Telefónica

PUBLIC POLICY

Connecting the unconnected: how to bring *Internet to everyone*

1.0 HOW CAN WE GET EVERYONE CONNECTED?

Connect the unconnected: why is it so important?

The historical development of the Internet has created the most powerful transformational platform on earth. There has never been a technology that has reached so many people so quickly. Today, the Internet is the most important catalyst for economic and social development.

The Internet is both a platform and infrastructure that underpins all our lives: access to employment opportunities, education, healthcare, agriculture, financial services, entertainment and also our communication has been possible due to enhanced connectivity and Internet services.

Modern high-capacity broadband networks are the core and central system of the digital economy.

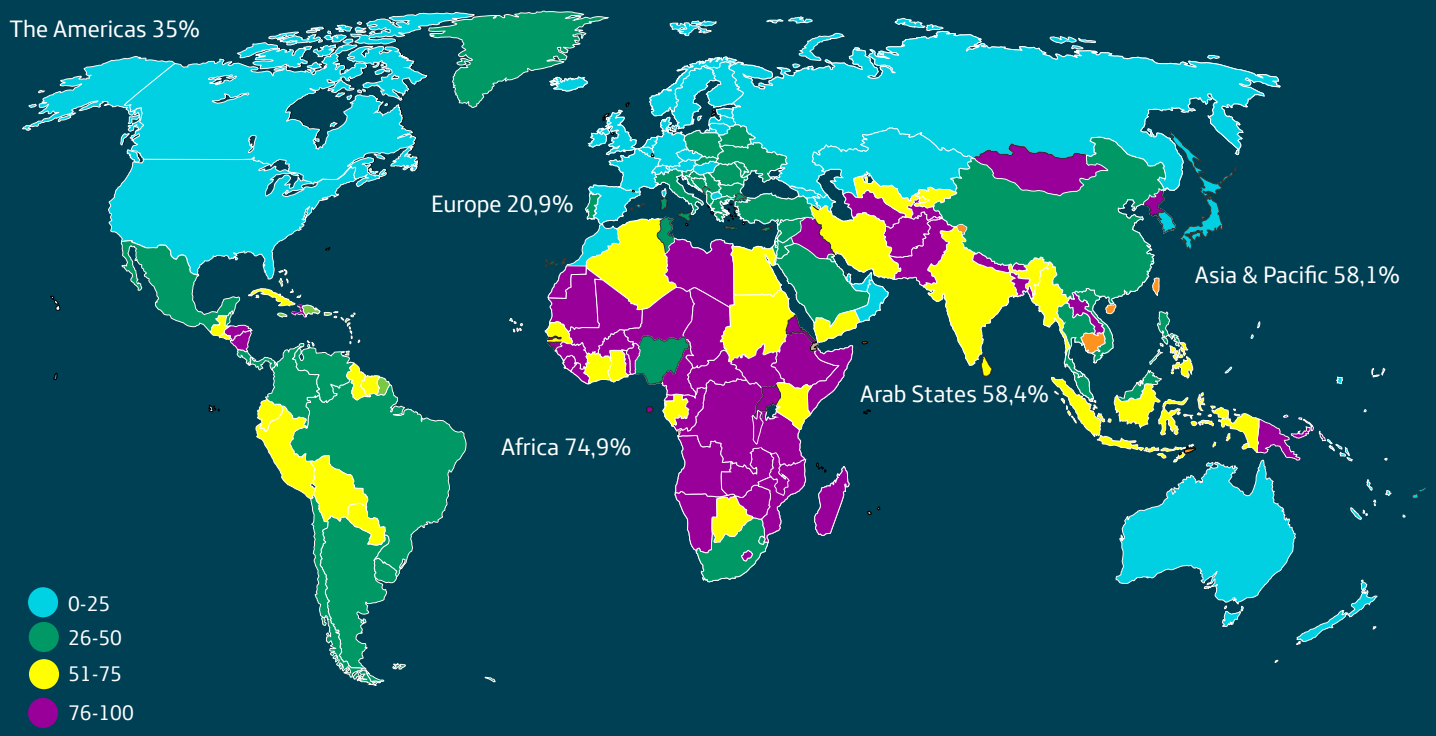
KEY TAKEAWAYS

- Half of the world's population is still unconnected.
- Connectivity brings unprecedented social and economic opportunities to people.
- Broadband networks are increasingly available to let everyone connect to the Internet.
- It is necessary to break down the economic, technical, regulatory and social barriers that slow down infrastructure deployment and Internet growth.

At the end of 2016, 3.2 billion people were using the Internet, representing 47% of the world´s population[1].
This great progress in few years only has been achieved due to private investments. Telefónica alone has invested 45 Billion €, 25 M€ per day. With this impressive growth speed, Internet is helping other essential services like banking or health to reach everyone. Connectivity and digital services can bring such services to those that cannot physically access bank branches or hospitals.

1-ICT Facts and Figures 2016, ITU.

