

committed to Europe

a vision to ignite the digital revolution

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when digital meets democracy

foreword by Stéphane Richard

'With digitisation of political life, governments have also found new ways to improve the way they operate.'

Much has been written about the role of the internet in the fight against dictatorship, as vividly seen in the "Arab Spring". Although North Africa only recently embraced the digital revolution, digital life is now solidly ingrained there with a high penetration of mobile phones - as the preferred tool for communications - and the rapid spread of social networks. Rather better than traditional media, digital services now act as a public sound box and can spark large-scale, informal stirrings in popular opinion. However, this new role of democratic catalyst should not distract from the darker uses of the internet as a powerful tool for surveillance and propaganda, for example.

Yet, the role of digital media as a public channel is not limited to emerging democracies. For some years now, digital communications have, of course, become a means of amplification for political life in the West as well, whether through websites, blogs, tweets, or

by the establishment of more direct discussions between politicians and voters, not to mention the role of the internet in the "crowd funding" of political campaigns. With digitisation of political life, governments have also found new ways to improve the way they operate. This can start with the development of e-government and open data services, that help public administration run more efficiently and thus support the wider economy. But this phenomenon also extends into the digital versions of activities in home affairs, defence and justice departments. This includes actions related to fights against terrorism and organised crime, fitting in a clear legal framework ensuring transparency, proportionality and relevance.

In addition, in an area illustrating new challenges, one of governments' prime concerns should now be the protection of their citizens' privacy rights and the assurance of their data security.



Stéphane Richard
Chairman and Chief Executive Officer

'We need to work together to search for the right points of equilibrium between privacy and innovation, regulation and private initiative.'

However, beyond being merely users and beneficiaries of digital services, one should recall that national and EU institutions are also legislators and as such, influence regulation: in this context, their role needs to be carefully reconsidered when they reposition themselves from guardians to facilitators of economic prosperity. This task is all the more complex because consumer protection brings immediate political gratification while mid and long-term growth mostly depends on investments and innovation; two areas that are strongly conditioned by regulation. In short, the digital world - with its hyper connectivity and instant access to unlimited information - has had a profound restructuring impact on political life. It challenges relationships between voters and policy makers, between taxpayers and administrations, between enterprises and their governments: the digital world is an accelerator for democracy.

While we resolutely want this vision to be optimistic, we urge policy makers to keep in mind that, when making decisions for an industry as complex as ours, the immediately popular does not always result in the enduring or wise. We need to work together to search for the right points of equilibrium between privacy and innovation, regulation and private initiative.

Only this way will Europe get the digital revolution it needs and deserves.

Stéphane Richard
Chairman and Chief Executive Officer
September 2014



embracing the digital revolution: Europe at the crossroads

Europe faces many challenges, some of which have an increasing impact on our prosperity and quality of life.

'While the EU was a global leader in telecommunications in the early 1990's, it is now falling behind.'

With stubbornly low growth rates and sustained pressure on public funds, a search is on to find ways to re-energise the European economy. Jobs and growth have become major policy targets and there is a renewed focus on innovation - and its role in regaining our former edge in technology and industry.

A good place to start is the digital economy. The recent digital revolution has, by connecting us all, begun to transform our lives, work, entertainment, health, relationships and even altered perceptions of time and distance. And this is just the beginning.

However, this revolution is not ours alone. The rest of the world is embracing these changes with equal or greater commitment. While the EU was a global leader in telecommunications in the early 1990's, it is now falling behind. We are therefore at a crossroads and it is a good time to look at the continent's difficulties with clear eyes, in order for Europe to regain its edge. This document provides insights on these challenges and offers concrete solutions.

'Europe's ability to produce new technology, and to benefit from it, appears to be diminishing relative to competitors overseas.'

connectivity for growth and "industrial renaissance"

In January 2014, a European Commission Communication on the European Industrial Renaissance acknowledged that ICT products and services - and their underlying network infrastructure - are essential to boost European industry and are the foundation for achieving progress in innovation, growth and job creation.

This view was echoed by a report by Booz & Company in 2013, showing that digitisation alone boosted Europe's economy by some €30 billion and added hundreds of thousands jobs in 2011.

'The recent digital revolution has, by connecting us all, begun to transform our lives, work, entertainment, health, relationships and even altered perceptions of time and distance.'

However, not only does the ICT industry create value in its own right, but it also improves productivity and efficiency in other sectors. These positive effects are already showing themselves in manufacturing, business-to-business services, retail, transport and logistics, energy, education and public administration - and every day the list grows longer.

'Europe's networks need to be expanded both in reach and capacity.'



22%

well-connected SMEs grew 22 per cent more than SMEs with low or no connectivity at all

Boston Consulting Group survey of 15,000+ SMEs

1:6

for every Euro invested in broadband networks, an estimated 6 Euro in revenue is generated for the economy

Arthur D. Little for FFT (Fédération Française des Télécoms)

At the heart of the digital economy are networks, the supporting structure of optical fibre, routers, servers and devices that are propagating and spreading, like nervous tissue, everywhere we live and work. These networks guarantee the continued availability of the digital economy's ever expanding range of services. With connectivity being a proven source of growth, Europe needs to set the right mix of policies and regulation to allow the benefits to spread more widely across various economic sectors. Clearly we need to extend the networks to places where they currently do not reach and to increase their capacity and security, in order to meet the demand and the new tasks that users expect them to deliver.

But it would be a mistake to see connectivity only as a distinct service that people need per se: rather it is a tool to improve our ability to do all the other things we used to do without them. Where once a small, select group of individuals used to be described as "knowledge workers" (people using remote information to carry out their tasks), the term now refers to almost all of us.

This ranges from a farmer, using GPS and satellite imagery to manage crops, to retailers relying on just-in-time digital stock control for their stores and sending targeted advertising to their clients. Few jobs exist nowadays without access to remote information and data, and the connectivity that delivers them.

'Clearly we need to extend the networks to places where they currently do not reach and to increase their capacity and security.'

digital networks for a richer, more inclusive, way of life

More than just a foundation for economic activity, ICT provides an array of rich and innovative services that transforms our way of life. Tomorrow, more and more of our daily activities will become mobile - for example with mobile payments - and our cities will be smarter and greener. Moreover, ICT can increasingly help with societal challenges such as regional development, while sustaining a more inclusive society.

ICT has already played a significant role in levelling differences between the natural or acquired resources of towns and regions - it continuously links people and companies where before distance might have kept them apart. Moreover, for those currently unable to play an active part in society - often the poorer, older, unwell or citizens living in remote rural areas with less effective

access to social services, transport and health care - networked alternatives can help reduce physical, demographic and geographic inequalities and promote social inclusion at an affordable cost for public and private budgets. With Europe's ageing population, ICT can help with health monitoring and can widen the range of possible work and social activities.

