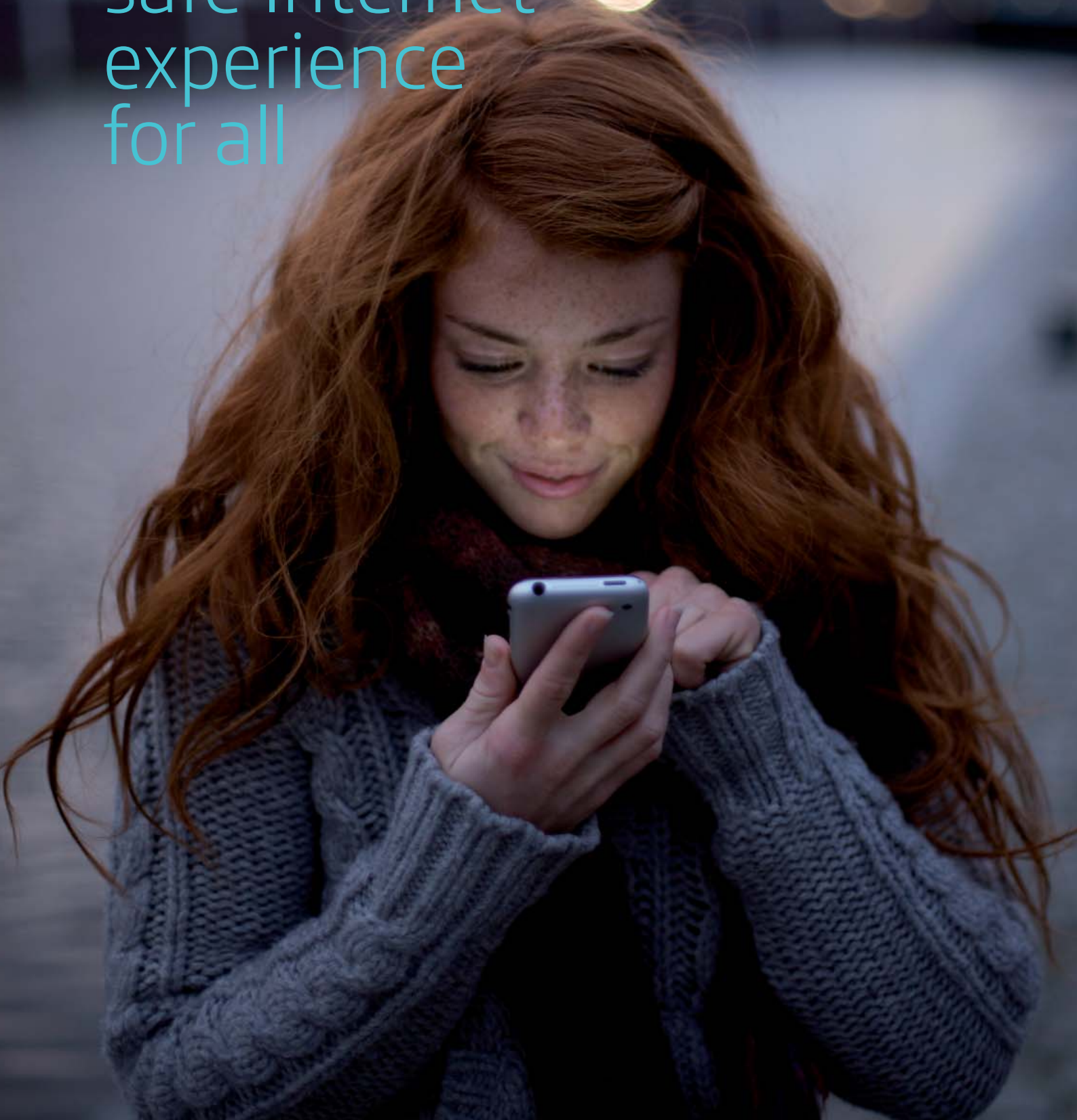# A Digital Manifesto_

An open and safe Internet experience for all

Telefónica

About Telefónica_

Mexico
Revenue 1,742.5 M €*
Investment 427 M €*
Accesses 20,326.9**
Clients 20,622.1**

Central America
Revenue 677.6 M €*
Investment 130.8 M €*
Accesses 9,714**
Clients 10,987.2**

Colombia
Revenue 1,778.6 M €*
Investment 352 M €*
Accesses 14,126.1**
Clients 14,250.9**

Ecuador
Revenue 473.4 M €*
Investment 85 M €*
Accesses 5,019.6**
Clients 5,096.1**

Peru
Revenue 2,470 M €*
Investment 378 M €*
Accesses 20,299.9**
Clients 20,897.2**

Chile
Revenue 2,576.9 M €*
Investment 606 M €*
Accesses 13,147**
Clients 13,452.2**

Venezuela
Revenue 3,388.5 M €*
Investment 463 M €*
Accesses 11,664.6**
Clients 11,861.3**

Brazil
Revenue 14,303.5 M €*
Investment 2,444 M €*
Accesses 91,369.8 **
Clients 91,927.6**

Uruguay
Revenue 254.8 M €*
Investment 28 M €*
Accesses 1,843.5**
Clients 1,845.9**

Argentina
Revenue 3,912 M €*
Investment 519 M €*
Accesses 24,136**
Clients 26,999.4**

Present in 24 countries:

Argentina, Brazil, Chile, China, Colombia, Costa Rica, Czech Republic, Ecuador, El Salvador, Germany, Guatemala, Ireland,

62,356 M €*
joint revenues

9,458 M €*
total investment

133,263 employees
95% of all contracts are permanent

* Data in million euros for Fiscal Year 2012 / ** Data in thousands as of June 2013

We believe that the possibilities of technology should be open to everyone

United Kingdom
Revenue 7,235.1 M €*
Investment 748 M €*
Accesses 23,842.2**
Clients 23,680.2**

Germany
Revenue 5,514.9 M €*
Investment 609 M €*
Accesses 25,372.8**
Clients 25,436.6**

Ireland
Revenue 629 M €*
Investment 192 M €*
Accesses 1,572.7**
Clients 1,559.1**

Czech Republic
Revenue 1,787.8 M €*
Investment 248 M €*
Accesses 7,900.1**
Clients 7,797.2**

Slovakia
Revenue 188.6 M €*
Investment 19.6 M €*
Accesses 1,354.2**
Clients 1,471.4**

Spain
Revenue 15,173.3 M €*
Investment 1,692 M €*
Accesses 43,140.3**
Clients 41,963.3**

And_
Telefónica reinforces its global scale with alliances and collaboration agreements. Through our strategic alliances with China Unicom and Telecom Italia, we reach 871 million customers.

Italy, Mexico, Nicaragua, Panama, Peru, Puerto Rico, Slovakia, Spain, UK, Uruguay, USA and Venezuela.

315.7 million accesses

1st European operator by revenue

7th operator in the world by market capitalization

A Digital Manifesto_

Telefónica's policy recommendations to create an open and safe Internet experience for all and unleash the full potential of the Digital Economy:

1. **Build Digital Confidence through a safer Internet experience** and by empowering citizens to be in control of their personal data.

2. **Create a Portable Digital Life** for consumers by allowing them to use their data, information and applications regardless of their devices or platforms.

3. **Open up mobile Operating Systems, App Stores and other digital platforms** to increase users' freedom, choice and competition.

4. **Promote interoperable Internet applications, communication and messaging services** to improve consumer experience and foster competition.

5. **Improve transparency** about the conditions of use for Internet services and the distinction between information and advertisement in online search results.

6. **Transform education, learning and teaching** by widely adopting digital technologies and services based on Open Resources and Standards.

7. **Promote Open Innovation and Open Standards** principles and prevent that undue Intellectual Property protection restricts innovation in the Digital Economy.

8. **Create fairer policy frameworks by establishing the same rules for the same digital services** and smarter regulation by relying more on outcome-based policy making and case-by-case supervision.

9. **Make Internet available to everyone** by establishing adequate conditions for private investment in broadband infrastructure.

10. **Evolve the policy models of Global Internet Governance** by building on its existing foundations and through involvement of all stakeholders in an open manner and on equal footing.

A Digital Manifesto_

An open and safe Internet experience for all

Telefónica

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We Believe_

The Digital Revolution has just started and the rules are not written yet. We believe that technology should be open to everyone. But to unleash the full potential of the Digital Economy, it will need forward-looking, fairer public policies and a better cooperation between all stakeholders, public and private.

As a starting point, we have defined a Digital Manifesto of policy recommendations to improve the Internet experience of consumers and generate more investment in digital infrastructure.

Telefónica

movistar / O₂ / vivo / ARE TELEFÓNICA BRANDS

Foreword_

Our economies are undergoing dramatic changes. The financial crisis and following recession have shifted the global business landscape and have put emerging markets into the spotlight while more developed economies are still suffering sluggish growth.

Against this backdrop, it is even more remarkable that **the Digital Economy has emerged, through the recent years of crisis, as the new powerhouse of business and social transformation**.

