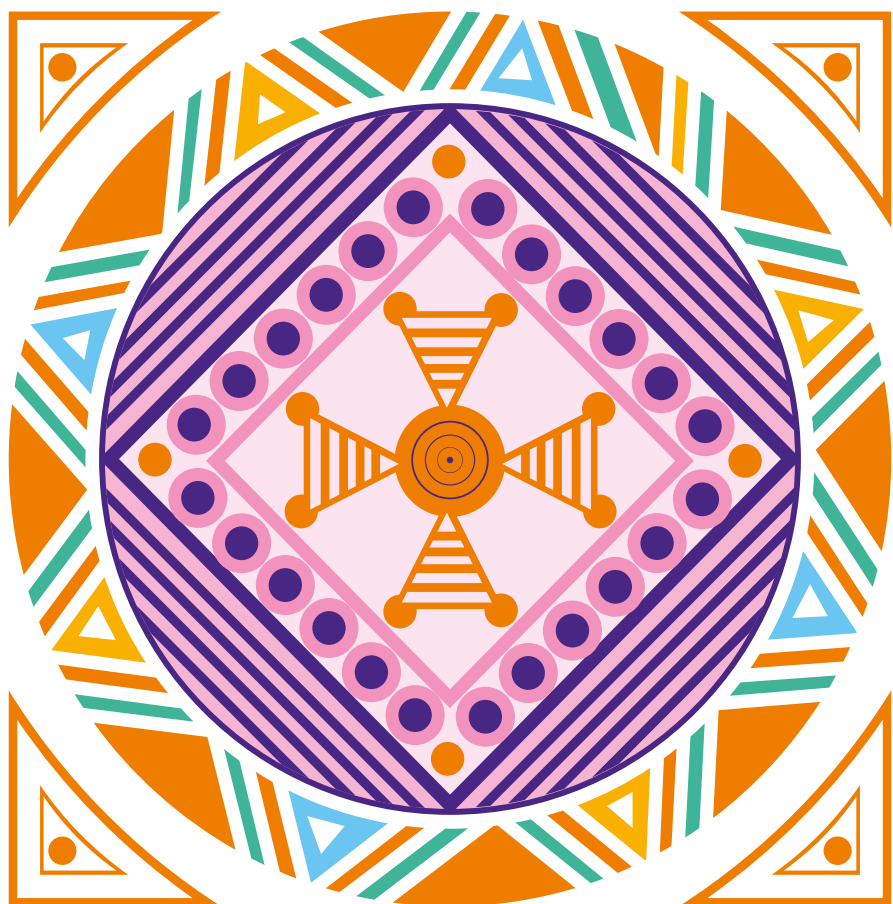


# **Orange Committed to Africa and the Middle East**

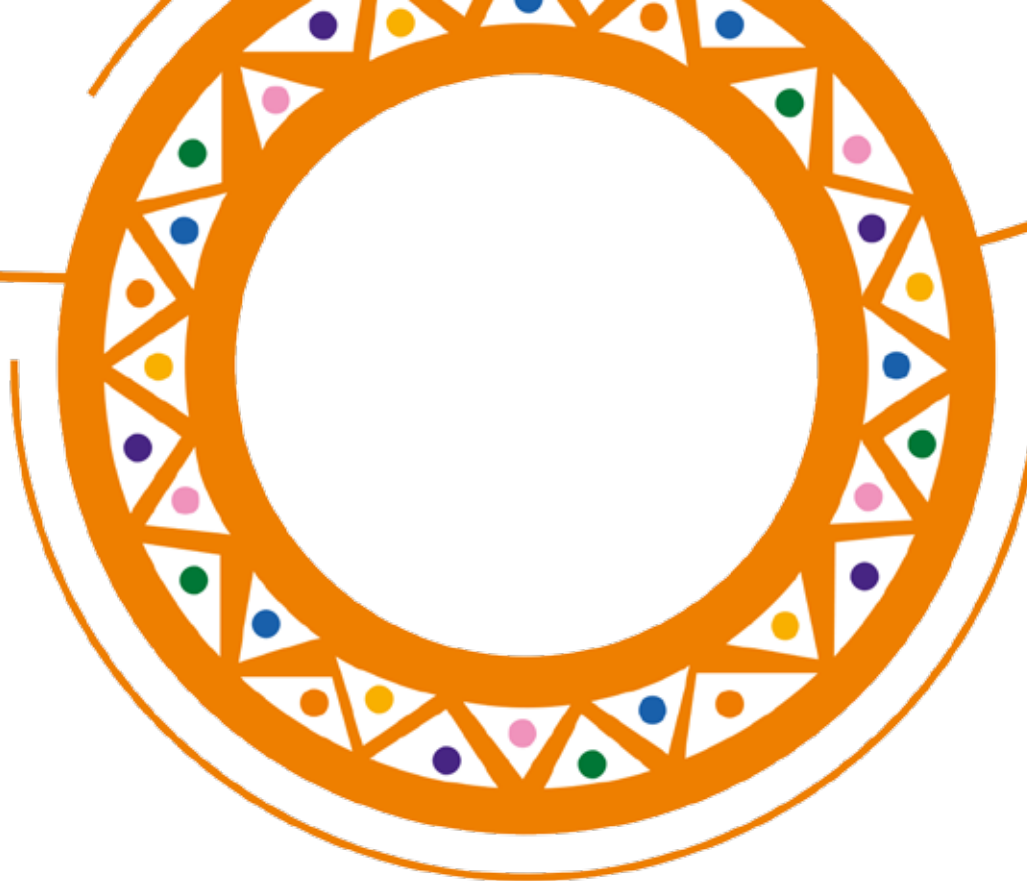
## A new drive for development





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## Manifesto for a Digital Africa

- 1 • Digital transformation affects all African economies, boosting growth and job opportunities.
- 2 • Digitalisation promotes equitable development and the Sustainable Development Goals, by facilitating financial inclusion and democratising access to essential services.
- 3 • Orange invests 1 billion euros per year in Africa and the Middle East. This long-term investment shows our confidence in the future.
- 4 • Orange has pledged to accelerate digital inclusion through its 20 countries in Africa and the Middle East, in partnership with national and international authorities.
- 5 • Three levers to boost digital inclusion and economic development:
  - we need stable and future-proof regulatory and fiscal frameworks;
  - all stakeholders need to co-operate to bring about digital transformation;
  - and to support the development of digital skills.



**Stéphane Richard**  
Chairman and CEO of Orange



«I am personally convinced that digital transformation is a solid tool for economic and social development, a true catalyst of innovation that should be accessed by and made accessible to all.»

Stéphane Richard, Forum  
Changer d'ère, October 2014.

## A deep-rooted and lasting commitment

### Foreword by Stéphane Richard

Orange's commitment to digital transformation in Africa and the Middle East is an essential part of the outlook for economic and social development in this region.

The geographic proximity of Europe and Africa means the futures of those on both sides of the Mediterranean are linked to a large extent. For our Group, founded in Europe but a long-time investor in Africa, the desire to have a strong presence in this region is a key decision, and our future is firmly tied to both sides of the Mediterranean.

This great continent will see its population more than double between now and 2050, while Europe's continues to decline. With this demographic trend, Africa will play a role in the future of humanity and must overcome great challenges towards growth, infrastructure, social inclusion, etc. As seen in World Bank and UN studies, these challenges can be met by digital technologies, for the most part enabled by investments in telecommunications networks. Digitalisation has a major impact on economic development and social insertion and thereby provides a significant contribution towards reaching the Sustainable Development Goals.

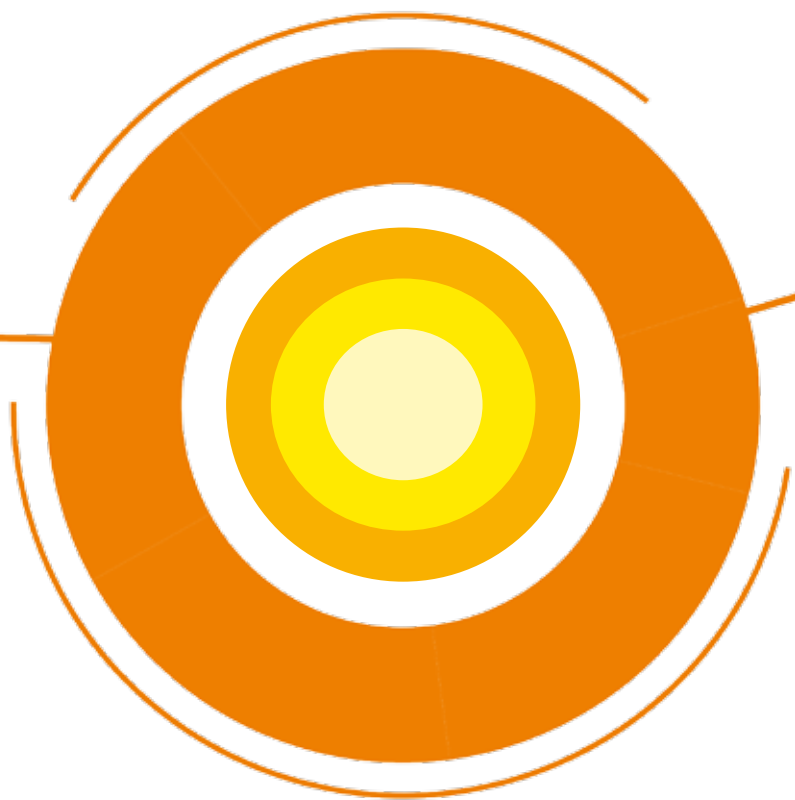
Digital transformation is already a major driver of growth in Africa. However, much work is still required in the deployment of high-speed networks and the distribution of new services to spread the benefits of the digital revolution to the entire population, including in rural areas. Providing high-quality internet access to the population is, quite naturally, one of the objectives we share with local public authorities and regional institutions.

Nearly half of all new internet users worldwide between now and 2020 are expected to be from Africa. With nearly 120 million customers spanning 20 countries in Africa and the Middle East, Orange's goal is to continue supporting this continent's digital transformation through investments and through its commitment to digital entrepreneurs. Africa is also rich in innovations and experience, as shown by the amazing success of Orange Money and the growth of digital services in major sectors such as agriculture, energy, healthcare, and education.

Orange's strong and lasting commitment to Africa is a sign of our confidence, solidarity, and optimism for the future of this great continent.



**Orange, a multiservice operator  
and leading partner in the digital  
transformation of African and  
Middle-Eastern countries**



## Alioune Ndiaye

CEO of Orange Middle East and Africa



«Orange is more than just a telecommunications operator. By bringing solutions to the continent that drive economic, societal or cultural change, Orange is also a provider of digital services and therefore, a contributor to development.»

Alioune Ndiaye, Magazine Digital, September 2018.