In healthcare, networked systems could make a helpful contribution to socially re-integrating people previously restricted to their homes and to better manage chronic diseases. For example, symptoms monitoring, or reminders about a medicine schedule can help reduce dependency and improve healthcare. Similarly, being able to send mobile-phone images of a minor injury to a doctor could aid in diagnosis and reduce waiting and delay to the patient as well as optimising staff time for the provider.

'Orange provided access to 200 training rooms for additional introductory digital technology classes led by NGOs.'

digital solidarity towards women's education and digital literacy

The Orange Foundation, dedicated to charitable activities and NGOs, has a particular focus on women's education with digital technology as a driver for healthcare and education. Secondly, Orange is also committed to getting children who are dropping out of school back on the educational track, using digital technology and its interactive and customisation capabilities.

730

the number of digital literacy workshops run by Orange employees for charities, in over 30 towns and cities in France in 2012

40k+

the number of downloads of digital tools designed for people with autism, developed with the support of Orange Spain Foundation

60k+

the number of young people sent to school in Africa and the Middle East

Europe's digital revolution needs investment

For all these gains to be fully realised, Europe's networks need to be expanded both in reach - modernisation of existing networks and new networks deployment and capacity. This, in turn, requires funding accumulated from revenues or raised on the capital markets - since Europe's telecommunications operators are now mainly in private hands since the liberalisation that occurred back in the nineties.

For the last few years, however, revenues have fallen away and reasonable returns on private investments and innovation are now rare in Europe in this sector. This is mainly due to the combined effects of outdated regulation and the fierce competition that regulators have steadily encouraged since industry privatisation.

As a result of these factors - a feature unique to Europe - the continent now falls well behind the rest of the world in terms of data speeds and services. We argue that it is time to re-appraise the regulatory approach of the past two decades. It is time to adapt policy and the regulations that govern our market place, to the specific and urgent tasks of promoting investment and innovation.

Such a change in strategy would be beneficial for consumers, who would be able to access increasing service quality as technology improves.

disruptive innovation: Big Data, machine to machine and cloud

The huge quantities of data that digital social and business interactions generate (commonly known as "Big Data") have the potential to unleash a range of new services, thanks to ever more advanced analytics. Big data is expected to add over € 250 billion a year in value to the European public sector administration (NESSI - Big Data White Paper). Likewise, it is believed that machine-to-machine technologies and the Internet of Things (IoT) will support the digital economy.

Cloud computing is already a growing industry in Europe with the ability to free up resources and greatly reduce overhead costs in public and private organisations. Cost savings reported so far are typically in double digits.

and a restored traction to reignite Europe's innovation in ICT

Europe's ability to produce new technology, and to benefit from it, appears to be diminishing relative to competitors overseas. Education, research and innovation have rightly come into political focus, at both EU and Member State level. Yet, scientific excellence on its own is not enough. For Europe to translate its extensive academic and scientific capacity into real industrial performance there must be a wide range of measures and policies, starting with seed funding opportunities for SMEs and the fostering of wider cooperation between players in an 'Open Innovation' environment. There also needs to be a new recognition that private investment and innovation must be encouraged and, where investment is held back, that regulation must be reformed in order to enable private investment to play along public initiatives.



For too long now there has been a readiness to regulate new products and services pre-emptively before their potential has started to materialise. If Europe wants to emulate successful innovation regions, it needs to allow ideas to appear, grow and sometimes even fail - before a rush to regulate on precautionary grounds.

Moreover, there is also a need for better awareness of the fact that non-European ICT players do not face the same level of regulation or constraints, even when they are operating in the EU. This, other things being equal, gives them the ability to 'out invest' European competitors.



‘Operators can help make ICT services reliable and secure; in other words, make them better trusted.’

moreover, the true digital revolution will not happen without trust

No investment in network infrastructure or innovation breakthrough will succeed unless people feel able to trust the services they deliver.

Operators can help make ICT services reliable and secure; in other words, make them better trusted. Trust in this context has various dimensions. In the first place, services that people rely on - particularly those related to sensitive topics such as payment or health - must be dependable, that is to say available whenever needed. This requires an adequate protection of networks, platforms and people’s digital assets. Trust has another important sense relating to the access, collection and processing of sensitive information such as personal data.

The EU itself has been at the forefront on this issue with a legal framework established before the development of the digital economy. But for Europeans to effectively benefit from innovative and trustworthy data services, the applicable legal framework requires clear rules based on responsibility and accountability, and must be applied to all providers serving European users, from wherever in the world.

‘It is also becoming increasingly clear that regaining this leadership position will require policy makers to better assess the impact of regulation.’

all forming the right conditions for regaining a European leadership

It is our view that setting Europe on a course to regain a leadership position in ICT is a vital task, of obvious benefit to all its citizens.

This leadership position should be based upon a diverse ecology of start-ups, SMEs and large-scale industry players, working as an “innovation community”. It is only within such a context that European “champions”, competing on the global stage, can emerge over the coming years.

It is also becoming increasingly clear that regaining this leadership position will require policy makers to better assess the impact of regulation in the round. The most worthy intentions can be undone by elements of state policy working against each other.

Committed to Europe, Orange - from its own varied experiences - looks forward to discussing these issues with all interested parties, in the search for solutions to boost Europe’s digital revolution.

boosting innovation, for jobs and growth in Europe

In North America and East Asia, it has become an axiom of policy that innovation is central to competitiveness, growth and global expansion, if not economic conquest. If Europe does not embrace innovation, it risks being left behind in the race for progress and prosperity.



Yet innovation is capricious: it happens when someone with a good idea finds a context where it can flourish. New ideas tend to arrive at unpredictable times and places. Thus, by its nature, innovation is only indirectly amenable to policy intervention.

'By its nature, innovation is only indirectly amenable to policy intervention.'

Developing a more lively culture of innovation, not just in terms of creativity but on a scale big enough to make a difference, is then a major challenge not only for industrial players but also for policy-makers.



'Telecommunications rely on advanced technology including fibre-optics, next generation broadband, security and advanced radio transmission systems.'

'The nation that goes all-in on innovation today will own the global economy tomorrow.'

President Barack Obama, State of the Union Address, January 2014



innovation at the heart of our industry

Innovation is vital to our industry: telecommunications rely on advanced technology including fibre-optics, next generation broadband, security and advanced radio transmission systems. The rapid embrace of innovative technology is an essential part of the way we are managed.

New technologies help reduce costs and increase the capacity and variety of services we offer. Since high-tech equipment accounts for such a large share of our investment expenditure, each successive increase in technological efficiency or capacity leads to greater cost efficiency and savings.

These are passed on to consumers in the form of lower prices and better services - and used for re-investment in our infrastructure.

Network operators also play a central role as an intermediary in the ICT industry and as a platform for experimentation. An important insight into understanding innovation in this context is that each successful idea feeds a wider industrial community, consisting of players of many sizes and roles. The full economic potential of innovative ideas can therefore only be realised by encouraging their exchange.

