURE

Internet users (% of population) **10.2** (WB 2018)
(% of individuals using the Internet)
7.7 (males), 2.9 (females) (ITU 2018)
Fixed broadband subscriptions (per 100 people)
0.04 (WB 2017)
Monthly active users on Facebook **460 thousand**
82% (males), 18% (females) (DR 2019)
Monthly active users on Instagram **79 thousand**
77% (males), 23% (females) (DR 2019)
Mobile subscriptions (per 100 people)
40.9 (WB 2018)
Television companies 1 state-run, 3 private
Radio stations 1 national, state-run; 30 private; 100 community stations

EDUCATION

Government expenditure on education
total (% of GDP) **3.5** (WB 2017)
Primary enrolment (% gross) **75.1** (WB 2018)
Primary completion rate total (% of relevant age group) **73** (WB 2018)
Secondary enrolment (% gross) **25** (WB 2018)
School enrolment Gender parity index (GPI)
Primary (gross) **0.9** (WB 2017)
Secondary (gross) **0.7** (WB 2017)
Tertiary (gross) **0.4** (WB 2017)
Expected years of school
5.8 (male), 4.9 (female) (WB 2017)
Out-of-school rate for children of primary age
33.51 (UIS 2017)
Unemployment (% of total labour force)
0.3 (ILO 2018)

SOCIETY & POLITICS

Date of Independence 3 August 1960, from France
Style of government Republic
Leader President Mahamadou Issoufou
Next Election Expected February 2021
Proportion of seats held by women in national parliament **17%** (WB 2018)
Population total (millions) **22.44** (WB 2018)
Population growth rate (annual) **3.8%** (WB 2018)
Fertility rate total (births per woman) **7.2**
(WB 2018)
Mortality rate under 5 (per 1,000 live births)
85 (WB 2018)
Life expectancy at birth total (years) **60** (WB 2018)
GDP (PPP) (millions) **23,531.05** (WB 2018)
GDP growth rate (annual) **5.2%** (WB 2018)
GDP by sector (% of GDP) **agriculture 40%, industry 16%** (WB 2018)
Languages French (official), Hausa, Songhai, Arabic
Major religion(s) Islam, Indigenous beliefs
Monetary unit CFA Franc

Nigeria

Abuja

Nigeria is Africa's most populous country, its largest economy, and its biggest democracy. National and state elections held in February 2019 were competitive, causing some instances of violence amid an otherwise peaceful process. However, these elections also had historically low voter turnout, which the United States Institute of Peace (USIP) takes to signify a deepening distrust of the Government. Although Nigeria has made major strides in its democratic development, it still has significant work ahead. The current president, Muhammadu Buhari, ran on promises to fight corruption, increase security, tackle unemployment, diversify the economy, enhance climate resilience, and better the living standards of Nigerians. These are now the main policies he has chosen to pursue in his second term, which ends in 2023.

Nigeria's economy has performed well in recent years, following the end of an economic recession in 2017. This is largely due to oil, which also makes the country vulnerable to drops in global oil prices. The World Bank suggests that the economy should diversify in order to increase growth, and provide jobs for a large youth population. The World Bank also suggests that the country should address its insufficient infrastructure, build strong and effective institutions, address governance issues, and reform public financial management systems.

USAID, the Global Partnership for Education, and the Government's Ministry of Education have proposed Education Strategic Plans for the Nigerian states of Jigawa, Kaduna, Katsina, Kano, and Sokoto. These plans address the challenges of high poverty levels, low enrolment, gender disparities, poor quality and relevance of the curriculum, and poor infrastructure and learning conditions.

The Education Strategic Plans also include ICT initiatives from partnered organisations. One such initiative is the Nigerian-founded Mavis Talking Books™ company's imaginative and innovative role in classrooms across the country. Students receive a digital pen (Mavis Pen) and a specifically printed book, and when the pen touches text or pictures in the book, it reads out corresponding audio, and can include interactive games, quizzes, and multi-language translations, among other things. The books range across different subjects, such as English with phonetics, mathematics, other languages (such as French, Arabic, Spanish, Hausa, Igbo, or Yoruba), numeracy, and health. The talking books follow the national curriculum, do not require the Internet to function, and each pen can work with up to 100 different books. Over 8,000 in-school and out-of-school children have already benefited from this innovation.

ICT & INFRASTRUCTURE

Internet users (% of population) **27.7** (WB 2018)
(% of individuals using the Internet by gender) **8.6 (males), 6.4 (females)** (ITU 2018)
Fixed broadband subscriptions (per 100 people) **0.06** (WB 2017)
Monthly active users on Facebook **23 million**
63% (males), 37% (females) (DR 2019)
Monthly active users on Instagram **6.8 million**
61% (males), 39% (females) (DR 2019)
Mobile subscriptions (per 100 people) **75.9** (WB 2018)
Television companies Nearly 70 government-controlled stations on federal and regional level
Radio stations 40 government-owned stations, 20 private

EDUCATION

Government expenditure on education total (% of GDP) **3.1** (WB 1975)
Primary enrolment (% gross) **84.7** (WB 2018)
Primary completion rate total (% of relevant age group) **56** (WB 2010)
Secondary enrolment (% gross) **42** (WB 2018)
School enrolment Gender parity index (GPI)
Primary (gross) **0.9** (WB 2016)
Secondary (gross) **0.9** (WB 2016)
Tertiary (gross) **0.7** (WB 2011)
Expected years of school
8.7 (male), 7.6 (female) (WB 2017)
Literacy Rate (UIS 2017)
Males (15-24) **81.58%,** Females (15-24) **68.26%**
Males (25-64) **67.78%,** Females (25-64) **46.99%**
Unemployment (% of total labour force) **6** (ILO 2018)

SOCIETY & POLITICS

Date of Independence 1 October 1960, from Britain
Style of government Federal republic
Leaders President Muhammadu Buhari
Proportion of seats held by women in national parliament **6%** (WB 2018)
Population total (millions) **195.97** (WB 2018)
Population growth rate (annual) **2.6%** (WB 2018)
Fertility rate total (births per woman) **5.5** (WB 2018)
Mortality rate under 5 (per 1,000 live births) **100** (WB 2018)
Life expectancy at birth total (years) **54** (WB 2018)
GDP (PPP) (millions) **1,171,386.85** (WB 2018)
GDP growth rate (annual) **1.9%** (WB 2018)
GDP by sector (% of GDP) **agriculture 21%, industry 24%** (WB 2018)
Languages English (official), Yoruba, Ibo, Hausa
Major religion(s) Islam, Christianity, Indigenous beliefs
Monetary unit Nigerian naira

Rwanda

Rwanda is a small, hilly and fertile country located in east-central Africa. The country has guarded its democracy and its political stability since the 1994 genocide, with largely positive results. In 2018, President Paul Kagame was re-elected for a seven-year term; the opposition parties, the Democratic Green Party of Rwanda and the Social Party Imberakuri, won seats in the Rwandan Patriotic Front-dominated parliament for the first time; and women filled 64% of the parliament's seats.

Rwanda aspires to reach the status of Middle Income Country by 2035, and the status of High-Income Country by 2050. The economy has been growing steadily, and public investments have been the main driver of growth in recent years. The World Bank predicts that, going forward, the private sector will play a bigger role in ensuring economic growth. So far, economic growth has been accompanied by many improvements in human capital, including a two-thirds drop in child mortality and near-universal primary school enrolment.

The 'ICT Transforming Education in Africa' programme is a 4-year project, launched in 2015, to foster development through the use of information and communication technology and, in particular, mobile learning. This is part of the UNESCO-Korea Funds-in-Trust cooperation, has a budget of $6 million, and takes place in three countries in Africa: Rwanda, Mozambique, and Zimbabwe. The Rwandan project includes enhancing the capacity of teachers across education levels to provide quality education by improving their skills to integrate ICT in education and use electronic assessments, strengthening the capacity of the University of Rwanda to expand higher education through courses delivered via online distance learning, and facilitating policy development and the sharing of best practices to build knowledgeable communities. January-March 2019 updates to the project included the training of university staff in multimedia content production by the Korean National Open University (KNOU); the development of the Advanced ICT Essentials course by the Rwanda Education Board (REB), with the release of a related training programme for teachers; and the expansion of e-assessments at the secondary level, in the English, ICT, and STEM subjects, by the REB.

