Digital Africa

orange™

Digital technology is not only key to achieving the UN **Sustainable Development Goals**, it also supports our own ambitious commitments at Orange Middle East and Africa in terms of environmental responsibility and digital inclusion. That's why we have identified the six main Goals where we feel we can have the greatest impact.

Together let's work to build a more responsible, sustainable world.

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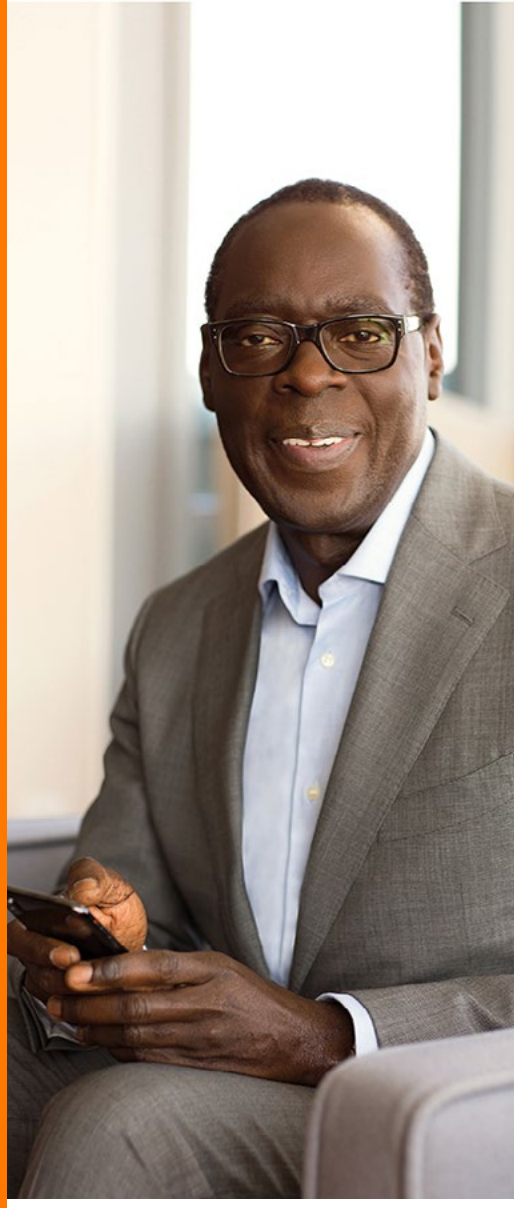

Our vision for Africa

"The Africa of our dreams is 100% connected. Africans everywhere can use affordable devices to access the internet and enjoy excellent connection quality. This is an Africa where, thanks to digital technology, people can stay healthy, study, work, communicate, and manage their finances no matter where they are, even in the most remote villages.

The education divide experienced by women and rural populations will have gradually been reduced. There will be countless innovative digital solutions designed to meet the needs of African people. State services will be more relevant, easier to use, and better targeted thanks to digitalization, data, and artificial intelligence. And because improved access is closely linked to economic growth, increased connectivity will greatly contribute to the continent's prosperity because it facilitates business and government activities. To tackle the climate emergency, Africa will have embraced these digital transitions in an eco-friendly way by increasing the use of renewable energies and reducing waste.

At Orange Middle East and Africa, we firmly believe that this dream is within our grasp, and so we're investing €1 billion every year on the continent to help achieve it. We appreciate that the role of an African telecommunications operator cannot be limited to a purely economic contribution. This is why we've placed digital inclusion and environmental responsibility at the heart of our Engage 2025 business strategy, making a firm commitment to achieve net zero carbon emissions by 2040. We're investing in Africa, creating direct and indirect jobs in Africa, and developing infrastructure in Africa. We're also training young people and women in digital technology through our Orange Digital Centers and Foundation initiatives. At Orange Middle East and Africa, we're doing whatever it takes to become the preferred multi-service operator committed to African populations.

Alioune Ndiaye,
CEO of Orange Middle East and Africa

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How digital technology accelerates Africa's integration and development

At the start of the third millennium, digital communication and services are taking an increasingly prominent place in our everyday lives. Heavily reliant on networks, these services **bring us closer** and **accelerate economic development**.

"Transforming Africa into a single digital market" is the overarching objective of the Smart Africa[1] alliance, in line with the African Union's digital transformation strategy[2].

Orange fully subscribes to this and is proactive, through numerous initiatives, in **accelerating the continent's digitalization**.

> **"Heavily reliant on networks, digital services bring us closer and accelerate economic development."**

1 | Keeping intra-African traffic within Africa

As a major player in Africa, Orange sets itself apart through the exceptional coverage of its domestic networks and the reach of its international networks (see the network map).

The strength of its African subsidiaries means that **Orange Middle East and Africa can leverage the infrastructure needed to enable direct interconnection between African operators**.

Improved mobile network coverage and the exponential growth in mobile and fixed broadband enables individuals, businesses, and operators to access a wider range of innovative digital services.

1 Smart Africa, Strategic Vision, 2019. // 2 The Digital Transformation Strategy for Africa (2020-2030), African Union, 9 February 2020.

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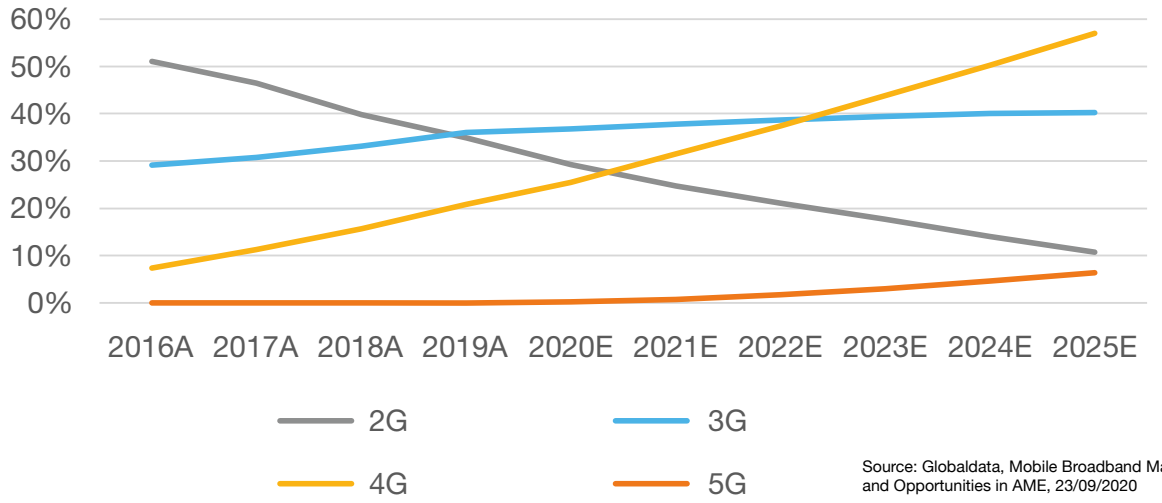
Mobile subscriptions by technology generation in Africa and the Middle East



Source: Globaldata, Mobile Broadband Market Trends and Opportunities in AME, 23/09/2020

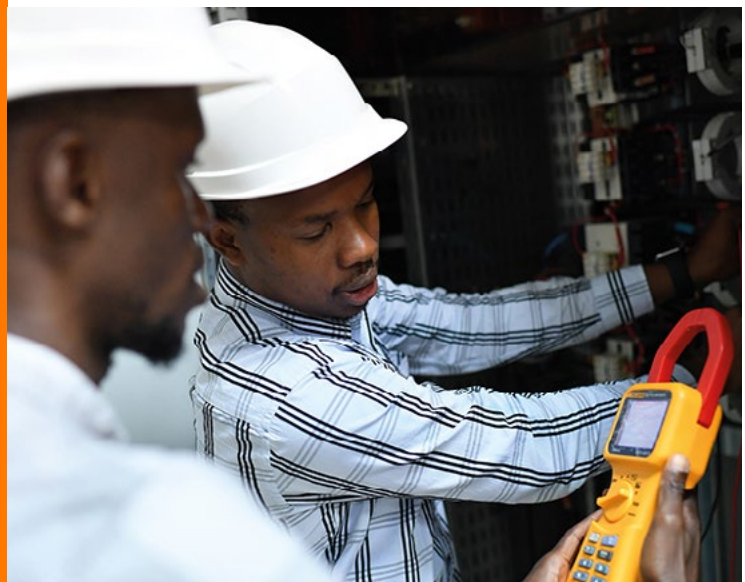
Orange is therefore contributing to and supporting African development **over the long term** alongside economic players and countries. Through a **diverse range of technical solutions** – terrestrial networks, satellite capabilities, and connections to international submarine cables – Orange supports network traffic growth for all African operators.