Overall, telecoms networks help the diffusion of technologies through the economy and, through faster and more secure connections, provide a platform for innovation among other players. In this way we are instrumental in the adoption of new digital services by individuals, households and businesses.

'It was Edison who said "1% inspiration, 99% perspiration". That may have been true a hundred years ago. These days it's "0.01% inspiration, 99.99% perspiration", and the inspiration is the easy part. As a project manager, I have never had trouble finding people with crazy ideas. I have trouble finding people who can execute.'

Linus Torvalds, Finnish programmer who created the open-source Linux operating system 22 years ago and received the Millennium Technology Prize in 2012.

Start-Ups for Europe: a common policy goal pursued by policy making institutions and the industry

Orange engagement with start-ups will be expanded with European Commission initiatives, through the Startup Europe Partnership and the European Digital Forum think-tank, which were launched in May 2014 and of which Orange was a founding partner.

Did you know?

Orange Labs in a few figures:

- produces and average annual spend of €800mn over EU industry
- registers 300 new patents each year
- has 5000 R&D staff, of which 3,700 are engineers
- has 18 centers in France and around the world

creating a virtuous innovation ecosystem

cooperative research and Open Innovation

Our business as an operator requires constant adjustment to technological change. It is accordingly very important that we take an active part in shaping upcoming radical changes - and anticipate the necessary adaptations for our business model, resources and staff skills.

With this aim in mind, our own research department, Orange Labs, provides long-term prospective and technical vision for the Group. Orange Labs also engages with other players and is active in partnerships between public and private organisations. For example, at European level, Orange has been involved in all the Research & Innovation Framework programmes since FP2, an illustration that we place EU programmes at the heart of Orange research and innovation.

Orange is also a key participant in the Future Internet PPP (Public Private Partnership) as well as a founding partner in the 5G PPP - signed with the European Commission in December 2013 - which aim is to develop technologies to make networks more energy efficient, less costly to operate and more secure. Orange also plans to play a key role in the Big Data PPP and contribute to various other projects, for example in Smart Cities and Communities.

In addition, Orange is also actively engaged in an Open Innovation model. This collaborative form of innovation is characterised by partnerships, co-building and the exchange of ideas.

Orange works in over 60 of such partnerships with organisations like Alcatel Lucent and Ericsson. Orange is also engaged in competitiveness clusters with more than 2000 SMEs, in Technological Research Institutes to speed-up innovation as well as in the European Institute of Innovation & Technology's initiatives.

'The real value of the partnership comes from the startups gaining access to Orange's massive distribution channels, partner programme and marketing heft.'

GigaOm, online media specialised in technology related topics.

'Orange is committed to welcoming more than 10,000 apprentices over the next 4 years, in order to prepare for knowledge exchange between experienced and early career professionals.'



a helping hand for the ecosystem and start-ups

Many life-changing ideas have sprung from small teams working with 'shoestring' budgets and a touch of serendipity. Yet, these start-ups - and their streams of ideas, of new technologies and services - can only develop and bloom in an appropriate and nurturing environment.

To support their development, the Orange Partner programme opens up our resources to developers, partners and start-ups in order to help their development. In return, our partners can extend their reach thanks to Orange distribution channels.

Orange has also been offering start-ups an extra helping hand to succeed and bring their vision to the ICT industry and public through the Orange Fab programme.

innovation is also a matter of skills

Skills are a crucial component of innovation. Ensuring then that European companies, employees and consumers have the right skills for advanced technology breakthroughs is vital.

Success depends on educational systems that offer skills in traditional subjects like maths and science but also in new subjects such as data analytics. In-career training is also needed to ensure that employees keep up with technical progress.

The telecommunications industry has much experience in skills-development, having undergone a continuous restructuring over the past 20 years. From a state-monopoly, with a civil service workforce, we have emerged as an international private-sector ICT player confronting rapidly advancing technology and skills obsolescence.

In the Orange People Charter we have developed various programmes to encourage "re-skilling" of experienced workers, increasing their long-term employability. In 2014, we launched the Digital Academy, whose aim is the wider use of digital tools among our workforce.

In addition, Orange regularly updates and redesigns its framework for jobs and skills to help employees manage their own career path through training and inform our future recruitment priorities.



being flexible for future innovation when one does not know what it will be about...

‘What core trends did we underestimate or miss entirely five years ago? What new trends should we be focusing on today to try to conjure a picture of digital technology 15 years out? The short take: five years ago we were on the right track but far too limited in foreseeing the explosive potential for technological convergence, and far too timid in stressing the infinite potential of software. And we missed a couple of big ones altogether.’

Today, in early 2014, we can see much more clearly how it is the convergence of the core digital technologies that are driving us way beyond a world of “mass collaboration” toward the emergence by 2030 of a “knowing society”. We can likewise see much more clearly how this convergence is driving the development of powerful derivative tools and technologies - largely software but also new forms of hardware and man/machine interfaces - auguring a digital technology “avalanche”.

Peter Linton (EIF Board of Governors) & Ajit Jaokar (EIF Advisor) <https://www.eifonline.org/digitalworld2030.html>

which policy for innovation?

While there is a consensus that Europe needs more innovation, opinions differ on the best way to create environments in which it can flourish.

A wide spectrum of actions is possible, ranging from support for “blue sky” research in academia and better technical education - to the encouragement of small business. While these actions are very important, the EU has generally focused its efforts on fundamental research.

Yet, private investment in the form of fixed capital expenditure also plays a crucial role as it effectively incorporates fresh technology into the marketplace, thus inducing and sustaining economic growth. Indeed, while public funding in private innovation ventures can increase the chances of technology trickling through society, OECD research has confirmed that the private sector remains the fountainhead of technological advancement.

‘Orange is one of the most active operators in standardisation.’

enabling or restraining, the double edge of regulation

Regulation must play its part in fostering innovation, by achieving a better balance between control and experimentation, providing a flexible space for ideas to seed and grow without stifling layers of control.

Regulation can have a distinctly “double-edged” effect: it can foster as well as throttle innovation. The latter result is notably more likely when regulation is tied to a particular technology, or imposed too early. Moreover, as alluded to above, because of the borderless nature of innovation and because of the dynamics of “innovation ecosystems”, public policy would be more effective if it approached all branches of the industrial economy in the same way.

This is also true in case of market fragmentation. There is little prospect of an “innovation single market” between Member States if regulation treats industries differently within each state.

‘Regulation must play its part in fostering innovation.’



spreading innovation through standardisation

Conversely, standardisation and interoperability are vital for innovation to thrive. GSM is the perfect example of an enabling standard, providing interoperability between vendors and operators and offering a consistent global platform for developers.

Standards also help generate economies of scale in technology deployment, and add to industry efforts to achieve trust and security for consumers. This can be illustrated by the more recent example of Near Field Communication, for which open standards have enabled such innovative services as mobile payments and led to the development of a full ecosystem of players.