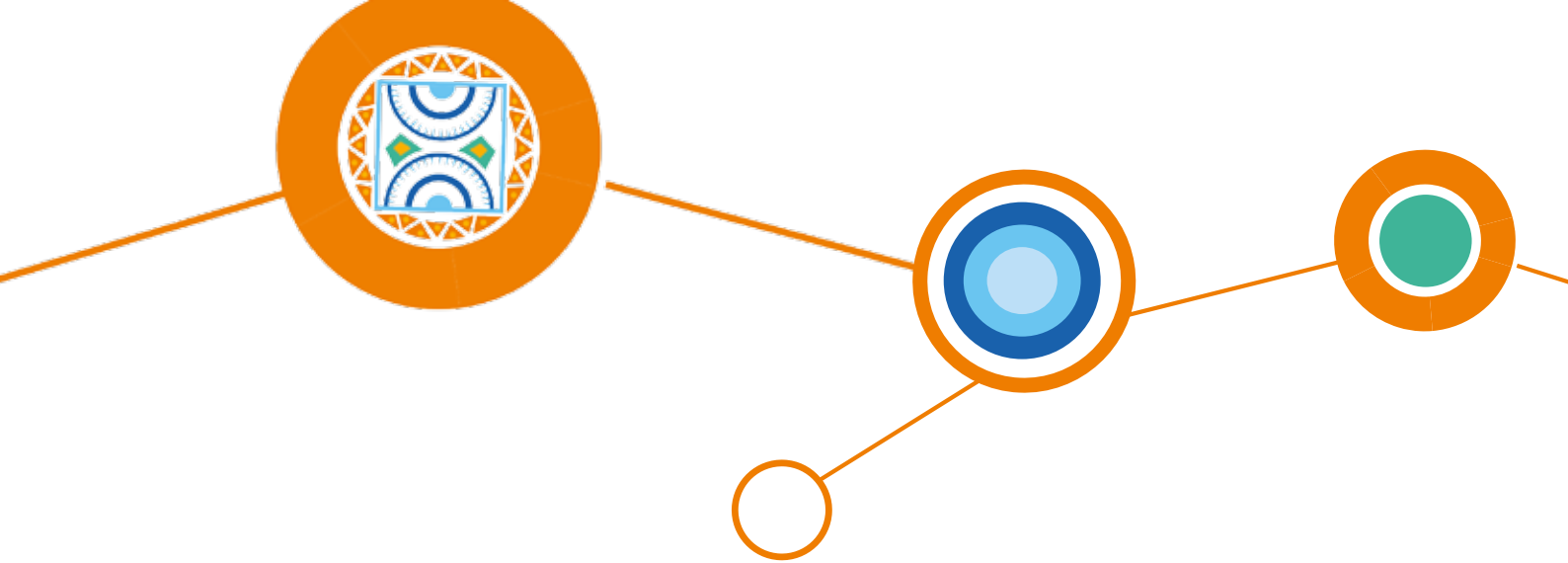
## Orange, a multiservice operator and leading partner in the digital transformation of African and Middle-Eastern countries

### A message from Alioune Ndiaye

Orange is one of the few companies that made the strategic choice, 20 years ago, to build a presence in Africa and in the Middle East. Today, Orange is active in 20 countries in Africa and the Middle East, as opposed to four countries just 10 years ago. Our 18,000 employees work to serve 120 million customers. Investing one billion euros per year in this area, Orange is deeply anchored in the socio-economic fabric of Africa, and fully committed to the digital development of a continent whose economic momentum confirms its status as a major European partner.

More than anywhere else in the world, the digital transformation of the economy and society is a crucial concern for Africa. It is confronted on one hand with a lack of physical transportation, energy, education, and health infrastructure, and on the other hand with a demographic explosion, leading the population to double from now to 2050, while in twenty years' time, one billion Africans will live in cities – twice the current number.





**+ 20 years**

of activities in Africa and Middle-East.

**20  
Countries**

## The digital transformation : a vector for economic and social development

In order to transcend the fluctuating raw material prices which have long fueled African economies, further economic development should rely on digital. Indeed, digital is a key engine of growth. It connects territories, multiplies services and drives productivity gains. E-agriculture and mobile payment systems are great examples of this.

Digitalisation also provides more inclusive growth for the benefits of

large parts of the society and the economy. Through its networks, platforms, and service innovations, digitalisation allows an increasing share of the population to easily access to essential services at a low cost, and also helps governments to offer services that meet the needs of its citizens.

## Orange's two priorities : service innovations and connectivity

Carrying out the successful digital transformation of the continent will rely on two key areas of action: sustained investment in the deployment of high-speed infrastructure and close involvement in the development of new usages. These are Orange's priorities as a multiservice operator and leading partner in the digital transformation of African and Middle-Eastern countries.

No digital transformation occurs without telecoms. Connectivity is clearly the main priority. Telecommunications are crucial to

digitalisation, as without a network there is no access, data transfer, nor new services or usages. Much more remains to be done to overcome the connectivity challenge: continuing to improve coverage of territories, and from there, accelerating the modernisation of high-speed mobile and landline networks.

Thanks to digitalisation, Africa can develop sectors that have historically lacked infrastructure while inventing new pathways. The most advanced example is mobile payment a vector for financial inclusion of populations.

# 10 years

before Europe, Africa has demonstrated the importance of mobile payment security and quality.

Africa has evidenced 10 years before Europe the importance of mobile payment security and quality. Electricity is another example, even more crucial for economic and social inclusion. Digitalisation can provide valuable contribution to infrastructure management and electricity

distribution. Furthermore, it can support innovation in the supply of electricity in rural areas, a project that is dear to Bruno Mettling, President of Orange Africa and the Middle East.

## The key to success

How can we take advantage of digitalisation? Three essential points should be highlighted here :

1

providing a balanced institutional and regulatory framework that is favourable to investment,

2

supporting local skills development and the entrepreneurial ecosystem,

3

strengthening cooperation between operators, governments, and international lenders.

### A balanced institutional and regulatory framework favourable to investment

Much remains to be done in terms of connectivity, which will continue to require enormous investments, primarily from operators who provide nearly 80% of the capital committed. It is important to find the proper balance between the expectation of governments with regard to taxation and the work of operators, while respecting the roles of every stakeholder. In some countries, the considerable needs for public finances weigh down

the telecom sector by imposing a very high level of specific taxation (operators are taxed at 25% on average in the area, as opposed to 5% in Europe). Sometimes these practices threaten operators investment capacity. A reasonable and reliable system of taxation should support the investment efforts of private actors.

## Skills development and the entrepreneurial ecosystem

For Africa to truly succeed in a digital revolution on a global level, it must first develop the digital skills needed at a local level, and support its own companies to prevent their added value from being captured elsewhere. The organisation of Orange in Africa and in the Middle East is moving in this direction, using a decentralised

entity model that provides each country with genuine autonomy, as supervision and control centres are set up locally. Orange is also one of the few operators strongly committed to supporting African start-ups through six Orange Fab accelerators and four incubators, and supporting local, high-level training.

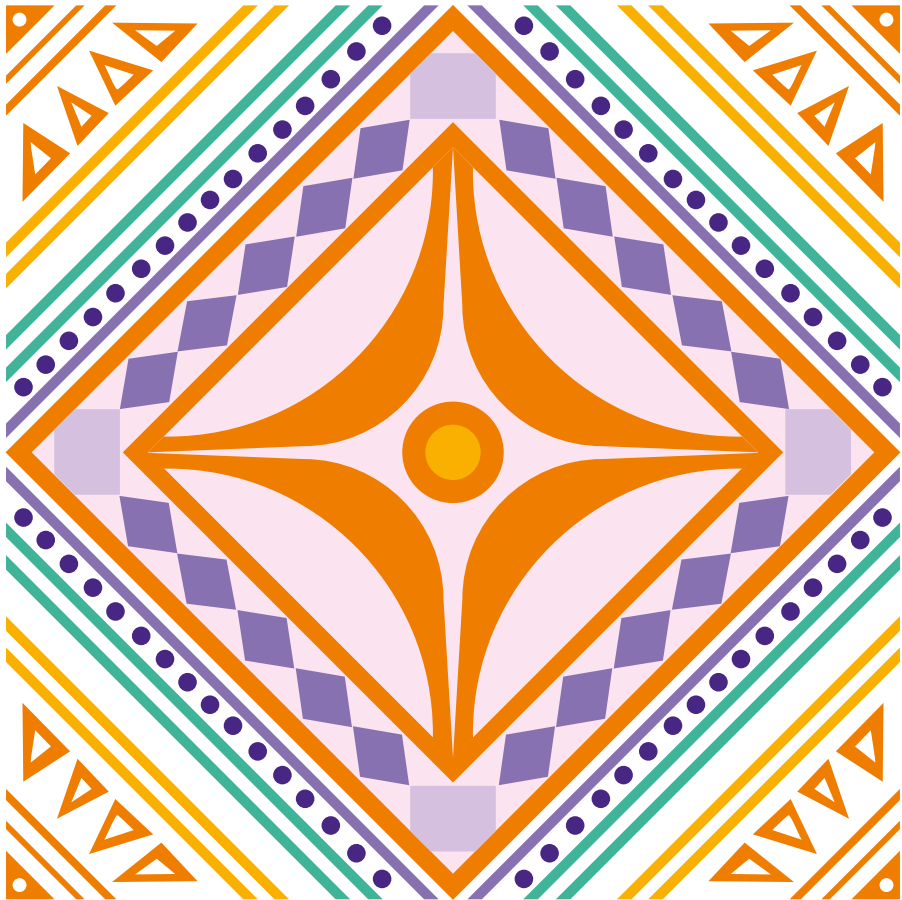
## Cooperation between operators, governments, and international institutions

Faced with the extent of the resources required to build a sound digital ecosystem, it is important to involve all stakeholders : the private sector, governments, the international development finance institutions (the World Bank, African Development Bank, EuropAid, etc.), and also the bilateral agencies (the French Development Agency AFD, USAID, etc.), which now incorporate digitalisation in their strategies. It is important to ensure that the methods used to monitor cooperation between these stakeholders are well-suited to the identified needs and changing technologies.

Southern African Development Community, etc.), but also at the scale of the continent, which must be brought to its rightful place in global digital governance forums, such as the UN Internet Governance Forum (IGF) or the Internet Corporation for Assigned Names and Numbers (ICANN).

It is clear that with its local foothold and long-term strategic commitment, Orange in Africa and the Middle East intends to play a primary role, alongside governments and funders, in the region's digital transformation, to foster equitable and inclusive growth.

Finally, as in other parts of the world, governance challenges are crucial for the entire area, not only on a regional scale (Economic Community of West African States,



# **Digital transformation at the heart of development in Africa**



## Digital transformation at the heart of development in Africa

Digitalisation is an essential path to development for Africa, which is confronted with formidable demographic, economic, and social challenges. The digital transformation of the continent must mobilise all stakeholders, starting with the major players in charge of deploying telecommunications infrastructure

### A diverse Africa, confronted with common challenges

«30 million square kilometres. 1.43 billion inhabitants in 2015. 2,000 languages spoken. 54 countries. 5 different climates. 1 continent<sup>1</sup>.» At first glance, these contrasting realities prohibit any reductive approach to a continent which lacks economic, political or cultural homogeneity. However,

in the geopolitical sphere and the global economy, a shared destiny that is specific to the continent is taking shape, due not only to geography and a sometimes common history, but mostly attributable to common major challenges.



### The rise of mobile

In 2020, sub-Saharan Africa will have:

- 2.5 times more smartphones than in 2016 (+300 million);
- nearly 1 billion SIM cards, with a penetration rate of 85%;
- 4.6 times more mobile data traffic than in 2016.