ICT & INFRASTRUCTURE

Internet users (% of population) **21.8** (WB 2018)
(% of individuals using the Internet)
7.7 (males), 2.9 (females) (ITU 2018)
Fixed broadband subscriptions (per 100 people)
0.18 (WB 2017)
Monthly active users on Facebook **570 thousand**
67% (males), 33% (females) (DR 2019)
Monthly active users on Instagram **230 thousand**
66% (males), 34% (females) (DR 2019)
Mobile subscriptions (per 100 people)
72.2 (WB 2018)
Television companies 1 government-owned
Radio stations 1 government-owned [Radio Rwanda]; 9 private

EDUCATION

Government expenditure on education
total (% of GDP) **3.2** (WB 2017)
Primary enrolment (% gross) **133.4** (WB 2018)
Primary completion rate total (% of relevant age group) **76** (WB 2018)
Secondary enrolment (% gross) **38** (WB 2018)
School enrolment Gender parity index (GPI)
Primary (gross) **1.0** (WB 2017)
Secondary (gross) **1.1** (WB 2017)
Tertiary (gross) **0.9** (WB 2017)
Expected years of school
6.4 (male), 6.8 (female) (WB 2017)
Out-of-school rate for children of primary age
4.32 (UIS 2018)
Proportion of schools with access to the Internet for pedagogical purposes (UIS 2018)
Primary schools **30.0%**
Secondary schools **54.1%**
Literacy Rate (UIS 2017)
Males (15-24) **84.33%,** Females (15-24) **88.50%**
Males (25-64) **76.03%,** Females (25-64) **65.46%**
Unemployment (% of total labour force)
1.0 (ILO 2018)

SOCIETY & POLITICS

Date of Independence 1 July 1962, from Belgium
Style of government Presidential republic, multiparty system
Leader President Paul Kagame
Proportion of seats held by women in national parliament **61%** (WB 2018)
Population total (millions) **12.3** (WB 2018)
Population growth rate (annual) **2.6%** (WB 2018)
Fertility rate total (births per woman) **3.8**
(WB 2018)
Mortality rate under 5 (per 1,000 live births)
38 (WB 2018)
Life expectancy at birth total (years) **67** (WB 2018)
GDP (PPP) (millions) **27,722.67** (WB 2018)
GDP growth rate (annual) **8.7%** (WB 2018)
GDP by sector (% of GDP) **agriculture 29%, industry 16%** (WB 2018)
Languages Kinyarwanda (official), French (official), English (official), Swahili
Major religion(s) Christianity, Indigenous beliefs
Monetary unit Rwandan franc

São Tomé

São Tomé and Príncipe

The Republic of São Tomé and Príncipe (STP) consists of an archipelago, divided into six districts and an autonomous region. It is a stable democracy, with healthily competitive, regular national elections. The Government has undergone multiple transfers of power between rival parties, and the most recent elections in October 2018 established The Movement for the Liberation of São Tomé and Príncipe – Social Democrat Party (MLSTP-PSD) as the leading party of the Government. President Evaristo Carvalho, a former prime minister, won the run-off presidential election in August 2016.

STP's economy faces challenges that are typical of smaller countries. The economy has grown over time, due to tourism, agriculture, and oil-based foreign investment; but growth has recently slowed as a result of government overborrowing, an energy crisis in 2018, and external shocks to the agricultural market. The World Bank indicates that the long-term challenge for STP is to move from ambitious economic and social plans to feasible actions, that will not only make the economy more dynamic, but also generate more jobs for unemployed youth.

The Education Policy Charter 2012-2020, made by the Ministry of Education in conjunction with UNICEF and the Global Partnership for Education, aims to provide 12 years of free, quality education to all and to offer higher and technical education opportunities. This includes developing higher, technical, and vocational education attuned with the needs of the labour market, together with high-level training for teachers and other education officials.

The ICT sector plays a big role in the São Toméan economy, especially within tourism. The Government and ICT regulatory bodies have defined, adopted and funded a universal access policy.

ICT & INFRASTRUCTURE

Internet users (% of population) **29.9** (WB 2018)
Fixed broadband subscriptions (per 100 people) **0.72** (WB 2017)
Monthly active users on Facebook **64 thousand 56% (males), 44% (females)** (DR 2019)
Monthly active users on Instagram **5.1 thousand 58% (males), 42% (females)** (DR 2019)
Mobile subscriptions (per 100 people) **85.1** (WB 2018)
Television companies 1 government-owned
Radio stations 1 government-owned; 3 independent local

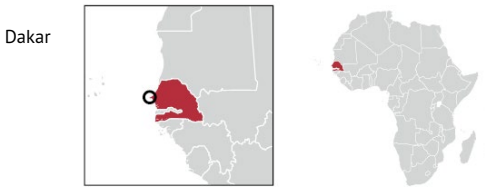
EDUCATION

Government expenditure on education total (% of GDP) **4.9** (WB 2017)
Primary enrolment (% gross) **110.2** (WB 2018)
Primary completion rate total (% of relevant age group) **87** (WB 2010)
Secondary enrolment (% gross) **90** (WB 2018)
School enrolment Gender parity index (GPI)
Primary (gross) **1.0** (WB 2017)
Secondary (gross) **1.1** (WB 2017)
Tertiary (gross) **1.0** (WB 2015)
Out-of-school rate for children of primary age **6.03** (UIS 2017)
Literacy Rate (UIS 2017)
Males (15-24) **97.71%,** Females (15-24) **97.85%**
Males (25-64) **96.31%,** Females (25-64) **89.66%**
Unemployment (% of total labour force) **13.3** (ILO 2018)

SOCIETY & POLITICS

Date of Independence 12 July 1975, from Portugal
Style of government Republic
Leaders President Evaristo Carvalho, Prime Minister Patrice Emery Trovoada
Proportion of seats held by women in national parliament **18%** (WB 2018)
Population total (millions) **0.21** (WB 2018)
Population growth rate (annual) **1.9%** (WB 2018)
Fertility rate total (births per woman) **4.4** (WB 2018)
Mortality rate under 5 (per 1,000 live births) **32** (WB 2018)
Life expectancy at birth total (years) **67** (WB 2018)
GDP (PPP) (millions) **720.15** (WB 2018)
GDP growth rate (annual) **2.7%** (WB 2018)
GDP by sector (% of GDP) **agriculture 21%**
Languages Portuguese
Major religion(s) Christianity
Monetary unit dobra

Senegal



Senegal has remained a stable democracy in its region, an "exception" in West Africa according to academics like Donal B. Cruise O'Brien (1996). Since its independence in 1960, the country has undergone three peaceful, political transitions. President Macky Sall was re-elected for a second term in February 2019, winning with 58.27% of the votes. Following the March 2016 referendum, President Sall will now complete a five-year term, rather than another seven-year term. Local elections are scheduled for December 2019, and legislative elections are expected to take place in 2022.

The economy has grown steadily over the years, due to high oil and gas production, and the strength of other sectors, such as agriculture and ICT. The World Bank expects the poverty rate to fall quickly in the next year, mostly due to the strength of the agricultural sector. The Ministry of Posts and Telecommunications is responsible for ICT policy and strategy in the country, and its key policy is the 2016 Digital Senegal Strategy. The policy's vision is "digital for all" by 2025 and it calls for application of broadband across schools, government services, together with the wider use of electronic commerce. A large technology park is under construction near Diamniadio, near Dakar, and it aims to be the leading ICT cluster in West Africa.

Education goals for the country are set out in the Education and Training Quality, Equity and Transparency Improvement Program (PAQUET-EF) 2013-2025. This programme was produced by the Ministry of Education, in conjunction with UNICEF and the Global Partnership for Education. Its three objectives are to improve learning outcomes at all levels; promote coverage, diversification and integration of the education and training system at all levels; and introduce results-based transparent and effective sector governance. The plan also calls for incorporating all forms of teaching, including non-formal methods, particularly through developing vocational and technical education.

ICT & INFRASTRUCTURE

Internet users (% of population) **29.6** (WB 2018)
Fixed broadband subscriptions (per 100 people) **0.71** (WB 2017)
Monthly active users on Facebook **3.3 million 65% (males), 35% (females)** (DR 2019)
Monthly active users on Instagram **660 thousand 64% (males), 36% (females)** (DR 2019)
Mobile subscriptions (per 100 people) **99.4** (WB 2018)
Television companies State-run RTS with 2 stations, private subscription services
Radio stations RTS service national and regional, local and community radio

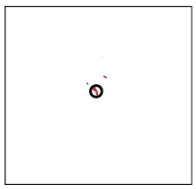
EDUCATION

Government expenditure on education total (% of GDP) **6.2** (WB 2017)
Primary enrolment (% gross) **84.1** (WB 2018)
Primary completion rate total (% of relevant age group) **60** (WB 2018)
Secondary enrolment (% gross) **45** (WB 2018)
School enrolment Gender parity index (GPI)
Primary (gross) **1.2** (WB 2017)
Secondary (gross) **1.1** (WB 2017)
Tertiary (gross) **0.6** (WB 2017)
Expected years of school **7.1 (male), 7.4 (female)** (WB 2017)
Out-of-school rate for children of primary age **23.54** (UIS 2017)
Proportion of schools with access to the Internet for pedagogical purposes (UIS 2018)
Primary schools **12.7%**
Secondary schools **43.5%**
Literacy Rate (UIS 2016)
Males (15-24) **75.58%,** Females (15-24) **63.50%**
Males (25-64) **60.30%,** Females (25-64) **29.33%**
Unemployment (% of total labour force) **6.5** (ILO 2018)

SOCIETY & POLITICS

Date of Independence 4 April 1960, from France
Style of government Republic
Leader President Macky Sall
Proportion of seats held by women in national parliament **42%** (WB 2018)
Population total (millions) **15.85** (WB 2018)
Population growth rate (annual) **2.8%** (WB 2018)
Fertility rate total (births per woman) **4.7** (WB 2018)
Mortality rate under 5 (per 1,000 live births) **45** (WB 2018)
Life expectancy at birth total (years) **67** (WB 2018)
GDP (PPP) (millions) **59,863.97** (WB 2018)
GDP growth rate (annual) **6.8%** (WB 2018)
GDP by sector (% of GDP) **agriculture 17%, industry 23%** (WB 2018)
Languages French (official), Wolof
Major religion(s) Islam
Monetary unit CFA Franc

Seychelles



Seychelles has only been independent since 1976, making it a relatively young democracy. It is located on an archipelago of 115 islands to the northeast of Madagascar, and has had a lively but stable political scene. In June 2017, President Danny Faure stepped down as president of his party to separate partisan politics from his role as head of state, leaving his vice president, Vincent Meriton, as president of Parti Lepep. The next presidential election is due in 2020.