Orange firmly believes that standards should continue to be recognised by policy makers as a guarantee of quality and a foundation for cooperation between industrial players. The standards model must be consolidated worldwide to ensure rapid technology adoption in a globalised world.

This can be achieved through the promotion of the European Standardisation System (ESS), particularly with a scope broadened to encompass voluntary standardisation. In addition to being a central element in the delivery of the single European Market, the ESS can also be instrumental to enhancing Europe’s competitive position in the world.

Did you know?

Orange is one of the most active operators in standardisation.

Today, this engagement, which covers 40 plus organisations worldwide, requires dedicated and complex internal coordination. Orange teams play an active role in the global standardisation process, based on their respective expertise.

innovation is nurtured in an environment favourable to private initiatives and investments and acknowledging the positive role of interoperability and standards

1. innovation is driven by **private initiative** and private investment
2. regulation does not, by itself, generally promote innovation and can even do it harm; for example, **over-regulation creates**

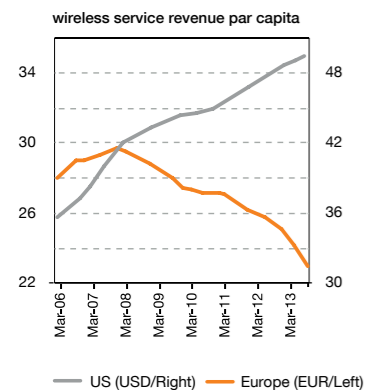
3. **barriers to innovation** and affects technology diffusion
- innovation best develops in an open ecosystem. Collaborative cooperation between players of all kinds benefits the whole ecosystem and, ultimately, users and consumers. For an “**innovation single market**”, public policy should ensure that nothing implicitly hampers or restricts some branches of the industrial

- economy more than others
4. policy makers should show leadership with **skills** development projects and develop and encourage cooperation between private organisations
5. policies should also include the promotion of **interoperability through standards**, and the defence of the European Standardisation model.

restoring private investors' trust

Connected Europe relies on communication networks. In turn, the health of the European telecommunications sector, its levels of innovation and investment are very much influenced by the underlying regulatory framework.

fig.1 wireless revenues in the US and in the EU increasingly diverge



Bernstein - European&LatAm Telcos: Consolidation, Regulation & Competition in One, Three & Five Years - 12May 2014

The current market regulation has clearly contributed to growth and consumer benefits. However, designed at a time when there was more or less one fixed operator per country and where the internet was in infancy, the framework is now outdated. It comes as a paradox - but as no surprise - that the European telecommunications industry, once a world leader, is now severely handicapped in its ability to invest and grow. This is a unique situation among modern economies.

Without substantial regulatory modernisation to restore investors' trust and to allow the European industry to address its investment needs, EU citizens and businesses will not benefit from the innovation drive and benefits digitisation can bring. Moreover, there is a risk EU industry will be left behind in the global digital race.

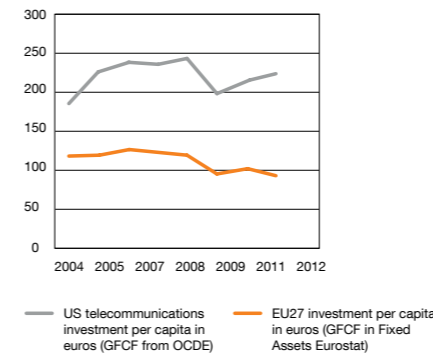
despite industry efforts, Europe's investment gap hurts the digital economy

The demand for new services, especially video content, puts tremendous pressure on networks to deliver higher speed, more bandwidth and less latency. In response, European operators have striven to invest in their fixed and mobile networks.

It is indeed investment in new and more powerful network technologies that pushes usages costs and prices down and raises quality.

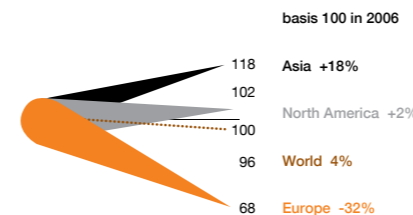
'Orange is incorporating more optical fibre in its fixed networks thanks to Fibre-To-The-Home (FTTH) technology and "xDSL" network upgrades.'

fig.2 US telco investments are twice higher than in the EU



Orange - Economic analysis department

fig.3 European companies are left out of the digital growth



European operators lost 32% of their value between 2006 and 2012

FFT Economie des télécoms 2013

Orange is incorporating more optical fibre in its fixed networks thanks to Fibre-To-The-Home (FTTH) technology and "xDSL" network upgrades. Orange is also rapidly optimising and expanding the use of radio frequencies standards such as Long Term Evolution (LTE) and "4th Generation" networks (4G).

In 2013, Orange investments represented 13.7 per cent of its turnover. This expenditure is linked to some significant achievements:

- in mid 2014, the Orange 4G mobile network covers 66 per cent of the population in France, 47 per cent in Romania and over 50 per cent in Poland;
- Orange is committed to cover 60 per cent of the French population with FTTH by 2020; has signed a co-investment agreement in Spain covering three million homes within four years; and is covering 300 000 homes in Slovakia.

Nevertheless, investment by the European telecommunication industry has reached its limits due to the deteriorating economic conditions within the sector, in direct contrast with other regions of the world.

1. **(fig.1)** in North America and East Asia, the levels of mobile revenues are constantly increasing while the EU industry has been facing substantial revenue decline.
2. **(fig.2)** as a consequence, the funds available for European operators for investment in networks have sharply decreased in the recent years, relative to international peers whose investments boost over the same period resulted in these markets leading to the forefront in network innovation.
3. **(fig.3)** according to a Boston Consulting Group study - "Reforming Europe's Telecoms Regulation to Enable the Digital Single Market", 2013 - this investment gap with other regions is widening and may amount to €110-170 billion by 2020. This situation threatens the European industry when it comes to global competitiveness and market valuation.