Orange also invests in continually improving customer experience and achieving **excellent service quality**, in terms of **data transit** and local **switching of voice traffic. 35 Points of Presence located in Africa make it possible to interconnect all African operators, avoiding communication and data transit through Europe**, which can be a source of latency and malfunction.

To facilitate African roaming, since 2015, Orange has run a **Roaming Operational Center as a global center of excellence** in Abidjan, which oversees the testing and launch of new roaming routes, either directly with regional and global partners or via its Roaming Hub, to which more than 100 operators are connected.

To complete the picture, from 2021, inter-operator roaming traffic in Africa will be hosted in a Data Clearing House located in a data center on the continent.

In addition to these actions, as a member of the Smart Africa alliance, Orange is fully committed to the One African Network (OAN) project. This aims to reduce the cost of communications while guaranteeing to keep intra-African traffic within Africa.

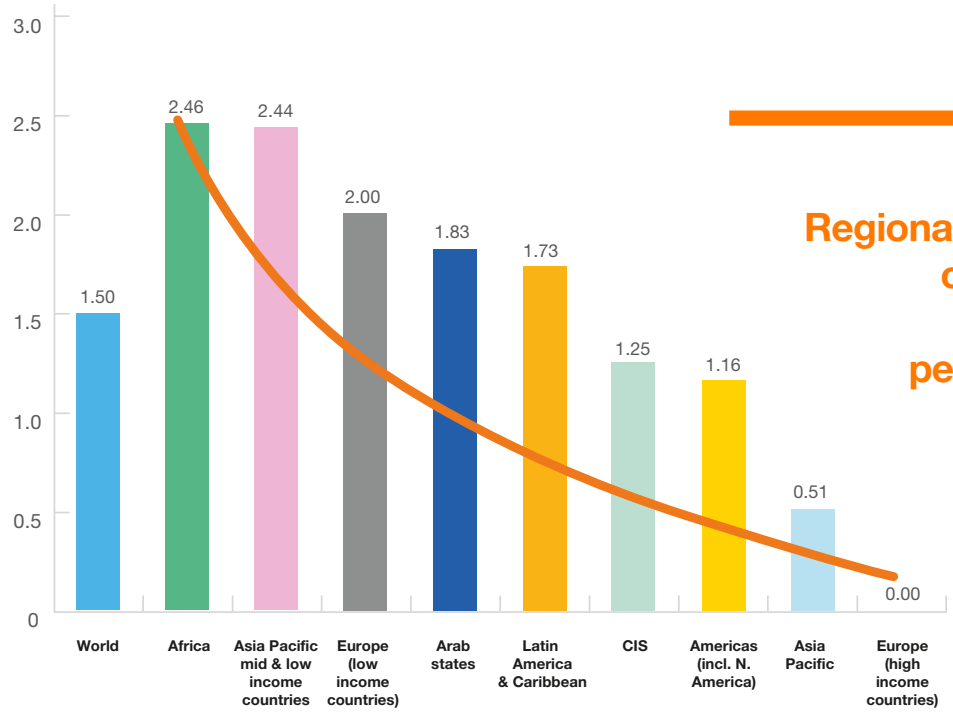


2 | New policies to stimulate investment and inclusion

To accelerate digital inclusion in Africa, the current public policy and regulatory framework will have to evolve significantly to be **both stable and forward-looking, and therefore able to adapt to innovative and dynamic markets**.

Firstly, **transparent frequency management** is particularly important for operators. If Africa is to fully embrace digital, it is absolutely necessary that national authorities make the necessary frequency spectrum available to operators. To enable as many people as possible to access connectivity, spectrum must be provided under reasonable conditions and at an affordable cost, to promote investment and the democratization of digital services. In addition, the spectrum must be provided in sufficient quantity and quality; this requires **spectrum neutrality** to ensure it is managed efficiently and flexibly, fostering innovation to extend coverage.

A study by the International Telecommunications Union confirmed a strong link **between mobile telephony and GDP growth in Africa**: a 10% increase in mobile broadband penetration corresponds to an increase of 2.46% in GDP in most African countries[3].



Regional GDP growth impact of an increase in 10% of mobile broadband penetration (in percent)

Source: ITU, How broadband, digitization and ICT regulation impact the global economy, Nov. 2020, p. 11, figure 5.

Secondly, from a fiscal point of view, operators in sub-Saharan Africa pay very high tax rates today: 26% of their income on average[4]. Half of these taxes are specific to the mobile sector. According to the GSMA, **reducing mobile communications taxation** would enable an **extension of coverage and uses and a growth in GDP and total tax revenues.**[5] The digital sector, as illustrated by the ITU study cited above, can greatly accelerate growth and development, provided that it ensures inclusive access and reasonable costs for all.

More generally, to overcome unfair competition, **new competition rules** must gradually replace the current regulations specific to the telecommunications sector. Even greater regional and continental **harmonization of public policies** and regulations will make digital services a vector for **Africa taking its rightful place on the world stage**.

3 ITU, How broadband, digitization and ICT regulation impact the global economy, Nov. 2020. // 4 GSMA, Rethinking mobile taxation to improve connectivity, 2019. // 5 GSMA, Mobile Economy Sub-Saharan Africa, 2020.

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3 | Digital services for Africa, hosted in Africa

The range of digital services has greatly expanded with the increase in smart devices. Digital technology is now central and essential to the lives of Africans: for staying in touch from anywhere and accessing digital content and services, such as Orange Money, which today has more than 50 million accounts.

To respond to increased digitalization of African businesses and administrations, and promote access to other digital players, Orange Middle East and Africa has built a network of interconnected data centers, hosted on the continent, **which contribute to Africa's digital sovereignty**. These data centers provide **extremely secure protection for customer data and internal data specific to Orange subsidiaries**. This means companies and public entities can **access locally produced and hosted content** as well as **service platforms**. A joint team is in place to operate the Orange Services Group (GOS) in Abidjan – a **Tier 3 data center guaranteeing a 99.9% availability rate** – and manage an e-health platform used by Orange in collaboration with the Global Fund to fight AIDS, Tuberculosis, and Malaria.

In a very dynamic environment where data traffic continues to increase exponentially, Orange Middle East and Africa is responding by **protecting the services and data hosted in Africa**. The threat of cyberattacks and fraud is an issue that affects everyone, from individuals to businesses and governments. That's why – to meet the expectations of stakeholders and protect African administrations, civil society organizations, and companies from threats and denial service attacks – Orange has developed an offer that secures up to **2.8 terabits** of traffic per second. Orange also supports telecommunications operators with anti-fraud solutions to protect their voice and mobile traffic.

In addition, for businesses, **Orange Cyberdefense**, which has had an office in Morocco since 2018, assists Orange subsidiaries in advising African companies and administrations on information security, securing their infrastructure and data, supporting their digital transformation, and ensuring their regulatory compliance. The objective is to **support Africa's digital development** through a regional center of excellence, in collaboration with local data protection and cybersecurity players.

> **"Locating data center infrastructure on the continent optimizes international connectivity costs and latency to improve response times, while respecting data sovereignty."**
>
> **Fatoumata Sarr, President of the African Data Center Association**

Conclusion

Committed to African digital sovereignty

Orange Middle East and Africa intends to become the population's preferred multi-service operator by 2025, building on the commitment it has shown over several decades as a trusted partner of the African public and private sector.