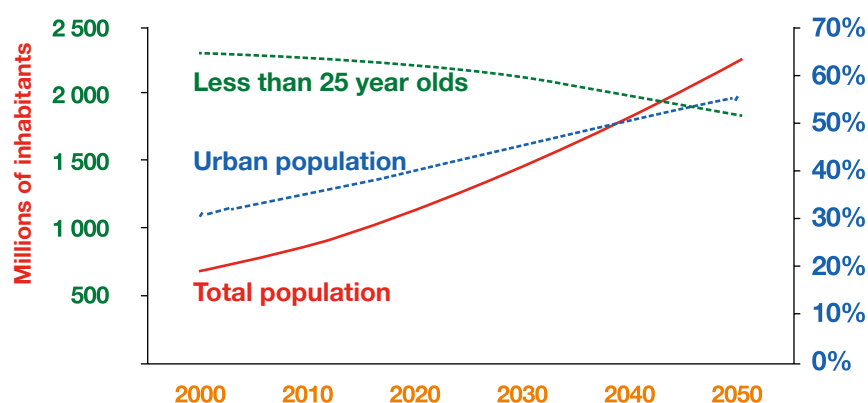
Source: GSMA, The Mobile Economy Sub-Saharan Africa, 2017

### The demographic equation in Africa

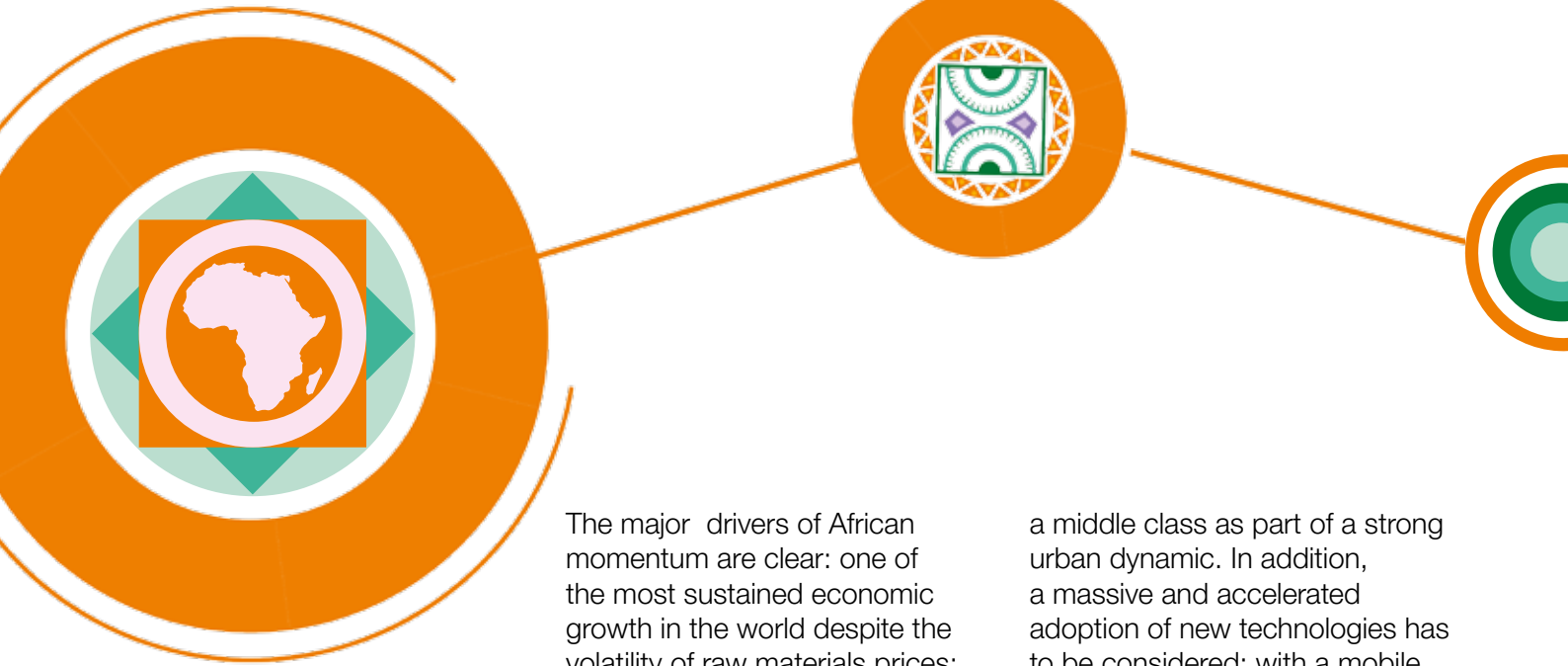
- The doubling of the population between now and 2050.
- Increasing weight of those less than 25 years old and of the urban population.
- Urban growth: the 50 largest African cities will represent 40% of the continent's GDP in 2025, compared to 13% today.

Sources: INED (Population and Societies, no. 547, September 2017), World Bank, UN.

Population projections in Sub-Saharan Africa



Source : World Bank



The major drivers of African momentum are clear: one of the most sustained economic growth in the world despite the volatility of raw materials prices; a demographic trend that will end-up with the most populous continent, with a preponderance of young people (already 60% of the current population is less than 25 years old); the emergence of

a middle class as part of a strong urban dynamic. In addition, a massive and accelerated adoption of new technologies has to be considered: with a mobile equipment rate of 48% and a penetration rate of 80% at the beginning of 2018, Africa has become the largest mobile phone market in terms of volume, after Asia.

## Digital transformation is accelerating the economic transition of the continent

In this context, digitalisation is set to play a central role in the economy of the continent. African economies are currently in a transitory state between two stages of development: on one side, a slow-down in economic growth that relies primarily on high prices of raw materials and relatively inexpensive external financing; on the other, the search for a new development pattern that is more self-reliant and less dependent on global markets, in a less supportive international financial context (due to higher lending costs and decreasing direct foreign investment).

The possibility of such structural transformation of the African economy pairs together with the need to invest in basic infrastructure, starting from digitalisation as a priority, due

to its strong positive impact on labour productivity in all industries, and more generally on the economic growth of nations. The deployment and use of mobile networks has already contributed 10% to 30% of GDP growth in countries in Western Africa and the Middle East. More broadly, the potential economic growth from digitalisation by 2025 is expected to reach 300 billion dollars (about 270 billion euros) by 2025, meaning an additional 10% of GDP for the continent per year.<sup>4</sup>

Beyond digitalisation, the extension of transportation and energy infrastructure, particularly in renewable energy that is decentralised and backed by innovative payment solutions, is also needed for the success of this more self-sustaining phase of development.

## Digitalisation contributes to the growth of the African economy

By 2025, a potential increase of \$300 billion per year for the African gross domestic product, or 10% of GDP, from productivity gains derived from the boom in digital services.

Source: McKinsey Global Institute: Lions go digital: The Internet's transformative potential in Africa, 2013

## Telecommunications: driving job opportunities in Africa

According to the GSMA, a job at a telecoms operator corresponds to three jobs at other organisations from the telecoms sector and seven jobs associated with the rest of the economy.

This multiplier is even higher if all the telecoms externalities which occur locally are taken into account: they relate to direct, indirect, and induced impacts. In the case of Orange Niger, one direct job corresponds to 42 additional jobs.

Source: GSMA, The Mobile Economy Africa, 2016 and Orange's Integrated Annual Report for Niger <https://rai2017.orange.com/>.

## The impact of telecommunications on economic growth

The deployment of mobile networks is a significant driving force for GDP growth (from 10% to 30%) in countries in Western Africa and the Middle East. These results are in line with World Bank studies.

Source: Raul Katz, Columbia University: <http://www.citicolumbia.org/index.php/publications/published-papers/2016-papers/> ; Qiang, Telecommunications and Economic Growth, World Bank, 2009.

Contribution of mobile phones to GDP growth	Middle East Northern Africa			Western Africa			
	Jordan	Morocco	Tunisia	Senegal	Côte d'Ivoire	Guinea	DRC
	18%	29%	27%	23%	29%	22%	30%
Over the period	2001-2014	2001-2014	2003-2014	2005-2013	2005-2013	2009-2016	2002-2016

Source : Raul Katz, Columbia University

## Orange's total socio-economic footprint value in Niger corresponds to 4.8 times Orange Niger's added value and 3% of the national GDP in 2016.

This impact is a result of the activities of Orange (local expenses, salaries, taxes), its programmes with societal impact (digital schools, Orange villages, collection of used mobile phones, SME incubator centre in Niger, Orange Money, etc.), and increased economic productivity generated by digital services.

Source: Orange 2017 Integrated Annual Report; <https://rai2017.orange.com/en>



## Guarantee cybersecurity and the protection of personal data

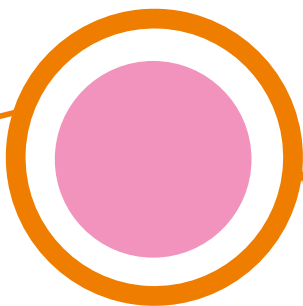


Africa's drive for digital innovation must not obscure major challenges tied to cybersecurity and protection of personal data. In Africa as elsewhere, cybercrime represents a real threat to economies. The ability to create secure digital environments is essential to increase economic attractiveness and ensure trust in transactions. It is also an issue of sovereignty.

The protection of personal data and privacy are other critical aspects of the digital economy. Establishing

a trust framework for consumers, citizens, and entrepreneurs is necessary to achieve the digital transformation of the continent.

Cybersecurity and protection of personal data transcend borders. Therefore, we also need to provide regional solutions without hampering the sovereignty of countries, finding the appropriate balance between protection and innovation.



### **The mobile money lever in the mobilisation of tax revenues**

The informal sector represents 50% of the GDP in the area, causing lost tax revenue of 10% of GDP and passing on the tax pressure to the formal sector.

Meanwhile, mobile money enables the informal sector to access banking services and represents a potential mechanism for increasing the tax base; 10% of mobile money penetration generates additional tax revenue equivalent to 0.4% of GDP.

Thus 100% penetration of mobile money would be the equivalent of cutting lost tax revenue in half.

**Source: L'Afrique des idées, June 2017, <http://www.lafriqueidesidees.org/>**

## **Digitalisation makes it easier to access essential services and strengthens regional integration**



The key lies in infrastructure that offers widespread connectivity throughout the area – connectivity without which none of the digital transformation benefits would occur. Increasing the capillarity of networks, their speed and security is crucial to overcoming digital isolation in rural

areas and integrating countries in the global digital networks and value chains.

Even now, only one African in four has internet access, and only one out of two in the Middle East. Yet, digitalisation is one of the



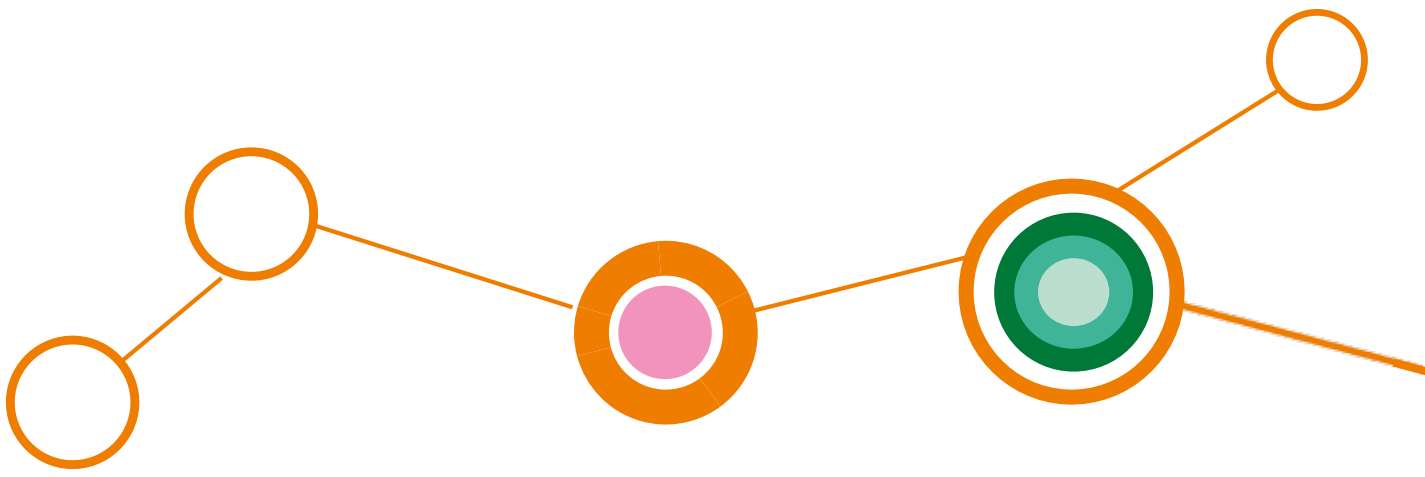
conditions for increasing access to education and healthcare, providing a modern urban environment, and even widening access to energy. These are the socioeconomic variables that need to be strengthened for the sake of Africa's overall development.