PERCENTAGE OF INDIVIDUALS NOT USING THE INTERNET



Source: ICT Facts & Figures 2016, ITU .

These examples show how Internet access is a catalyst for economic and social welfare and **the revolutionary potential of the Internet when the remaining 53% of the world's population go online:**

1. Internet connectivity improves national economies, making them more productive and efficient. Economic studies have verified that greater broadband penetration has a positive impact on the growth in gross domestic product (GDP)[2] .

2. Education is increasingly based on connectivity and Internet services because it allows access to information and knowledge, as well as participation in public debates and gender equality.

3. The next evolution of Internet, the **Internet of Things (IoT)**, will offer significant potential to solve problems such as those related to health, hygiene, traffic, pollution and disaster prevention amongst others.

2- For more information: World Bank Group report, Digital Dividend, 2016.

Universal Internet access would add substanciallity to GDP in major developing countries by 2020

Note: Additional cumulative GDP over 100% Internet penetration. (In US $ billion)

Source: The World Bank, World Development Indicators; Strategy&analysis.

We believe that the solution to get everyone connected needs to be comprehensive, involving private companies and public authorities. It will be one of the major challenges that we face in the coming years in order to reduce inequality and poverty.

Knowing and understanding the **barriers** that still prevent over 4 billion people –of which 93% in developing countries and 21% in least developed countries[3]–from connecting to the Internet will help to overcome them. It is a joint responsibility of all, governments, regulators, private sector, digital industry and society, because no one can solve this challenge alone - it will require the cooperation of all stakeholders.

We are convinced that more must be done to connect the unconnected and offer in the following some ideas to the debate.

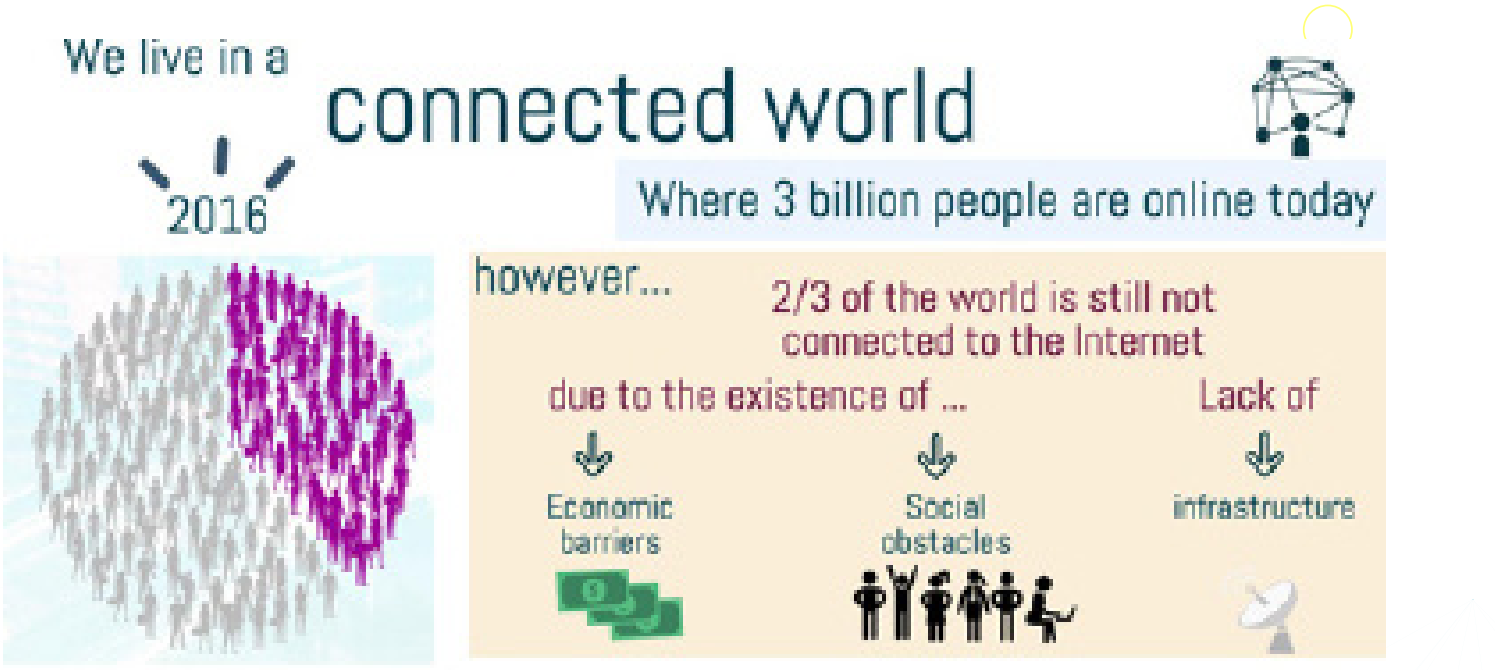
3-ITU, "Connecting the Unconnected", 2017.