New technologies based on mobile connectivity, social media, cloud computing and Big Data are leading the way, driving innovation and greater efficiency. Innovestment –investment and innovation– is the fuel of a new digital virtuous circle: attractive digital technologies drive consumer demand, create growth and jobs, and at the same time enable societies to use their resources more efficiently while making their economies more competitive and productive. **Connectivity is the key to this Digital World and the Internet is its basis**. Often it is overseen what it consists of: globally connected physical networks, which enable the transfer of information from one point to another, resource elements, where data is stored, and the social elements, where human collaboration and networking takes place.

The Digital Revolution is driven by new high-speed Internet connectivity and innovative services, and Telefónica is a key enabler for both. And we have only seen the beginning: it is expected that the Digital Economy annual growth for the next five years will be 8% in the G-20 countries and as much as 18% year-on-year in developing markets[1].

This digitally-fuelled growth will happen across all nations and has the potential to improve people's lives regardless of where they live and work. Today, two thirds of the world population is not connected to the Internet. And for the other third, infrastructure and network upgrades will be necessary to meet the massive growth in data traffic. Such investments will need to come from the private sector, mainly communication and broadband providers. Despite the challenging economic environment, Telefónica alone has invested nearly €50 billion over the last five years.

Digital technology does not recognize physical boundaries or respect companies that have been successful in the past. **The low barriers to entry, the minimal cost of innovation, and the speed with which customers adopt new products, have given the Digital Revolution an unstoppable momentum**. Society and business will change whether we like it or not. Economies, societies and companies that embrace the change can prosper. It is those who stand still who will be left behind.

This Digital Revolution is the biggest period of economic, technological, and social change since the Industrial Revolution. It is natural that any tectonic shift of such scale also creates challenges for policymakers and regulators.

1.- BCG, The 4.2 Trillion opportunity - The Internet Economy in the G20; March 2012.

In this document, Telefónica highlights the policy issues and challenges that we believe deserve further debate between all stakeholders. It will be crucial that also policies and regulations reflect the ever changing digital realities, if we want to unleash the full potential of the Digital World for consumers, businesses and administrations.

There are no easy answers as competition in the Digital Economy and across the Internet Value Chain is complex and rapidly evolving. It is therefore vital that policymakers focus on the right issues: promoting investments, competition and innovation. We have to ensure that policy frameworks rooted in the 20th century do not hinder growth, innovation, or consumer's protection in the 21st century. We recognise that policymaking struggles to move at the same speed as evolutions of technology and markets. So there needs to be close cooperation between the public and private sector, united by a common vision. Also, regulation should only apply where a case-by-case application of competition law is not sufficient. Adapting rules to the new Digital World does not mean creating more regulation. Often an outcome based policy approach can yield better results in a fast changing technology environment. **It means creating smarter, more flexible, lighter regulation and fairer policy frameworks that apply the same rules for the same services**.

As a starting point, we have defined a Digital Manifesto of policy recommendations to improve the Internet experience of consumers and generate more investment in digital infrastructures.

The Digital Revolution has just started. **We believe that technology should be open to everyone so that we can all be more**. As a Digital Telco, Telefónica will drive these changes and help people to access and enjoy the best that technology can offer. It is amazing what technology allows us to achieve and how it improves people's lives. We should all cooperate to unleash the full potential of the Digital Economy.

César Alierta Izuel
Executive Chairman and
Chief Executive Officer of Telefónica S.A.

A Digital Manifesto_

Telefónica's policy recommendations to create an open and safe Internet experience for all and unleash the full potential of the Digital Economy

1. Build Digital Confidence through a safer Internet experience and by empowering citizens to be in control of their personal data.

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5. Improve transparency about the conditions of use for Internet services and the distinction between information and advertisement in online search results.

8. Create fairer policy frameworks by establishing the same rules for the same digital services and smarter regulation by relying more on outcome-based policy making and case-by-case supervision.

9. Make the Internet available to everyone by establishing adequate conditions for private investment in broadband infrastructure.
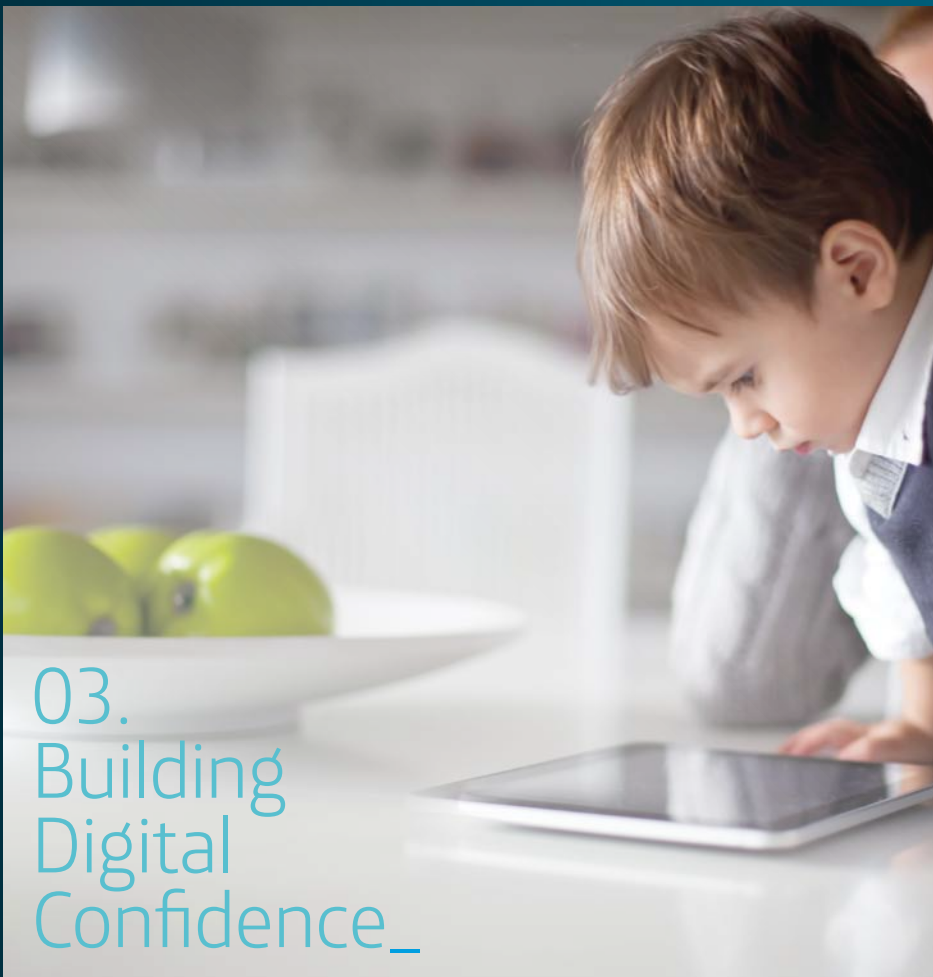
10. Evolve the policy models of Global Internet Governance by building on its existing foundations and through involvement of all stakeholders in an open manner and on equal footing.
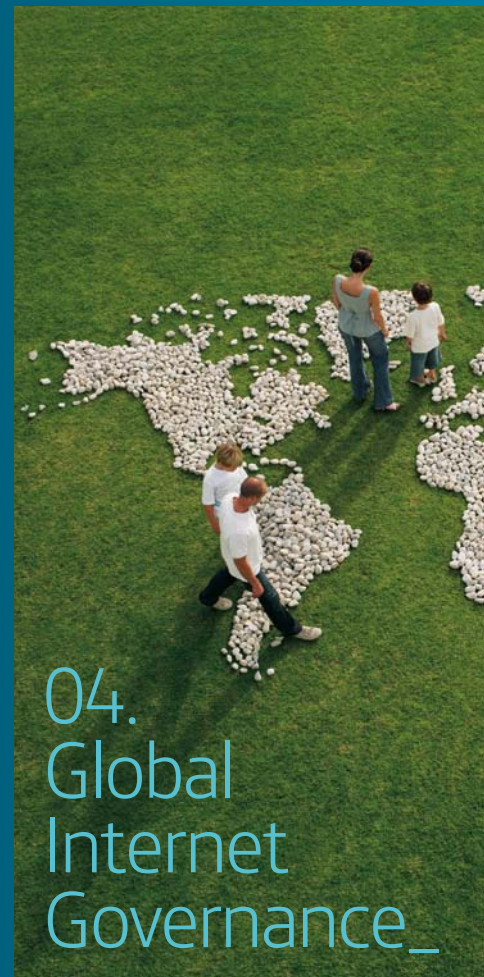
Building Blocks_