Tourism has been the main driver of the economy's growth – visitor numbers in 2018 were 361,844, which is more than 3.5 times the resident population, and a 3% increase from 2017. The economy's challenges include limitations on land and labour, as well as an increasingly fragile environment, due to the effects of climate change.

In a report entitled 'Seychelles leads Africa in ICT Development' by the ITU, many programmes are highlighted. One of these is the University of Seychelles, the first independent not-for-profit university to open in the country. The university offers courses in computing and information systems and in business administration, and students can gain qualifications from the University of London through an external programme. A priority for the university has been to serve as a hub for the development of a knowledge-based society, and has done so by creating ICT facilities that serve the university as well as the private and public sectors. Seychelles has been a partner of the Small Islands Voice Initiative (UNESCO) since 2002, which uses the potential of ICT to generate dialogue among island communities, in order to enhance their capacity to take part in the information age.

ICT & INFRASTRUCTURE

Internet users (% of population) **58.8** (WB 2018)
Fixed broadband subscriptions (per 100 people) **16.07** (WB 2017)
Monthly active users on Facebook **68 thousand 55% (males), 45% (females)** (DR 2019)
Monthly active users on Instagram **21 thousand 50% (males), 50% (females)** (DR 2019)
Mobile subscriptions (per 100 people) **176.6** (WB 2018)
Television companies 1 government-run; cable and satellite
Radio stations 2 government-run

EDUCATION

Government expenditure on education total (% of GDP) **4.4** (WB 2014)
Primary enrolment (% gross) **109.5** (WB 2018)
Primary completion rate total (% of relevant age group) **114** (WB 2018)
Secondary enrolment (% gross) **92** (WB 2018)
School enrolment Gender parity index (GPI)
Primary (gross) **1.0** (WB 2017)
Secondary (gross) **1.1** (WB 2017)
Tertiary (gross) **2.3** (WB 2017)
Expected years of school **13.6 (male), 13.8 (female)** (WB 2017)
Out-of-school rate for children of primary age **2.91** (UIS 2016)
Proportion of schools with access to the Internet for pedagogical purposes (UIS 2018)
Primary schools **100.0%**
Secondary schools **100.0%**
Literacy Rate (UIS 2017)
Males (15-24) **98.56%,** Females (15-24) **99.60%**
Males (25-64) **96.79%,** Females (25-64) **98.9%**

SOCIETY & POLITICS

Date of Independence 29 June 1976, from Britain
Style of government Republic
Leader President Danny Faure
Next Election Presidential elections expected September/November 2020
Proportion of seats held by women in national parliament **21%** (WB 2018)
Population total (millions) **0.1** (WB 2018)
Population growth rate (annual) **1.0%** (WB 2018)
Fertility rate total (births per woman) **3.6** (WB 2018)
Mortality rate under 5 (per 1,000 live births) **14** (WB 2018)
Life expectancy at birth total (years) **76** (WB 2018)
GDP (PPP) (millions) **2,951.55** (WB 2018)
GDP growth rate (annual) **3.6%** (WB 2018)
GDP by sector (% of GDP) **agriculture 2%, industry 11%** (WB 2018)
Languages English, French, Creole
Major religion(s) Christianity
Monetary unit Seychelles rupee

Sierra Leone

Sierra Leone is located on the west coast of Africa, and shares borders with Guinea and Liberia. It is a country rich in history, and holds a special significance as the departure point for thousands of west African slaves. Freetown, the country's capital, was founded in 1787 as a home for repatriated former slaves. Its modern history is more complex, as it has experienced many political challenges. A civil war ended only in 2002, and since then, opposition parties have been extremely competitive. In the fourth cycle of elections since the civil war, general elections were held in March 2018 and President Julius Maada Bio won in a run-off election. Since his administration took office in January 2019, it has launched three Commissions of Inquiry into the governance activities of the previous administration. Low-level political violence occurred across the country during the election and is still continuing today, to some extent.

Economic recovery has been volatile, following a slowdown due to the Ebola outbreak in 2015 and a decrease in the price of iron ore, one of the country's main exports. Recovery in the mining sector, as well as hopes for increased political stability, are expected to improve and stabilise economic growth from 2019-2021, according to the World Bank. The World Bank also suggests that the country needs to focus on creating jobs for unemployed youth, tackling corruption, improving infrastructure and addressing rural and urban impoverishment, in order to get back on track towards the aim of attaining middle-income status by 2035.

The Ministry of Education's 2018-2020 Education Sector Plan has had positive results. The plan aims to develop an inclusive education policy, and address the challenge of unqualified teachers. So far, its implementation has had positive results, with 1,000 primary school teachers and 260 junior secondary school teachers receiving in-service training, and 1,000 untrained teachers participating in a 1-year distance teacher education program.

The Government has prioritised ICT, and has taken part in international initiatives to improve ICT. One example of this is Sierra Leone's participation in the Commonwealth ICT and Telecommunications Forum 2019. The Leader of Government Business in the Sierra Leone House of Parliament, Sidie Mohamed Tunis, spoke at the forum in late September 2019 on the theme "Toward a digital Commonwealth for all", joined by government officials from Fiji, Bangladesh, Namibia, and the UK, among others. He spoke about ICT initiatives in Sierra Leone such as the Free Quality Education Programme (launched in 2018), which ensures Internet accessibility in schools.

ICT & INFRASTRUCTURE

Internet users (% of population) **13.2** (WB 2018)
Monthly active users on Facebook **490 thousand**
Monthly active users on Instagram **43 thousand**
Mobile subscriptions (per 100 people) **87.7** (WB 2018)
Television companies 1 government-owned, 1 private; pay-TV
Radio stations 1 government-owned national station, c. 24 private in cities

EDUCATION

Government expenditure on education total (% of GDP) **4.6** (WB 2017)
Primary enrolment (% gross) **120.9** (WB 2018)
Primary completion rate total (% of relevant age group) **68** (WB 2018)
Secondary enrolment (% gross) **41** (WB 2011)
School enrolment Gender parity index (GPI)
Primary (gross) **1.0** (WB 2017)
Secondary (gross) **0.9** (WB 2017)
Expected years of school **9.0 (male), 8.9 (female)** (WB 2017)
Out-of-school rate for children of primary age **0.51** (UIS 2016)
Proportion of schools with access to the Internet for pedagogical purposes (UIS 2018)
Primary schools **0.6%**
Secondary schools **4.3%**
Literacy Rate (UIS 2013)
Males (15-24) **70.58%,** Females (15-24) **62.70%**
Males (25-64) **43.85%,** Females (25-64) **22.27%**
Unemployment (% of total labour force) **4.3** (ILO 2018)

SOCIETY & POLITICS

Date of Independence 27 April 1961, from Britain
Style of government Constitutional democracy
Leader President Julius Maada Bio
Proportion of seats held by women in national parliament **12%** (WB 2018)
Population total (millions) **7.65** (WB 2018)
Population growth rate (annual) **2.1%** (WB 2018)
Fertility rate total (births per woman) **4.4** (WB 2018)
Mortality rate under 5 (per 1,000 live births) **111** (WB 2018)
Life expectancy at birth total (years) **52** (WB 2018)
GDP (PPP) (millions) **12,267.06** (WB 2018)
GDP growth rate (annual) **3.7%** (WB 2018)
GDP by sector (% of GDP) **agriculture 60%, industry 5%** (WB 2018)
Languages English, Krio, Indigenous languages
Major religion(s) Islam, Christianity
Monetary unit Sierra Leonean leone

Somalia

Mogadischu

Somalia has had a complex political situation ever since its creation in 1960 from a former British protectorate and an Italian colony, and especially after the overthrow of the military regime of President Siad Barre in 1991. In 2012, a new internationally-backed government was installed but the country still faces political challenges, including humanitarian crises (such as a large number of internally displaced persons and increasing conflict), threats to national security, attempts to create more inclusive politics and the need to address economic recovery.

Drought in 2017 lead to large-scale food insecurity, which weakened the economy significantly. Economic growth is mainly driven by agriculture and the services sector, and the drought created a near total collapse of the agriculture sector with crop failures, widespread shortage of water and pasture, and increased livestock mortality. The Government's recent spending priorities have focused on security and administrative services (accounting for 90% of total spending), which has limited provision for economic and social services. The World Bank finished a project with the Government in September 2019 entitled 'ICT Sector Support in Somalia Phase II'. This project established an ICT licensing and taxation framework, extended the Internet bandwidth per inhabitant, increased the contribution of the ICT sector to the public treasury, and established an independent federal ICT regulatory agency.