2.0 WHAT TO BE DONE TO CONNECT THE UNCONNECTED?

▶ **We identify two dimensions of the problem**:

Availability of networks and ease of adoption (encompassing problems of affordability, required skills, awareness and access for challenged users) need to be tackled in order to connect the unconnected.

Both supply- and demand-side issues need to be solved: network availability needs to be increased and ease of adoption needs to be improved, encompassing problems of affordability, required skills, awareness and access for challenged users.



Source: Telefónica's We connect all inphographic.

Network availability

Without network infrastructure, Internet connectivity cannot be improved or even exist. Though the Internet often seems magical, there is a huge infrastructure enabling it behind the scenes. The Internet is a network of networks, so it is based on infrastructures. It is made of wires fiber and cables, waves mobile and satellites and technological equipment servers & devices.

The good news is that in 2016, roughly 80% of the world population are living in areas that are covered by 3G or 4G network and therefore offer mobile broadband coverage, leaving only 20% of world population with no technical possibility to connect to the mobile Internet[4].

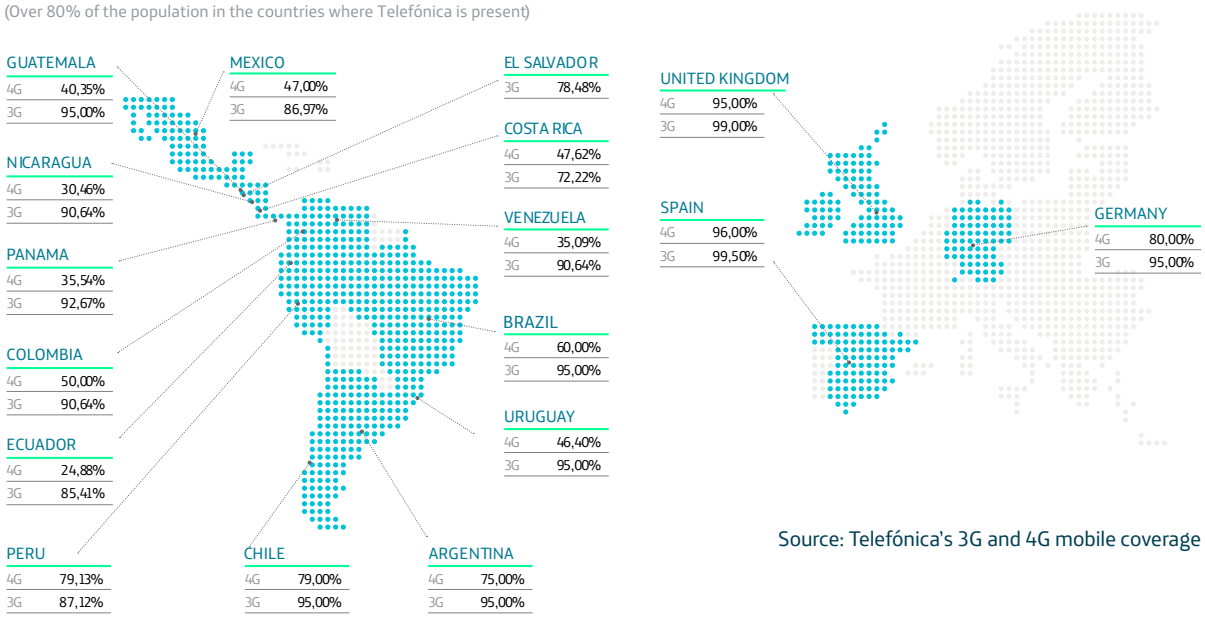
Networks are the central nervous system of the digital economy. That means that policy makers should take a particular care in providing all the possible incentives to foster investment in networks by:

- **Modernizing** digital policy and regulatory frameworks.
- **Placing** broadband development high on national digital agendas.
- **Planning** and providing spectrum urgently.
- **Fostering** sustainable competition and a vibrant local digital economy.

Experience from markets has shown that when governments create adequate and attractive policies, the private sector invests in broadband infrastructure.

mobile coverage 3G/4G

(Over 80% of the population in the countries where Telefónica is present)



Source: Telefónica's 3G and 4G mobile coverage

4- GSMA, The Mobile Economy 2016.

Ease of adoption

Once the infrastructure is in place, and thus users have the possibility to connect to the Internet, other factors become relevant for adoption and use[5]:

- **Social** factors like a lack of digital skills to access the Internet or to use the devices needed. This often goes together with a lack of knowledge of what Internet allows people to do.

- **Lack of relevant content** for the users in their own language or local interests; including services or content that are not adapted to people with special needs.

- **Affordability,** involving both the cost of the Internet access service (broadband connection and data) and of devices needed (smartphone, tablet or computer) .

It is important to note that even with broadband connectivity and devices available at affordable prices for even the poorest, around 20% of people do not access the Internet because they do not know how or do not see the need to do it. The top barrier for Internet adoption in developed countries is affordability while in the developing world it is first and foremost relevance[6].