Digitalisation's contribution to public administration (e-government, e-administration) is a good example of the benefits expected from the wide diffusion of digital services supported by information and communication technologies. According to the World Bank and the ITU, the use of digital networks and services has a "transformative" effect on relationships between governmental institutions, as well as the relationships of public authorities with citizens and companies<sup>5</sup>, improving the efficiency of services<sup>6</sup>, transparency of transactions, and bolstering the democratic operation of institutions<sup>7</sup>. Add to this the opportunity that digitalisation offers, through mobile

money services, to gradually integrate the informal sector with the rest of the formal economy, thereby increasing the tax revenue that governments need to be successful in their modernisation efforts<sup>8</sup>.

Digital transformation can also help to establish a continent-wide marketplace, transcending current national borders and thereby expanding the scale of amortisation for far-reaching economic projects. This consolidation of the African regional market could pair well with greater political integration of the continent.

However, the fulfilment of all of the promises and anticipated progress requires the continued strengthening of the digital industrial and entrepreneurial ecosystem. The development of an economic network, already largely underway, is essential to solidifying the African continent's position as a land of technology and innovation.



Digitalisation will help to reach the 17 main Sustainable Development Goals defined by the UN in its 2030 Agenda



“Through inclusion, efficiency, and innovation, access provides opportunities that were previously out of reach to the poor and disadvantaged.” (World Bank, Digital Dividends, World Development Report 2016).



reducing vulnerability through access to basic services



increasing productivity through mobile agriculture services



strengthening the efficiency of health systems through e-health



improving teacher training through e-education



empowering women through access to digital services



facilitating access to energy through pre-paid services using Orange Money



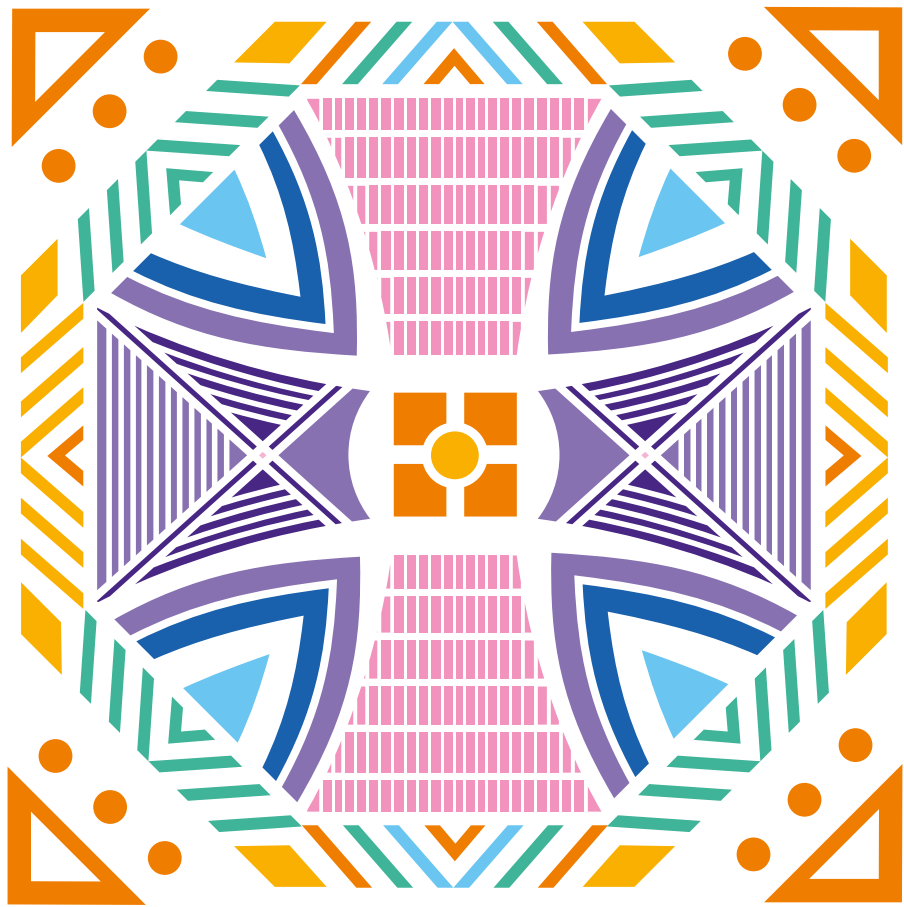
enhancing connectivity, including in rural areas



developing new tailor-made digital solutions through open innovation and public-private partnerships

Furthermore, the development of digital and “intelligent” services could allow us to reduce CO<sub>2</sub> emissions by 12 billion tons by 2030, which would correspond to about 1/5 of global emissions by then<sup>9</sup>.





**Three institutional and regulatory  
levers to accelerate the digital  
transformation in Africa**

## Three institutional and regulatory levers to accelerate the digital transformation in Africa

### Connectivity is improving but does not solve the challenge of digital inclusion

Significant investments are still required for the digital inclusion of populations and the development of high-speed infrastructure and services in Africa. To develop the infrastructure to meet the needs of populations, countries in Africa and the Middle East will need to be able to rely on public and regulatory policies that are better adapted and more responsive. They must strengthen core competencies for the digital economy.



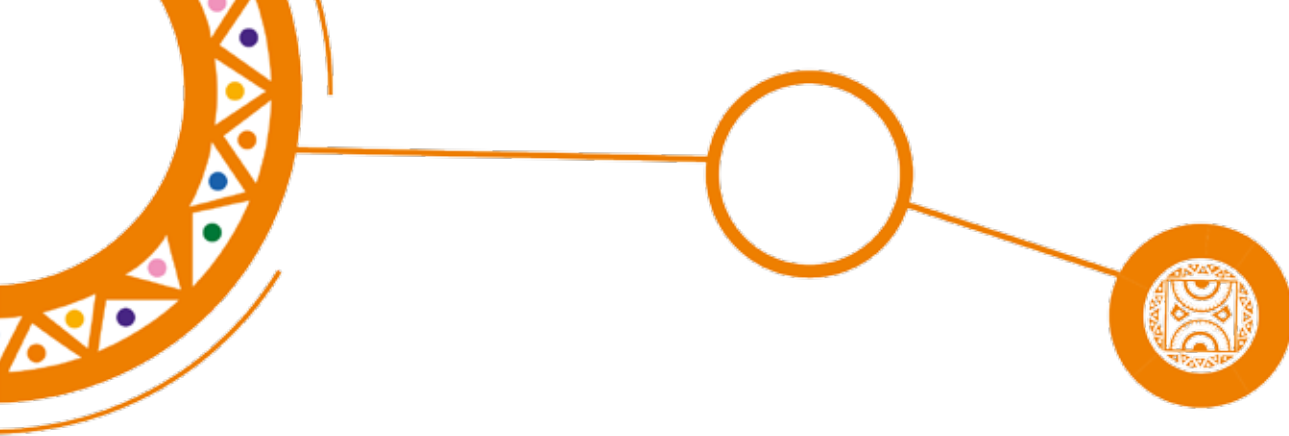
In Africa, the deployment of network infrastructure is accelerating: the number and capacity of undersea cables that provide Africa's international connectivity has increased sharply in recent years<sup>10</sup>, as have national and transnational terrestrial backbones. The construction of high-speed, fibre optic networks is accelerating, making the price for connectivity a seventh of what it was in some countries<sup>11</sup>. This is a result of substantial investments, mostly from the private sector, and from telecom operators in particular. In 2015, operators invested more than 22 billion euro in Africa and the Middle East<sup>12</sup>.

Nonetheless, network infrastructure is still insufficient, particularly in rural areas. The quality and stability of

internet connections in Africa are still generally inferior to those found in the rest of the world and varies strongly depending on location<sup>13</sup>. Africa has the lowest international connectivity rate in the world, with half the bandwidth of Asia and the Pacific, a fourth of that in the CIS, an eighth of that in the Americas, and 20 times less than that in Europe<sup>14</sup>.

Although the number of connected individuals in Africa has increased (281 million internet users in 2016, compared to 17 million in 2005)<sup>15</sup>, they only represent 25% of the African population<sup>16</sup>. Inequalities between countries are significant: landlocked, poor, or highly unstable countries (Central Africa) have very limited internet access compared to more advanced countries (Gulf States, Northern, Southern, and





**+ 22 billion euro**

invested by telecom operators in Africa and Middle-East in 2015.

Western Africa)<sup>17</sup>. There are also strong disparities between rural areas, where nearly 60% of the population lives, and urban areas, between populations that are more or less well-off, more or less educated, as well as between men and women<sup>18</sup>.

Action is required on three levers to alleviate these inequalities and overcome the challenge of digital inclusion :

- regulatory frameworks, which must be stable and future-oriented in order to encourage investments and technological innovation;
- the skills that Africa will need to take charge of its digital transformation;
- increased cooperation between all public and private sector actors to develop consistent digital transformation strategies as well as suitable financing tools.

## Lever #1: Adapt public policy and regulatory frameworks to the objectives of digital transformation



The World Bank emphasises that digital transformation must be accompanied by an “analogue” transformation, particularly with regards to regulations (Digital Dividends, 2016). An upgraded

institutional and regulatory framework could be a powerful tool to bridge the “digital gap” and restart growth in an economic environment that has become more difficult since 2014<sup>19</sup>.



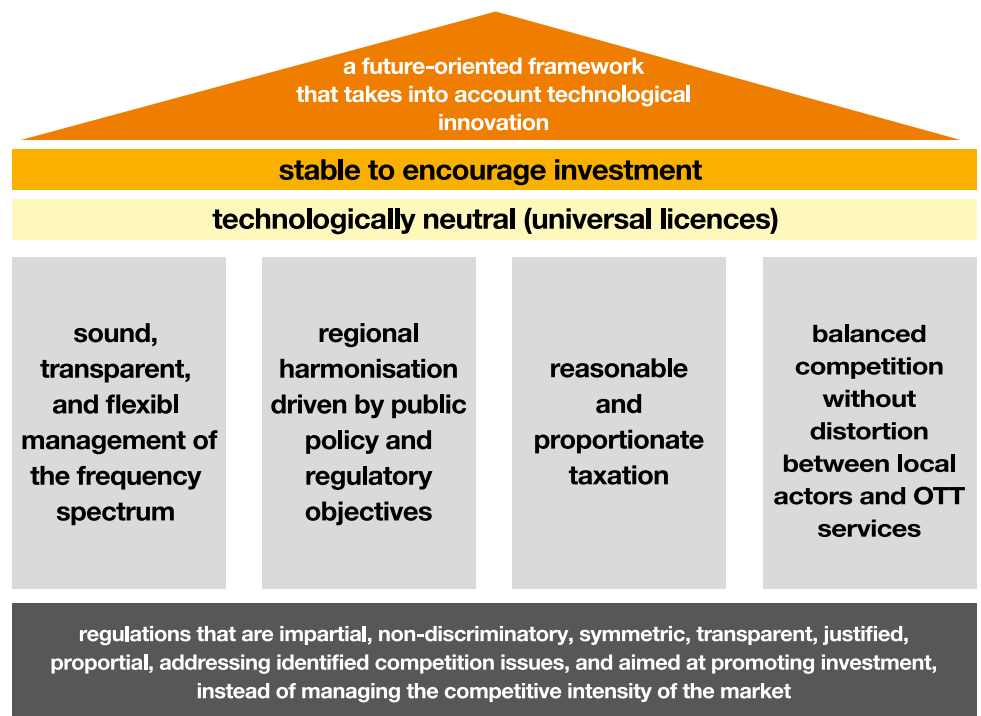
## A future-oriented framework that encourages innovation