Political, economic, regulatory, and fiscal stability is essential to enable Orange Middle East and Africa to respond effectively to the challenges of growing digital uses and digital sovereignty in Africa.

"For Orange, the 21st century will be both digital and African."

Orange's international interconnection network: spotlight on Africa

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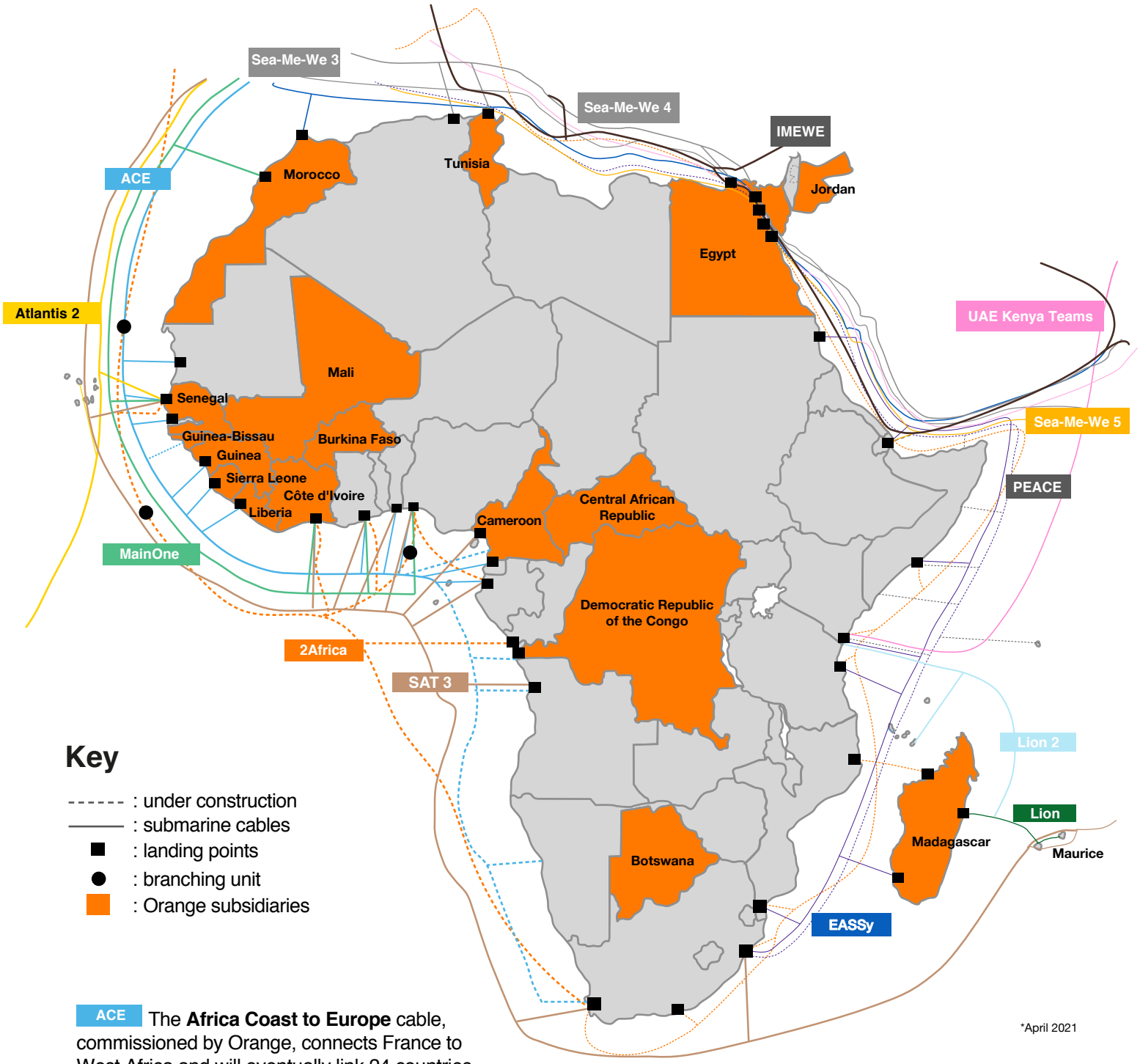
Through its large number of Points of Presence and network capacity to and from the rest of the world, Orange is strengthening its position as a leader in connectivity for Africa.



*April 2021

ACE The **Africa Coast to Europe** cable, commissioned by Orange, connects France to West Africa and will eventually link 24 countries and 400 million people.

2Africa Orange Middle East and Africa has invested in the **2Africa** submarine cable project, which is 37,000 km long and will encircle Africa by 2023/2024.

MainOne The **MainOne cable** links Portugal to Nigeria. Orange signed a partnership with the MainOne consortium in 2019 to connect two branches to serve Côte d'Ivoire and Senegal with a capacity up to 10 Tbit/s.

Spotlight on West Africa: Djoliba and national infrastructure

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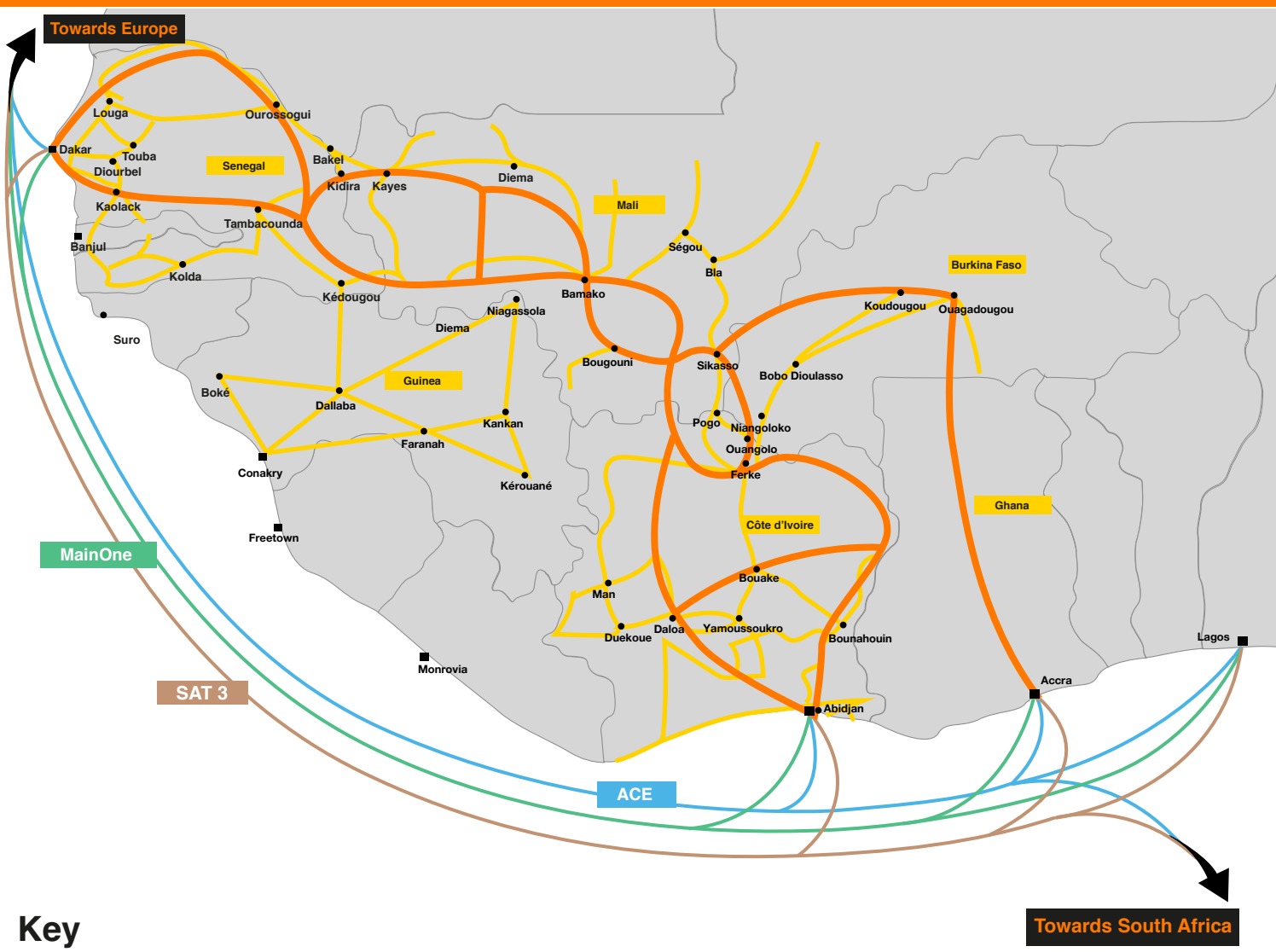