CASE STUDY

Telefónica's figures

- World presence: 21 countries and an average of 125,000 profesionals
- Consilidated revenues of 38,315 euros in January-September 2016
- Total accesses of more than 349,4 million September 2016: more than 274,8 million mobile phone accesses: 38,8 million fixed telephony accesses; more than 21,7 million Internet and data accesses and 8,3 million pay TV accesses.
- Investments levels: 25M euros/ day, 45 billion euros in the last 5 years.
- Diferent kind of infrastructures worldwide: LD Cable (i.e- recent Colombia LD cable installed: more than 6,000 km of LD cable. The Distance of Paris-Toronto); Fiber (i.e- in Spain, moving from a coverage of 1% in 2009 to 43% in 2015) and Mobile (i.e- in Brazil, moving from 0% in 2007 to 87% in 2014).

5-For more information on Latin America: GSMA, Connected Society. Digital Inclusion in Latin America and the Caribbean, 2016
6-ITU, "Connecting the Unconnected", 2017.

2.1 NETWORK AVAILABILITY: EXPANDING CONNECTIVITY & INFRASTRUCTURE

- **Placing ubiquitous access into national digital agendas.** There is not a single recipe that can work for all cases, but it is key that the allocation of resources should be done in a non-discriminatory and technology neutral way.
- **Modernizing regulatory frameworks,** promoting an environment that rewards risk takers and provides confidence to investors.
- **Favoring competition** along the digital value chain following the principle: "Same service and same user protection".
- **Ensuring that the amount of spectrum** needed is available on a timely basis at an affordable price, encouraging private investments and removing barriers to infrastructure deployment.
- **Promoting innovative technology,** cooperation and coordination will expand connectivity in a more effective way while supporting digital entrepreneurship.

Infrastructure investments

New private infrastructure investments need to be encouraged by public policies, providing confidence and security to investors. Best practices and experiences over the last years have shown:

- A **regulatory environment** that rewards risk takers and promotes a sustainable model of infrastructure-based competition for broadband is essential (see Case Study "Fiber for all?")

- For **remote geographic areas**, where private investments are not commercially feasible, public-private partnerships (PPP) have always shown superior results over pure public investments.

When commercially-driven investments are not feasible, public subsidies for investments, with private management have shown positive results.
An interesting proposal with a holistic approach is the "Gigabit Opportunity Zones"[7] The framework includes a mix of tax incentives targeting both supply –cooperation from local authorities to reduce barriers to deployment and demand –active policies to promote job creation–, including tax incentives in areas where average household incomes fall below 75% of national media.

The Spanish Government has also launched a programme to accelerate coverage expansion of ultra-high speed broadband networks in areas with no current coverage and neither expected in the medium term. Current Broadband Extension Plan –PEBA, Plan de Extensión de Banda Ancha[8]– provides €64 mill. of government subsidies to deploy technology-neutral high speed broadband networks in rural areas, including last mile and backhaul. Subsidies are awarded to private undertakings following non-discriminatory competitive processes; grantees share investment risk by committing a minimum percentage of the project investment ranging from 45% to 60% upon project characteristics.

CASE STUDY

Fiber for all?

In Spain, a change of regulation with a focus to attract investments in high-speed broadband (above 30 MBits) has resulted in massive fiber roll-out by three operators, all surpassing 7 millions of households passed with FTTB. By the time the policy change took place in December 2009[9], Spain ranked 15th by number of homes passed (24th by number of Fiber-to-the-building "FTTB" subscribers) with FFTB, one of the OECD countries with lowest fiber penetration, whereas today Spain is ranked 5th (7th by number of FTTB subscribers) positioning Spain as the leading European country on fiber availability.

7- The Gigabit Opportunity Zones, presented FCC Commissioner Ajit Pai, 2016.
8- Plan de Extensión de Banda Ancha, Spanish Government.
9- World FTTx Market - Markets at June 2016 & Forecasts to 2021 by iDate.

Digital agenda

Governments' national digital agendas can play a decisive role to coordinate different public policies to expand **Internet availability and usage.** They comprise a range of issues such as broadband plans, policies regarding the promotion of an open Internet, the reinforcement of consumer rights or the setting of appropriate taxation. A comprehensive agenda should also encourage private investments, remove barriers to infrastructure deployment and adapt the spectrum policy to the possibility of connectivity in a given country.

Different models can work according to **local conditions** and there is no single recipe that work for all cases. However, it is key when designing those national broadband plans that resources should be allocated in a non-discriminatory and technology neutral way. Digital Agenda models where technology choices are limited to only fixed, mobile or satellite, are less successful than those where the operator can choose and combine any available technology.