"René Descartes" – one of six cable laying ships in Orange Marine

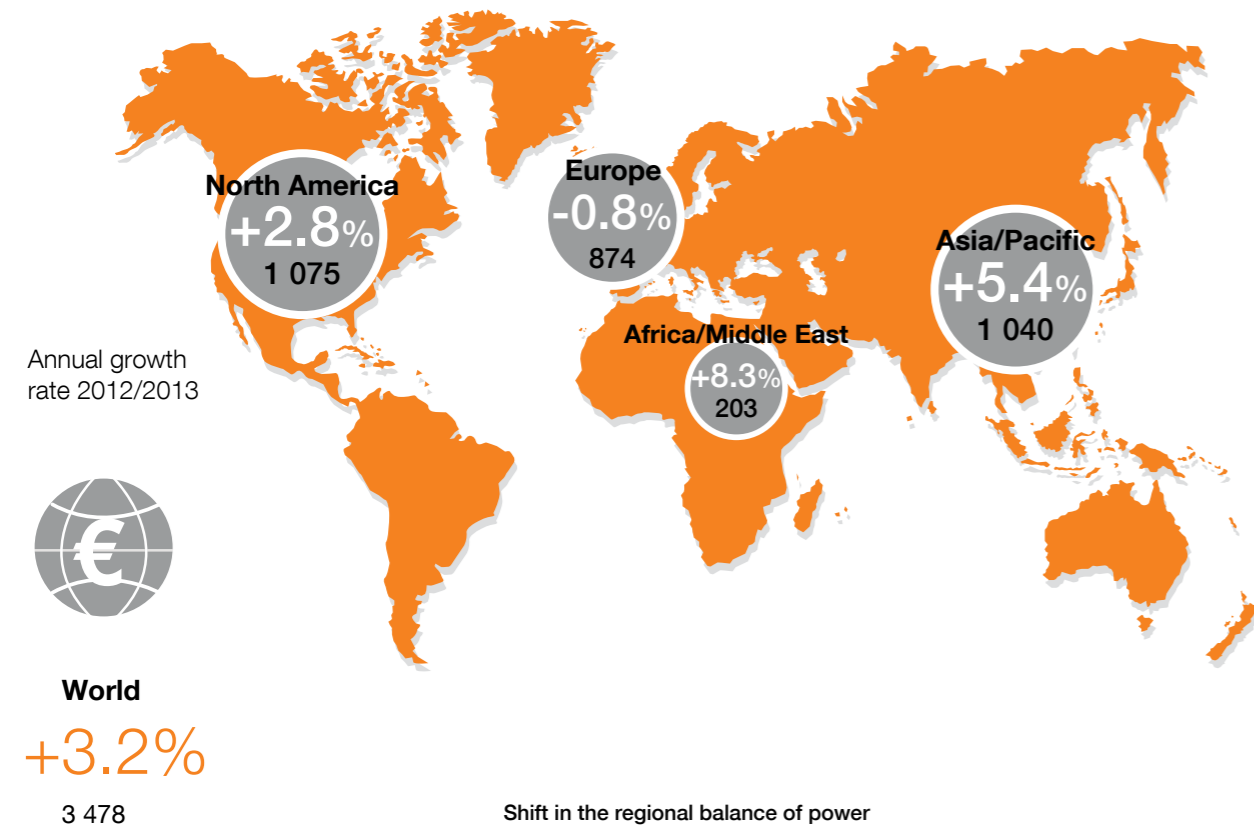
'European regulation has rewarded those that piggy back on the investment of others, rather than those that actually do the hard labour of infrastructure deployment.'

Stephen Howard, HSBC, 2014

markets in billion of euros - 2013

IDATE Digiworld Yearbook 2014 (digiworld markets include telco and broadcast services, equipments, computers, software, etc.)

4. (fig.4) and it is not only detrimental to the telecoms industry, but also to the development of the wider digital economy in Europe.



'The current regulatory framework is increasingly failing to produce the levels of investments intended by its designers, first in fixed and now in mobile infrastructures.'

understanding the causes of Europe's underperformance

a regulatory environment unfavourable to investment in networks

Regulation was initially set up to stimulate competition by opening access to the fixed networks of former state monopolies - the so-called incumbents - in order to create a more "equal" market place.

This regulatory approach unintentionally resulted in a highly complex system of network access within each country, fragmented across the EU.

As a matter of fact, liberalisation and its supporting regulation was initially successful as it attracted investments in mobile markets. However, this trend was thwarted when regulators considered that regulation, rather than market forces, is the main lever for achieving price reductions.

As a result, the current regulatory framework is increasingly failing to produce the levels of investments intended by its designers, first in fixed and now in mobile infrastructures.

This same regulation acts as a deterrent to investment in network upgrades, as incumbents who grant access to their networks end up with a dual risk exposure:

1. until very recently there was little reward for investing in new fixed networks because of the strict price for access (cost-oriented price)
2. incumbents are bound to ensure the profitability of any competitors using their networks, whatever business model they choose.

This regulatory model is no longer relevant since competition has intensified between different players and infrastructures - copper, fibre, cable, radio - in a context where the need for major investment in newer technologies is pressing.



'By facilitating new market entries, regulation has tremendously increased the intensity of competition within EU markets.'

'The EU's regulatory approach also impacts the ability of the EU telecommunications industry to compete and innovate on services on equal terms within the digital economy.'

Europe telecom market is fragmented compared to other regions of the world.



4 nationwide mobile operators



~140 operators



3 operators

Moreover, the artificial lowering of entry barriers by public authorities on mobile network markets has also put willingness to invest at risk.

This situation creates a problem of trust with investors in a sector where, unlike energy or transport, investment is essentially made by private companies. Yet, these investors are unlikely to bet on a market when returns on investments in new infrastructures are limited by regulation.

suboptimal market structures

By facilitating new market entries, regulation has tremendously increased the intensity of competition within EU markets. In most Member States, the EU has more operators at national level than the USA or China for their entire markets. This is obvious when comparing the number of mobile operators in the USA, EU and China. While this - in the short term - may have lowered customer prices in Europe, there have been negative effects on quality of services and on operators' abilities to invest and serve customers' needs. Indeed, competitive pressure in some national markets

has pushed consumer prices below sustainable levels in the long term. Further increasing competition with new market entries beyond a critical level will jeopardise investments and innovation.

In addition, the competition intensity and policy have been developed without a sufficient understanding of the industry specificities, namely its capital-intensive activities and its exposure to fast technological change.

'European telecommunications operators are still bound by a regulatory framework designed at a time when the internet was in its infancy.'

an outdated regulation of services

Finally, the EU's regulatory approach also impacts the ability of the EU telecommunications industry to compete and innovate on services on equal terms within the digital economy.

The fact that the majority of pan-European communication services are developed outside Europe, and offered "over the top" (OTT) via the internet, is striking. While the ability to attract venture capital in the US has been important for the success of these internet players in Europe, European service regulation played just as big a role.

OTT services escape most of European regulation, in particular consumer protection rules, as it tends to exclude internet services from its scope. Meanwhile, European telecommunications operators are still bound by a regulatory framework designed at a time when the internet was in its infancy.

As a consequence, equivalent services - voice and messaging for example, provided by both operators and

internet players - are still regulated differently today. This disparity raises concerns in terms of consumer protection, public authority monitoring and, of course, fair competition.

Moreover, operators are discouraged from innovating or responding to market needs as their efforts to develop new services are more often regarded by competition authorities as a potential threat rather than an opportunity for innovation and more consumer choice. At the same time, competing "over the top" services have been free to develop with no such obstacle.

In that sense the net neutrality debate is a crucial test for Europe: will Europe succumb to a tradition of overregulation or create a framework encouraging the development of innovative and high quality services, in a way that optimises network capacity, while ensuring consumer protection?



'The market has evolved a long way from that for which the regulatory framework was originally designed.'