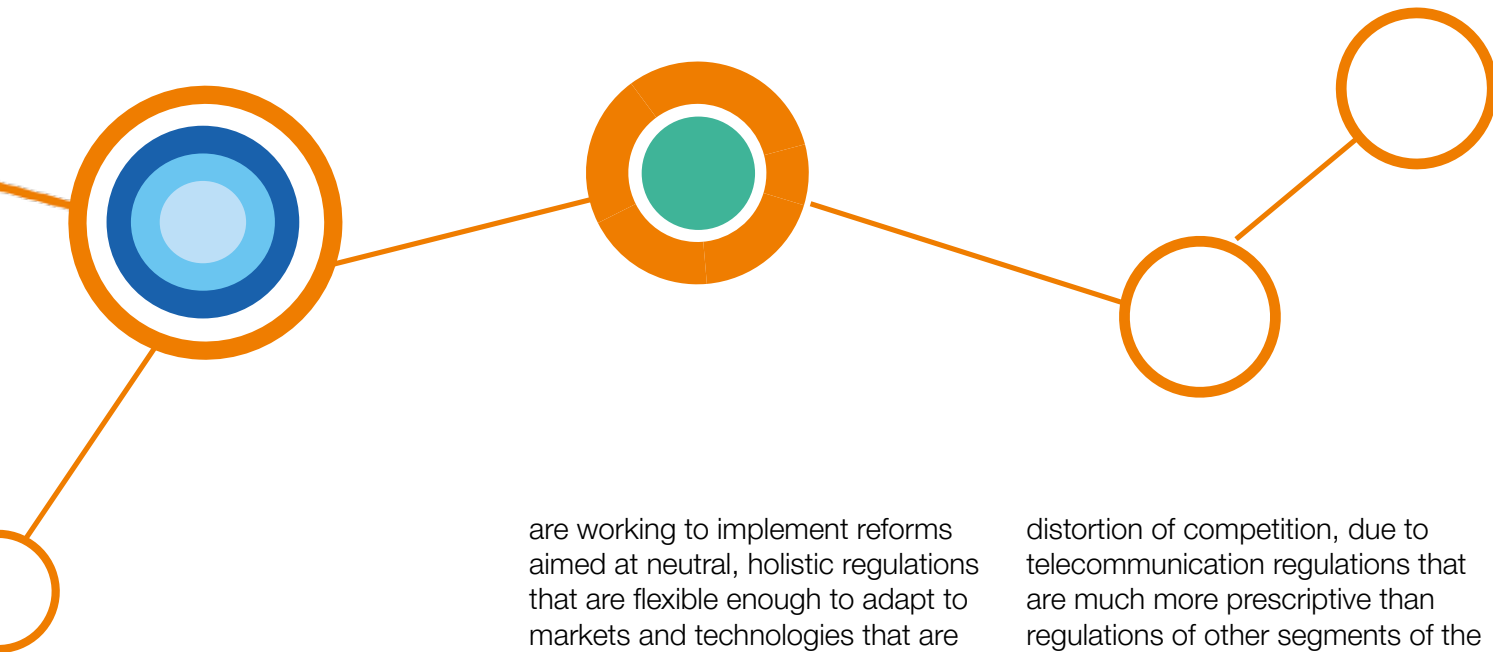
To accelerate change and digital inclusion in Africa, the current public policy and regulatory framework must make a sharp turn towards a forward-looking, future-oriented framework. This should be based on a long-term vision and strategy that provides greater clarity regarding the nature, scope, and timeline of public policies and regulatory remedies for current and future networks.

Market regulations and telecommunication actors are

currently stuck in a rigid framework while the markets themselves are highly dynamic. The systems of regulatory standards that have traditionally governed telecommunications markets are no longer efficient when faced with the rapid innovation seen in these markets. They inhibit competition and do not allow public policy and regulatory objectives to be met.

Decision makers around the world recognise these challenges and





are working to implement reforms aimed at neutral, holistic regulations that are flexible enough to adapt to markets and technologies that are constantly changing.

Due to intense competition in the digital ecosystem, regulations specific to the telecommunication sector must be reduced significantly and gradually replaced by the application of competition rules. This would also resolve the current

distortion of competition, due to telecommunication regulations that are much more prescriptive than regulations of other segments of the digital ecosystem, particularly over-the-top (OTT) actors.

### **A stable and impartial framework encourages investment in digital**

A forward-facing digital policy that encourages private investment must necessarily have clear and impartial ground rules over the medium and long-term.<sup>20</sup> Any distortion in the level of competition must be avoided, whether we are talking about existing monopolies in infrastructure, backbone networks, the management of international traffic, or regulations that do not sufficiently take into account the impact of over-the-top (OTT) actors on telecoms markets.

Transparent frequency management is particularly important for an operator. In its 2016 report “Breaking down barriers”, the World Bank cited the example of Nigeria, the only African country to have adopted a competitive method

for spectrum distribution. Other countries use a “first come, first served” method, which can lead to inefficient allocation.

Quite often, short-term public policy needs discourage private investment. In a country with low internet penetration, one of the basic obstacles identified by the World Bank is excessive regulation of product and services markets, as well as high customs duties applied to digital goods, which exceed 25% in some countries (Digital Dividends, 2016).

In fact, at this time, the tax rate on operators in Africa and the Middle East remains very high and a very large share of the taxes and fees paid by operators is specific to the

# 35%

of mobile operators revenues are paid as taxes and regulatory fees on average.

# 7%

of total government revenues in Sub-Saharan Africa come from taxes and regulatory fees paid by mobile operators.

mobile telecommunication sector (for example, excise taxes, revenue sharing systems with governments, etc.). In 2015, mobile operators returned an average of 35% of their revenue in the form of taxes and regulatory fees in the 12 countries in Sub-Saharan Africa for which data is available.<sup>21</sup> According to the GSMA, compared to its economic weight, the mobile industry in sub-Saharan Africa contributes a disproportionate<sup>22</sup> amount of the taxes collected by governments. In 2010, taxes and fees paid by mobile operators represented 4.1% of total revenues for governments of African countries<sup>23</sup> and 7% of total revenues in Sub-Saharan Africa between 2000 and 2012<sup>24</sup>.

And yet, according to the GSMA, the countries with a higher level of taxation are generally those with

relatively low levels of mobile internet connectivity. Taxes have a clear impact on prices, and therefore on the population's opportunities to access mobile services<sup>25</sup>.

For example, surtaxes on incoming mobile traffic, a widespread system in many African countries, penalise users, operators, and local economies alike. The World Bank explained that in countries that have loosened their regulatory frameworks, prices for international calls have decreased between 31% and 90%, and consequently, international call volumes have increased between 32% and 104%<sup>26</sup>.



## A more flexible, personalised, and qualitative education with ICT

According to UNESCO, ICT contributes to universal access to education. It can also be a vehicle for equality, quality learning and teaching, as well as helping professors to better train themselves. UNESCO also finds that ICT used in an educational setting can make learning more flexible, entertaining, and promote creativity and critical thinking.

**Source:** [www.uis.unesco.org/education/pages/regional-data-collectionsFR.aspx](http://www.uis.unesco.org/education/pages/regional-data-collectionsFR.aspx), [www.uis.unesco.org/literacy/Documents/fs32-2015-literacy.pdf](http://www.uis.unesco.org/literacy/Documents/fs32-2015-literacy.pdf)

## Lever #2: Teach digital using digital

In their digital transformation processes, countries in Africa and the Middle East draw on a pool of digital, legal, managerial, and entrepreneurial expertise – a pool that will need to expand significantly in the years to come. However, education and professional training systems are often quite distant from the needs of the market. The African Union has called for a “skills revolution” in Africa<sup>28</sup>.

The best tool for teaching digital is digital, which encourages the rapid dissemination<sup>29</sup> of new skills, know-how, and social skills. It also turns out to be a powerful tool for educating students and thus improving the quality of courses. Furthermore, digitalisation also facilitates inclusion and social mobility, because it can reach people in remote and rural areas,<sup>30</sup> – as well as young girls and women, who are sometimes excluded from training and education systems<sup>31</sup> – without blowing up public and household budgets. In fact, e-learning is much cheaper than traditional learning, which makes it more accessible and inclusive.<sup>32</sup> Therefore, the Continental Education

Strategy for Africa 2016-2025 recommends mobilising ICT to improve the access, quality, and management of education and training systems<sup>33</sup>.

As indicated by the Continental Education Strategy for Africa, reforms of educational systems will require strong political will.<sup>34</sup> They also demand a coordinated approach between public actors and private enterprises that are searching for experts and young talents from Africa. While digitalisation should be introduced at all levels of education, from preschool to university, the most urgent needs are to strengthen regional training clusters for future digital experts, lawyers, and project managers, and to train government officials on the uses of new digital tools.





### Lever #3: Improve cooperation between public and private actors at national and regional levels



Improving internet connectivity in Africa should not be considered only at a national level. Fibre optic networks under development now and in the future are national, regional, and international all at the same time. It is of course important to develop national strategies to enhance connectivity and digital inclusion, for example, by promoting

network sharing (active and passive) between operators to increase network coverage in rural areas with low populations. However, a strong regional harmonisation of public policy and regulatory objectives is necessary, eliminating differences between countries and creating conditions favourable to multi-country investment projects.

At a national and international level, an open framework, conducive to competition and partnerships, is required: partnerships between governments, international organisations, development banks, telecom operators, and other private actors.

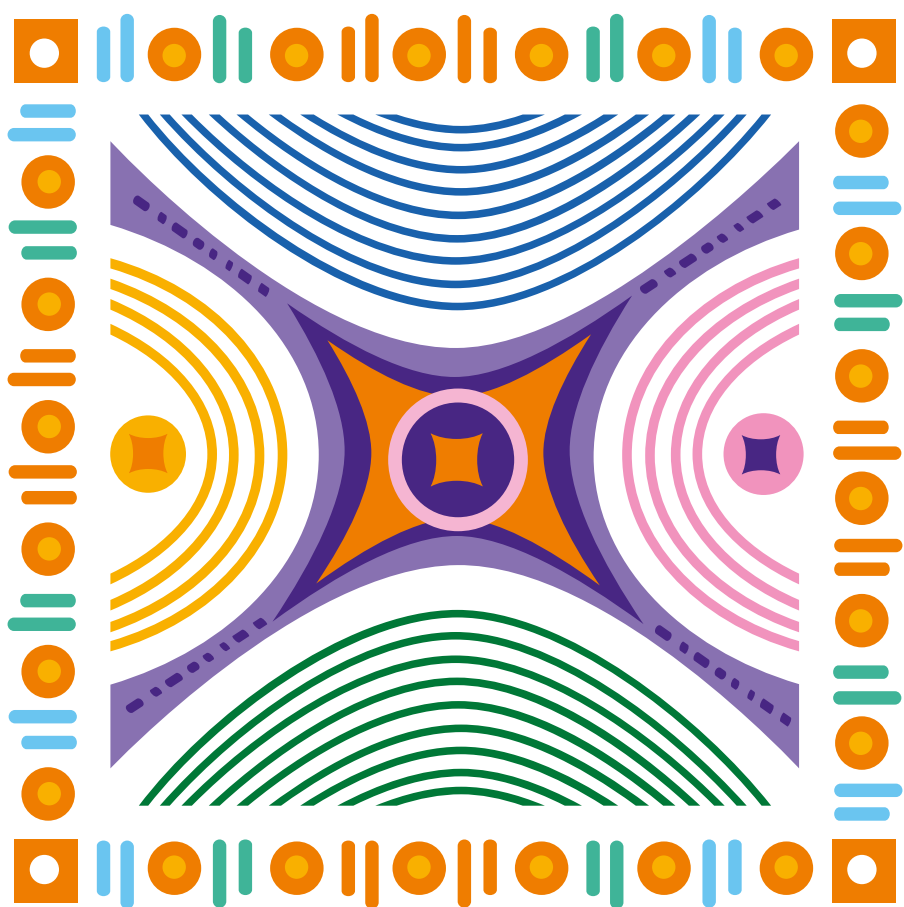
In an environment where infrastructure – particularly for transportation, energy, and water – continues to receive a large amount of public and private investment, the budgets allocated for digital infrastructure projects remain modest, even though some growth can be seen in recent years<sup>35</sup>.