Spectrum

The allocation of **spectrum in fair,** timely, and **competitive ways** and ensuring sufficient broadband spectrum availability, are the oxygen of successful policies. The new challenges posed by the convergence of markets and, of course, the process of digitalization means that we need a XXI century regulation. **More spectrum** needs to be released in good time for mobile usage, in particular in **emerging markets.**

Governments should also avoid spectrum-band fragmentation among too many players and prevent speculative investment in mobile spectrum licenses. In addition, the more harmonized the spectrum allocated is, the more economically viable it will be to roll-out broadband networks due to access scale-effects of network equipment. Governments should prioritize coverage obligations over spectrum prices, noting that there will be a trade-off between the two. Better coverage leads to better economic outcomes for the country than short run financial windfalls to the State treasury.

CASE STUDY

Portugal

Several countries have started to introduce these kinds of policies. It is worth noting the case of Portugal, where the National Regulatory Agency, ANACOM, has renewed 2,100 MHz licenses in exchange for increased coverage obligation. Areas lacking mobile broadband were mapped into 544 parishes with each of the 3 mobile operators to provide coverage in 196 of them; the distribution of parishes among operators was to be jointly agreed, with the regulator assigning them randomly in the absence of agreement; coverage can be provided with any spectrum band to ensure the least costly network deployment and one year after the renewal of the licences, at least 75% of the population of each parish should have access to 30Mbps maximum download speed in an external environment.

Same services, same rules, same taxation and user protection

Fast-changing digital markets need to be accompanied by **regulatory modernization.** All policy regimes world-wide have been implemented a **sector-specific regulation** for telecommunication services, but today different agents interact and compete with each other to provide equivalent service to users. It is widely agreed that consumers need to be assured of the same level of protection regardless of the company providing the service, the technologies used or the way services are paid (money or personal data).

In the same way, also t**axation regimes** need to be modernized and adapted to **market realities.** Despite high-speed networks have been identified as key enabler for the development of the digital economy[10] and many governments recognize the role of broadband infrastructure for social development and economic growth, the tax treatment of the industry is not always fully aligned with the objective of connecting all.

It is the **case of governments taxing** broadband providers and consumers above other standard goods and services, sometimes even as luxury goods or services: aiming to connect all and generating tax revenue are separate goals. The range of tax applied is wide and affects not only service providers, but also consumers: from taxes on mobile usage and activations, to taxes on handsets and devices, custom duty on imported handsets, on SIM cards, taxes on providers' revenues, universal service obligation, spectrum or licenses fees.

Policy makers should avoid using infrastructure investment as a source of tax revenue, as it can be a significant disincentive for investment. According to the last GSMA report on taxation[11] for a group of 30 developing countries tax and fee payments amounted to an estimated 29% of market revenues in 2014, of which one third are sector-specific fees and taxes not resulting from broad-based taxation. According to this report, a 50% reduction in sector-specific taxes and fees, could potentially add around 140 million new connections over 5 years, an increase in market penetration of 5% with associated economic and social benefits.

Innovating to connect everyone

In order to expand connectivity to far-off and low income population areas, we need solutions based on a sustainable business model, but in most of these areas current solutions are not sustainable. We have to innovate in order to dramatically reduce CapEx and OpEx requirements to build profitable and long-term sustainable business models.

- **New network deployment and network management models should focus on:**
  Target network deployments properly: where to start deploying and expanding network overtime requires intelligence over areas that are traditionally "uncharted". A consistent nation-wide infrastructure plan needs to be in place to maximize the impact of every investment.

- **Network softwarization:**
  Software is radically changing the way networks are deployed and managed. Operators need to reduce both the investment and costs of network elements by replacing specific purpose hardware equipment with low cost general purpose hardware. Additionally, enabling software based services helps developing flexible networks that can manage an ever growing and uncertain demand more efficiently. Lastly, open software communities are starting to work on solving many of the networking problems motivated by the "unconnected" problem; that might radically change the remote networks' structure costs.

- **Innovative backhaul technologies** (mmWave, drones, balloons, new satellite technologies, ...) make addressable by fast Internet remote areas that were traditionally unreachable.

- **New commercial and last mile network models** could enable more local and flexible operational and management approaches for those areas where incumbents aren't and won't be present in the next years.

We believe Telefónica is one of the companies best positioned to solve this issue in its footprint. It has the know-how, capabilities and the strategic focus to make it possible.

Telefónica is already working on **innovative initiatives** in the short, mid and long term addressing the unconnected issue:

- In the short term we are deploying commercially available technologies to improve our understanding of the rural reality with **Socio-economic & demographic data,** satellite imaging data, customers data, network data and understand where we could create a sustainable investment plan today.

- For the mid term, we are working on scalable technological solutions to significantly reduce costs based on the principles of **Software-Defined Networks (SDN) and Network Function Virtualization (NFV),** and the use of alternative backhaul solutions, like High Throughput Satellite.

- In the long term, we are **embracing business disruptions** like the use of rural communities or local entrepreneurs to take care of part of our last mile. Additionally, we are exploring the most radical technological breakthorughs, like airborne platforms.