02.
The Open Agenda for our digital future_

05.
Adapt Public Policies to the new Digital Markets_

01.
The Big Picture_

A wake-up call
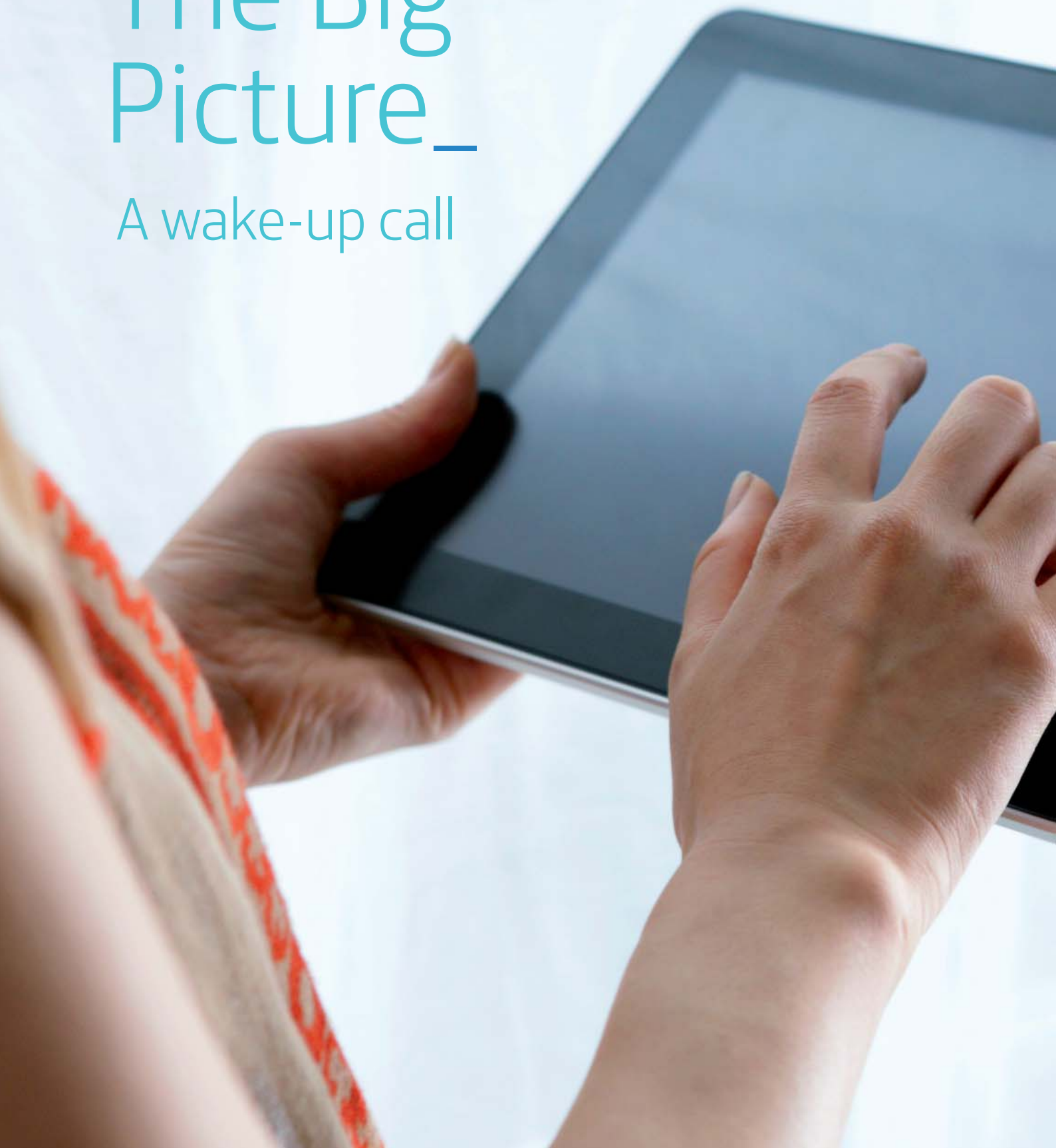
> *We are living in one of the most exciting periods in Human history, in the middle of a Digital Revolution that affects and challenges everything. It transcends all societies and is irreversible. Today, the processing capacity of an average smartphone is greater than that of the technology NASA had to send the first man to the Moon – just think about the possibilities for our societies if everyone on Earth would have such a device connected to the Internet!*

José María Álvarez-Pallete López
Chief Operating Officer of Telefónica S.A.

01. The Big Picture: A wake-up call

KEY TAKEAWAYS

> The Digital Revolution is an unprecedented catalyst for change, transforming our lives, societies and economies.

> The Digital Ecosystem is the biggest marketplace on Earth and the engine of growth and productivity.

> The main challenge for the Internet will be to get everyone connected and using it. Telefónica wants the possibilities of technology to be open to everyone.

> The Digital Economy is geographically unevenly distributed, creating challenges for its sustainability and governance.

> Consumers want greater control over their digital lives and an open, private and safe digital experience.

The Internet: Changing our lives and disrupting our economies and societies

The Internet is present in our everyday life: at home, at work or in our entertainment. Internet networks connect today over one third of Humanity and this is transforming all societies from an economic, political and social perspective. Digital technologies change how we live, how we share knowledge, how we create, how we produce, distribute and consume. They also change the way citizens communicate their wishes and demands to policymakers and how national economies create wealth.

And we are only really just at the beginning of the Digital Revolution!

Technological quantum leaps of this scale do not occur very often. Today, we create in a few days as much data as

all previous generations of Humanity have created until the invention of the Internet. It is the ICT sector with new technologies and innovation which is fuelling the Digital Economy and driving this dramatic period of change.

New, innovative and attractive services are flourishing, often based on machine to machine technology, Big Data, Cloud Computing and social networks. The Internet and Digital Economy is here to stay: no society or community is immune to the transformative and disruptive power of the Digital Revolution. Countries and companies that will embrace the change will prosper.

Connected living –often described as the Internet of Things– is the next exciting phase in the evolution of the Internet. It is now possible for any object or device to communicate with any other object or device over wireless or fixed networks. By 2020, twenty billion objects in the World will be connected via the Internet[2].

2.- CISCO, White Paper, Embracing the Internet of Everything to Capture your Share of $14.4 Trillion, February 2013.

New Digital Solutions offer by Telefónica

- M2M
- Security
- Big Data
- Video
- e-Health
- Cloud Computing
- Financial Services

Self-driving vehicles, intelligent refrigerators, stroke-detecting gadgets and many other innovative solutions will be part of our lives. Better efficiency and higher productivity will be the benefit. To put it simply: the Internet of Things will enable us to do more with less effort.

The range of potential applications is wide: from smart cities (see case study 1), clean tech (air pollution, fire detection or smart monitoring), intelligent shopping solutions (mobile payments) and smart metering (see case study 2) to home automation, energy saving, remote security products, and e-Health applications.

Telefónica has understood this need and is transforming itself into a Digital Telco. In 2011, it created Telefónica Digital, a new global division to seize new business opportunities in the Digital World, including connected machines, future rich communication (FRC), Cloud, Big Data, e-Health, mobile advertising, financial services, video and cyber-security.

For example, Telefónica Digital is developing products and services for connected machines and the Internet of Things, which will help businesses and public institutions to improve their productivity and sustainability. In 2013, we have been awarded with the deployment of two thirds of the smart metering program of the UK (see case study 1). We are also involved in various projects to make cities smarter and more sustainable by better managing in an automated way issues like mobility, lightning and security.

Information Security is another area that is becoming critical in the Digital World. We are committed to help all our customers (consumers) to embrace and make the most of the Digital World by providing them with the tools they need for a safe and secure digital experience.

Internet of Things: Telefónica UK, a key partner of the UK Smart Meter Implementation Program

Telefónica has recently been selected by the UK Department of Energy and Climate Change (DECC) as the Communications Service Provider in a nationwide program to install smart gas and electricity meters in every home and small business by 2020.

This national network of smart meters will transform the energy market in the UK and is expected to deliver a net benefit to the UK of €8 billion through reduced energy consumption and more efficient management and deployment of energy across the country. It is estimated that a smart meter enabled industry could also save 2 billion tonnes of CO_2 a year in 2020[3].

53 million smart meters will be installed across the UK by 2020. Telefónica UK will provide the communications infrastructure to connect smart meters in the central and southern regions of Great Britain. The technology solution —which was selected by DECC— is based on Telefónica UK's existing cellular network.

3.- *The Climate Group, Smart 2020: Enabling the low carbon economy in the information Age, 2008.*

How can we make our cities smarter? The learnings from Telefónica's Smart Santander project

More than half of the World's population lives in cities and this proportion is increasing day by day. As urban environments are becoming more densely populated and more complex, cities face challenges in a number of different areas: congested transport infrastructure, air quality and pollution, energy efficiency and climate change.

We believe digital technology –including connected sensors, machine to machine communication, Cloud Computing and Big Data– can be used to help overcome these challenges, create smarter cities, and improve quality of life.

We were therefore proud to have been given the opportunity by the European Union to be lead partner in Smart Santander. Indeed, Telefónica has deployed 20,000 sensors making the city of Santander the world's most advanced Smart City. Additionally, over the last three years, we have worked with a consortium of public and private sector organizations enabling the city with the following services:

Real-time view of traffic jams and available car parking spaces.

Precise measurement of air quality and ozone levels across the city to ensure they are kept to within EU standards.

Remote dimming of street lamps on empty streets or when there is full moon, for example. New bulbs are also automatically ordered when needed.

Optimised watering in city parks so no water is wasted.

Only garbage bins that are full are collected, minimizing needless trips by municipal workers (coming soon).

Traffic jams and accidents are tracked in real time.

The Digital Economy: Boosting national economies worldwide

Many international studies have shown how Broadband and the Internet improve economic growth and productivity[4].