Key

- : Djoliba network
- : national transmission network
- ● : main cities
- ■ : landing points

How regional networks drive economic integration

The commissioning and commercial launch of the **Djoliba** network in November 2020 enables **Orange to connect the main cities in West Africa** to each other and the rest of the world via secure and seamless superfast fiber broadband. This will improve service quality for end customers and complete existing national networks.

Extending connectivity and increasing speeds for end customers

In Africa and the Middle East, the volume of **4G mobile traffic transmitted** across Orange's networks **has more than doubled in one year** (+110% between 2019 and 2020). The number of 4G subscribers reached 33 million in 17 countries by year-end 2020 (+39% in one year).
To cope with new digital uses and the need for rapid increases in speed, **Orange is strengthening** its network in each country by **increasing its capacity and extending its coverage**.

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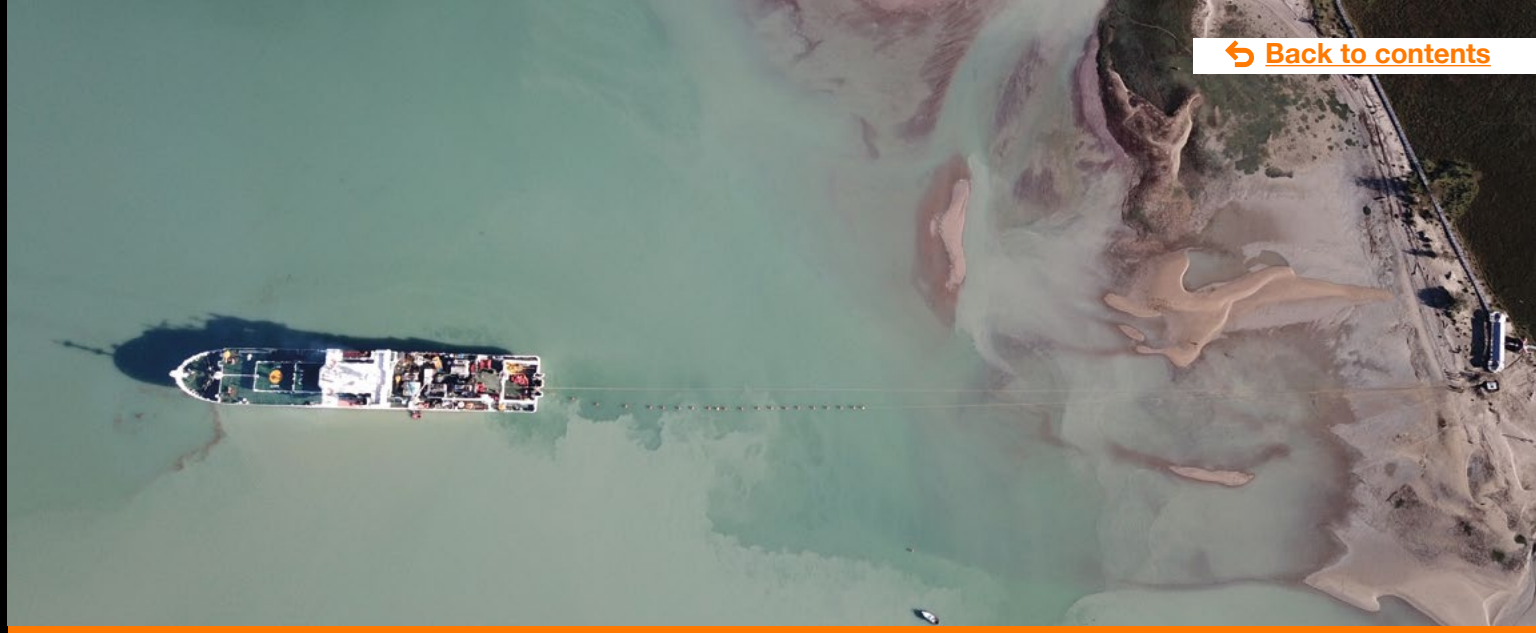


Connecting Africa to the entire world

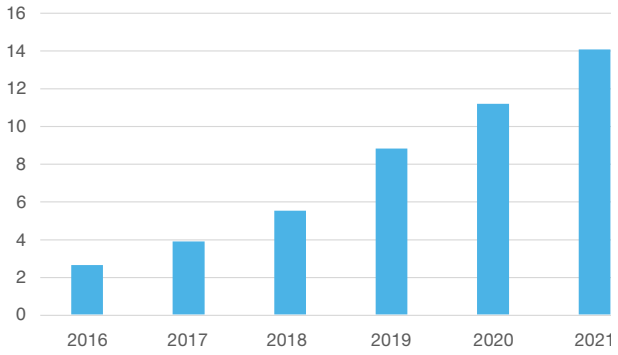
Africa's economic development comes hand in hand with a host of new digital needs and uses. To ensure everyone can access the connectivity they require, Orange Middle East and Africa is **increasing its local coverage, boosting the reach** of its international infrastructure, and developing **new pan-regional and intercontinental networks**, with support from Orange Wholesale & International Networks.

> **"Orange and its subsidiaries invest €1 billion each year in Africa and the Middle East, primarily in networks."**

1 | Responding to the explosion of digital uses

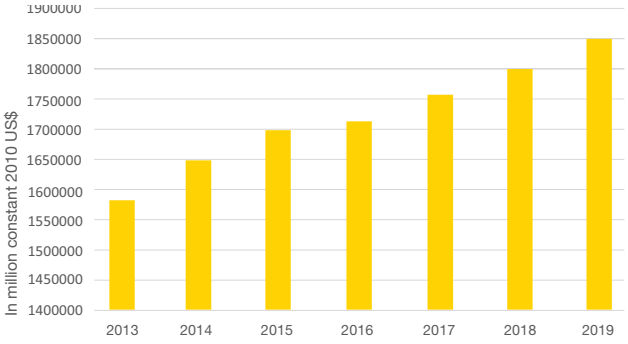
The African continent's economic growth is continuing at a rapid pace. This correlates with **a significant increase in internet users and consequently the volumes of data exchanged**: the volume of internet (IP) traffic has doubled in the space of two years, and now exceeds 10 Tbit/s. The growth in internet traffic is expected to continue at a sustained rate, exceeding 20% per year, even close to 50% in some parts of the continent.