In addition, just investing in infrastructure is not enough: the digital transformation needs support. Although infrastructure is a cornerstone of connectivity, the digital transformation cannot be

achieved without:

- an updated regulatory framework, which must be accompanied by capacity-building;
- investments in education and (professional) training in the broadest sense;
- cooperation between public and private sectors for a “digital transformation” in all fields.

At present, very few major education, healthcare, and urban development projects have a “digital component,” and the existing financial tools are not always adapted to financing innovative solutions.





# **Innovation for digital transformation**



## Innovation for digital transformation

Digitalisation accelerates the entrepreneurial dynamic



With 20 subsidiaries in Africa and the Middle East, as well as its innovation centres, Orange assists governments and entrepreneurs with their digital transformation, while also creating direct and indirect jobs. Orange is determined to play a strong role in the future of the African continent by deploying new communication infrastructures, particularly in rural areas, and developing innovative and inclusive digital services.

Hundreds<sup>36</sup> of digital services that are accessible through smartphones and more basic phones help save time, increase efficiency, and reduce costs. Digitalisation makes it easier to access administrative, financial, and healthcare services, as well as educational content. It also facilitates entrepreneurship and contributes to direct and indirect job creation.

Digitalisation sparks and supports the emergence of new entrepreneurs. Many start-ups in Africa and the Middle East provide digital services, and also function thanks to new technologies. The Orange Group is a stakeholder in this movement, as shown by the use

of Orange API<sup>37</sup> by start-ups. Since 2015, the “[developer.orange.com](https://developer.orange.com)” website has registered over 1,000 requests to download the SMS API that enables start-ups to integrate sending SMS messages through their mobile application or website; another heavily requested API enables the integration of Orange Money’s payment features.

Orange plays a leading role in supporting entrepreneurial ecosystems in Africa and the Middle East, primarily through large incubators created with partners in Senegal (2011), Niger (2014), Mali (2016), and Guinea (2016), as well as the “Orange Fab” accelerators in



## 4 incubators

co-founded by Orange in Senegal, Niger, Mali, and Guinea

Source: Orange Entrepreneur Club, <http://entrepreneurclub.orange.com/>

Côte d'Ivoire, Senegal, Cameroon, Jordan, Tunisia, and Madagascar, and the "Orange Developer Programme" in Tunisia. The "Entrepreneur Club" and "Orange Startup" platforms, as well as the Orange Social Venture Prize in Africa act as a starting point for (young) entrepreneurs<sup>38</sup>.

"Comoé Capital", "Partech Africa" and the "French African Fund" (FAF), managed by AfricInvest. In this way, the Group is strongly committed to the development of an African entrepreneurial ecosystem, able to offer new, local digital services and content that people and the economy need.

This large programme is coupled with investment and support for innovative African companies by "Orange Digital Ventures Africa" and "Teranga Capital Orange" funds. Orange also invests in funds reserved for African SMEs, such as

## €50 million

the amount Orange has committed to support innovative entrepreneurial projects in Africa

Source: Orange, press release, 9 June 2017<sup>39</sup>

## 1 billion euro

the amount Orange invests per year in Africa and the Middle East

Source: 2017 financial report

## No digital services without connectivity: the coverage challenge in rural areas

No digital services without connectivity. Orange invests one billion euro per year in Africa and the Middle East to improve the performance of its networks and increase the expansion of mobile coverage. In 2016 its infrastructure covered on average 85% of the population in the 20 countries in Africa and the Middle East where the Group is present. In Côte d'Ivoire, Tunisia, Morocco and Egypt, 2G coverage reaches nearly 100% of the population<sup>40</sup>.

Orange is gradually expanding its

coverage in other countries, often in partnership with other mobile or satellite operators. It is also taking on the challenge of rural, and even ultra-rural coverage by using innovative mobile micro-sites, which have a low energy consumption, are equipped with solar panels and are linked to satellite networks. These sites are developed and deployed with specialist partners, such as Africa Mobile Networks (AMN) in the Democratic Republic of Congo, in Cameroon, and Guinea-Conakry.

## No energy, no digital services



Energy access remains a key challenge in Africa and is closely connected to the accessibility of digital services in rural areas. In an environment where close to two-thirds of the population of sub-Saharan Africa still does not have access to electricity,<sup>41</sup> not only do mobile sites need to be continuously powered but users also need to be able to recharge their devices.

Orange offers an innovative solar energy subscription service for individuals and professionals in the

Democratic Republic of Congo, Madagascar, Burkina Faso, Mali, Senegal, Guinea and Côte d'Ivoire with plans to launch it in other countries. For this service, payable via Orange Money, Orange has called on the expertise of partners such as BBOXX, D-Light, and Niwa, leaders in off-grid solar energy in Africa.

## No connectivity, no digital services: the high-speed challenge



Landing of an undersea cable  
(image source: Orange, Les clés du réseau, presentation by FT Marine)



Map source:  
[www.ace-submarinecable.com](http://www.ace-submarinecable.com)

Orange is not only expanding mobile coverage but is also increasing the speed and quality of connections so that everyone can access the internet and essential services. This requires major investments in undersea and terrestrial cables, such as the “Africa Coast to Europe” (ACE) undersea cable, which will connect France to other countries on the western coast of Africa, and is already operational between France

and São Tomé-and-Príncipe. Initiated by Orange, and in partnership with 16 other operators, ACE has received financial support from the World Bank and the European Investment Bank as it represents a vehicle for social and economic growth in the newly connected countries.

In this way, Orange was able to deploy 3G in the 20 Orange Africa and Middle East countries where the Group has a presence – covering over 58% of the population in 2016 – and to deploy 4G in 15 countries. Orange is thereby investing in the

future of Africa and the Middle East, as connectivity, and high-speed connectivity in particular, is a genuine accelerator of economic growth.<sup>42</sup> Moreover, the activity of mobile operators generates significant tax revenues for governments<sup>43</sup>.

## High-quality employment in the digital sector



### ACE is increasing access to high-speed connections in western Africa

“ACE enables countries on the west coast of Africa to reduce the cost of international bandwidth, thereby making high-speed internet access more accessible in Africa. This new opening will reduce the digital gap and allow the countries concerned to increase their economic and social development. [...] ACE broadens their opportunities concerning connectivity, data-sharing and information sharing with the rest of the world.”

Source: ACE website: [https://www.ace-submarinecable.com/ace/default/EN/all/ace\\_en/development\\_in\\_africa.htm](https://www.ace-submarinecable.com/ace/default/EN/all/ace_en/development_in_africa.htm)

There are 18,000 employees working for Orange across 20 subsidiaries in Africa and the Middle East. Almost all of them are recruited and trained locally<sup>44</sup>, benefiting as well from e-learning solutions and access to the Orange Campus in Dakar.<sup>45</sup> The Group has developed

many partnerships with African universities, engineering and management schools. In Côte d'Ivoire, the Group supports a “Data Scientist” chair with Keyrus and Thales, established by the École Polytechnique engineering school.



Through all these actions, Orange is developing jobs and human capital in Africa and the Middle

East. In 2018, Orange was awarded “Top Employer” in Africa for the 5th consecutive year.

Source image: <https://orange.jobs/site/en-news/Orange-certified-as-Top-Employer-Africa-2018.htm>



### Orange Money: a vehicle for financial integration

- deployed in 17 countries
- 40 million customers
- +2 billion euros in monthly transaction value

Orange Money enables individuals to pay for the following without travelling or opening a bank account:

- tuition fees in Côte d'Ivoire;
- property taxes in Cameroon;
- parking fees in Madagascar;
- a micro-insurance policy for pregnancy/childbirth in Mali and Côte d'Ivoire;
- electricity bills in many African countries.

Orange Money enables individuals to also receive the following, again without travelling or opening a bank account:

- salaries for Malagasy teachers;
- pensions for Cameroonian retirees;
- a microcredit in Cameroon and Madagascar.

## Innovative services that facilitate professional activities and people's daily life



One of the reasons that digital has a significant impact on economic growth<sup>46</sup> and job opportunities<sup>47</sup> is because it improves organisation, both for companies and for the self-employed. It eases relationships with customers and suppliers, benefits

the job market, optimises the spread of information and the development of new skills.<sup>48</sup> Digital, particularly through the use of mobile services, the Internet and mobile money<sup>49</sup>, is also positively correlated with increased revenues<sup>50</sup>.



The agricultural sector is a good example. Mobile provides easy access to agricultural and meteorological information, as well as the prices for which products are sold at various local markets. Using virtual marketplaces, farmers can sell their production directly and at better prices, to a broad panel of customers (restaurant owners and individuals). Mobile services enable farmers to increase their revenues

by an average of 11%<sup>51</sup> and up to 80% for farmers that receive meteorological information<sup>52</sup>. Orange offers around a dozen mobile services for farmers in 8 countries, in cooperation with over 15 partners: NGOs, Ministries, Chambers of commerce, local industries, universities, start-ups, etc.

## Private sector innovation: an engine for the “digital revolution”

Orange develops products and services that best meet the needs of its users at its innovation centres in North Africa and Abidjan. As part of an open innovation strategy, Orange supports local innovation ecosystems through its network of Orange Fab incubators, as well as through its Orange Digital Ventures Africa and Teranga Capital investment funds.

In addition, Orange promotes the use of data from digital services through the use of anonymised Big Data for societal purposes. For example, in Senegal, as part of a research project led by the French Development Agency AFD, anonymised mobile data are currently being used by teams of local experts to visualise and better organise public transportation in Dakar and neighbouring areas.

With digitalisation, individuals and professionals benefit from new health and education services. In Côte d'Ivoire, Orange developed two services in partnership with the Ministry of Health and international partners. In partnership with UNAIDS, mobile makes it easier to care for patients with HIV and collect

data to better analyse and improve their treatment. The “M-Vaccin Côte d'Ivoire” service, deployed with the Vaccine Alliance GAVI, will increase the awareness of parents and communities around vaccinations, with the aim to expand vaccine coverage in regions with the lowest coverage rates.