The Ministries of Education from the Federal Government, Puntland, and Somaliland have cooperated with the European Union and the Global Partnership for Education to develop the Education Sector Strategic Plan (2018-2020). This plan addresses challenges in post-war and post-drought and flooding educational reconstruction, prioritising increasing access to quality education and equipping youth with the skills and knowledge needed to contribute to the country's social, political, and economic development. In September 2018, Somaliland's Ministry of Education created an action plan to increase the enrolment of marginalised boys and girls, addressing the challenges of out-of-school children and the lack of girls in school.

ICT & INFRASTRUCTURE

Internet users (% of population) **2** (WB 2018)
Fixed broadband subscriptions (per 100 people) **0.66** (WB 2017)
Monthly active users on Facebook **1.4 million 62% (males), 38% (females)** (DR 2019)
Monthly active users on Instagram **320 thousand 59% (males), 41% (females)** (DR 2019)
Mobile subscriptions (per 100 people) **48.3** (WB 2018)
Television companies 2 international private broadcasts [Al-Jazeera & CNN], 1 government-operated and 1 regional private
Radio stations Government-owned Radio Mogadishu, regional governmental & private stations

EDUCATION

Unemployment (% of total labour force) **14** (ILO 2018)

SOCIETY & POLITICS

Date of Independence 1 July 1960, from British and Italian UN trusteeship
Style of government Federal parliamentary republic
Leader President Mohamed Abdullahi Mohamed
Proportion of seats held by women in national parliament **24%** (WB 2018)
Population total (millions) **15.01** (WB 2018)
Population growth rate (annual) **2.8%** (WB 2018)
Fertility rate total (births per woman) **6.2** (WB 2018)
Mortality rate under 5 (per 1,000 live births) **127** (WB 2018)
Life expectancy at birth total (years) **57** (WB 2018)
GDP (PPP) (millions) **3,366.06** (WB 2018)
GDP growth rate (annual) **3.8%** (WB 2018)
Languages Somali, Arabic, Italian, English
Major religion(s) Islam
Monetary unit Somali shilling

Kapstadt, Pretoria, Bloemfontein

South Africa

South Africa, a large country at the southern tip of Africa, has experienced huge political change in the last century. In 1910, it gained independence from Britain, became a republic in 1961 and created a Government of National Unity under Nelson Mandela in 1994, after the end of apartheid. Jacob Zuma became president in 2009 but resigned in 2018, following allegations of corruption, whereupon President Cyril Ramaphosa was elected by parliament. President Ramaphosa's government has been confronted by corruption, high unemployment and violent crime, among many pressing challenges. Cuts to health and education services have not been popular and have compromised the quality of these sectors. The economy slowed from a growth rate of 1.3% in 2017 to 0.8% in 2018. However, the World Bank projects 2019 growth to return to 1.3%. South Africa is a major exporter of minerals and a major importer of oil.

Although the Government has cut funds for education, it remains an important development goal. USAID refers to education as the single greatest long-term challenge facing the country. Challenges within the education sector include providing quality education; an underperforming teaching corps; and the fuelling of crime, poverty, and disenfranchisement by the weak education system. USAID's School Capacity and Innovation Programme, supported by the Government, aims to address these challenges. The programme supports local South African models and interventions that work directly with school management teams and teachers, in order to improve their practices as instructional leaders and managers.

South Africa has an established regulatory authority for ICT, the Independent Communications Authority of South Africa and has defined and adopted a universal access policy. The Government has also supported technical projects, such as the Square Kilometre Array (SKA), an array of radio telescopes. The precursor to the SKA is the MeerKAT radio telescope, a project that contained cutting-edge technology and created a large group of young scientists and engineers that is crucial to the South African economy.

ICT & INFRASTRUCTURE

Internet users (% of population) **56.2** (WB 2018)
Fixed broadband subscriptions (per 100 people) **1.98** (WB 2017)
Monthly active users on Facebook **23 million 50% (males), 50% (females)** (DR 2019)
Monthly active users on Instagram **4 million 48% (males), 52% (females)** (DR 2019)
Mobile subscriptions (per 100 people) **156** (WB 2018)
Television companies SABC, 4 stations; private e.tv, national and local channels
Radio stations SABC, 18 stations in all official languages, over 100 community stations

EDUCATION

Government expenditure on education total (% of GDP) **6.1** (WB 2017)
Primary enrolment (% gross) **102.3** (WB 2018)
Primary completion rate total (% of relevant age group) **82** (WB 2018)
Secondary enrolment (% gross) **100** (WB 2018)
School enrolment Gender parity index (GPI)
Primary (gross) **1.0** (WB 2016)
Secondary (gross) **1.1** (WB 2016)
Tertiary (gross) **1.4** (WB 2016)
Expected years of school **9.4 (male), 9.3 (female)** (WB 2017)
Out-of-school rate for children of primary age **7.55** (UIS 2017)
Literacy Rate (UIS 2013)
Males (15-24) **93.76%,** Females (15-24) **96.88%**
Males (25-64) **87.86%,** Females (25-64) **87.51%**
Unemployment (% of total labour force) **27** (ILO 2018)

SOCIETY & POLITICS

Date of Independence 31 May 1910, from Britain; 31 May 1961, republic; 27 April 1994, majority rule
Style of government Republic
Leader President Cyril Ramaphosa
Proportion of seats held by women in national parliament **42%** (WB 2018)
Population total (millions) **57.78** (WB 2018)
Population growth rate (annual) **1.4%** (WB 2018)
Fertility rate total (births per woman) **2.4** (WB 2018)
Mortality rate under 5 (per 1,000 live births) **37** (WB 2018)
Life expectancy at birth total (years) **63** (WB 2018)
GDP (PPP) (millions) **789,348.92** (WB 2018)
GDP growth rate (annual) **0.6%** (WB 2018)
GDP by sector (% of GDP) **agriculture 2%, industry 26%** (WB 2018)
Languages 11 official languages, including English, Afrikaans, Sesotho, Setswana, Xhosa and Zulu
Major religion(s) Christianity, Islam, Indigenous beliefs
Monetary unit Rand

South Sudan

The Republic of South Sudan gained independence from Sudan in January 2011, as part of an agreement that ended Africa's longest-running civil war to date. The country is very diverse: it is home to over 60 different ethnic groups and the majority of the population follow indigenous religions. Civil war broke out again in 2013 and ended with a peace agreement in 2018. There are continuing effects of the war, including political and ethnic violence, though. President Salva Kiir Mayardit and former Vice President Riek Machar currently share power between themselves and other opposition groups, following the August 2018 peace agreement.

The World Bank identifies South Sudan as the most oil-dependent country in the world, with oil accounting for almost all its exports, and states that, outside the oil sector, livelihoods are concentrated in low production, unpaid agriculture and pastoralists' work. This has contributed to the country's continued economic collapse. The World Bank identifies the following challenges for South Sudan's development: to ensure all parties in political conflict remain committed to the 2018 peace agreement; to tackle the underlying causes of the country's macroeconomic crisis; to improve food production; to boost employment and create jobs; to build infrastructure; and to diversify the economy.

The educational sector in South Sudan receives low rates of investment. State- and peace-building efforts have put pressure on it to expand quickly, whilst reducing inequality and providing quality teaching. The 2017-2022 General Education Sector Plan is an effort to reduce the stress on the system. Its aims are to increase enrolment and build new infrastructure, supply basic learning and teaching materials, train teachers and expand secondary and technical education, among other initiatives.

An ICT initiative worthy of highlighting is the GoGirls ICT Initiative, an organisation founded by young South Sudanese women to engage, educate, and empower women and girls in science, technology, engineering and mathematics (STEM). They are supported by UNDP's Peace and Community Cohesion project. The organisation trains volunteer mentors (university students), who support school children and focus on teaching computer literacy, basic programming, and broader positive life skills. Schoolchildren also learn to use Scratch, a platform to create stories, using graphics and animation.