IP Traffic in Africa in Tbit/s



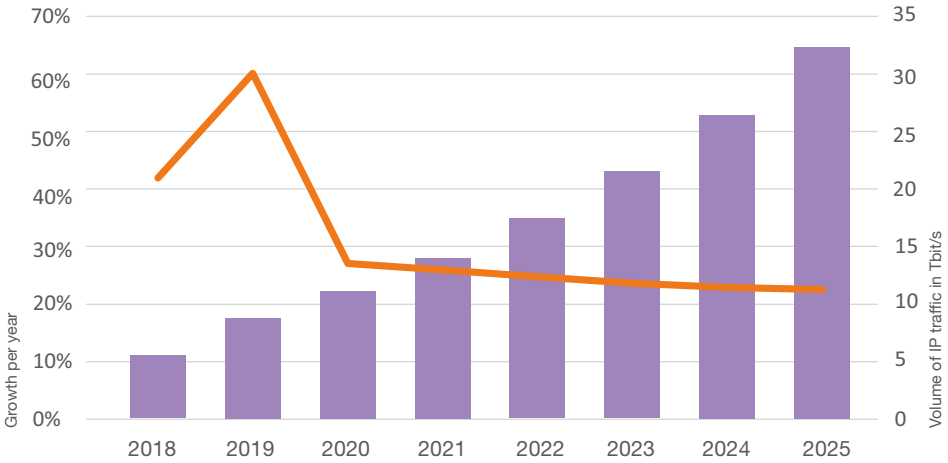
Source Telegeography

GDP growth in sub-Saharan Africa



Source: World Bank (Databank 2020)

IP traffic trend in Africa (historic and projected)



Source: Telegeography

This trend has been accelerated by the health crisis, which led to double the traffic traveling on Orange's international IP transit network in 2020.

To meet these growing needs, **Orange Middle East and Africa invests €1 billion each year**, primarily in network development, and is therefore a major digital player committed to internet democratization in these regions.

2 | High-performing networks open to the whole world

Our investments target both **domestic networks** and **Africa's interconnection** with the rest of the world.

> **"Intercontinental connectivity is mainly based on submarine cable systems, where Orange has particular strength and expertise, supplemented by satellite coverage for landlocked territories."**

Orange has been a prominent force in submarine cable development since the 1970s, starting with the Antinéa and Fraternity cables, then the fiber optic cables Atlantis-2, SAT3/WASC/SAFE, and more recently with ACE and MainOne (see the network map).

Countries without direct access to submarine cables or terrestrial network infrastructure can take advantage of innovative satellite solutions, for example in the Central African Republic, where Orange has signed a partnership with satellite operator SES. Orange is also strengthening its position as a connectivity leader through the opening of a teleport[1] ground station in Gandoul, Senegal.

To facilitate customer connections, operators plan their international networks around major Points of Presence (PoPs), which enable a connection to the operator's network and data centers. Whether for its own needs or on behalf of African operators, **Orange has deployed 35 Tier 1 PoPs, which are directly connected to the global network**[2], to optimize the routing of international fixed and mobile calls, as well as IP traffic.

Orange also benefits from additional PoPs through its 17 local subsidiaries in Africa as well as access to several submarine cable landing stations through partnerships with numerous consortia.

1 A teleport is a ground station with large scale antennas which establish a telecommunications link with a satellite. // 2 These 35 Points of Presence (PoPs) comprise 11 IP Transit (internet) PoPs, notably in South Africa, Nigeria, Côte d'Ivoire, Ghana and Kenya; 22 IPX PoPs (for mobile data), as well as 2 Voice PoPs in Nigeria, interconnecting Orange traffic with all African operators (status report March 2021).

Finally, to support businesses and operators, Orange Middle East and Africa employs **state-of-the-art data centers** that securely host content and services, for example in Makepe (Douala), Rufisque (Dakar), and Vitib (Abidjan).

In its Connecting Africa Through Broadband report, the World Bank estimates that the infrastructure deficit will reach 125,000 km in terms of fiber, requiring a $50 billion investment by 2025.[3] **Djoliba**, Orange's first **integrated pan-West African fiber backbone**, will increase the pace of digitalization, regional connectivity, and economic development (see the network map).

Orange is once again confirming its expertise and leadership in the deployment and operation of international terrestrial and undersea networks.

"With Djoliba, all the operators, companies, and institutions in West Africa now benefit from seamless connectivity that is open to the whole world, thanks to a single customer point of contact and unparalleled service availability."

Jérôme Barré, CEO of Orange Wholesale & International Networks

In each of its operating countries, Orange Middle East and Africa is investing significantly in **national networks to enable as many people as possible to enjoy high-quality connectivity** (see the network map).

Orange Middle East and Africa is part of the new **2Africa** cable consortium, set up by Facebook with six other operator investors. This 37,000 km cable, which will eventually encircle Africa, is scheduled to be operational in 2023/2024. 2Africa will make it easier to deploy 4G, 5G, and fixed broadband access for hundreds of millions of people.

"The 2Africa cable will enable Orange to securely meet the demand for increased bandwidth necessary for the continued digital development of our regions."

Alioune Ndiaye, CEO of Orange Middle East and Africa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3 World Bank, UN Broadband Commission: Connecting Africa Through Broadband. A strategy for doubling connectivity by 2021 and reaching universal access by 2030, October 2019.

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3 | Network sharing and mutualization

The investments needed to bring the best connection quality to African populations are colossal and are largely assumed by operators[4]. If we want to respond quickly and cost-effectively to the continent's increasing needs, we must, as recommended by the World Bank, nurture **multi-stakeholder partnerships** involving operators, state administrations, and international organizations, as has already proven successful with the ACE cable[5].

Public-private partnerships also underpin **a stable, clear, impartial, and forward-looking regulatory framework**, which is essential for directing investment towards the development of universal, affordable, and high-quality broadband connectivity.

Operators are also creating **shared and mutualized solutions** to make their unused infrastructure more profitable. The sharing of passive infrastructure (radio towers) or active infrastructure (equipment, frequencies), national roaming agreements (between mobile operators), and hosting agreements for Mobile Virtual Network Operators (MVNOs) are the most common among them.

For example, SOGEM has joined forces with Sonatel as its "wholesale" operator to operate and resell the excess capacity of its optical ground wire[6] connecting Mauritania, Senegal, and Mali. In October 2020, Sirius Telecom launched its first MVNO "light" service in West Africa on the Sonatel network, while passive infrastructure sharing agreements are in place in Morocco, Tunisia, Senegal, and Egypt.


© katleho Seisa

Conclusion

Interconnecting Africa to accelerate economic development

Orange plays a key role as a partner in Africa's interconnectivity, through its international network, 17 African operating countries, and active participation in inter-operator initiatives: submarine cable consortia and pan-African and regional initiatives. A favorable regulatory and fiscal framework is essential to ensure these infrastructure investments are sustainable.

"Africa's international interconnectivity is a powerful driver in terms of economic development."

4 According to the GSMA, operators will invest a cumulative CAPEX of $52 billion over the period 2019–2025 (GSMA, Mobile Economy Sub-Saharan Africa, 2020). See IDATE DigiWorld, The Challenges of the Digital World, 2017. // 5 World Bank/Digital Development Partnership: Innovative Business Models for Expanding Fiber-optic Networks and Closing the Access Gaps, Dec. 2018. // 6 An optical ground wire is an optical fiber laid at the same time as an electrical cable to meet several needs, including data transmission.

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Boosting digital inclusion in Africa

Innovative digital services are helping to achieve the UN Sustainable Development Goals (SDGs) by providing access to health, education, and financial services such as credit, insurance, and utility bill payments[1].

However, **4 billion people**, or half of the world's population, still don't use the internet even though 3.4 billion have network coverage. At Orange Middle East and Africa, our commitment to **digital equality** and achieving the **SDGs** is central to our Engage 2025 strategic plan. Our mission is to ensure that, in all areas of our business, digital tools and technology are designed, made available, and used in a more **human**, **inclusive**, and **sustainable** way.

> **"At Orange Middle East and Africa, our commitment to digital equality and achieving the SDGs is central to our Engage 2025 strategic plan."**

1 | Connecting rural zones

In sub-Saharan Africa, 75% of the population can theoretically access digital services via 3G, and 49% of the population are covered by 4G[2]. There are strong disparities in coverage, however, linked to geography, political and economic governance, and financial resources.

Rate of population coverage (GSMA – 2019)	3G	4G
Sub-Saharan Africa	75%	49%
Middle East and North Africa	91%	67%

1 UN, Connect 2030: how ICT supports the SDGs, May 2020. // 2 GSMA, The State of Mobile Internet Connectivity Report, 2020. ITU, Measuring digital development, 2019.