> A 10% higher penetration for Broadband Internet Access increases GDP by up to 1.5%[5];

> Investments in ICT generate more productivity growth than other capital investments[6];

> Digitization has boosted world economic output by €141 billion over the past two years and created 6 million jobs during that period[7];

> An increase of 10% in a country's digitization score fuels a 0.75% growth in its GDP per capita and a 1.02% drop in a State's unemployment rate[8];

> In emerging economies digitization could help lift over half billion people out of poverty over the next decade[9];

> The Digital Economy is creating new jobs, is making labour markets more inclusive and is creating completely new business models[10].

The Digital Economy is mainly made up by the ICT Hypersector which comprises four main industries: Telecom, IT, Consumer Electronic and Digital Contents. Each industry is again divided into various markets, totalling over 20 across all industries included in the ICT sector. Together, the ICT Hypersector spends €4.32 trillion, one third of which is spent by telecom companies alone (see chart 2).

Competition in and between these digital markets is fierce, with companies from one market often entering and disrupting other digital markets. There is a dynamic characteristic of the Internet Value Chain as the different players move energetically to adjacent segments of the chain in search of efficiency and market power[11]. At the same time, the business models of the various parts differ significantly. Growth of digital Internet services can be typically very fast due to low marginal costs, fuelled by network effects and usually based on commercial advertisement, while network infrastructure has very long amortisation times, huge up-front investments and subscription-based tariffs paid by customers[12]. This Digital Ecosystem, with its many different business models, forms arguably the biggest marketplace on Earth – and without a doubt the engine of growth for tomorrow's most successful economies.

4.- OECD, Impact of the Internet in OECD countries, June 2012.

5.- ERT, Boosting EU competitiveness and jobs through the digital economy, July 2013.

6.- Oxford Economics, Capturing the ICT Dividend: Using technology to drive productivity and growth in the EU, April 2012.

7.- WEF, The Global Technology Information Report. Growth and Jobs in a hyperconnected World, 2013.

8.- Idem.

9.- Idem.

10.- World Bank, Connecting to Work. How ICT could help expand employment opportunities, September 2013.

11.- A.T. Kearney, A Future Policy Framework for Growth, A report for the European Telecommunications Network Operator's Association (ETNO), 2013.

12.- A.T. Kearney, Internet Value Chain Economics. Gaining a deeper understanding of the Internet economy, 2010.

ICT Global Framework: Definition and size of ICT Hypersector

Telecom, IT, Consumer Electronics & Digital Contents and Entertainment are included in this approach to the ICT Hypersector.

The ICT Hypersector spending reached ~$4.3 trillion in 2012, and the share of the Telecom industry totaled ~$1.6 trillion, representing more than one third of the total overall.

ICT Hypersector Spending (2012) ($ Bn)

Total $4.32 trillion

Total $1,574 Bn

Fixed Data	305
	+4.5%

Fixed Voice	317
	-4.5%

Mobile Data	352
	+12.0%

Mobile Voice	600
	+1.5%

Telecom

Total $1,327 Bn

Telecom Equipment	152
	+3.2%

Hardware[1]	367
Server Systems Storage Peripherals	+6.3%

Software	367
System Infrastruct. Application D&D[2] Applications[2]	+6.3%

IT Services	632
Training & Education Planning Implementation Support Services Operations Mgmt	+4.1%

Information Technology

Total $788 Bn

Others	88

Tablets	41 +21.0%

Flat pannels TV	154
	+6.3%

PCs	231
	-2.5%

Non Smartphone	80
	-3.0%

Smartphone	194
	+13.8%

Consumer Electronics

Total $628 Bn

Others	36

Video games	40 +21.0%

B2B	112
	+5.6%

Internet Adv.	100
	+13.7%

TV & Filmed	340
	+5.5%

Digital Contents

Telefónica A Digital Manifesto. An open and safe Internet experience for all
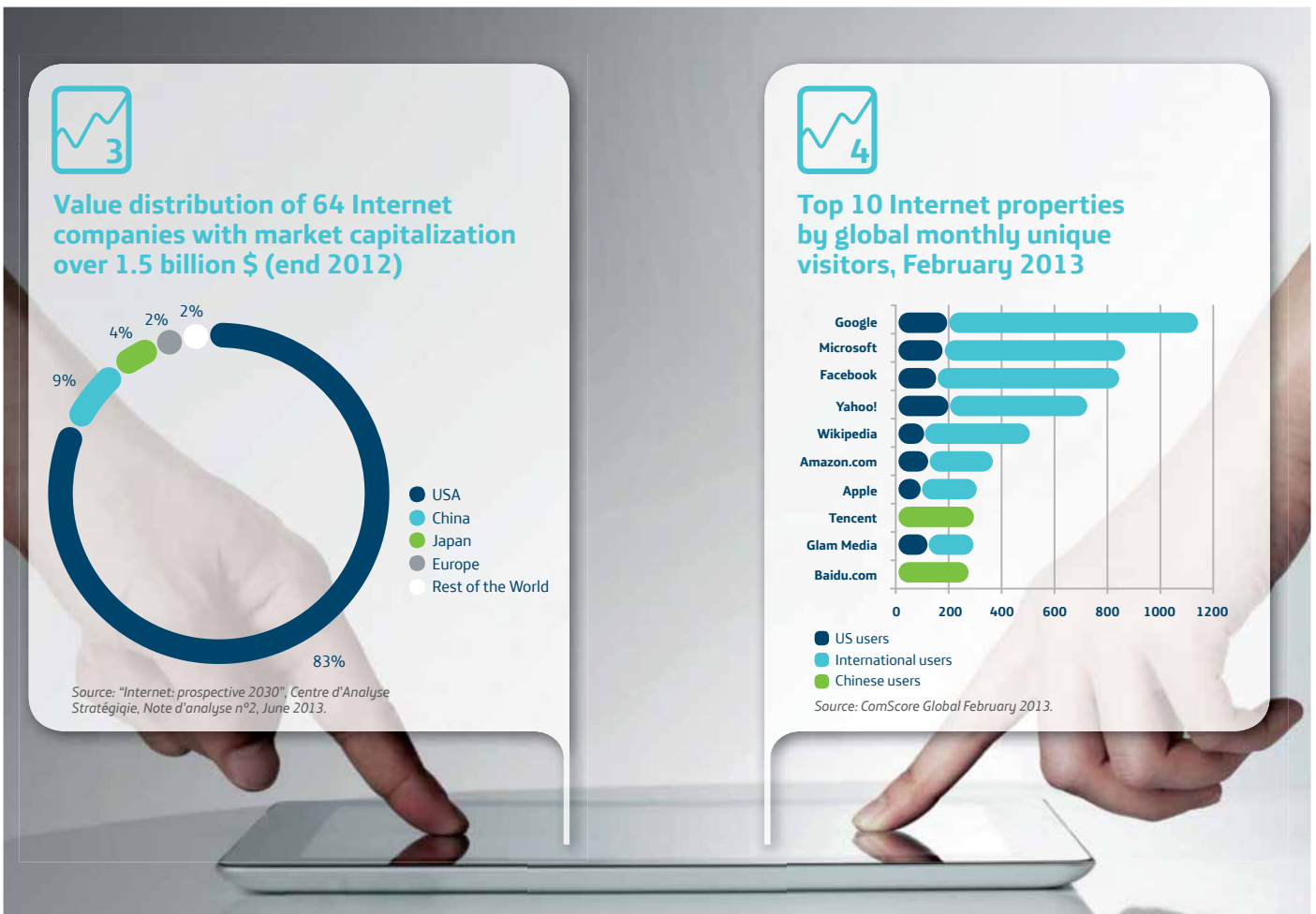
20

The Digital Economy needs to become truly global if it is to remain sustainable

A huge challenge is that the Digital Economy is not evenly distributed around the World. Many of the leading Internet companies and digital services which dominate most parts of the Internet Value Chain originate from North America or from a handful of countries in Asia[13], while other regions like Europe, Latin America or Africa have very few comparable Internet companies or services.

The figures in detail show that USA dominates globally and the Asian companies within their national borders: of the 10 biggest Internet companies by market capitalization, 8 are based in the USA and 2 in China. In fact, currently, only one out of the biggest 25 Internet companies is from Europe. 83% of total global market capitalization of Internet companies is by US-based companies and just 2% is from European-based entities (see chart 3). This contrasts starkly with the fact that over two-thirds of the global Internet users are from outside the USA.

Such massive economic asymmetries and imbalances endanger the sustainable development and stability of the global Digital Economy[14]. Inevitably policymakers from regions with small shares of the global Digital Economy will look to employ measures which enable them to retain fair shares of the value creation for their national economies, e.g. through taxes or other regulations.

3

Value distribution of 64 Internet companies with market capitalization over 1.5 billion $ (end 2012)

9%
4% 2% 2%

- USA
- China
- Japan
- Europe
- Rest of the World

83%

Source: "Internet: prospective 2030", Centre d'Analyse Stratégiqie, Note d'analyse nº2, June 2013.