ICT & INFRASTRUCTURE

Internet users (% of population) **8** (WB 2018)
Fixed broadband subscriptions (per 100 people) **0** (WB 2017)
Monthly active users on Facebook **230 thousand 79% (males), 21% (females)** (DR 2019)
Monthly active users on Instagram **25 thousand 78% (males), 22% (females)** (DR 2019)
Mobile subscriptions (per 100 people) **22.2** (WB 2018)
Television companies Government-controlled
Radio stations Several private

EDUCATION

Government expenditure on education total (% of GDP) **1.0** (WB 2017)
Primary enrolment (% gross) **66.6** (WB 2018)
Secondary enrolment (% gross) **10.0** (WB 2018)
School enrolment Gender parity index (GPI) Primary (gross) **0.7** (WB 2015)
Secondary (gross) **0.5** (WB 2015)
Expected years of school **4.9 (male), 3.6 (female)** (WB 2017)
Out-of-school rate for children of primary age **62.36** (UIS 2015)
Literacy Rate (UIS 2017)
Males (15-24) **48.43%,** Females (15-24) **47.37%**
Males (25-64) **37.51%,** Females (25-64) **20.56%**
Unemployment (% of total labour force) **12.7** (ILO 2018)

SOCIETY & POLITICS

Date of Independence 9 July 2011, from Sudan
Style of government Republic
Leaders President Salva Kiir Mayardit, Riek Machar, other opposition leaders
Proportion of seats held by women in national parliament **29%** (WB 2018)
Population total (millions) **10.98** (WB 2018)
Population growth rate (annual) **0.6%** (WB 2018)
Fertility rate total (births per woman) **4.8** (WB 2018)
Mortality rate under 5 (per 1,000 live births) **96** (WB 2018)
Life expectancy at birth total (years) **57** (WB 2018)
GDP (PPP) (millions) **19,625.02** (WB 2018)
GDP growth rate (annual) **-11.2%** (WB 2018)
GDP by sector (% of GDP) **agriculture 11%, industry 21%** (WB 2018)
Languages English (official), Arabic (official), Juba Arabic, Dinka
Major religion(s) Indigenous beliefs, Christianity
Monetary unit Sudanese pound

Sudan

Sudan has had a complex and challenging modern political and economic history. Following the secession of South Sudan in 2011, Sudan's economic growth reduced significantly. The World Bank explains that South Sudan's oil revenue accounted for more than half of Sudan's government revenue and 95% of its exports before the secession. Civil war in South Sudan and protests within Sudan in 2013 increased the population of refugees and internally displaced persons within the country, and damaged oil infrastructure, putting further strain on the economy. In April 2019, the army overthrew President Omar al-Bashir after months of civilian protests, making Lieutenant General Abdel Fattah al-Burhan chairman of Sudan's ruling Transitional Military Council. The Council is expected to take Sudan through a two-year transition to civilian rule, but instability is still rife.

The previous government's Ministry of Education coordinated with UNICEF and the Global Partnership for Education to create the Interim Education Sector Strategic Plan. The plan has six national objectives: to improve access to, and quality of, pre-school education; to increase access to basic education through increasing capacity, to reduce household costs and encourage demand; to provide access to general, technical and vocational education, reducing disparities; to improve the quality of learning in basic education, especially in literacy and numeracy; to enhance the quality of secondary education; and to strengthen the education system to support the achievement of national goals.

Sudan has increasingly used ICTs in higher education institutions, according to a study by Professor Samia Satti Osman Mohamed Nour of the Department of Economics at Khartoum University, entitled 'Information and Communication Technology in Sudan: An Economic Analysis of Impact and Use in Universities'. He references enrolment in the Arab Open University in 2002 and the establishment of the Open University of Sudan in 2003 as examples, as well as the increasing use of ICT at his university, with the establishment of an ICT centre and long distance learning included among his examples. He speaks of how positive impacts have been the creation and transfer of knowledge in Sudanese universities, but how some negative impacts have led to a widening of the digital divide, adding a new dimension to inequality in Sudan.

ICT & INFRASTRUCTURE

Internet users (% of population) **30.9** (WB 2018)
(% of individuals using the Internet)
16.9 (males), 11.0 (females) (ITU 2018)
Fixed broadband subscriptions (per 100 people) **.: 0.08** (WB 2017)
Monthly active users on Facebook **3.5 million**
Monthly active users on Instagram **70.7**
Mobile subscriptions (per 100 people)
92 (WB 2018)
Television companies Government-controlled with military censor
Radio stations Government-controlled, 1 private station

EDUCATION

Government expenditure on education
total (% of GDP) **2.2** (WB 2009)
Primary enrolment (% gross) **77.4** (WB 2018)
Primary completion rate total (% of relevant age group) **62** (WB 2018)
Secondary enrolment (% gross) **47** (WB 2018)
School enrolment Gender parity index (GPI)
Primary (gross) **0.9** (WB 2017)
Secondary (gross) **1.0** (WB 2017)
Tertiary (gross) **1.0** (WB 2017)
Out-of-school rate for children of primary age
38.30 (UIS 2017)
Literacy Rate (UIS 2013)
Males (15-24) **72.51%,** Females (15-24) **73.49%**
Males (25-64) **63.40%,** Females (25-64) **50.60%**
Unemployment (% of total labour force)
12.9 (ILO 2018)

SOCIETY & POLITICS

Date of Independence 1 January 1956, from Egypt and Britain
Style of government Federal republic
Leader Chairman Lieutenant General Abdel Fattah al-Burhan
Next Election Expected April 2020
Proportion of seats held by women in national parliament **31%** (WB 2018)
Population total (millions) **41.8** (WB 2018)
Population growth rate (annual) **2.4%** (WB 2018)
Fertility rate total (births per woman) **4.5**
(WB 2018)
Mortality rate under 5 (per 1,000 live births)
63 (WB 2018)
Life expectancy at birth total (years) **65** (WB 2018)
GDP (PPP) (millions) **198,945.28** (WB 2018)
GDP growth rate (annual) **-2.3%** (WB 2018)
GDP by sector (% of GDP) **agriculture 31%, industry 2%** (WB 2018)
Languages Arabic, English (official)
Major religion(s) Islam
Monetary unit Sudanese pound

Tanzania

Dodoma

Tanzania, a country rich in wildlife and with renowned tourism destinations, is located on the east coast of Africa, and bordered by Kenya, Uganda, Rwanda, Burundi, the Democratic Republic of the Congo, Zambia, and Mozambique. Its President is John Magufuli, who was elected in 2015 on promises to boost economic performance, fight corruption, tackle youth unemployment, and establish free primary and secondary education. Ambitious about his economic reforms, President Magufuli is conservative in his social policies. international organisations, such as Human Rights Watch, have expressed concerns about attitudes to gay rights and the media.

Economic growth was slightly higher in 2018 than it was in 2017, by 0.2%. This slow growth rate is due to a mix of factors: investment growth has remained positive but lower consumption tax collection, tight controls on public expenditure, under-execution of public development plans and an increase of imports, coupled with a decrease in exports have limited growth.

International partners have worked with the Ministry of Education to create education sector plans for mainland Tanzania and for Zanzibar. The mainland sector plan has two key policy initiatives: to provide 12 years of compulsory and free basic education to all, and to expand technical and vocational education and training to provide Tanzania with the skilled workers needed to advance towards a semi-industrialised middle-income country by 2025. The Zanzibar Educational Development Plan II has similar goals, including increasing access to education and creating institutional architecture and leadership to create effective and efficient education management.

ICT is important for Tanzania's future and the Government has worked to integrate ICT professionals with other global professionals. In late 2018, Tanzania's Information and Communication Technology Commission was the host of a three-day meeting of ICT professionals from countries such as the United Arab Emirates, Kenya, Ireland, Malaysia, Rwanda, and Singapore, among others. The meeting drew professionals from the public and private sectors, and revolved around exchanging experiences, discussing the role of ICT in bringing about economic development, and its future role in protecting natural resources.

ICT & INFRASTRUCTURE

Internet users (% of population) **16** (WB 2018)
Fixed broadband subscriptions (per 100 people) **3.22** (WB 2017)
Monthly active users on Facebook **4.3 million 63% (males), 37% (females)** (DR 2019)
Monthly active users on Instagram **2.4 million 60% (males), 40% (females)** (DR 2019)
Mobile subscriptions (per 100 people) **69.7** (WB 2018)
Television companies 1 state-owned; multiple private
Radio stations 1 state-owned; less than 40 private

EDUCATION

Government expenditure on education total (% of GDP) **3.5** (WB 2014)
Primary enrolment (% gross) **85.3** (WB 2018)
Primary completion rate total (% of relevant age group) **58** (WB 2018)
Secondary enrolment (% gross) **26** (WB 2018)
School enrolment Gender parity index (GPI)
Primary (gross) **1.0** (WB 2017)
Secondary (gross) **1.0** (WB 2017)
Tertiary (gross) **0.5** (WB 2015)
Expected years of school **7.7 (male), 7.8 (female)** (WB 2017)
Out-of-school rate for children of primary age **17.65** (UIS 2018)
Literacy Rate (UIS 2017)
Males (15-24) **87.01%,** Females (15-24) **84.64%**
Males (25-64) **83.92%,** Females (25-64) **71.61%**
Unemployment (% of total labour force) **1.9** (ILO 2018)

SOCIETY & POLITICS

Date of Independence 9 December 1961, Tanganyika, from Britain; 10 December 1963, Zanzibar, from Britain; 26 April 1964, Union
Style of government Republic
Leader President John Magufuli
Next Election General election expected 2020
Proportion of seats held by women in national parliament **37%** (WB 2018)
Population total (millions) **56.32** (WB 2018)
Population growth rate (annual) **3.0%** (WB 2018)
Fertility rate total (births per woman) **5.0** (WB 2018)
Mortality rate under 5 (per 1,000 live births) **54** (WB 2018)
Life expectancy at birth total (years) **65** (WB 2018)
GDP (PPP) (millions) **176,411.70** (WB 2018)
GDP growth rate (annual) **5.2%** (WB 2018)
GDP by sector (% of GDP) **agriculture 29%, industry 25%** (WB 2018)
Languages English. Swahili
Major religion(s) Christianity, Islam
Monetary unit Tanzanian shilling

Togo

Lomé

Togo, located on the west African coastline and bordered by Ghana, Benin, and Burkina Faso, has a small population but a lively political atmosphere. President Faure Gnassingbe was elected to office in 2005, after his father, Gnassingbe Eyadema, passed away in office. The Gnassingbe family has been in power for over 50 years, which has incited repeated civil disobedience from opposition parties and activists. In spite of this, the December 2018 elections saw the ruling party, Union pour la République, secure 59 of the 91 seats.