'European competition policy's analytical framework and associated rules must understand the dynamic efficiencies that mergers may yield.'

an investment - friendly framework would mean

1. clear and prioritised objectives: stimulation of investments - with primacy for private investments
2. simplification of fixed access regulation, taking into account all relevant technologies, with a tariff control, if any, that rewards investment
3. consistent and predictable regimes for the allocation of spectrum resources to mobile

competition policy should also aim to encourage investment

1. efficiencies of mergers to be better acknowledged
2. better coordination between competition and regulatory objectives
3. all types of competition to be taken on board when assessing operations

the urgent need for regulatory reforms

an investment oriented regulation for networks

As European institutions aspire to bring about a more connected, modern and competitive Europe on the basis of adequately resourced networks, it is time to reconsider the regulation that governs them. Regulation needs to be fairer, more symmetric and more rewarding for risk-takers.

Above all, it must be properly acknowledged that the market has evolved a long way from that for which the regulatory framework was originally designed.

some necessary steps on competition and consolidation

Competition policy must now urgently adjust to take into account the fact that some national operators need to consolidate, paving the way for cross-border mergers.

The European competition policy's analytical framework and associated rules must understand the dynamic efficiencies that mergers may yield. Indeed, the induced investments have dynamic effects that drive lower usage prices and raise quality of services in a rapid and permanent way. This dynamic efficiency phenomenon can be observed across the world, in markets where authorities have made investments a lever of competition.

a modern framework on communication services would mean

1. 'same services, same rules' principle, a common framework applicable to all services
2. a revision of the definition of electronic communications services
3. rules ensuring internet neutrality in the entire value chain

a modernised service regulation

A modern framework would begin with a re-assessment of communication services regulation, and the introduction of a new guidance: 'same services, same rules'.

Yet, Orange does not believe that extending the current form of sector regulation to OTT services is the right approach. What is needed instead is to remodel the regulation of communication services under European general laws.

These would guarantee fairness and proportionality so that this modernised, streamlined version applies equally to all services, independently of technology and infrastructure conditions.

This legal framework would also need to embrace all internet players to ensure that openness is guaranteed across the entire value chain and not only on the side of network operators.

building trust in the digital world

This digital age's huge economic potential obviously comes with important challenges. With daily media coverage of cyber-attacks and data breaches, confidence, an essential precursor for the development of the digital economy, is eroding.

Did you know?

Orange networks continuously face security alerts and severe malicious attacks

This situation is actively monitored thanks to automated detection processes and dedicated teams who quickly work on solutions and inform involved parties and authorities.

In particular, the monitoring is performed through a major CyberSOC (Security Operation Center) in France and eight Security Operations Centers around the world.

Our society is digital and will increasingly be more so. The digital economy has a huge potential for growth which will have positive effects on our entire society, be it through sustainable employment or revolutions in transport, urbanism, education and health. Industry players and policy makers increasingly agree that so called "Big Data", along with cloud computing and the "Internet of Things", will make up the three major pillars for tomorrow's digital economy. Achieving new meanings from large volumes of data will act as a potent growth engine: a study by the Warsaw Institute for Economic Studies suggests that the processing of big and open data, for example, could raise EU GDP by 1.9 per cent by 2020.

In addition to stimulating economic growth, data analytics also has the potential to propel social well-being by providing better information

and statistics to decision makers and by providing public authorities with new means of management, governance and evaluation.

This digital age's huge economic potential obviously comes with important challenges. Citizens, as consumers, are rightly concerned with how their data is used and who has access to it, be it commercially or illegally. With daily media coverage of cyber-attacks and data breaches, confidence, an essential precursor for the development of the digital economy, is eroding.

Big Data - what is it?

Big Data is the collection and analysis - in real time or not - of large volumes of structured and unstructured data. The intelligent use of such data can help find solutions to problems in many domains: retail, healthcare, energy, banking, insurance and transport inter alia.

To demonstrate the socio-economic potential of Big Data, Orange organised in partnership with MIT a "Data for Development" challenge in Ivory Coast in 2013. Providing researchers from a range of disciplines with anonymised data-sets of call patterns from our network, the project showed how Big Data could be used to better anticipate epidemics, improve crisis response, assess warnings of and the impact of drought and optimise transport planning.

a full commitment to cyber security

As digital networks have gradually become the "central nervous system" in our economy, with connectivity reaching further into our lives, the consequences for misuse or failure - accidental or malicious - become all the more severe.

At the present time, ICT systems owners report that network attacks are escalating in number and growing in sophistication. Such threats are difficult to tackle due to their diffuse, global and virtual nature, challenging to identify and trace.

Cyber-attacks are harassing and their consequences expensive. But as critical systems like hospital equipment or air traffic control become increasingly networked, the impact of cyber-attacks will be potentially life-threatening.

Securing the digital world means protecting infrastructure, people and businesses from threats as diverse as cyber-crime, terrorist attacks, or unlawful attempts to reach sensitive information.

In addition, in a context of technological interdependence, cyber-security has become everybody's business: software and hardware, networks and internet services. Telecom operators - as players in charge of the foundation layer - have historically had a particular responsibility in ensuring high-levels of security.

Having tackled this issue from the very beginning, Orange understands how effective protection relies on technology and high-levels of organisational preparedness, both essential in order to respond to growing threats.

The SIM card is a striking example of the industry's technological expertise. It is one of the strongest existing elements of security and authentication. Used by mobile operators to authenticate more than 85 per cent of the world's mobile devices, the SIM is a standardised and proven mechanism which is as secure as the chips used in bankcards. It will perform a similar role with the development of the "Internet of Things" and "Near-Field Communication" devices.



'Orange has dedicated around-the-clock security staff at its data sites. We use complex monitoring systems to govern access to data and site security to physically protect servers and support equipment.'

'Orange believes that new business models that reconcile trust and innovation are possible and desirable.'

Did you know?

Orange Business Services is a global leader in corporate security services.

Orange Business Services offers its clients managed and integrated security solutions in 220 countries and territories.

To deliver these services, Orange relies on a team of over one thousand security professionals, including 350 consultants dedicated to enterprise customers. This commitment was reinforced in January 2014, with the creation of Orange Cyberdefense built following the acquisition of Atheos - a pioneer of IT identity and security management. This move has turned Orange Business Services into the largest European cyberdefence company.

Telecom companies are also at the forefront when it comes to the elaborate and costly process of achieving organisational preparedness. To cope with cyber hazards, Orange has dedicated around-the-clock security staff at its data sites. We use complex monitoring systems to govern access to data and site security to physically protect servers and support equipment.