4

Top 10 Internet properties by global monthly unique visitors, February 2013

Google
Microsoft
Facebook
Yahoo!
Wikipedia
Amazon.com
Apple
Tencent
Glam Media
Baidu.com

0   200   400   600   800   1000   1200

- US users
- International users
- Chinese users

Source: ComScore Global February 2013.

13.- *Georg Serentschy, The virtuous circle, New regulations, Innovation and Investment. How to bring Europe back to the top, BEREC, July 2013. And for further information: Centre d'Analyse Stratégique, Internet: prospective 2030, Note d'analyse nº2, June 2013.*

14.- *For more information: A.T. Kearney, A Viable Future Model for the Internet. Investment, innovation and more efficient use of the Internet for the benefit of all sectors of the value chain, 2010.*
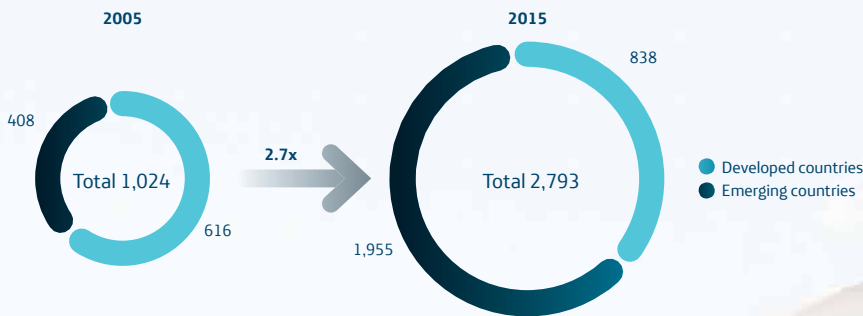
5

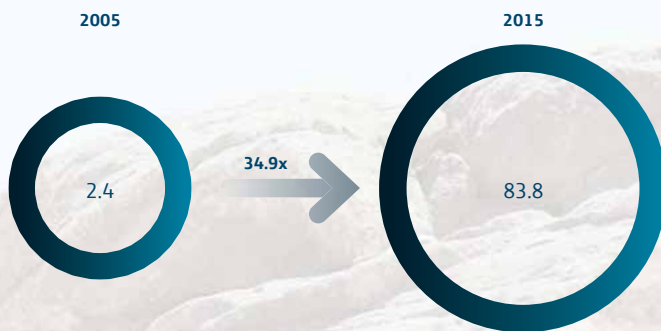## The "OLD Internet" has grown to become a different "NEW Internet"

From fixed location to anywhere
Consumer broadband connections (millions)

2005

2015

Total 220

18.2x

Total 4,000

800

3,200

● Fixed
● Mobile
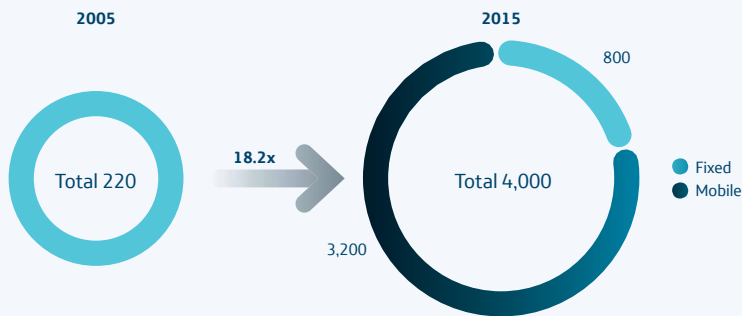
From developed to emerging countries
Worldwide Internet Users (millions)

2005

2015

408

Total 1,024

616

2.7x

Total 2,793

838

1,955

● Developed countries
● Emerging countries

Data explosion
Global IP traffic (exabites/month)

2005

2015

2.4

34.9x

83.8

Our vision: Connect the Unconnected – Let everyone use the Internet!

The main challenge for the Internet will be to get everyone connected and using it. Today, there are 2.7 billion human beings already using the Internet worldwide[15]. However, this means that 4.6 billion are still unconnected. Over 90% of these people are living in developing countries.

If this does not change, these countries will not receive any of the benefits of the Digital Economy: higher GDP growth, greater employment or higher productivity, improved public services, etc.

Do you want to do more with your technology? Ask a Guru!

Telefónica has launched the Guru program in order to bring people and technology together in a way that is both enjoyable and convenient. Gurus are digital experts found in over 800 Telefónica sales points around the World. Their main objective is to remove the barriers that exist around new technologies and help people understand and resolve any doubts they might have when choosing or learning to use the Internet or other digital services and devices.

Gurus do not only explain customers how to use our services but how to get most out of them: for example, advising them the way to use WIFI, an App or how to transfer an address book from a device to another. They also inspire curiosity by sharing the latest trends and how technology can help you in your day-to-day life.

Telefónica believes that any attempt to tackle this great socio-economic challenge needs to be a comprehensive one, working between all involved stakeholders to achieve improvements across various issues:

> **New private infrastructure investments need to be encouraged by public policies which provide confidence and security to investors.** Fundamental to this are a predictable and stable regulatory environment for broadband investments and a level playing field for all companies in the Digital Ecosystem. Moreover, markets must be supervised by independent regulatory authorities with a clear mandate to focus on competition, innovation and investments. For remote geographic areas, where private investments are not commercially feasible, public-private partnerships have shown superior results over pure public investments;

> **Affordability of digital services and products need to be improved** by using new technologies and adopting open standards. Access to the Internet for today's unconnected will be based mainly on mobile technologies; but while mobile broadband connectivity prices have been falling in all markets, this is not happening in the same way for other parts of the Internet Value Chain, for example the cost of smartphones or tablets *(for more information see chapter on the Open Agenda)*;

> **Digital skills need to be improved in all societies**. Experience from developed economies show that even with broadband connectivity and devices available at affordable prices, around 20% of consumers do not access the Internet because they do not know how or do not see the need to do it. All, public and private entities need to work together to improve digital skill levels and abolish this Digital Divide.

15.- ITU, The World in 2013. ICT facts and figures, 2013.

Telefónica wants technology to be open to everyone. Telefónica has invested around €9.5 billion in new broadband infrastructure in 2012 alone. 57% of these new investments were in Latin American countries. In more than 20 years, Telefónica has invested around €114 billion in this world region, becoming the biggest private investor regardless of any industry sector.

Telefónica has also developed and participated in various programs and initiatives to help reduce the connectivity gap in remote rural areas. Programs such as "Intégrame" or "ConectaRSE" have been very successful in connecting hundreds of thousands of people in rural areas to the Internet (see case study 4).

From isolation to Digital Inclusion: Delivering solutions for the Unconnected

Telefónica believes that public-private partnerships can play an important role in providing connectivity to remote regions[16]. There are a wide range of initiatives based on public-private cooperation that have proven to be key contributors for narrowing the digital divide:

Intégrame: Public-private partnership to deploy communications facilities in isolated areas, through wireless technology. Through rolling out 32 new base stations in 29 districts of Peru during the last 4 years, Intégrame has connected 229 villages, benefiting more than 70,000 inhabitants.

Media Networks: a Telefónica Digital company, provides a pioneer Internet Access service through Ka band satellite communications in Latin America. Available since 2013 in six countries in the region, it plans to reach over 800K homes in the next 4 years.

M-Inclusion: Funded by the European Commission, this public-private initiative facilitates online dialogue between developers of inclusive mobile solutions, and potential users who are at risk of social exclusion (low income, disability, chronic illness, and isolated areas). M-Inclusion aims also to act as a collaborative forum to reinforce the ecosystem integrated by governments, private entities, NGOs, academics, and researchers, which have the common goal of promoting the digital inclusion. All ecosystem players can participate in the M-Inclusion community free of charge, and access a variety of services, including a virtual marketplace, where developers can offer their inclusive applications to targeted end users.

Telefónica A Digital Manifesto. An open and safe Internet experience for all

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Reducing the connectivity gap is not only taking the Internet to remote rural areas, but also providing solutions for people with special needs. Telefónica innovates to eliminate barriers by improving their communication possibilities with tailored-made services (see case study 5).

Telefónica is also working together with the Mozilla Foundation to make smartphones more open and affordable through the new Firefox OS (see chapter on *Open Agenda*).

Finally, Telefónica is helping to improve digital skills through initiatives like Think Big School, Telefónica Learning Services, Fundación Telefónica Classrooms, or Fundación Telefónica Labs (see chapter on *Redefining Education*).

We also allow lowering barriers for entrepreneurship and access to participate in the Digital Economy through programs, like Wayra, targeted at creating thousands of startups and digital creations by 2015 (see chapter on *Cooperate for speeding-up innovation*).

It will be important for the Internet's future sustainable growth to find ways to incentivize investments for new infrastructure into more powerful networks, especially regarding mobile access in the developing World. Such a model will need to make sure that all players along the digital value chain can benefit fairly from higher usage of services and data growth on a level playing field.

Social Innovation at Telefónica:
Providing innovative services to people with special needs

Around 1 billion people suffer some kind of disability worldwide. Due to the aging trend of some countries' populations, the amount of people with some form of special needs will continue to rise in the coming years. Accessible and affordable digital solutions will help to improve their quality of life by providing them with independent living.