The country's economy picked up in the last year, rising from a growth of 4.4% in 2017 to 4.7% in 2018. This increased growth is driven by the expansion of the agricultural sector, increased private investment, and a rebound in the extractive industry. Poverty rates have been reduced from 55.1% in 2015 to 47.4% in 2017, but poverty still remains widespread, especially in rural areas. Inequalities remain across society – households headed by women experience higher rates of poverty than those headed by men, and women are more vulnerable because they have fewer economic opportunities and are under-represented at high levels of decision making.

Although the education sector represents a significant share of the Government's annual spending, more needs to be done. UNICEF, the Global Partnership for Education, and the Ministry of Education have partnered on the education strategy for 2014-2025. This strategy focuses on four key initiatives: to develop a quality basic education and achieve universal primary education by 2022; to extend preschool coverage in rural and poorer areas; to develop the second cycle of quality secondary, technical, vocational, and higher education courses; and to reduce illiteracy rates. Part of this strategy has encouraged Togo's innovators to become involved in the education sector. Dodzi Aglago is a 27-year old from Togo who founded the company MOBILELABO. The company is a mobile laboratory that specialises in the design and sale of science education materials, and offers services, such as laboratory construction and teacher training. It has been able to travel around Togo's schools, allowing students to perform the science and technology experiments in their textbooks.

The 2017 Law on the Orientation of the Information Society has established principles on ICT access, ICT education and training, and participation in an information society, among other areas. The Ministry of Posts and Digital Economy has also supported multiple sector strategies, a stand-out example being the deployment of public WiFi hotspots to ensure no citizen is more than 5 km away from broadband.

ICT & INFRASTRUCTURE

Internet users (% of population) **12.4** (WB 2018)
(% of individuals using the Internet)
16.3 (males), 8.6 (females) (ITU 2017)
Fixed broadband subscriptions (per 100 people)
0.59 (WB 2017)
Monthly active users on Facebook **650 thousand**
72% (males), 28% (females) (DR 2019)
Monthly active users on Instagram **74 thousand**
71% (males), 29% (females) (DR 2019)
Mobile subscriptions (per 100 people)
77.8 (WB 2018)
Television companies 2 state-owned; 5 private, local
Radio stations State-owned network, many private & community stations

EDUCATION

Government expenditure on education
total (% of GDP) **5.1** (WB 2017)
Primary enrolment (% gross) **123** (WB 2018)
Primary completion rate total (% of relevant age group) **91** (WB 2018)
Secondary enrolment (% gross) **62** (WB 2018)
School enrolment Gender parity index (GPI)
Primary (gross) **1.0** (WB 2017)
Secondary (gross) **0.7** (WB 2017)
Tertiary (gross) **0.5** (WB 2017)
Expected years of school
9.5 (male), 8.6 (female) (WB 2017)
Out-of-school rate for children of primary age
1.78 (UIS 2018)
Literacy Rate (UIS 2013)
Males (15-24) **89.67%,** Females (15-24) **78.37%**
Males (25-64) **74.72%,** Females (25-64) **45.29%**
Unemployment (% of total labour force)
1.7 (ILO 2018)

SOCIETY & POLITICS

Date of Independence 27 April 1960, from France and the United Nations
Style of government Presidential republic
Leader President Faure Gnassingbe Eyadema
Next Election Presidential elections expected 2020
Proportion of seats held by women in national parliament **18%** (WB 2018)
Population total (millions) **7.89** (WB 2018)
Population growth rate (annual) **2.4%** (WB 2018)
Fertility rate total (births per woman) **4.4**
(WB 2018)
Mortality rate under 5 (per 1,000 live births)
73 (WB 2018)
Life expectancy at birth total (years) **60** (WB 2018)
GDP (PPP) (millions) **13,893.76** (WB 2018)
GDP growth rate (annual) **4.9%** (WB 2018)
GDP by sector (% of GDP) **agriculture 24%,**
industry 17% (WB 2018)
Languages French (official), Indigenous languages
Major religion(s) Indigenous beliefs, Christianity, Islam
Monetary unit CFA Franc

Tunisia

Tunisia is the birthplace of the 2011 Arab Spring movement, and its sole resulting democracy. While this has been a symbol of encouragement to those wishing to be rid of authoritarian rule, the victory is incomplete. Coupled with the inherent difficulties of a major political transition, an economic crisis and political apathy threaten the country's stability. In July 2019, the country's first democratically-elected president, President Mohamed Beji Caid Essebsi, died and the first round of elections planned for November 2019 were moved to September 2019. Kais Saied, a constitutional law professor, and Nabil Karoui, a businessman and politician, were set to compete in a run-off election in October 2019. Parliamentary elections will be held on October 15th, 2019. Because many parties exist and are fragmented, the fledgling democracy has had some problems reaching consensus.

The lack of consensus has slowed economic recovery. Youth and women are particularly affected by a lack of economic opportunity: the World Bank states that Tunisia is one of the few countries where a higher level of education decreases employability, especially for women. Economic growth is currently driven by exports and investment, and supported by agriculture and tourism.

Education in Tunisia is a priority for the Government, as seen in the high GDP expenditure and the resulting high enrolment and completion rates of basic education. Gender parity is good across the primary, secondary, and tertiary levels, with women outnumbering men in tertiary education. Many schools have access to the Internet for pedagogical purposes, which is a result of the country's efforts in strengthening ICT.

ICT is a sector that Tunisia has made significant efforts in developing further. The "Digital Tunisia 2020" plan, made in cooperation with the Government of Canada, is a five-year strategy targeting ICT technologies to increase employment opportunities and export earnings within the ICT sector. Through this strategy, Tunisia also hopes to ensure social inclusion, reduce the digital divide, create added value by encouraging innovation, evolve towards a transparent e-Administration, generalise ICT use throughout the country and improve business competitiveness. The plan intends to achieve TND 11 billion in additional value, reach TND 6 billion in exports, create 95,000 jobs, and provide Internet connectivity to 3,000 families by 2020.

ICT & INFRASTRUCTURE

Internet users (% of population) **55.5** (WB 2018)
Fixed broadband subscriptions (per 100 people) **6.95** (WB 2017)
Monthly active users on Facebook **7.4 million 55% (males), 45% (females)** (DR 2019)
Monthly active users on Instagram **1.9 million 50% (males), 50% (females)** (DR 2019)
Mobile subscriptions (per 100 people) **124.3** (WB 2018)
Television companies State-run ERTT with 2 TV networks, 1 private, Egyptian & Arabic satellite services
Radio stations ERTT; 3 private

EDUCATION

Government expenditure on education total (% of GDP) **6.6** (WB 2015)
Primary enrolment (% gross) **114.7** (WB 2018)
Primary completion rate total (% of relevant age group) **103** (WB 2018)
Secondary enrolment (% gross) **93** (WB 2018)
School enrolment Gender parity index (GPI)
Primary (gross) **1.0** (WB 2016)
Secondary (gross) **1.1** (WB 2016)
Tertiary (gross) **1.8** (WB 2017)
Expected years of school **9.7 (male), 10.8 (female)** (WB 2017)
Out-of-school rate for children of primary age **1.16** (UIS 2013)
Proportion of schools with access to the Internet for pedagogical purposes (UIS 2013)
Primary schools **88.27%**
Secondary schools **73.81%**
Unemployment (% of total labour force) **15.5** (ILO 2018)

SOCIETY & POLITICS

Date of Independence 20 March 1956, from France
Style of government Republic
Leader Prime Minister Youssef Chahed
Proportion of seats held by women in national parliament **31%** (WB 2018)
Population total (millions) **11.57** (WB 2018)
Population growth rate (annual) **1.1%** (WB 2018)
Fertility rate total (births per woman) **2.2** (WB 2018)
Mortality rate under 5 (per 1,000 live births) **13** (WB 2018)
Life expectancy at birth total (years) **76** (WB 2018)
GDP (PPP) (millions) **144,374.36** (WB 2018)
GDP growth rate (annual) **2.5%** (WB 2018)
GDP by sector (% of GDP) **agriculture 10%, industry 23%** (WB 2018)
Languages Arabic (official), French
Major religion(s) Islam
Monetary unit Tunisian dinar (TND)

Uganda

Ever since the end of the 1986 armed conflict, President Yoweri Museveni has been in power with his National Resistance Movement (NRM) party. His administration has introduced structural reforms and made investments, which significantly reduced the poverty rate and led to a sustained period of high growth from 1987-2010. Policy and legal frameworks have continued to improve over time, but there are gaps in implementation. There are some political challenges, including civilian protests over legislation, such as the social media tax, which taxes citizens 200 Ugandan shillings per day ($0.05) to use social media sites.