Operators are continuously increasing resources dedicated to security and reinforcing their infrastructure. In particular, as data has become a priority target, Orange is investing in a new generation of data centres: state-of-the-art centre called Normandy was opened in 2012 to meet the growing demand for remote data storage and host billions of "bits" of data in a high security environment. Our objective over time is to condense the sixteen existing data centres in France into six very large sites, to produce economies of scale and improve reliability and security for customers.

ensuring trust by empowering consumers with their privacy

The vast amounts of personal data created every day - for example in social networks, connected devices, and e-healthcare - prompt new privacy questions one might never have considered as little as ten years ago. Privacy concerns can limit the development of the digital economy, as consumers and citizens remain wary of using online services. Ensuring consumers trust in the digital economy is thus a vital concern for us all.

This is particularly crucial for operators such as Orange since we have privacy in our DNA, starting from the fundamental secrecy of correspondence to more recent issues raised by new technologies and usages. Accordingly, the telecom industry has been a constructive partner to all recent efforts to update data protection rules across Europe.

Did you know?

Orange data protection charter:

On 7 November 2013, Stéphane Richard signed a charter comprising four commitments to protect our customers' personal data and privacy:

- transparency in terms of the handling of data for its customers and users at all stages throughout our relationship;
- security of customers' personal data through its reliable processing and secure storage;
- control for customers over their own personal data and how it is used, including a personal "dashboard";
- support for all its customers and users to help them protect their privacy and manage their personal data better.

Orange believes that people will feel more confidence in information services if they are in effective control of their personal data and of how it is used. Empowering people and giving them control over their privacy decisions is both an ethical and an economic imperative. Ethically, because the right to privacy is a European Fundamental Right. Economically, because, as shown by a recent Boston Consulting Group study, consumers who manage and protect their privacy are more willing to share information than those who are not.

In this light, Orange believes that new business models that reconcile trust and innovation are possible and desirable. Sharing information can stimulate the creation of innovative and useful services. It can have value for both businesses and their customers.

Accordingly, any lack of awareness about how to better secure one's digital life can be an obstacle for digital confidence. And concern does not necessarily lead to action. According to a GFK/Microsoft international study, while 84 per cent of consumers express

concern about privacy online, fewer than half actually claim to have taken steps to protect their own privacy.

Orange is therefore committed to guiding its customers and helping them "surf" more safely. We have, for instance, committed to providing our customers with a "personal data dashboard". This tool will allow customers to view and manage the information they share with their operator. They can check the data used by their apps and share personal data if they wish to benefit from a better customer experience. The dashboard will also lead customers to a range of protection services like parental control, antivirus and data locker for example.



'Orange has developed robust anonymisation techniques that allow us to develop data services and provide collective knowledge tools without intruding on our customers' privacy.'

'Orange is proud to help Europe retain its position of world leader in the protection of personal data.'

Did you know?

Orange, a “digital coach” for young users

Across Europe, Orange provides its own educational websites with tips on how to protect data online, control social media or secure computer or mobile devices. We are involved in different national and international schemes designed to provide a safer online environment for children. We are an active member of the European Commission's Better Internet for Kids initiative and are convinced that the fight against child abuse content goes hand in hand with the development of education programmes.

finding the right legislative and regulatory formula

The ability of operators like Orange to continue providing a high-level of security and to empower consumers to keep control of their privacy over the long term is, unsurprisingly, influenced by the regulatory context.

Orange is proud to help Europe retain its position of world leader in the protection of personal data. However, we would argue that the European legislative framework has yet to achieve an optimal balance between protecting privacy, while yet ensuring security and allowing innovation. Within this broader aim are some areas for policy improvements.

more consistent protection: 'same services, same rules'

At the top of the list is the need to ensure that EU citizens' data is properly protected both within and outside of the physical boundaries of the EU. Europe's privacy and security goals should thereby apply to all players involved in providing internet services so as to ensure that European citizens

trust the digital economy as a whole. The internet has opened up a world of services to European citizens, and many are provided by companies based overseas - email, payment or cloud services for example - that store and process their data outside the EU. It is crucial then that the data of EU citizens using these services enjoy the same level of protection as they would expect from local service providers.

Moreover, protection should be consistent regardless of the type of company or provider involved. Europe cannot afford a double-standard data protection regime. Same services should follow the same rules, no matter by whom, or from where, they are provided.

key policy elements for restoring trust

1. a consistent and holistic framework ensuring all players of the internet value chain apply high security and data protection standards
2. a balanced framework fostering competitiveness
3. clear and future-proof rules allowing innovation in tools and processes

clear principles for a future-proof framework

In a world of continuous innovation that raises a stream of new privacy and cyber security concerns, citizens' and consumers' trust in digital and mobile services must be underpinned by clear and future-proof rules.

To achieve this and ensure relevance over time, the legislative and regulatory framework needs to be based on principles rather than being prescriptive or linked to a specific technology or delivery system. In practice, European law must aim to protect the public by governing services, not the technology that underpins them: “technological neutrality” is thus key.

Moreover, the regulatory framework should not impede the development of technological improvements and innovation.

This can be done by encouraging creativity in the development of privacy-friendly solutions such as privacy-by-design, or by acknowledging the effectiveness of solutions such as data anonymisation. In this line, Orange has developed robust anonymisation techniques that allow us to develop data services and provide collective knowledge tools without intruding on our customers' privacy.

a tale of two Europes

by Pierre Louette

'The need to take advantage of new technologies, for consumers and businesses, has become more pressing than ever.'

As in the Dickens novel "A Tale of Two Cities" that had set revolutions in the UK and France as backgrounds for society's transformation, the story of telecoms today is a story of two Europes, or rather two distinct yet complementary visions of Europe: one embraces Europe purely as a consumer heaven; another one - more neglected - considers it as a continent of enterprise and initiative. Following the first of these visions, the past reforms, starting from a prosperous industry, once a world leader of its sector having imposed GSM as a worldwide standard, re-engineered markets to bring about ever-reduced consumer spendings. From this point of view, the concept was clearly a success in its own terms: prices have fallen continuously and so have operators' revenues!

Meanwhile, the other vision of Europe still needs to be built and embodied: the one of industry and enterprise, and its supporting base of innovation and research. This conception encompasses employment and wealth creation and is probably just as legitimate to citizens as any "right" to the lowest prices.

Indeed, as economies across the continent faltered in recent years, the need to take advantage of new technologies, for consumers and businesses, has become more pressing than ever. Meanwhile, of course, the administration of Member States, and even their democratic life, is ever more predicated on the use of these technologies.

From a policy making point of view, the two visions outlined here may seem in conflict. Yet, sticking to this dichotomy would be misleading, for the digital promise won't be fulfilled if success in one realm is associated with failure and decay in the other. Policy makers must carefully keep the balance between the two visions. In the end, a reduction in spending will indeed prove little compensation if available services increasingly lag behind those found in the rest of the world; if very high broadband - whether fixed or wireless on 4 or 5G - cannot be achieved with a high pervasive coverage and inclusiveness; last but not least, if the local open innovation ecosystem is not fast enough to develop



Pierre Louette
Deputy CEO, Group General Secretary

'We urge policy makers to be both bold and artful in modernising regulations impacting the digital economy.'

the many applications matching the opportunities created by the globalised digital economy and, ultimately, do not generate expected growth and jobs. At a time when these two last items have become a core concern for all, the question is how to ensure a healthy ecology of technology companies, at all scales, which can give citizens and consumers what they will need.