Rural areas traditionally suffer from the worst coverage. In order to extend this network coverage, Orange Middle East and Africa relies on technical solutions and innovative partnerships adapted to the specific requirements of these isolated environments: lighter mobile towers that are easier to install, and solar-powered equipment that consumes less energy and makes it easier to upgrade to 3G + / 4G.

For example, through our partnership with AMN (Africa Mobile Networks), **more than 700 sites have been deployed in Cameroon and the Democratic Republic of the Congo. As a result, two million inhabitants, who previously had no connectivity, are now able to access digital mobile services** (voice, data, and financial services)[3]. In the Democratic Republic of the Congo, **a further 2,000 sites** are planned through a partnership with NuRAN to bring mobile phone services to **more than 10 million people** who were previously unconnected[4]. These partnerships apply to the technological aspects, and also to marketing and distribution: identifying areas of the population not covered and improving access to high quality smartphones at affordable prices such as the "Sanza" phone.

Finally, in sparsely populated areas, it may be advantageous to operate and deploy networks with new open source software techniques and virtual functions to replace physical equipment[5]. Going a step further to enhance connectivity in rural areas, Orange is also studying new access methods,


© AMN

for example adapting radio protocols to provide universal satellite access on standard smartphones. The program to accelerate coverage in rural areas is in line with our ambition to fully meet our climate commitments, as it favors the deployment of solar-powered sites. **Orange aims to use 50% of electricity from renewable sources by 2025.**

It should be noted that operators are not responsible for deploying network infrastructure alone. National governments and local authorities are also involved as they set the political and regulatory framework. They have a central role to play in coordinating innovative partnerships that extend coverage to hard-to-reach rural areas, in particular through Universal Service and Access Funds, collected from operators[6].


© PICHA Stock

3 Figures as of end-February 2021. // 4 Orange DRC press release from 8 February 2021. // 5 O-RAN (Open Radio Access Network), ONAP (Open Network Automation Platform), TIP/OCN (Telecom Infra Project and Open Core Network) are different open source and virtual network solutions, deployed in the cloud. // 6 GSMA, Driving the digital revolution with improved mobile coverage, 2020.

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2 Making digital services more accessible

In sub-Saharan Africa, 520 million people are covered by a mobile network but don't have internet access: whether because smartphones and mobile services are too expensive for their income, they lack the necessary skills, or the content doesn't respond to their everyday needs[7].

The price of mobile data has fallen rapidly in sub-Saharan Africa, from 13.2% of monthly income in 2016 to 4.2% in 2019 for 1 GB per month; in Senegal, Sonatel reduced its **mobile data prices by 86% between 2016 and 2020 as part of its proactive internet democratization policy**.

However, the cost of an entry-level device with internet access is still too expensive for the poorest African populations[8]. According to the GSMA, taxes linked to buying a mobile handset alone account for 7% of the income of 20% of the population with the lowest incomes[9].

The market launch of the **$30 Sanza smartphone** is a first response by Orange to promote universal access[10].


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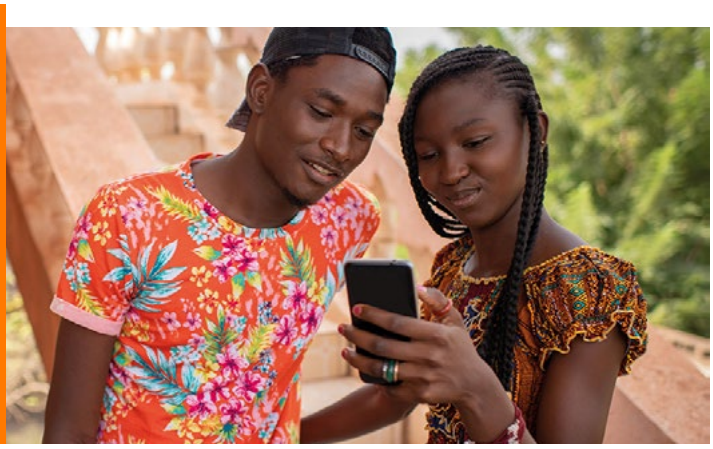
"Extending coverage is not enough, because the digital divide is much bigger than the coverage gap."

Stéphane Richard, Chairman and CEO of Orange SA



The device is now available in 16 countries in Africa and the Middle East and enables customers to access the internet and benefit from associated services through voice recognition, which means it can be used even without knowing how to read.

Both the 3G and 4G versions come with Wi-Fi and Bluetooth along with a voice, SMS, and data bundle.

7 GSMA, The State of Mobile Internet Connectivity Report, 2020. // 8 GSMA, Mobile Economy Sub-Saharan Africa, 2020. // 9 Ibid. // 10 Average retail price may vary according to the model and country.

3 Services that respond to local needs

By adapting to daily needs and lifestyles, digital technology can respond to many essential concerns: access to energy, adapted educational content or health services in local dialects, voice interfaces, and more, to meet the needs of local populations.

Skills development, open markets, professional opportunities, and digital services contribute to women's autonomy and empowerment, both in the workplace and in terms of entrepreneurship.

The Orange Foundation has created the "Maisons Digitales" (Women's Digital Center) program to help them learn basic skills (literacy, numeracy, computer skills etc) and access digital training. **Between 2015 and 2019, Women's Digital Centers in Africa and the Middle East have already welcomed more than 26,000 women**. This helps reduce the digital divide – which is 37% in sub-Saharan Africa – and therefore decrease gender inequalities[11].

Rural coverage complexities, data access costs, and device prices are all barriers to digital inclusion. But accelerating digital uses also requires **accessible and relevant services such as Orange Money**, which contributes to financial inclusion or **Orange Energy**, a solar kit which, among other things, enables subscribers to recharge their phones.

Access to education and health

In Sierra Leone, in partnership with the Ministry of Health and the United States Agency for International Development (USAID), **the micro-services project for rural health centers** offers a systematic approach to inclusion: in conjunction with American partners, Orange Sierra Leone coordinates **the supply of energy, water, and internet connectivity** for 25 health centers in rural areas so that they can improve and expand their care provision.

The surplus energy produced is distributed to nearby villages. There are plans to extend this project to other health centers and countries.

Conclusion

Internet access for all

Internet access is a priority, and governments and local authorities have to step in, along with international partners. Orange is firmly committed to equal access to digital services in close cooperation with local stakeholders. Helping populations break down barriers to digital use and developing services tailored to their needs have therefore become imperatives.

"Orange is firmly committed to equal access to digital services"

11 GSMA, The Mobile Gender Gap Report, 2020.

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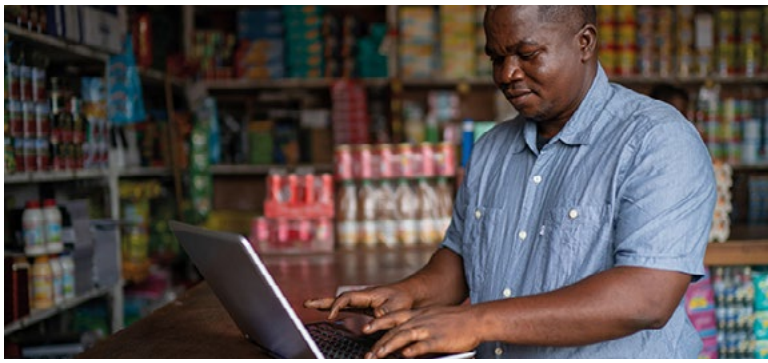
Digital tools for socio-economic development and employment

Access to **high-speed internet** at an affordable price, **digital skills** development, support for **tech** entrepreneurship and online service adoption[1]: these priorities are central to the initiatives carried out by Orange Middle East and Africa to support businesses and **contribute to sustainable employment and socio-economic development.**



1 | How digitalization boosts business

Digital technology is a catalyst for economic transformation on the African continent and, as such, mobile network deployment in several African countries has had a major spill-over effect, from 10% to 30% in GDP growth[2].

And beyond GDP, it also contributes to economic and social inclusion and more generally to the achievement of the UN Sustainable Development Goals[3].