It is obvious that Internet connectivity will grow mainly through mobile broadband networks. What is less clear is what technology will be used to do so. 3G and 4G technology have been used up to now and shown impressive results.

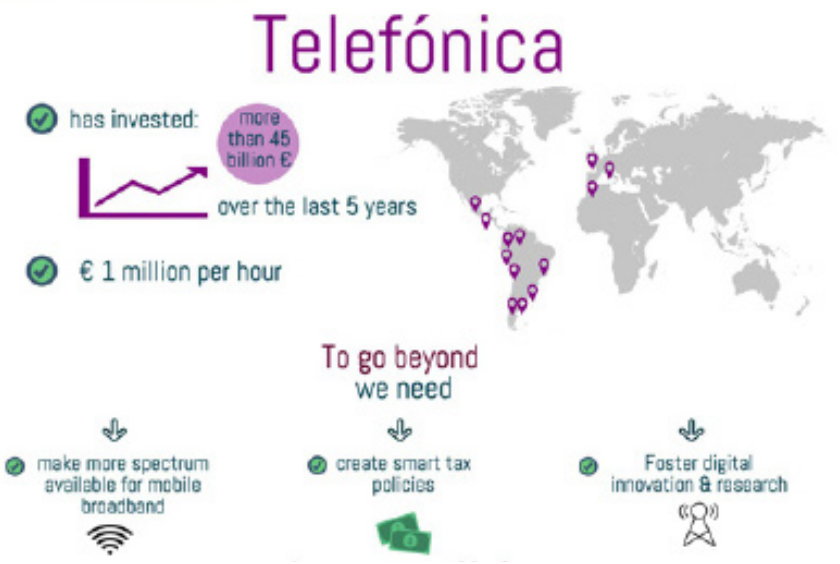
However, such mobile access networks need high-capacity backbones. The lack of such backbone networks through fiber or satellite is creating a barrier to deployment. Firmly convinced that the challenge to connect all will not be solved by a unique agent, Telefónica is additionally participating in other stakeholder and industry groups initiatives such as Telecom Infra Project[12] and X's Loon Project[13]. Public authorities should actively engage in and support such initiatives.

10- OECD, "Key issues for digital transformation in the G20" OECD, 2017.
11- "Digital inclusion and mobile sector taxation 2016", GSMA.
12-"Telecom Infra Project"
13-X's Loon Project

2.2 EASE OF ADOPTION: AFFORDABILITY AND DIGITAL LITERACY

There is an array of factors that affect Internet affordability and contribute to make Internet use affordable also for the poorest in developing countries ("bottom-of pyramid"): price of smartphone prices, fixed-line or mobile access, taxation policies, competition and deployment of innovative business models.
In developing and emerging countries, where nearly 30% of people still live under the poverty line[14], new formulas to make affordable the Internet for all are needed.

The United Nations (UN) agreed in September 2015 a new set of Sustainable Development Goals (SDGs)[15] underlining the potential of the Internet for social and economic wealth .



Source: Telefónica's We connect all infographic

KEY TAKEAWAYS

- Broadband access prices have fallen considerably over the last years.
- Affordability depends on a variety of factors.
- Telefónica already offers Internet access for a day for less than the cost of a coffee or metro trip.
- Technology and business model innovation is necessary to reach the most disadvantaged parts of population ("bottom-of-pyramid") .
- Taxation should incentivize Internet access and usage.
- Value perception and digital skills are critical to increase the use of the Internet and reduce the digital divide.

14- World Bank, Powerty Overview, 2017.
15- United Nations, Sustainable Development Goals.

What does affordable Internet mean?

The Alliance of Affordable Internet[16] and UN Broadband Commission, argue that an average data usage of 500 MB per person each month should cost less than 5% of average monthly income[17].

Such criteria are questioned because they only focus on Internet Access (and not on other relevant factors like devices) and are also rapidly outdated in dynamic markets. They should therefore not been seen as rigid criteria but rather provide guidance for comparison. In fact, Telefónica in our markets already undercuts this affordability criteria: consumers can buy Internet access (1GB per month) for less than 4% of the Gross National Income (GNI).

In **Latin America** we were a pioneer in developing "pre-paid" tariffs to provide mobile services. This approach has allowed to get to an average 112% penetration of mobile connections in Latin-America, which beats many countries with higher Gross Domestic Product (GDP).

Today we are developing in this region sophisticated schemes to access new services favoring the digital inclusion:

- **Charges for day**: Internet per Day Plus provided by Movistar Argentina giving 50 MB a day for AR$6.5 (US$0.41)
- **Charges for application (Apps):** Movistar Peru offers Unlimited Social Networks (Whatsapp, Facebook and Twitter) for 1 Peruvian Nuevo Sol per day (US$0.30) on 15 days or 30 days packages
- **Co-Payments:** allow any customer, no matter their economic standing access to services they wish, selecting and controlling their expenses (Colombia, see case study)

Thanks to these plans, lower income population in Latin American countries have access to mobile broadband.