Telefónica has a long history of commitment to users with special needs, including collaborative programs with specialized Public Institutions and NGOs, which help people with disabilities:

> **WhatsCine** allows hearing and visually impaired people to enjoy movies without conditioning the experience of others without disabilities. On the one hand deaf persons can enjoy virtual sign language translation and subtitles of the film by download an application to their smartphone or tablet and connecting with the cinema auditorium WiFi, they can enjoy virtual sign language translation and subtitles of the film. Alternatively, they may use specific glasses, which will display virtual sign language translation. On the other hand, the application allows blind spectators to enjoy audio-descriptive services with no interference from and to the auditorium movie sound.

> **Emergency services for hearing impaired persons:** Through its Integrated Emergency Service (SENECA), Telefónica has developed a smartphone application which allows persons with impaired hearing to communicate with the emergency number 112 through pictograms, videos in sign language and geo-location services.

> **SVisual platform** is a video conferencing service with a built-in call center that allows deaf people to communicate and interact with the Public Administration and with other institutions, through remote sign language interpreters. The service is supported by the "Teleinterpretation Centre for Deaf People", which was founded by the Telefónica R&D unit based in Granada, in collaboration with the Andalusian Federation of Associations for the Deaf (FAAS), a member of the National Confederation of Deaf People (CNSE).

> **3D Avatar** provides simultaneous translation of sentences and speeches into Spanish sign language (SSL), allowing people with hearing problems to participate in a videoconference or watch TV. 3D Avatar was developed in collaboration with "Universidad Autónoma of Madrid" (UAM) and the CNSE (Spanish National Confederation of Deaf People).

Telefónica has also identified social entrepreneurship as a key source of sustainable ICT solutions to tackle the needs of people with disabilities. For example, Telefónica has in 2013 launched **Wayra UnLtd** together with the UK government as a business accelerator for social digital start-ups. Many of the supported initiatives tackle needs of people with disabilities:

> **SkinAnalytics**, which turns smartphones into data collection devices and gives medical doctors more information to aid diagnosis.

> **Lingoing**, an online system that provides an easy, straightforward and value for money way to source Language Services Professionals, including sign-language interpreters.

> **MySupportAssistant**, a new way for people to set out their care & support needs and link them appropriately to people who offer such services.

Telefónica A Digital Manifesto. An open and safe Internet experience for all

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Consumers want a better Internet experience

Telefónica wants technology to be open to everyone because it improves people's lives. To understand better what today's young users of digital services expect for their future, Telefónica has together with the Financial Times carried out the largest and most comprehensive global survey[17] of the "Millennial Generation" which has ever been conducted.

One of the most refreshing findings is what the Millennials think about the new World that is coming. We asked more than 12,000 young adults, aged 18-30, across 27 countries, regarding their feelings about the World they live in, how technology impacts their lives and their personal goals and dreams. Millenials believe that technology in fact is creating opportunities for individuals and two thirds of them believe that digital technology will enable them to become an entrepreneur.

17.- For more information: http://survey.telefonica.com/

In the light of the Millennial study results, Telefónica considers that governments should:

> Rethink how to engage with citizens through digital technology;

> Foster Open Education platforms and digital skills;

> Work on policies to close the digital divide;

> Improve conditions for entrepreneurships and startups.

Another survey among users of the Spanish social network Tuenti[18] found that the majority of them have real concerns about how their privacy is protected, and that this limits the way they use the Internet and digital services. Consumers want to have the freedom to change their applications from one device to another. They want to move their data from one social network to another, and they want interconnected services and not proprietary systems and walled gardens.

ONE SECOND ON THE INTERNET

100,000

571 websites created

684,478 shared items

47,000 downloaded online

App

2 Mill searches

3,600 photos shared

48 h video uploaded

$ 272,000 spent online

Source: Telefónica analysis based on Social and Digital Media Revolution Statistics 2013 from MistMediaGroup (htt://youtube.com/watch?v=SIb5x5fixk4).

18.- Ipsos, Research of Tuenti Móvil on the Internet connection habits in the mobile (http://corporate.tuenti.com/es/communication/download/87).

Despite what some might think, **this study reveals that the younger generation of 'digital natives' are especially concerned about their privacy and security when they use the Internet and digital services:**

> 81% of the users between 16 and 35 are aware of the risks involved when installing Apps on their smartphones;

> 64% of the respondents always set privacy options on their smartphones when they download a new application;

> And only 1.8% did not care at all for Internet security.

Consumers want a better Internet experience

> More investments in access infrastructure are needed to enhance connectivity and Quality-of-Service (QoS): Public Policies which build investor confidence and guarantee the long-term economic sustainability of private investments should be encouraged.

> A better Internet experience along the whole Internet Value Chain: An Open Web approach will improve end-to-end customers' experience.

They want more than what they have today: they want a safe, private and open digital experience.

An internal research commissioned by Telefónica and carried out by WPP highlights how digital technology is fuelling an important cultural shift. Today, people expect to have information available 24 hours per day and 7 days per week, to be able to share and express their opinions immediately, and to be able to communicate with friends – talking and sending messages through applications or social networks. In short, we have turned into the culture of "I need it and I want it now, no matter where I am".

Our World, our society has become digital. **The study also found that**:

> 81% of users consider that the Operating Systems of their mobile is important;

> And 80% want to be able to transfer information from one Operating System to another;

> 71% of consumers think that they have lost control on how businesses obtain and use their personal data;

> There is a clear tendency towards service convergence, in particular online and on-demand TV has grown considerably in recent years. Viewers are switching to personalised and 'always available' ways of viewing their favourite TV programs.

Knowing customers' expectations about their digital future has provided us with the insights to define our Open Digital Agenda.

02.
The Open Agenda for our digital future_

a. Portable Digital Life for all

b. Open up App Stores, platforms and mobile OS

c. Promote interoperable Internet services and applications

d. Open access to the Internet

e. Open names for an Open Web

f. Cooperate for speeding-up innovation

g. Seizing the chance of Open Data

h. Redefining Education

> "The most exciting aspect of the Digital Revolution is the role technology can play in changing society positively. Combine social needs with a new business model and you have a recipe for success that will create new opportunities: for example, banking the unbanked or e-Health services in Latin America."

Eduardo Navarro
Chief Commercial Digital Officer of Telefónica S.A.

02. The Open Agenda for our digital future

KEY TAKEAWAYS

> Consumers want to have an Open Internet experience and control over their digital life.

> Open systems are the best way to unleash innovation.

> Openness means:
> - Making a Portable Digital Life a reality for users.
> - Open App Stores, platforms and mobile OS
> - Promoting Interoperability of services and applications.
> - Open domain names for an Open Web.
> - Open access to the Internet.
> - Speeding up innovation through cooperation.
> - Seizing the opportunities from Open Data.
> - Redefining education.

The possibilities of technology should be open to everyone. Telefónica's commitment to openness matches our customers' expectations: we believe that everyone should have the freedom to choose their digital experience and have control over their digital life.

Telefónica has based its Open Agenda on our customers' expectations and wishes:

> They want to access Internet services, applications, devices and content of their choice;

> They wish to have services that are interoperable and prefer open ecosystems;

> They want a Portable Digital Life: they want to be free to take services and contents with them when they switch their devices (smartphones, tablets).

But an Open Agenda for the Digital Economy needs to go even further: It should embrace Open Innovation and Open Standards to let new ideas, new companies and new ways of cooperation flourish; it has to take care of the increasingly important issue of Open Data and how Open Education and digital skills can be improved.

Policymakers worldwide have an unprecedented opportunity to create today the right policies to empower citizens and business to take full advantage of their digital experience and the Digital Economy. Some issues especially deserve their attention, as the recent decision by the European Heads of State or Government has shown (see case study 6).

Tackling new digital bottlenecks and creating a Portable Digital Life: The decision of the European Heads of State

At the summit of the European Council in October 2013 the European Heads of State or Government have decided to create a new framework to ensure interoperability and portability between digital services and platforms. In the final conclusions they state:

"There is also a need to address the bottlenecks in accessing one's "digital life" from different platforms, which persist due to a lack of interoperability or lack of portability of content and data. This hampers the use of digital services and competition.

An open and non-discriminatory framework must therefore be put in place to ensure such interoperability and portability without hindering development of the fast moving digital sphere and avoiding unnecessary administrative burden, especially for SMEs."[19]

Open Web is all about creating a more open, interconnected and better digital experience for Internet users. Often the public debate is purely focused on the issue of guaranteeing an open access to the Internet. However the Internet experience is far more complex than just access to networks. It is a system where different platforms and services need each other and they have to work together to interconnect.

In today's Internet, this is often not the case. Proprietary systems and services are increasingly growing in importance, threatening the very notion of an Open Web. History has shown that open systems are the best way to unleash innovation in ways we cannot foresee when closed ecosystems prevail.

19.- *European Council Conclusions, 24/25 October 2013.*

02.a Portable Digital Life for all

KEY TAKEAWAYS

- Users of digital services should be able to control their digital life and data.

- Closed, proprietary systems create "lock-in" effects, limiting user's experience and hindering competition.

- It is important to remove barriers which prevent users from switching Operating Systems without losing their applications and data.