The economy has been growing since 1987, but growth rates have been slower in recent years. The slowdown has been the result of adverse weather conditions, as well as unrest in South Sudan and the poor execution of public projects.

The Government considers education to be a basic human right and, in line with that belief, the Ministry of Education has partnered with UNICEF, USAID and the Global Partnership for Education (GPE) to create an Education Sector Strategic Plan. This plan was originally set for 2010-2015, but has been extended; and it addresses three critical challenges – the failure of primary schools to provide literacy, numeracy, and basic life skills to all children; inadequate preparation in secondary schools for the workforce or tertiary education; and students from disadvantaged backgrounds not having access to tertiary education.

The ICT sector is growing and contributing significantly to the economy. ICT initiatives in the country include the Uganda ICT Association (ICTAU). This organisation brings organisations and key ICT stakeholders under one body capable of supporting ICT research and advocacy. Their mission includes creating an effective network between practitioners, researchers, policy-makers, government, and industry to facilitate cross-disciplinary collaboration in development.

ICT & INFRASTRUCTURE

Internet users (% of population) **23.7** (WB 2018)
Fixed broadband subscriptions (per 100 people) **0.34** (WB 2017)
Monthly active users on Facebook **2.4 million 62% (males), 38% (females)** (DR 2019)
Monthly active users on Instagram **420 thousand 60% (males), 40% (females)** (DR 2019)
Mobile subscriptions (per 100 people) **58.2** (WB 2018)
Television companies Public UBC; over 35 private
Radio stations UBC; more than 150 private

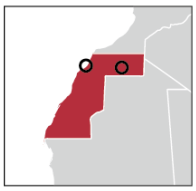
EDUCATION

Government expenditure on education total (% of GDP) **2.6** (WB 2017)
Primary enrolment (% gross) **99** (WB 2018)
Primary completion rate total (% of relevant age group) **51** (WB 2018)
School enrolment Gender parity index (GPI) Primary (gross) **1.0** (WB 2017)
Tertiary (gross) **0.8** (WB 2014)
Expected years of school **7.0 (male), 7.0 (female)** (WB 2017)
Out-of-school rate for children of primary age **4.36** (UIS 2013)
Literacy Rate (UIS 2013)
Males (15-24) **88.83%,** Females (15-24) **89.95%**
Males (25-64) **79.20%,** Females (25-64) **61.75%**
Unemployment (% of total labour force) **1.7** (ILO 2018)

SOCIETY & POLITICS

Date of Independence 9 October 1962, from Britain
Style of government Republic
Leader President Yoweri Museveni
Next Election General election expected 2021
Proportion of seats held by women in national parliament **34%** (WB 2018)
Population total (millions) **42.72** (WB 2018)
Population growth rate (annual) **3.7%** (WB 2018)
Fertility rate total (births per woman) **5.5** (WB 2018)
Mortality rate under 5 (per 1,000 live births) **49** (WB 2018)
Life expectancy at birth total (years) **60** (WB 2018)
GDP (PPP) (millions) **86,868.42** (WB 2018)
GDP growth rate (annual) **6.1%** (WB 2018)
GDP by sector (% of GDP) **agriculture 24%, industry 20%** (WB 2018)
Languages English (official), Swahili (official), Luganda, various Bantu and Nilotic languages
Major religion(s) Christianity, Islam
Monetary unit Ugandan shilling

Laayounea, Tifariti



Western Sahara

Western Sahara is a disputed state, partially controlled by Morocco – it refers to its territory as the Southern Provinces – and the Algerian-backed Polisario Front, which controls roughly 20% of the land it calls the Sahrawi Arab Democratic Republic.

Referred to as 'Africa's last colony', Western Sahara is divided by a 2,700 km long sand berm built by the Moroccan Government, which is located between the west of the desert and the Atlantic. It's the world's second-longest wall after the Wall of China, and has been dubbed the "wall of shame" by Sahrawi independence activists.

The Polisario Front remain, in effect, a government in exile with large amounts of Sahrawi refugees in the Tindouf region of Tunisia. Despite the African Union, European Union and United Nations' support for self-determination (if not the Polisario Front), Morocco remains entrenched in its occupation of the area and the chances of independence seem slim. A ceasefire has been in place since 1991, but various geopolitical interests keeps the four decades-long conflict in a permanent state of limbo.

Education is hugely important for Sahrawis, and thus concerted efforts have been made to develop an education system in refugee regions which has resulted literacy rates. Camps have primary and secondary schools, and higher education was previously possible by traveling abroad. In 2013, the first Sahrawi university was set up with the cooperation of the universities of Berkeley, Managua, Leeds and Pretoria, as well as more than a dozen others in Algeria, Cuba and Spain. The University's location in Tifariti, in non-occupied territory, will help Sahrawis who otherwise would have struggled to obtain higher education.

The internet has become a powerful tool for the Sahrawi refugee community, opening doors to facts and opinions about the state of the region. However, those left in Western Sahara continue to be reliant upon Moroccan connections and censorship is a problem. Freedom House has, nevertheless, stated that the blocking of sites related to Western Sahara on Moroccan internet links have ended following government liberalisations which sought to curb the influence of the Arab Spring on the Moroccan population. Statistics are hard to come by regarding connections, but it is clear that the region has no fibre connection, no top-level domain, no internet service providers and no internet hosts. Most internet connections are through satellites.

As of 2019, the Sahrawi Arab Democratic Republic has been recognized by 85 states. Of these, 42 have since „frozen" or „withdrawn" recognition for a number of reasons. A total of 40 UN states maintain diplomatic relations with the SADR, while a further 7 also recognise the state. Sahrawi embassies exist in 18 states.

SOCIETY & POLITICS

Leader Moroccan Adoministration OR Brahim Ghali (president of the Sahrawi Arab Democratic Republic since 2016)
Languages Hassaniya Arabic, Spanish, Berber, French (within Moroccan controlled areas)
Major religion(s) Islam
Monetary unit Kwacha
Population 586,565 (worldometers 2019)

Zambia

Lusaka

Unlike many of its neighbouring countries, Zambia has managed to avoid violence and upheaval, earning a reputation for being a politically stable country. Zambia also has one of the world's fastest growing populations and the UN projects that the population will triple before 2050. The president, Edgar Chagwa Lungu, is a former lawyer from the state and private sectors, and a former justice and defence minister from the ruling Patriotic Front party. He initially replaced former president Michael Sata after his death in 2015, but was elected for a new term in August 2016. The next elections are expected for 2021.

Over the last decade, the country has experienced rapid economic growth, and is Africa's second-largest copper producer after the Democratic Republic of the Congo. In 2011, Zambia achieved Middle Income Country status. An overreliance on copper, however, has made the economy vulnerable to falling commodity prices, and economic growth has benefited small segments of urban populations, without reducing the overall poverty rate.

The World Bank has implemented the 'Education Enhancement Project for Zambia' to improve the quality of teaching in mathematics and science in primary and secondary schools, and to increase equitable access to secondary education. So far, 4,474 teachers have been trained; a Teacher Development Data Platform has been developed; 410 classrooms have been constructed; and 60 teachers with at least 5 years of experience have been trained to write textbooks and learning materials.

ICT plays a role in higher education in Zambia. The Zambia ICT College, established in 1972 with the help of the International Telecommunications Union (ITU), has transformed from providing in-service training for staff to becoming an accredited higher learning institution with degrees in Engineering & Technology and Business & Management, as well as other professional programmes. The college also provides tools for online distance learning.

ICT & INFRASTRUCTURE

Internet users (% of population) **27.9** (WB 2018)
(% of individuals using the Internet by gender) **15.5 (males), 13.2 (females)** (ITU 2018)
Fixed broadband subscriptions (per 100 people) **0.21** (WB 2017)
Monthly active users on Facebook **2.2 million**
59% (males), 41% (females) (DR 2019)
Monthly active users on Instagram **12 thousand**
61% (males), 39% (females) (DR 2019)
Mobile subscriptions (per 100 people) **78.6** (WB 2018)
Television companies State-owned ZNBC with 1 station; several private
Radio stations ZNBC, 3 networks; c. 24 private

EDUCATION

Government expenditure on education total (% of GDP) **1.1** (WB 2008)
Primary enrolment (% gross) **99.8** (WB 2018)
Out-of-school rate for children of primary age **14.90** (UIS 2017)
Proportion of schools with access to the Internet for pedagogical purposes (UIS 2013)
Primary schools **5.8%**
Literacy Rate (UIS 2013)
Males (15-24) **92.56%,** Females (15-24) **91.63%**
Males (25-64) **89.82%,** Females (25-64) **80.48%**
Unemployment (% of total labour force) **7.2** (ILO 2018)

SOCIETY & POLITICS

Date of Independence 24 October 1964, from Britain
Style of government Republic
Leader President Edgar Chagwa Lungu
Next Election General elections expected 2021
Proportion of seats held by women in national parliament **18%** (WB 2018)
Population total (millions) **17.35** (WB 2018)
Population growth rate (annual) **2.9%** (WB 2018)
Fertility rate total (births per woman) **4.9** (WB 2018)
Mortality rate under 5 (per 1,000 live births) **60** (WB 2018)
Life expectancy at birth total (years) **62** (WB 2018)
GDP (PPP) (millions) **73,163.23** (WB 2018)
GDP growth rate (annual) **3.8%** (WB 2018)
GDP by sector (% of GDP) **agriculture 3%, industry 36%** (WB 2018)
Languages English (official), Bemba, Lozi, Nyanja, Tonga
Major religion(s) Christianity, Indigenous beliefs, Hinduism, Islam
Monetary unit Kwacha

Zimbabwe

Harare

Zimbabwe is a country in east Africa with a complicated history. After the struggle for independence, President Robert Mugabe dominated the country's political scene for 37 years and limited the freedom of the media. In November 2017, the military took charge and President Mugabe resigned, whereupon now-President Emmerson Mnangagwa assumed office and served out Mugabe's term. He was re-elected in July 2018, despite concerns about his government's ability to bring about sorely needed economic change.