> **"Digitalization offers new opportunities to boost the economy, cut red tape, […] leap frog and participate in the fourth Industrial Revolution."**
>
> African Union: Digital Transformation Strategy for Africa 2020-2030

1 Key axes identified by the European Union-African Union Digital Economy Task Force, New Africa-Europe Digital Economy Partnership, 2019. // 2 Studies carried out by Raul Katz at Columbia University between 2016 and 2020. // 3 World Bank, UN Broadband Commission: Connecting Africa Through Broadband. A strategy for doubling connectivity by 2021 and reaching universal access by 2030, Oct. 2019.

Orange Middle East and Africa supports all companies, regardless of their size, structure and sector, in creating value for African economies. According to the World Bank, the private sector is the key engine of job creation, especially in terms of SMEs, accounting for 90% of all jobs in southern countries[4]. While skilled people benefit most from digital job creation, studies show that everyone, whether skilled or unskilled, benefits from high-speed internet access[5].

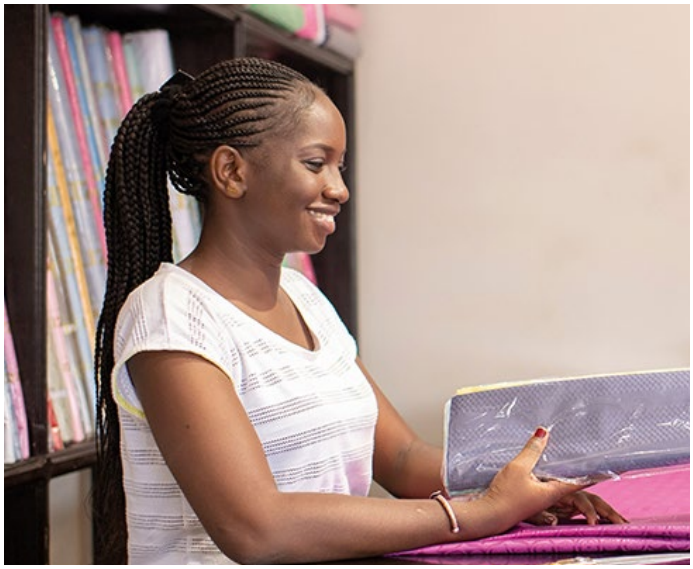
Digital technology offers numerous advantages to companies: improved customer relations and service quality, process optimization, increased productivity, and access to new markets. The most recent illustration was during the Covid-19 crisis, when working from home and digital tools and communications channels helped many organizations achieve business continuity. What's more, improving public services through digital technology, or e-government, helps to strengthen the appeal and competitiveness of African economies.

In this way, Orange Middle East and Africa, in its role **as a multi-service operator**, is constantly expanding its range of solutions – from hosting computer applications to cybersecurity, remote collaboration tools, and smart services based on the Internet of Things (IoT) – to **meet customers' business challenges and support their digital transformation**.

This portfolio expansion cannot be achieved without the development of high-speed digital infrastructure and internet access. This is why Orange Middle East and Africa is investing significantly in **fiber optics** and **4G** to help small and medium-sized companies develop their business, while boosting its own capacity to support the specific needs of large companies and institutions.

Energy access is another enabler for economic activity: particularly in rural areas in Africa where 600 million people still have no access to electricity[6]. Indeed, Orange Middle East and Africa offers solar kits and solutions for managing energy and water more effectively via smart metering, which also improves eco-efficiency.

> **"Strengthening the appeal and attractiveness of African economies through digital technology"**



4 World Bank, World Development Report 2013: Jobs. // 5 ITU, ICT4SDGs: ICT-centric economic growth, innovation and job creation, 2017. // 6 World Bank data, 2016.

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2 The digital ecosystem as an accelerator

Digital technology stimulates the start-up market, **with entrepreneurs best placed to offer the local digital services and content that populations and the economy want and need**.

> **“Offering local digital services and content that populations and the economy want and need”**

Orange is one of the very first players to commit to the development of entrepreneurial ecosystems through incubators and Orange Fab accelerators, which have already worked with more than 250 African start-ups.

This major initiative is coupled with a dedicated €350 million fund for African companies through **Orange Ventures Africa**, along with a €7 million **Teranga Capital** impact fund, which has been established with several partners.

In addition, Orange has co-developed the **Wazihub** project to promote **IoT innovation by Africans for Africans** in terms of technical skills development and support for local start-ups and entrepreneurs. The solutions are designed for farmers, mainly in the informal sector, opening up new possibilities via m(obile)-agriculture to secure their income through better monitoring of crops (irrigation and disease detection) and livestock (connected collars to deter against theft).

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3 | Skills development as an essential lever

Training is key for African companies and administrations as part of their digital transformation, and technology itself makes this training more accessible[7].

Orange Middle East and Africa has been supporting the digital transformation of the Félix Houphouët-Boigny National Polytechnic Institute (Yamoussoukro, Côte d'Ivoire). Since 2017, Orange has joined forces with the National School of Statistics and Applied Economics in Abidjan and the Ecole Polytechnique to provide a master's in **data science**, which trains African experts in statistics, artificial intelligence, and big data – all highly sought-after skills on the labor market. Almost all graduates are now in employment, and Orange Middle East and Africa is continuing discussions to design similar courses in other African countries.

Orange Digital Centers

By 2030, 230 million jobs in sub-Saharan Africa are likely to require digital skills[8]. **Orange Digital Centers** are free and innovative ecosystems dedicated to **training** young people in digital technology, technology **incubation**, and start-up **acceleration** and financing.

A partnership with the federally owned enterprise GIZ, operating on behalf of the German Ministry of Economic Cooperation and Development (BMZ), has accelerated the project's deployment in the Africa and Middle East region by leveraging synergies to **help even more young people learn the skills they need to find jobs** in the digital sector and **encourage entrepreneurship**.

Following inaugurations in Tunisia, Senegal, Cameroon, and Ethiopia, **all Orange Middle East and Africa subsidiaries will offer Orange Digital Centers** by mid-2022. These will serve as an example for future European Orange Digital Centers, which will be set up by 2025 for all Orange operating countries. Together, they will work as a network to help boost youth employment prospects and knowledge-sharing between continents.

Conclusion

Boosting employment and socio-economic development thanks to digital

Telecoms operators create jobs and positive spill-over externalities linked to their own activity and to the productivity gains generated by digital services in the economy[9]. This is exactly what Orange is doing, by developing high-speed connectivity and services that meet the needs of companies in Africa and the Middle East in terms of security and flexibility, by promoting digital skills, and by supporting the entrepreneurial ecosystem.

> "Orange is making a major contribution to the continent's socio-economic development and job creation."

7 UNESCO, Transforming Education: The Power of ICT Policies, 2011. // 8 IFC, Digital skills in sub-Saharan Africa: spotlight on Ghana, 2019. // 9 According to the GSMA, a job with a telecoms operator corresponds to 3 jobs among other players in the telecoms sector and 7 associated jobs in the rest of the economy GSMA, The Mobile Economy Africa, 2016.

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How digital services drive inclusion and development

Digital inclusion gives everyone the opportunity to reach their full potential through Information and Communications Technology (ICT). Internet connectivity enables people to access news, information, and public services (civil status, property, taxes), learn and train, look for (and find!) a job, consult a doctor, and stay in touch with loved ones, wherever and whenever.

Digitalization is therefore a powerful vector for **inclusion** and **development**.

“There is not a business sector or lifestyle activity that digital services cannot profoundly transform.”

1 | Mobile payment, a catalyst for economic activities

“Orange Money enables 50 million people who don’t have a traditional bank account to carry out instant, secure, and reliable financial transactions.”