- Portability of data and applications between different Operating Systems of smartphones would improve consumer's freedom and increase competition.

With the fast adoption of smartphones and tablets, consumers increasingly face the issue of portability of applications and data between different smart devices. When consumers try to change between smartphones or tablets running on the two dominant systems on the market (Apple iOS and Google's Android have together around 90% global market share), they encounter numerous obstacles. Perhaps the most relevant is that the applications they are using on one device cannot be transferred to another. This is because mobile applications are developed for a specific mobile Operating System (OS) and sold through App stores linked to these Operating Systems. Sometimes an application does not exist for another Operating System and even if it is available it needs to be bought a second time. Consumers are often unwilling to switch to different smartphones because of these closed systems, creating lock-in effects which restrict choice and competition.

In the past, policymakers and regulators have faced similar situations in other markets and have successfully applied policies to make it easier for consumers to switch between different competitors, thereby fostering competition and improving consumer experience (see case study 7).

Closed Operating Systems also have implications for the companies who develop applications: developers have to accept that they must create multiple versions of their applications if they want them to be available to all smartphone users. From both consumer and developer's points of view, the best situation would be that an application would be able to run on all smartphones and other connected devices. This would create a real competitive market in which consumers can change easily between smartphone and devices, experiencing a seamless and real "Portable Digital Life" and developers could reach all smartphone users with their products.

How openness leads to better user experience: Mobile Number Portability & pricing

Mobile Number Portability was introduced in Spain in 2000. Since then, almost 40 million mobile users have changed company, with a peak of 5,6 million in 2011. During this period, mobile prices have fallen constantly while mobile penetration has steadily risen in line with Mobile Number Portability. Regulators around the World have recognised that Mobile Number Portability makes mobile markets more competitive.

Mobile Number Portability vs penetration and prices in Spain

Legend:
- Prices (€ cents/min)
- Portability (x 100,000)
- % Penetration
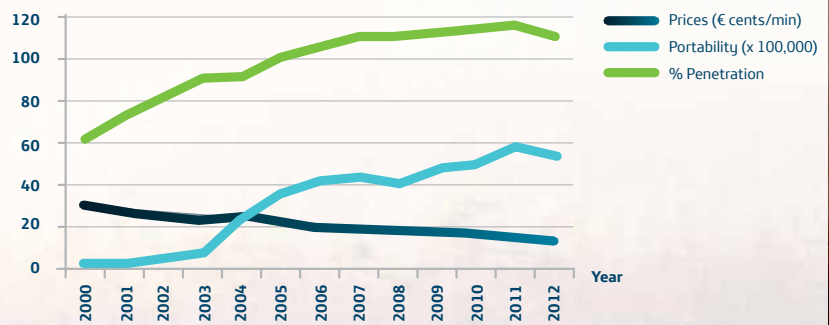
Source: Telefónica analysis based on data from CMT.

In a similar way, making it easier for customers to change smartphones and Operating Systems, breaking "lock-in effects" would increase competition in this market and improve greatly consumer choice and freedom. Ultimately, such open markets will be best placed to provide affordable smartphones, and speed up innovation, growth and employment.

This is why Telefónica has supported Mozilla's new Firefox Operating System from the very beginning. Firefox OS is based on an Open Web standard: HTML5.

Applications therefore can run directly on the Internet, based on standards that make them portable between devices and are not linked to a specific Operating System. In contrast, the currently leading mobile Operating Systems, Android and iOS, only allow applications which have been developed for the specific Operating System and are not portable. Firefox OS devices (manufactured by producers like ZTE, Alcatel and LG) are already available in a number of countries (Brazil, Colombia, Spain, Venezuela, Peru, Mexico or Uruguay) and they will be rolled out continuously to more markets. Firefox OS has the potential to completely change the way smartphone users can control their digital experiences, providing them with freedom from proprietary Operating Systems and closed Apps Stores and with portability of their digital lives.
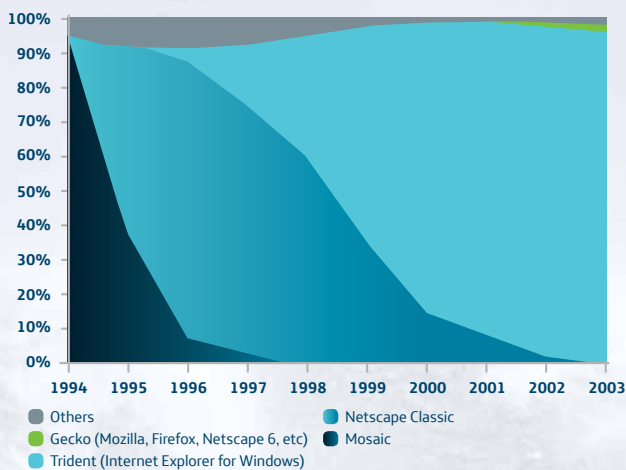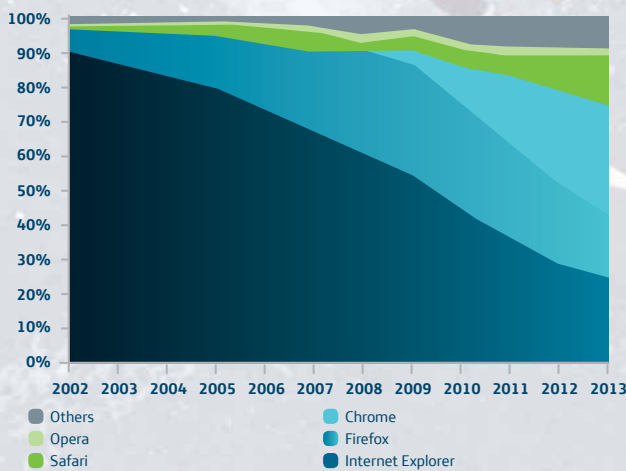
Layout engine usage share (1994-2003)

Legend:
- Others
- Gecko (Mozilla, Firefox, Netscape 6, etc)
- Trident (Internet Explorer for Windows)
- Netscape Classic
- Mosaic

Source: Layout_engine_usage_share from Wikimedia.

Usage share of web browsers (2002-2013)

Legend:
- Others
- Opera
- Safari
- Chrome
- Firefox
- Internet Explorer

Source: Telefónica's analysis based on W3Counter & TheCounter.com data from Wikipedia.

Some lessons learned from the past? The "browser war" between Netscape and Microsoft Explorer

It took *Netscape's* Internet browser, after its launch in 1994, only two years to control 80-85% of the total global browser market.

As a response, *Microsoft* launched in August 95 its *Explorer* browser as an integrated part of its *Windows 95 Plus!* Pack, which could be considered at this time a de facto monopoly on the PC Operating System market. In less than one year, and after *Microsoft* announced agreements to embed *Explorer* for all *America Online* and CompuServe users, *Netscape* began to lose market share as customers started to increasingly use the pre-installed Explorer. By 2002 the so-called "Browser War" was over, with Explorer controlling about 96% of the web browser market (see chart "Layout engine usage share 1994-2003"). Without the competitive pressure from *Netscape*, the race for innovation for web browsers slowed down abruptly and it took four years to get a new release of Explorer to the market.

By 2003, new web browsers offering an innovative approach to web surfing had been launched by *Mozilla*, *Apple* and *Google*, endangering *Explorer's* monopoly. These new disruptive browsers were quite successful, but it took them over three years to gain a relative significant share: it was not before 2006 when Explorer's share was reduced below the 85% threshold. Once again innovation took a disruptive leading role and fostered the Web success in the PC World, enabling companies such as *eBay*, *Amazon*, *Facebook* and *Google* to flourish and become current Internet leaders.

As a reaction to the *IE* monopoly, *Opera* placed an antitrust case versus *Microsoft* in 2007 in front of the European authorities. In October 2009 the European Commission and *Microsoft* reached a compromise: letting customers pick which browser they wanted. *Windows 7* users in European countries were allowed to select their default browser from a ballot screen.

The ballot featured a choice of 12 browsers listed alphabetically by vendor, and sorted into groups according to their popularity. Microsoft provided introductory information for each option.

The PC of today is the smartphone and here we have a very similar development: App stores are linked to the two dominant mobile Operating Systems as the Explorer Browser was linked to *Windows* in the 1990's. European Competition Authorities are already looking into the potentially negative consequences for competition and innovation resulting from a concentration in these markets.

02.b Open up App Stores, platforms and mobile OS

> ### KEY TAKEAWAYS
>
> 〉 Around 90% of all smartphones worldwide work with just two Operating Systems, impairing the choice of customers.
>
> 〉 An Open Web should enable applications to be built across devices and Operating Systems to increase user's freedom and choice.
>
> 〉 Company and content policies of global digital platforms (Social Networks, App Stores and Marketplaces) are deciding every day over important constitutional values of democratic societies like freedom of speech and the right of assembly.
>
> 〉 Open Mobile Operating Systems such as Mozilla's Firefox OS will make mobile smartphones cheaper and open up the Internet and technology to everyone.