Source: Telefónica's Connectivity & Internet for all parallax

In most of our markets you can buy Internet for a day for less than a coffee or metro trip

However, this is not enough. Innovative business models and new technologies are essential to lower the costs of devices and data service. Prepaid mobile services are among the most convenient and affordable ways to get connected. For example, small packages with pre-paid tariffs and other services should help to decrease the complexity shown by operators and companies while they sell their products and will make mobile services more convenient by providing greater transparency in prices.

Governments could also contribute in this way, in particular establishing the right tax policy that directly impact on cost. Cases in Turkey and Brazil show how abolition of taxes on SIM cards, just for M2M SIM cards in the later, lead to higher market growth, with new SIM cards growing after tax exemption 38% and 21% more respectively than in the months when tax were in place.

16- Alliance for Affordable Internet
17- Broadband Commission- ITU-UNESCO, Broadband Target for 2015.

CASE STUDY

Colombia Internet Móvil social

Colombian TIC Ministry, a front runner in developing programs to close the digital divide – started as early as 2011–, has launched a new initiative, Social Mobile Internet, aiming to widespread Internet adoption and usage through mobile networks and technologies. This program update is focusing on new Internet users in lower income, socially or geographically disadvantaged population areas. The initiative is addressing most relevant demand side barriers for Internet adoption:

- **Affordability**: eligible users will get a mobile handset and service at retail subsidized price close to COP6.000 per month (US$ 2.04). The Internet mobile service shall include a data bundle of 3-4GB, plus free data from 11pm. to 5.00 am.

- **Relevance:** specific educational content and e-government services will be developed and service shall include unlimited messaging and social networks.

As an initiative fostering adoption and usage of the Internet, eligible users will be able to adhere to the program for a maximum period of 18 months. Eligible users are new users in any of the selected 844 municipalities.
COP 260,000 mill. (US$ 88.4 mill.) have been allocated for the 3 years of the duration of the program, which among others will be covering the difference of the service retail price with the service market cost.
Government is actively engaging mobile players in the program and is asking for proposals to implement the initiative while negotiating terms.

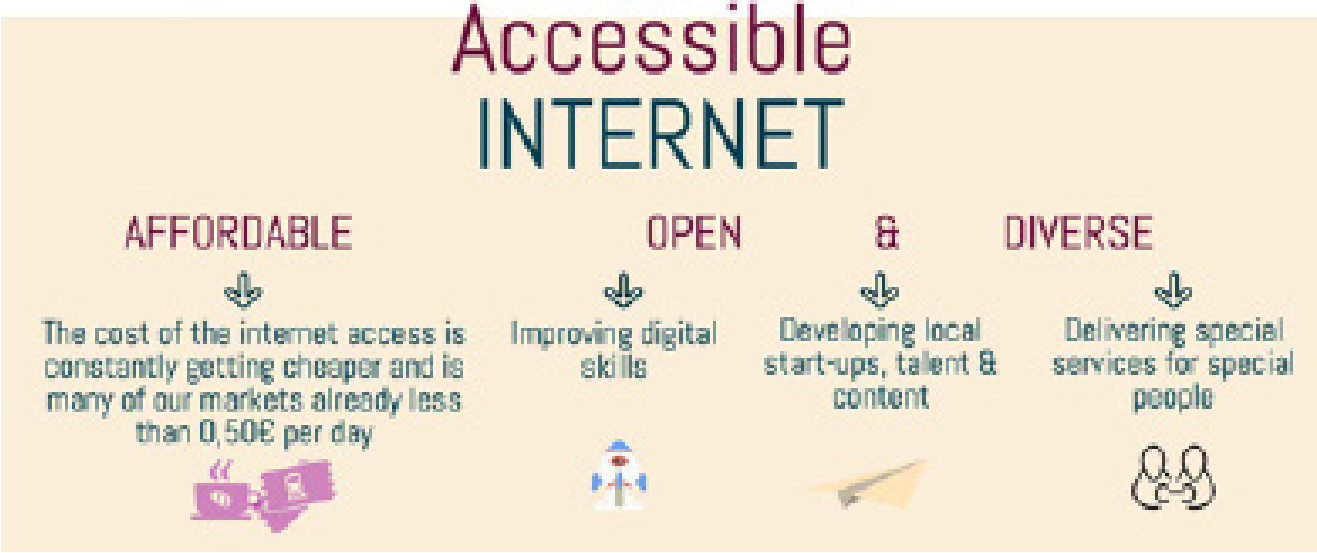
KEY TAKEAWAYS

- ✓ Value perception and skills are critical to increase the use of the Internet.
- ✓ Our recommendations in this regard are the following:
  - Encouraging locally relevant content: relevant content, use of local language and support for the start-up ecosystem.
  - Improving digital skills: changing education systems, offering tailored workshops.
  - Developing products and services for people with special needs.