Alioune Ndiaye, CEO of Orange Middle East and Africa

The high proportion of mobile phone penetration in Africa has made this the primary means of accessing digital services. More than anywhere else, African consumers use mobile money in their masses to manage their finances faster and more securely than by traditional means. The number of Orange Money accounts has already exceeded **50 million. There are now 220,000 points of sale supporting customers in the 17 countries where the service exists.**

Where the informal economy has a central place in society – it accounts for 86% of the labor market in Africa[1] – a high proportion of mobile transactions between individuals are payments for a product or service sold, especially in the agricultural sector. In a context of low banking availability – in West Africa, for example, only 19.3% of the population have an account with a traditional banking institution[2] – e-commerce platforms enable mobile payments to boost online sales. The online marketplace Jumia, which is present in several African countries, provides buyers and merchants with both a logistics service for parcel shipping and delivery and also a fast and secure online payment service via mobile money.

All that's needed to open a mobile money account is an identity document and contract. The account can be accessed from anywhere to carry out all kinds of transactions: payments, transfers, insurance, credit, tax payments, and more. **Mobile money** is the primary means of **financial inclusion** in many African countries, greatly contributing to **socio-economic development**.

> **"Mobile money is the primary means of financial inclusion in many African countries, greatly contributing to socio-economic development."**

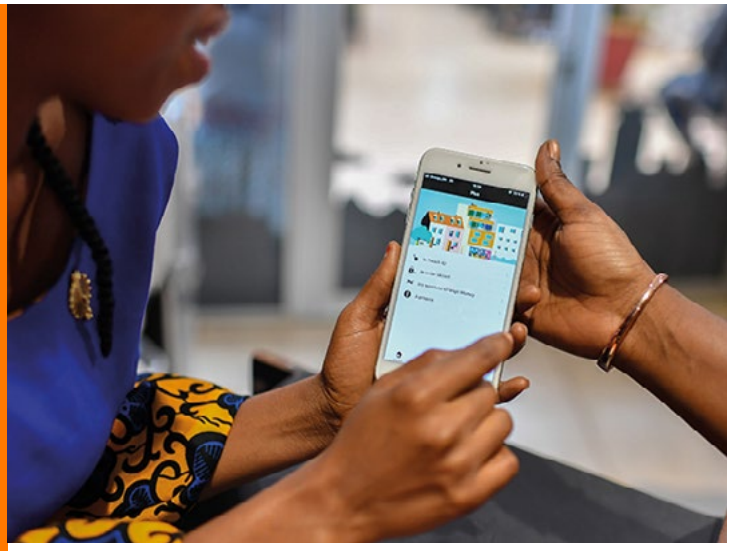
How Orange supports the African agricultural sector's digital transformation

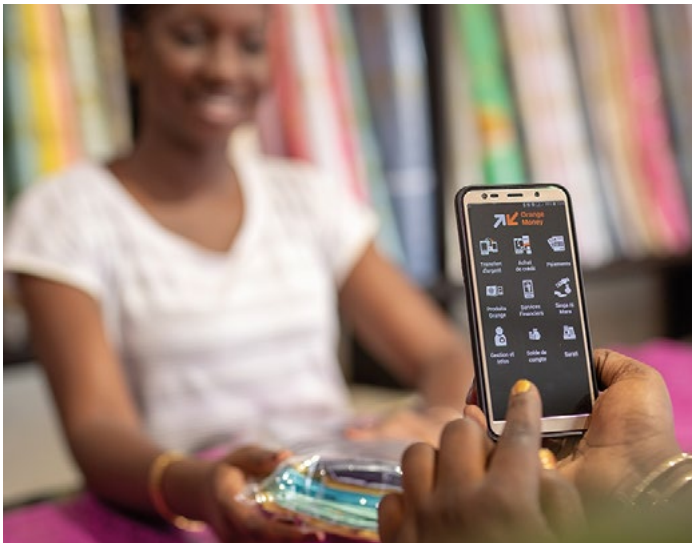
In 8 African countries, Orange has launched 14 services dedicated to farmers, attracting 800,000 active mobile users.

These services, developed with NGOs, start-ups, or state partners, can even be accessed from low-cost feature phones with no internet connection.

This means farmers in Mali, Madagascar, Burkina Faso, Côte d'Ivoire, Botswana, Senegal, Guinea Conakry, and the Democratic Republic of the Congo can:

- increase their income by reducing intermediaries;
- increase their productivity through advice on agricultural techniques;
- receive accurate weather forecasts and insure against climate risks;
- sell products more easily via online marketplaces and receive orders and payments via their mobile phone.





1 OECD/ILO, Tackling Vulnerability in the Informal Economy (Development Centre Studies), 2019. // 2 BCEAO, Report on financial inclusion dynamics within the WEAMU 2018, 2019.

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2 Public service digitalization, a vector of trust

By developing digital services (e-government), public administrations can provide more effective, transparent, and relevant support for citizens and businesses[3]. The UN notes an acceleration of e-government in Africa since 2018, and the Covid-19 crisis has cemented the role of e-government going forward[4].
E-government facilitates new service development, reduces management risks, and increases public trust in authorities, and more particularly tax administration[5].

> **"E-government increases public trust in authorities."**

Orange, through its consulting and engineering subsidiary Sofrecom, has made e-government a key focus by proactively supporting the definition and deployment of national digital strategies to boost the continent's socio-economic development.

Joining forces with the **Mauritian government**, Sofrecom has been **digitalizing public services**.

In **Côte d'Ivoire**, Sofrecom worked with the government to deploy **electronic contract management** and **payment** processes through a system that tracks and secures online documents via bar codes and e-signatures.


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The success of these new paperless administrative, sales, and customer service processes depends on a secure "**digital identity**", an electronic identification and authentication solution for each individual. This helps **build more transparent, secure, and efficient relationships** between administrations, citizens, and businesses.

Across all sectors, digital services must meet all citizens' requirements in terms of reliability, efficiency, safety, transparency, and ethics, in line with a legal and regulatory framework. As a trusted partner, **Orange ensures ethical practices are upheld throughout its value chain**. To give everyone the keys to a responsible digital world, Orange applies the highest standards in terms of data protection.

3 African Union, Digital Transformation Strategy for Africa 2020-2030, 9 February 2020. European Union-African Union Digital Economy Task Force, New Africa-Europe Digital Economy Partnership, 2019. // 4 UN, E-Government Survey, 2020. // 5 IMF, Regional Economic Outlook for sub-Saharan Africa, October 2020.

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3 | How e-education and e-health support everyone in society

Orange is committed to inclusive and equitable quality education, one of the UN Sustainable Development Goals. UNESCO recognizes that ICT contributes to universal access to a fairer and higher standard of education, to skills development for teachers, along with more effective management, governance, and administration[6].

To enable equitable quality education, Orange has developed **an interactive mobile platform to train teachers in rural areas**, in partnership with USAID and Senegal's Ministry of Education. The **Orange Education Pass**, available in 6 African countries, provides low-cost access to educational content through reduced mobile data tariffs.

Thanks to digital technology, consumers and professionals benefit from easier access to health services. Orange and partners have launched **14 e-health services** in seven African countries: from remote health advice and patient monitoring to finding a nearby health professional, making an appointment, requesting home care, or purchasing health insurance – all this and more is now accessible via a simple feature phone.

In **Côte d'Ivoire**, Orange has **joined forces with the Ministry of Health** and international partners to design and develop two different services. The first service, in partnership with the **Global Fund**, makes it easier to monitor HIV patients and collect data to better analyze and improve treatments. The second service, **M-Vaccine**, is deployed in collaboration with the GAVI Vaccine Alliance and offers a digital immunization record to monitor mothers and children and raise community awareness to **improve vaccine coverage** in regions of low uptake.

Conclusion

Promoting digital services that simplify everyday life

Digital services are one of the main levers for building more inclusive societies, accelerating economic development and improving the services provided by public administrations. In a crisis context, digital services are even more essential. That's why, as a responsible operator committed to a more equitable and sustainable world, Orange Middle East and Africa continues to work proactively with partners to ensure the continent's inclusive development.

"Digital services build more inclusive societies, accelerate economic development, and bring citizens and public administrations closer together."

6 UNESCO, Qingdao Declaration: Seize Digital Opportunities, Lead Education Transformation, 2015.

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