For now, such a balance has certainly not been achieved. This consideration should be a starting point for the shaping of the telecommunication markets and the global digital ecosystem: as these are largely the product of policy, we urge policy makers to be both bold and artful in modernising regulations

'Such conditions are essential to ensure that the digital revolution will continue in full swing in Europe and restore the continent with its entrepreneurial and investment drive, with its competitiveness, and ultimately, with its leadership.'

impacting the digital economy. Such conditions are essential to ensure that the digital revolution will continue in full swing in Europe and restore the continent with its entrepreneurial and investment drive, with its competitiveness, and ultimately, with its leadership.

Pierre Louette
Deputy CEO, Group General Secretary
September 2014

a manifesto for digital growth

Orange calls for the following actions:

'To become a strong ICT economy, Europe needs investments in new network infrastructure, underpinned by private funding in an environment of restored confidence for investors.'

define an EU industrial policy to restore leadership and competitiveness of the EU ICT sector

Europe needs an industrial policy that enables a central role for innovation, that recognises the transformative power of technologies and that leverages European digital businesses as true partners for the digitisation of the economy and of society. This means:

01

promote entrepreneurship and tech startups: through incubation hubs and other initiatives (EU funds); the innovation policy - deployed over the whole European innovation ecosystem - should push towards concrete, full scale realisations creating a solid industrial foundation for the economy.

02

promote a European innovation model based on interoperability through standards: cooperation between players, governance transparency, and a multi-stakeholder approach to ensure a fair balance between intellectual property, patenting and open innovation principles.

03

restore EU ICT competitiveness thanks to a supportive competition policy: acknowledging industrial dynamics and investments cycles in the telecom infrastructure sector to allow consolidation when needed and promote private investments; ensure a fair tax regime across the entire value chain.

04

develop ICT skills: Europe needs visionary and active thought leadership around skills development, both through education systems but also through reskilling and lifelong employability initiatives created by public and private organisations.

reshape the regulation applied to the electronic communications sector to boost investments

To become a strong ICT economy, Europe needs investments in new network infrastructure, underpinned by private funding in an environment of restored confidence for investors. This would require:

05

redefine a truly investment-friendly framework: allowing new business models as well as fair and improved return on private investment for both fixed and mobile new networks; taking on board the intensity of competition - calling for more symmetric regulation; giving private investment a leading role, complemented by public financing to achieve a wide broadband coverage.

06

modernise the regulation applied to communication services: a common framework must apply to all communication services independently of their providers (same service, same rules) to ensure better consistency regarding customer protection and security as well as personal data and privacy protection; moreover, ensuring a fair competition between players, thereby further encourages innovation.

achieve a high level of trust and confidence in the digital economy

To benefit from the digitization of the economy, Europe needs to ensure consumers and business' trust and confidence. This would need to:

07

establish a holistic, clear and future-proof data protection framework: data protection rules and the providers' responsibility should be clear and stable within the EU to achieve a high level of protection for end users across the entire value chain; these rules should remain proportionate and balanced to meet technical feasibility requirements and allow innovation.

08

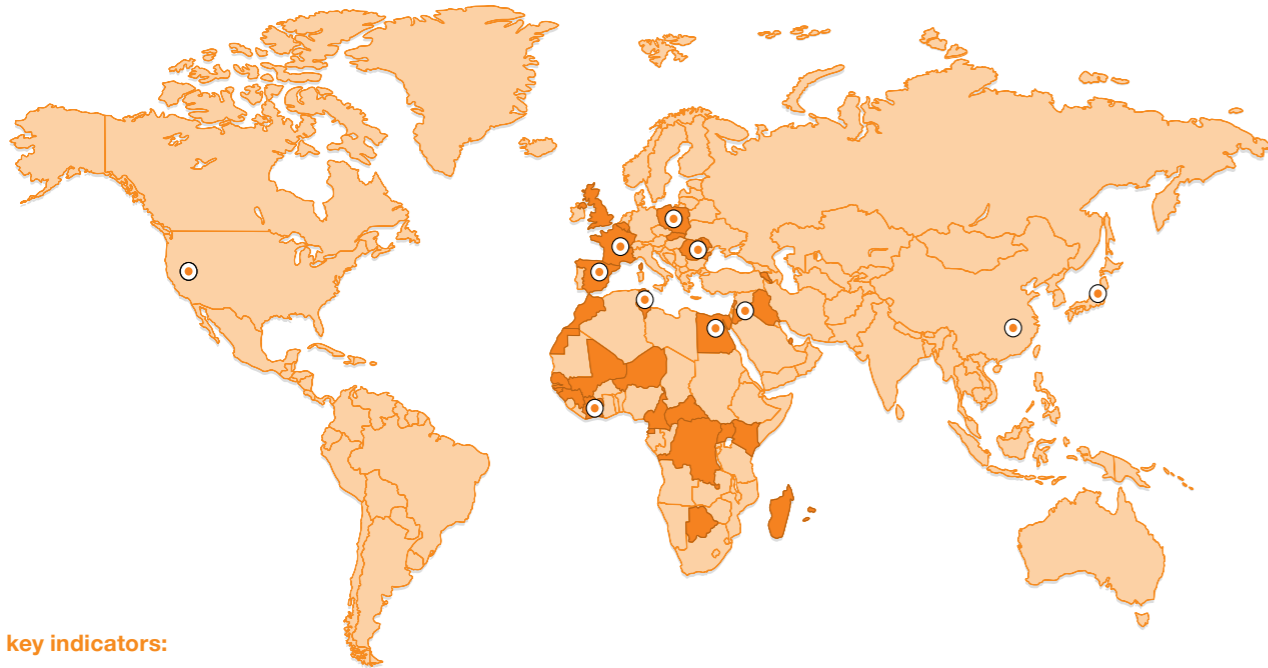
co-ordinate an effective EU cyber security policy: security requirements ensuring the highest security should be applied at all levels of the internet value chain and based on a fair balance between the requirements from security and public authorities and the efficiency and feasibility of the measures.

Orange: a global player committed to Europe

Our Group provides services for residential customers in 30 countries. Among them are the following European countries: Belgium, France, Luxembourg, Poland, Romania, Slovakia, Spain, and the United Kingdom.

key

- enterprise customers activities: 220+ countries
- fixed and/or mobile operations: 30 countries
- research and innovation centres: 11



key indicators:

5.6bn

annual investments (Euros)

450000km

of submarine cables

236mn

customers worldwide and growing

165K

Orange employees

41bn

revenue (Euros)

800mn

annual R&D spend (Euros),
above EU industry average

5000+

employees dedicated to
research and innovation

7500

the number of patents
in our portfolio

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