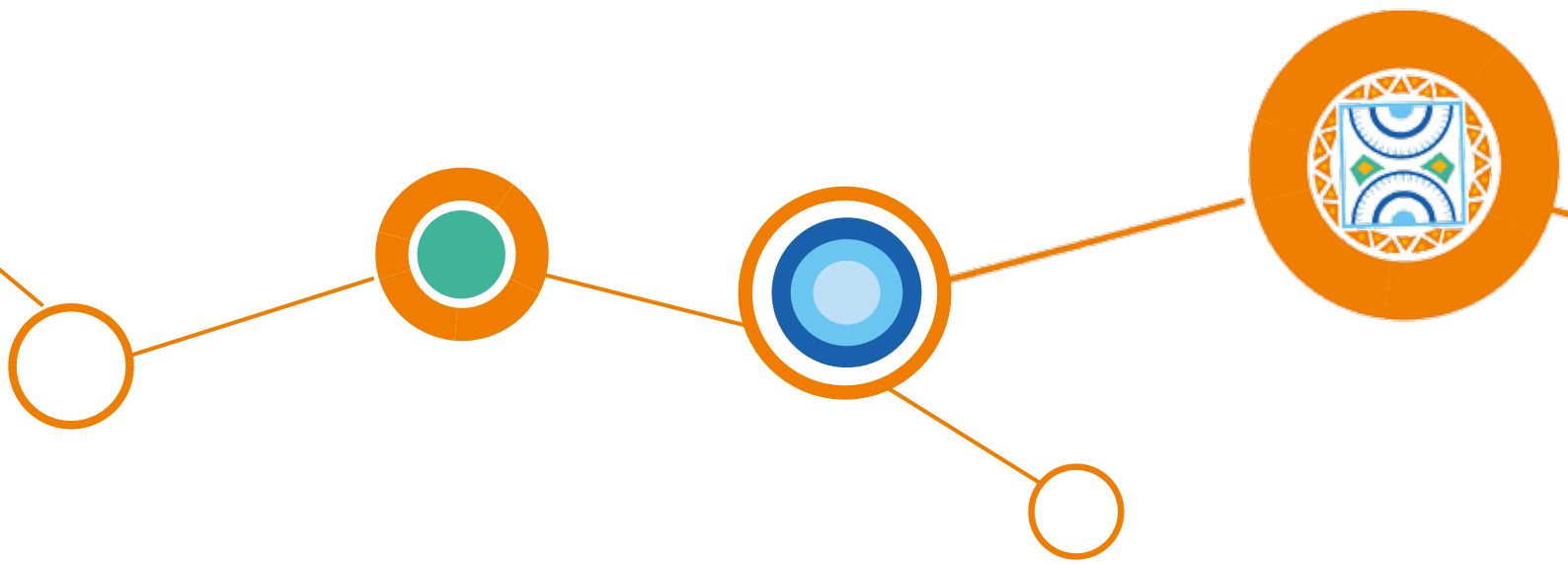
Digital provides individuals with quick, easy, and inexpensive access to essential services. In the education sector, digital enables better teacher training, particularly in rural areas. Orange is working with the French Development Agency AFD in Madagascar, Mali, and Niger on a project that combines in-person training and distance-learning via mobile. Using phones enables teachers to stay connected with each other as well as with their colleagues, thus improving pedagogical monitoring.

Digitalisation can also increase enrolment capacity at universities and professional training centres through distance-learning, and enhance training through quality digital content. For this reason, Orange has signed partnerships with CNED (France's National Distance-Learning Centre) and OpenClassroom, a leader in online francophone education. Digital also provides large-scale training, where young Africans can develop digital and professional IT skills.





## Conclusion



## Conclusion

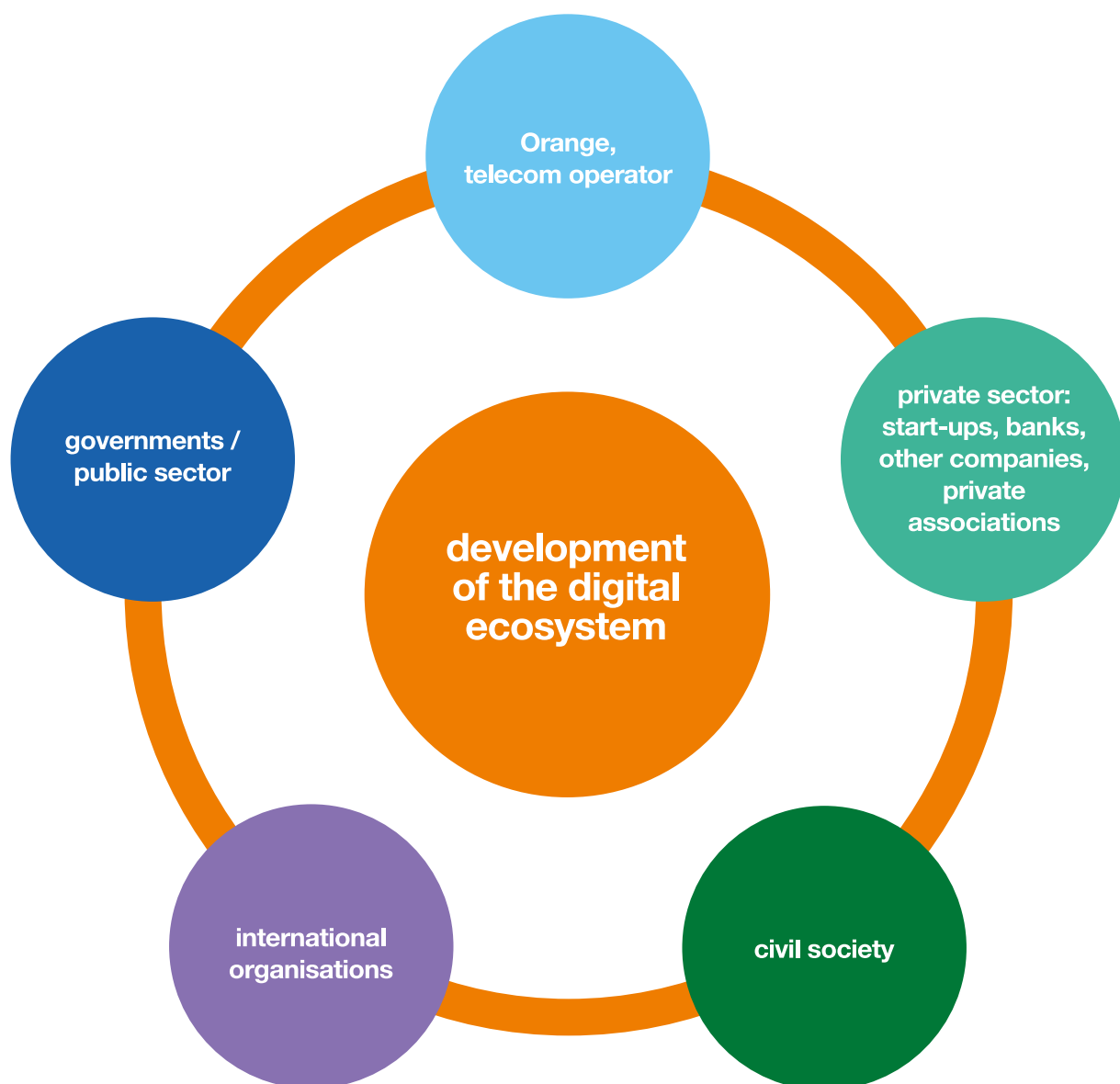
Digitalisation is not just a vehicle for economic transformation that encourages growth and job creation, it is also a lever for equitable development. Mobile payment, for example, supports economic activity by revolutionising the banking sector while facilitating financial inclusion. Mobile phones are also an interface for accessing essential services such as health, education, administration, etc.

Every day, Orange – a company that is at once European, international, and local – works to build alliances and partnerships with multiple stakeholders in order to develop connectivity and digital ecosystems in Africa and the Middle East. Thanks to a consortium of 20 private partners, and coordinated by Orange, backed up with the support of governments, the World Bank, and the European Investment Bank, it was possible to build The Africa Coast to Europe (ACE) cable.

Orange invests one billion euros a year in Africa and the Middle East towards essential infrastructure and service innovation. This strong, long-term commitment from Orange demonstrates our confidence in the future and in what new generations hold for the future of the continent.

To overcome the digital inclusion challenge in Africa, in partnership with national and international public authorities, as well as local entrepreneurs, Orange pledges to :

- contribute to develop at all levels the expertise needed by African countries to implement their digital transformation,
- support a more future-oriented regulatory framework and a stable tax policy that encourage investments and innovation;
- to take a full part in the consistent digital transformation strategies supported by suitable financing tools.



# Orange Middle East and Africa in figures

On 31/12/2018.

**18,000**  
employees

**120 million**  
customers

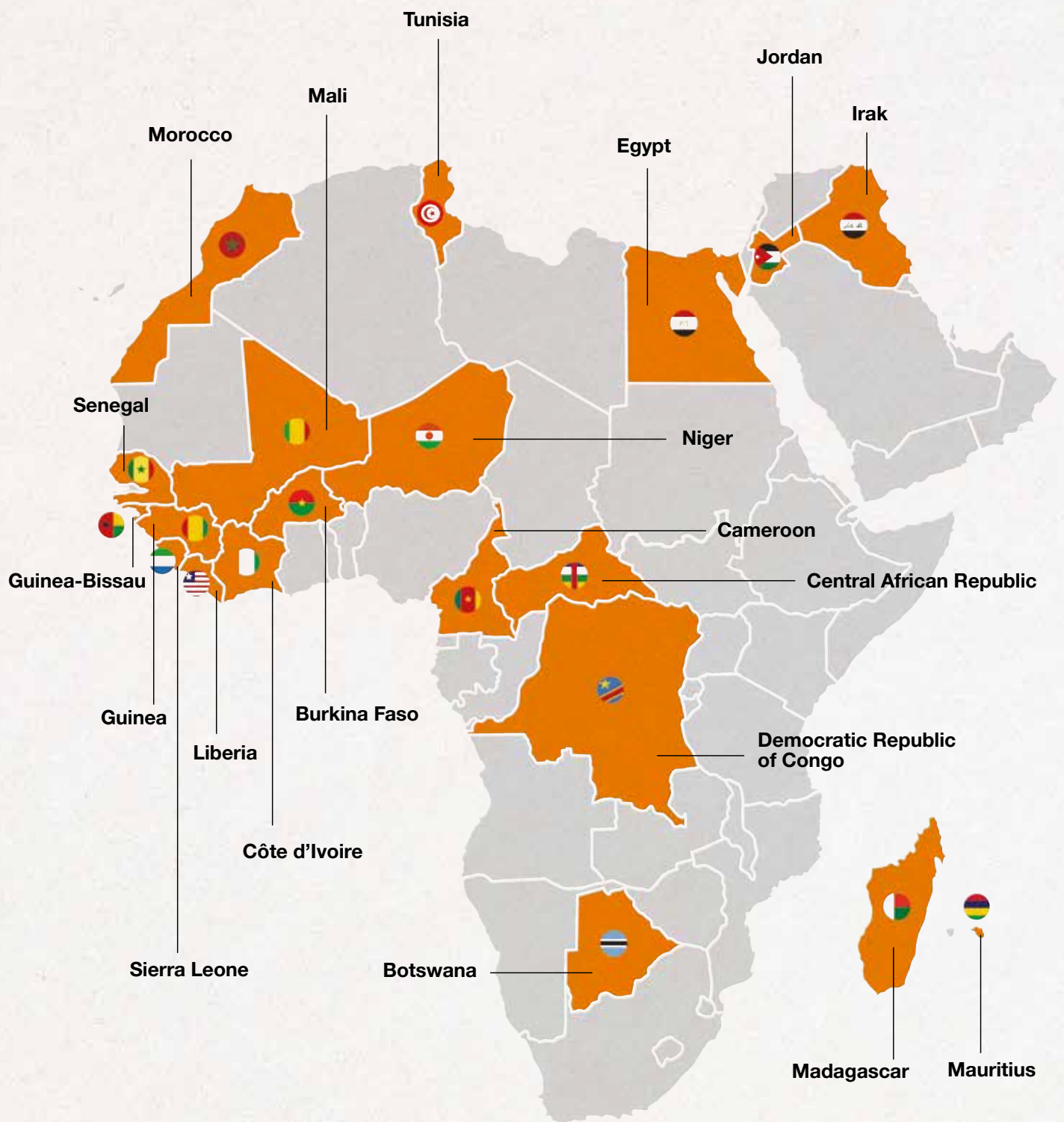
**€1 billion**  
annual investment

**15**  
4G countries\*

**20**  
countries\*

**40 million**  
Orange Money customers

\* Including entities accounted for by the equity method.



# Orange's commitments to development

Developing connectivity, services and ICT ecosystems

## 3 action drivers



## Support ICT ecosystems

Orange strongly believes that supporting local talents through incubators and training programmes will contribute to the development of ICT markets and new sustainable technologies







## Enrich connectivity

Better infrastructure improves network coverage, which gives access to internet and telecommunication services, which in turn connects and empowers people. This is why Orange has committed to invest 1bn euros per year in Africa and the Middle East.