The perceived value of the internet, as well as digital literacy, are critical to get everyone connected. As many analyses show, focus should be placed on fostering the creation of **locally relevant content and on improving digital skillsets.**

Telefónica therefore encourages governments:

- To promote the creation of **locally relevant content** by supporting a start-up ecosystem tailored to local demand and that can globally compete. At the same time, it should support the training in digital skills in schools but also in ad-hoc created digital centers where citizens could learn digital content skills and also other more advanced skills such as coding and App programing.
- To develop **e-Government services,** which can help a lot to make Internet content relevant: collection of tax, general administrative processes for people living in far-off areas and reporting of city problems, provide Governments with tools to interact and engage with their local community while providing an incentive for the society to get online.
- Finally, implementing accessibility obligations and an assisted digital strategy for **people with special needs**, including age and disability, will reduce the digital division and promote equality of opportunities.



Source: Telefónica's We connect all infographic

Local content

In order to be attractive to new users, Internet services and contents have to be relevant for them. They must bring some value that could turn into benefits for the people that access to the network and for that, it´s an indispensable condition that what Internet offers has to be understood by those who consume it.

Developing **locally relevant content** and a start-up ecosystem (see Case Study " Telefónica Open Future") is another area where we are active by supporting entrepreneurial talent worldwide, helping to turn innovative ideas into successful businesses thank to our Telefónica Open Future programme. Furthermore, Telefónica is also focusing on creating state-of-the-art audiovisual content in Europe and Latin America with *Telefónica Studios.*

Language is also a crucial requirement especially for developing countries that are severely affected by the lack of local language content. 55% of the websites located in the Internet are in English and only around 20-25% of the population speaks it (more than 6,500 languages are spoken around the world.)

CASE STUDY

Telefónica Open Future

Open Future brings together a set of initiatives adapted to the degree of maturity the project has reached fostering local content development worldwide.

It has accelerated over 850 start-ups, invested in over 600 companies, participated in 85 public and private partnerships while having devoted a €350 million investment commitment to develop locally relevant content thanks to a widely spread footprint across 17 countries.

Think Big and Talentum Startups initiatives were created to provide these new entrepreneurs with support in the early stages. Accelerating projects when they become startups under development with entrepreneurs seeking to take one step further with initiatives that help them with acceleration and scalability;

The Crowdworking spaces and **Wayra** have what is needed to aid these entrepreneurs to make progress with their business.
Investing and financing consolidated projects and startups through Amérigo and Telefónica Ventures investment funds.

Digital skills

Digital skills need to be improved across the world. Experience from developed economies, show that even with broadband connectivity and devices available at affordable prices, around 20% of citizens do not access the Internet because they do not know how to do it, or they do not see the need to do it.

One billion people lack of basic literacy skills and most of them live in developing countries. Changing education systems is not easy and it takes a long time to impact in national levels. Telefónica's commitment to connect all is also reflected in how we are approaching social barriers (see case study 4) and is actively engaging with minority groups to enhance their Internet experience, digital life and access to ICTs. Such is the case of people with special needs, for whom Telefónica has developed specific services.

CASE STUDY

Iniciatives of Telefónica

- **Talemtum Schools :** The objective is promoting digital creators that can not only consume digital goods but also are able to understand and create new uses for such technologies.
  ThinkBig : implement young people social entrepreneurship projects for the better life of their surroundings and community by providing mentoring and financing.

- **ThinkBig** : implement young people social entrepreneurship projects for the better life of their surroundings and community by providing mentoring and financing.

- **MiriadaX:** This higher degree education for Spanish speaking students is based on an open and free knowledge and is provided and enriched over the Internet through MOOCs. Over 2 million users have already joined MiriadaX to learn from the 380 available courses mentored by over 1,700 professors from 77 universities.

- **Telefónica Educación Digital, (TED)**, is a company that specialises in offering comprehensive online learning solutions for education and training.

- **ProFuturo,** in 2016, Fundación Telefónica and La Caixa banking Foundation launched ProFuturo, which aims to reduce the world's education gap offering digital skills to kids from Sub-Saharan Africa, Latin America and South-East Asia. The educational proposal includes technologies, educational content and teaching and learning methodology for teachers and pupils with the objective of transforming the education of 10 million children by 2020.

talentum

BlogThinkBig.com

CASE STUDY

Telefónica's solutions

- **App 112.** The first application allows the deaf to communicate using the 112 emergency line through pictograms, videos in sign language in Catalan and Spanish and a geolocation service.
- **Te acompaña** is a mobile telecare service offering enhanced security for the user and their close relatives y emergency situations 24 / 7.
- **Whatscine** allows people with visual or hearing impairments to enjoy the cinema experience, without interfering with the audio and video from other viewers, thanks to special glasses and an app for their smartphone.
- Telefónica does also work in designing services for the less technical savvy people, so that technology does not result in a barrier for ICT's adoption. A great example is the **RADIO ME**, a product developed by Telefónica Labs that helps less technology savvy people to receive and send voice messages via Whatsapp without having to learn to handle a smartphone.

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