Zimbabwe has experienced fluctuations in its economic growth over recent years. After a period of growth from 2010 to 2014, there was a downward trend due to drought and a fall in commodity prices. The effects of a land reform programme that saw white-owned farms redistributed to landless Zimbabweans created sharp falls in production, and also contributed to poor economic growth. In 2018, the country experienced some economic growth at a subdued rate. The World Bank recommends that the country should re-engage with the international community to seek a sustainable solution to its arrears clearance, and continue to look at diversifying its economy.

The ICT Transforming Education in Africa is a 4-year project launched in 2015 to foster development through the use of information and communication technology, and in particular mobile learning. This is part of the UNESCO-Korea Funds-in-Trust cooperation, has a budget of $6 million, and takes place in three countries in Africa: Zimbabwe, Rwanda, and Mozambique. The Zimbabwe project strengthens e-education and ICTs in primary and secondary education, strengthens the capacity of higher and tertiary education institutions to facilitate open and distance learning, and creates an enabling policy environment for the effective use of ICTs in the education sector. In the January-March 2019 update report on the project, representatives from 20 pilot e-schools met for the first time in a meeting convened by UNESCO to share experiences and best practices; a selected number of youth received online training and mentoring to create mobile applications, educational animations, and educational games; and young creatives participated in a 'Shark Tank' event to showcase mobile applications made during the YouthMobile boot camp.

ICT & INFRASTRUCTURE

Internet users (% of population) **27.1** (WB 2018)
(% of individuals using the Internet by gender) **18.3 (males), 14.6 (females)** (ITU 2018)
Fixed broadband subscriptions (per 100 people) **1.13** (WB 2017)
Monthly active users on Facebook **1.1 million**
59% (males), 41% (females) (DR 2019)
Monthly active users on Instagram **290 thousand**
60% (males), 40% (females) (DR 2019)
Mobile subscriptions (per 100 people) **85.3** (WB 2018)
Television companies Government-owned, limited
Radio stations Government-owned, limited

EDUCATION

Government expenditure on education total (% of GDP) **7.5** (WB 2014)
Primary enrolment (% gross) **101.2** (WB 2012)
Primary completion rate total (% of relevant age group) **88** (WB 2012)
Secondary enrolment (% gross) **46** (WB 2012)
Expected years of school **10.0 (male), 10.0 (female)** (WB 2017)
Out-of-school rate for children of primary age **0.49** (UIS 2016)
Literacy Rate (UIS 2013)
Males (15-24) **87.59%,** Females (15-24) **93.19%**
Males (25-64) **89.73%,** Females (25-64) **88.05%**
Unemployment (% of total labour force) **4.9** (ILO 2018)

SOCIETY & POLITICS

Date of Independence 18 April 1980, from Britain
Style of government Parliamentary Democracy
Leader President Emmerson Mnangagwa
Next Election Parliamentary elections expected November/December 2019
Proportion of seats held by women in national parliament **32%** (WB 2018)
Population total (millions) **14.44** (WB 2018)
Population growth rate (annual) **1.4%** (WB 2018)
Fertility rate total (births per woman) **3.7** (WB 2018)
Mortality rate under 5 (per 1,000 live births) **50** (WB 2018)
Life expectancy at birth total (years) **62** (WB 2018)
GDP (PPP) (millions) **43,670.09** (WB 2018)
GDP growth rate (annual) **6.2%** (WB 2018)
GDP by sector (% of GDP) **agriculture 12%, industry 32%** (WB 2018)
Languages English (official), Shona, Sindebele
Major religion(s) Christianity, Indigenous beliefs
Monetary unit Multi-currency system; US dollar and South African rand predominate

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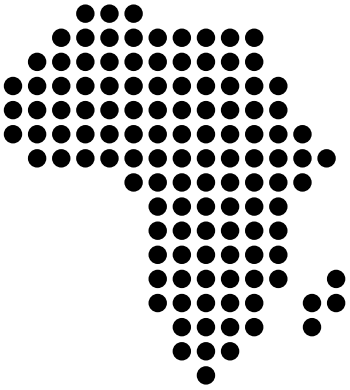

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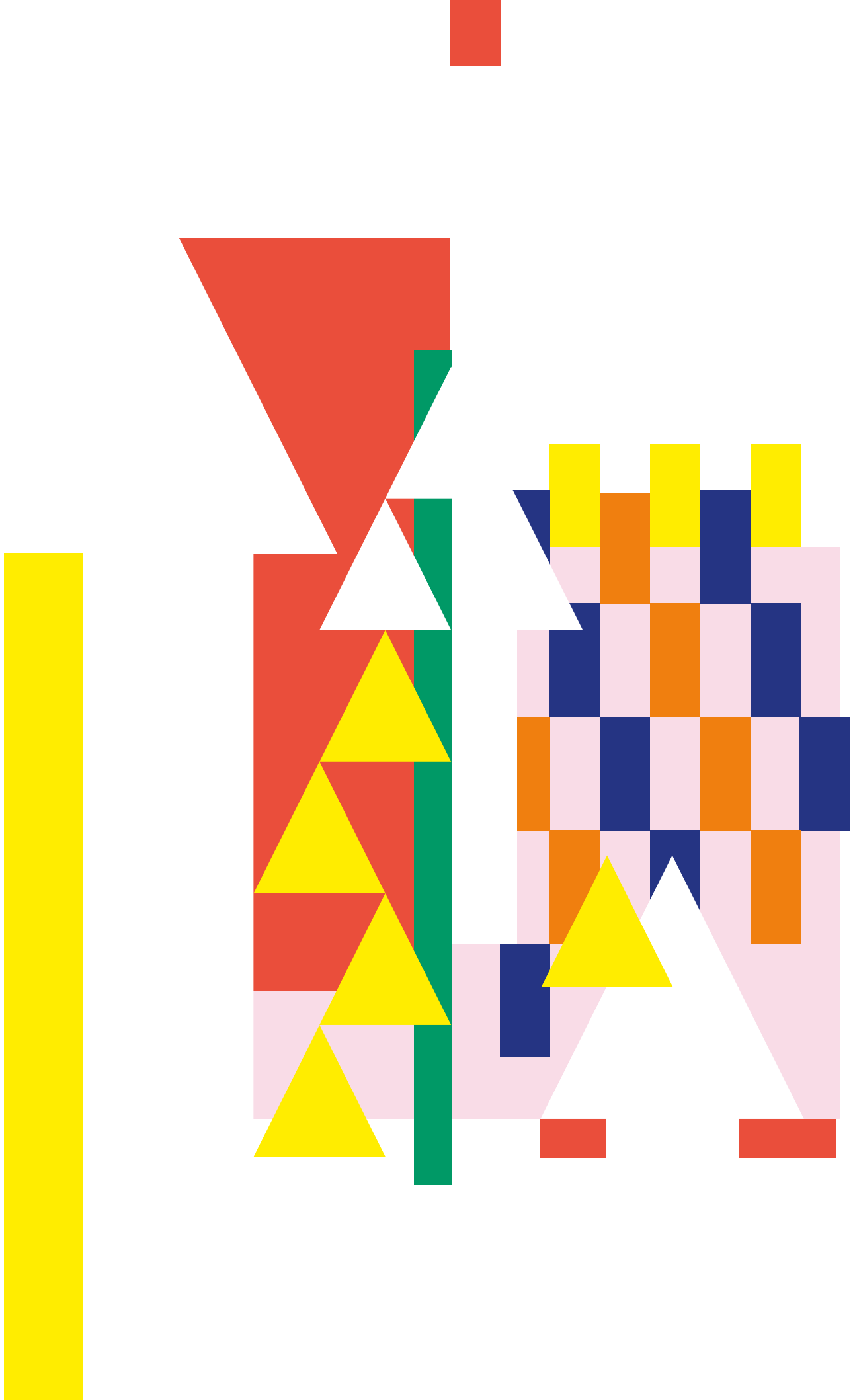

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