## Design tailor-made services

Orange designs services suited to the needs of local populations.

Special attention is given to agriculture, education, health, mobile banking, energy, entrepreneurship, women's digital empowerment.

## 3 leading principles

### Listening



Because Orange is strongly committed to designing effective solutions, dialogue with stakeholders leads to co-developed projects with local communities.

### Partnering



Local collaboration is the key to success! For each project, Orange partners with governments, development agencies, NGOs, foundations and the private sector to co-build relevant projects with a strong local legitimacy.

### Experimenting



Projects are validated within a local market to gather feedback and improve our solutions. Only then is the solution deployed and scaled up to achieve maximum impact and long-term sustainability.



# Notes and References

**1•** ID4D (Identification for Development, French Development Agency): <https://ideas4development.org/event/afrique-enjeux-approche-continentale/>

**2•** Penetration rate = total number of SIM cards compared to the entire population (total connections in the market divided by the total population at the end of the period, expressed as a percentage). Source: GSMA Intelligence.  
Equipment rate = total number of subscribers compared to the entire population (total subscribers at the end of the period, expressed as a percentage share of the total market population). Source: GSMA Intelligence.

**3•** Raul Katz, Columbia University: <http://www.citicolumbia.org/index.php/publications/published-papers/2016-papers/>

**4•** McKinsey Global Institute: Lions go digital: The Internet's transformative potential in Africa, 2013, <https://www.mckinsey.com/industries/high-tech/our-insights/lions-go-digital-the-internets-transformative-potential-in-africa>

**5•** World Bank, eGov Research and Resources, 2015, <http://www.worldbank.org/en/topic/ict/brief/e-gov-resources#egov>

**6•** See: USAID, 2015:  
"In Liberia, paying teachers' salaries via mobile money saved 15% of the cost of receiving the salary (such as the cost of bank fees and the cost of taking a bus to the nearest town with a bank).", [https://mstarproject.files.wordpress.com/2015/11/mstar\\_liberia\\_2-pager\\_mobilemoney.pdf](https://mstarproject.files.wordpress.com/2015/11/mstar_liberia_2-pager_mobilemoney.pdf)

**7•** Electronic patient records can reduce administrative costs by 20-30%, in both high and low-income countries (BCG and Telenor: The socio-economic impact of mobile health, 2012). In Brazil, the introduction of electronic payment cards for "bolsa familia" social assistance payments divided administrative costs by six. (Lindert et al. 2007, quoted in: CGAP, Banking the Poor via G2P Payments, 2009). Digital solutions also help reduce fraud and corruption.

**8•** See: L'Afrique des idées, June 2017, <http://www.lafriquedesidees.org>; see also: Berrou, Jean-Philippe; Combarnous, François; Eekhout, Thomas: Les TIC: une réponse au défi du développement des micro et petites entreprises informelles en Afrique sub-saharienne?, 2017 (Sciences-Po Bordeaux, Université de Bordeaux, Orange Labs), [https://recherche.orange.com/wp-content/uploads/2017/02/2017\\_01\\_LAM\\_ORANGE\\_TICInformel\\_EtatDeLArt.pdf](https://recherche.orange.com/wp-content/uploads/2017/02/2017_01_LAM_ORANGE_TICInformel_EtatDeLArt.pdf)

**9•** GeSI, Accenture: #SystemTransformation. How digital solutions will drive progress towards the Sustainable Development Goals, 2016, <http://www.systemtransformation-sdg.gesi.org/>

**10•** Before 2009, only 16 countries in Africa were connected to an undersea cable; in 2016, 33 States were connected to an undersea cable, 7 had access to at least 3 cables. <http://africa-map-2017.telegeography.com>

**11•** Orange, Zoom sur les réseaux en Afrique, 27 October 2016. <https://www.orange.com/fr/Innovation/Les-reseaux/Reseaux-en-Afrique>

**12•** ...81% of which was in mobile networks. IDATE DigiWorld, The challenges of the digital world, 2017.  
EPS PEAKS, The impact of Internet connectivity on economic development in Sub-Saharan Africa, 2015. See also, the testing company Ookla, which prepares a NetIndex each month that determines internet speeds in every region of the world (<http://www.ookla.com>).

**13•** EPS PEAKS, The impact of Internet connectivity on economic development in Sub-Saharan Africa, 2015. Cf. aussi la société de test Ookla qui établit chaque mois un NetIndex qui détermine la valeur des vitesses Internet dans toutes les régions du monde est du monde (<http://www.ookla.com>).

**14•** ITU, ICT Facts and Figures, June 2016. See also the GSMA Mobile Connectivity Index: <https://www.mobileconnectivityindex.com>

**15•** EPS PEAKS, The impact of Internet connectivity on economic development in Sub-Saharan Africa, 2015.

**16•** A much lower rate than the global average (47.1%) and the average in developed countries (81%). ITU, ICT Facts and Figures, June 2016.

**17•** Indeed, while the internet access rate in some countries exceeds 50% (Seychelles with 57.90%, Morocco with 57.60%, South Africa with 52%), in others, it barely reaches 2% of the population (Somalia, Eritrea, Burundi). Romain Gras, "Accès à internet: le continent africain entre progrès et inégalités", Jeune Afrique, 31 January 2017. <http://www.jeuneafrique.com/398696/economie/acces-a-internet-continent-africain-entre-progres-inegalites/>

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in EU development policy”, 28 November 2016: “Access to affordable and non-discriminatory digital infrastructure and broadband connectivity remain major obstacles to development in many developing countries, notably in rural and remote areas. Its deployment requires a business friendly environment based on legal certainty and the reduction of administrative obstacles in order to boost investment.”

**21•** GSMA: Taxing mobile connectivity in Sub-Saharan Africa, 2017.

**22•** Ibid.

**23•** GSMA, African Mobile Observatory, 2011.

**24•** According to Bearing Point, in sub-Saharan Africa, the mobile phone sector had \$71 billion in tax revenue between 2000 and 2012, or 7% of sub-Saharan Africa's total tax revenue (Bearing Point, *Les enjeux des télécoms dans les pays émergents* 2013).

**25•** GSMA: Taxing mobile connectivity in Sub-Saharan Africa, 2017.

**26•** World Bank: *Breaking down barriers*, 2016, p. 120, and: GSMA: *Gateway Liberalisation, Stimulating Economic Growth*, 2007, <https://www.gsma.com/publicpolicy/wp-content/uploads/2012/03/gatewayliberalisation.pdf>

**27•** African Union Roadmap on Harnessing the Demographic Dividend through Investments in Youth, [http://www.digitalskills4africanyouth.org/sites/default/files/au\\_2017\\_dd\\_roadmap\\_final\\_eng.pdf](http://www.digitalskills4africanyouth.org/sites/default/files/au_2017_dd_roadmap_final_eng.pdf).

**28•** “Indeed, there is a need for a skills revolution in Africa.” (African Union Roadmap on Harnessing the Demographic Dividend through Investments in Youth, [http://www.digitalskills4africanyouth.org/sites/default/files/au\\_2017\\_dd\\_roadmap\\_final\\_eng.pdf](http://www.digitalskills4africanyouth.org/sites/default/files/au_2017_dd_roadmap_final_eng.pdf)).

**29•** See : GeSI, Accenture, 2016, p. 10.

**30•** UNESCO, *ICT in Education in Sub-Saharan Africa: A comparative analysis of basic e-readiness in schools*, 2015, <http://unesdoc.unesco.org/images/0023/002342/234279e.pdf>

**31•** See : German Federal Ministry for Economic Co-operation and Development : *Women's pathways to the digital sector*, 2017.

**32•** See : GeSI, Accenture, 2016, p. 16.

**33•** Continental Education Strategy for Africa 2016-2025 (CESA 16-25). See also: UNESCO, *Transforming Education: The Power of ICT Policies*, 2011, <http://unesdoc.unesco.org/images/0021/002118/211842e.pdf>; Agence Française de Développement, Agence universitaire de la Francophonie , Orange, UNESCO: *Digital Services for Education in Africa Savoirs*

communs no. 17, 2015, <http://unesdoc.unesco.org/images/0023/002318/231867e.pdf>

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**37•** Application Programming Interfaces, which form a link between two software applications and enable one software application to use the services of another.

**38•** <http://entrepreneurclub.orange.com/en/>; <https://startup.orange.com/en/>; <http://entrepreneurclub.orange.com/en/news/orange-social-venture-2018-go.html>

**39•** <https://www.orange.com/en/Press-Room/press-releases/press-releases-2017/Orange-Digital-Investment-launches-a-new-investment-initiative-of-50-million-euros-devoted-to-start-ups-in-Africa>

**40•** To be specific, 97.9% of the population of Côte d'Ivoire has 2G coverage, 98.5% in Tunisia, 99% in Morocco and 99.8% in Egypt (figures from February and April 2017). 2G enables voice and SMS communications as well as internet access using EDGE technology.

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**42•** Qiang, *Telecommunications and Economic Growth*, World Bank, 2009

**43•** Over 4% of tax income in Africa, on average (GSMA African Mobile Observatory, 2011), or even 7% of tax revenue in sub-Saharan Africa (Bearing Point, *Les enjeux des télécoms dans les pays émergents*, 2013).

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**49•** Tavneet Suri and William Jack: The long-run poverty and gender impacts of mobile money, Science 354 (6317), 8.12.2016, p. 1288-1292: "We estimate that access to the Kenyan mobile money system M-PESA increased per capita consumption levels and lifted 194,000 households, or 2% of Kenyan households, out of poverty."

**50•** "Improved access to mobile phone services (voice, text, mobile money and banking, internet) benefits households – and specially the poor – in multiple ways." (World Bank, Enabling the digital revolution in Sub-Saharan Africa: what role for policy reforms?, 2017). A study of 12 African and 5 Asian countries showed a positive correlation between income generation, possession of a mobile device, and internet use (Research ICT Africa, 2012, [http://www.researchictafrica.net/publications/Evidence\\_for\\_ICT\\_Policy\\_Action/Policy\\_Paper\\_13\\_-\\_Lifting\\_the\\_veil\\_on\\_ICT\\_gender\\_indicators\\_in\\_Africa.pdf](http://www.researchictafrica.net/publications/Evidence_for_ICT_Policy_Action/Policy_Paper_13_-_Lifting_the_veil_on_ICT_gender_indicators_in_Africa.pdf)

**51•** A study conducted by Vodafone and Accenture (Connected Agriculture, 2011) over 26 countries worldwide, estimated that mobile services would enable farmers to increase their agricultural income by 138 billion dollars between 2011 and 2020, an increase of 11%. See also: Berrou, Combarnous, Eekhout, op. cit., 2017.

**52•** Maize (corn) growers in Mali who received agro-meteorological information were able to increase their revenues 80% in 2003-2004. The researchers explained this increased figure by greater confidence of the farmers who received this information, who were motivated to invest in high-quality seeds and fertilisers. Hellmuth, Molly: Climate Risk Management in Africa, 2007, [http://www.fao.org/fileadmin/user\\_upload/rome2007/docs/Climate\\_risk\\_management\\_in\\_Africa\\_Learning\\_from\\_practice.pdf](http://www.fao.org/fileadmin/user_upload/rome2007/docs/Climate_risk_management_in_Africa_Learning_from_practice.pdf)

**53•** Orange – which launched a "Data for Development D4D" challenge in Côte d'Ivoire (2012-2013) and Senegal (2014-2015) – is one of the main partners of the collaborative OPAL (Open Algorithm) platform, which seeks to use anonymised data from private companies for the general interest, e.g. for the definition and implementation of public policies. In 2014, Orange was part of the Independent Expert Advisory Group on a Data Revolution for Sustainable Development, convened by the Secretary General of the UN, Ban Ki-Moon, to offer ways to improve data to meet the Sustainable Development Goals and track their progress.