Over the last years, the market of mobile Operating Systems has become highly concentrated. Today, around 90% of all smartphones on the planet just run on either Google's Android or Apple's iOS (see chart 7). In parallel, the App Stores and marketplaces linked to these two Operating Systems have, by number of downloads and also by number of applications, by far overtaken all other competing alternatives in the market (see charts 8 and 9).

Such extreme market concentration has undesirable effects on competition and innovation. It limits the choice of customers to be able to move from one smartphone and operating platform to another, creating "lock-in" effects.

In the end, the owner of the Operating System can decide about the terms of usage, potentially becoming a gatekeeper and endangering the access to its marketplace and platforms, creating a significant risk to the Open Internet principle.

These developments in the market of smartphones and Operating Systems are very relevant for the future of the Internet as we are reaching a tipping point where the majority of Internet usage will happen via mobile devices. The Internet is becoming increasingly a mobile platform, and the future of the Internet is linked to the future of mobile phones and Operating Systems.
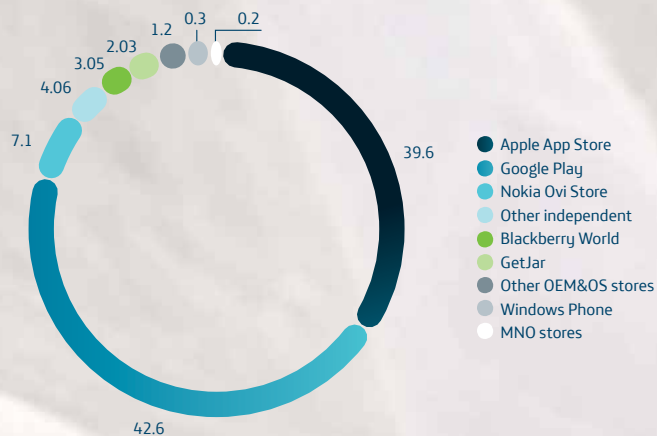
7

Global Smartphone OS market shares

Legend
Others
Limo
Symbian
Blackberry OS
Microsoft
Apple iOS
Android

Android + Apple IOS - 93.2%
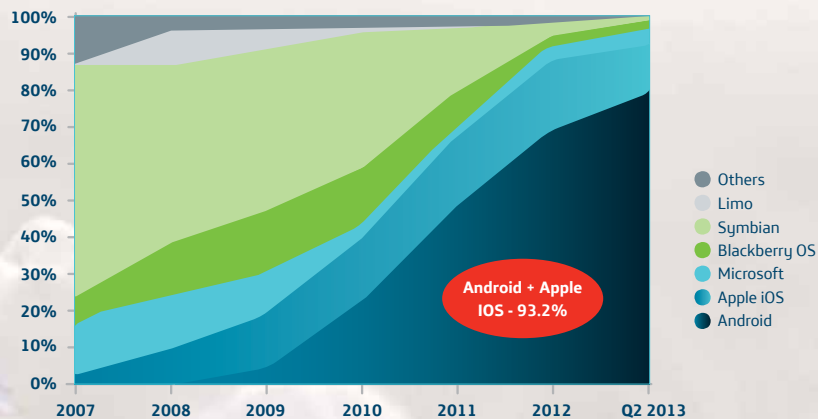
Source: Telefónica analysis based on Strategy Analytics.

8

App Store market share by downloads

0.3 0.2
1.2
2.03
3.05
4.06
7.1
39.6
42.6

- Apple App Store
- Google Play
- Nokia Ovi Store
- Other independent
- Blackberry World
- GetJar
- Other OEM&OS stores
- Windows Phone
- MNO stores

Source: Research 2guidance.

9

Applications per platform (Q4 2012)

BlackBerry App World

Windows Phone

Google Play

Apple App Store

0   100,000   200,000   300,000   400,000   500,000   600,000   700,000   800,000

Source: Research 2guidance.

Telefónica A Digital Manifesto. An open and safe Internet experience for all

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10
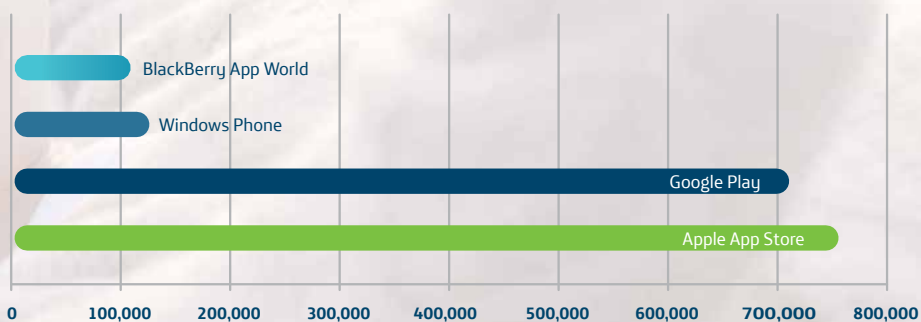
Downloads of mobile apps (billion)
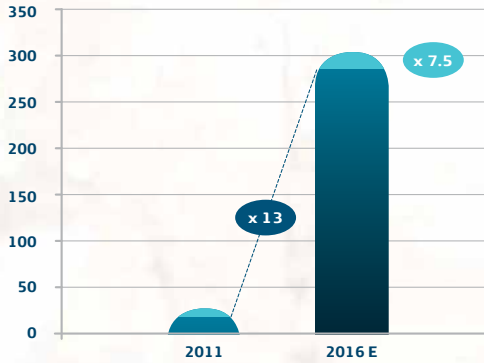
- Paid-for downloads
- Free downloads

Source: Telefónica based on data from Gartner (Sept 2012).

11

Dead Apps (never updated and less than 10 reviews)
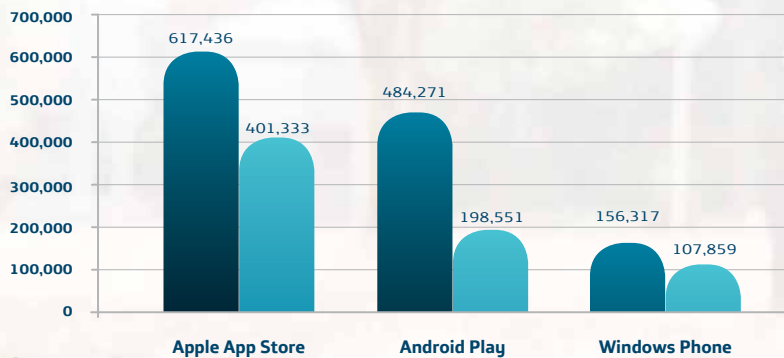
- Total Apps
- Dead Apps

Source: Stardust August 2013.

12

Downloads & Revenues per category

Apple App Store and Google Play Aggregated.
Categories with less than 2% excluded
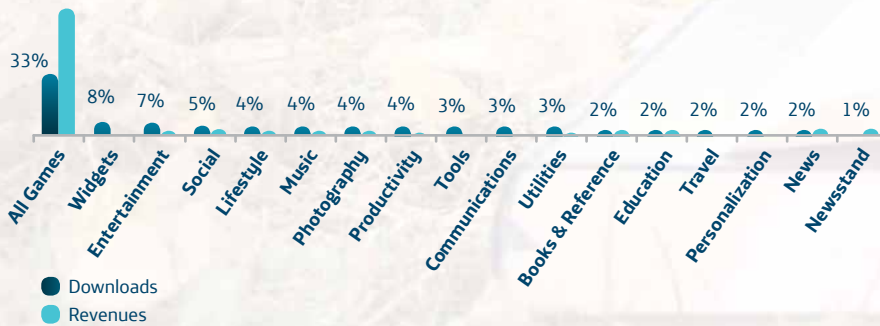
- Downloads
- Revenues

Source: Distimo 2012.

The new universe of Apps

The App economy did not exist five years ago. Today, it is a thriving sector contributing to economy growth and job creation[20]. According to a new ABI research[21], at the end of 2012, the global App economy reached €18.4 billion and the trend is that App monetization of tablets is catching up with smartphone Apps. For next year, the same research forecasts that Apple will have 65% share of the App market followed by Google's Android with 27%.

Beyond this, the number of downloads of mobile Apps is expected to grow heavily in the next years (see chart 10). In this context, it is notable that 90% of total downloads are free for users. This means that the business case for most App developers needs to be based on other sources of revenues, mainly third-party advertisement placed in applications.

In that regard, the market of application is following the business model of the Internet with advertisement-paid, "free" services. The low number of paid applications might also explain why the majority of applications are so-called "Dead Apps" and have never been updated after their launch (see chart 11).

By far, the most successful applications are games (by both, number of downloads and total revenues, see chart 12). Competition is therefore fierce, with around 200 new games launched every day on Apple's Apps Store alone. The main issue for businesses developing Apps is therefore visibility or discoverability in the App stores of Google's Android and Apple. As visibility can be bought to a certain extent, this environment favors bigger developers over smaller companies, according to a recent report issued by App developers[22].

Policymakers and regulators will need to better understand these new market dynamics around mobile Operating Systems and App Stores to be able to safeguard consumer's choice and avoid market failures and abuse of market dominance.

20.- Vision mobile&Plum, The European App Economy. Creating Jobs and driving growth, September 2013.
21.- For more information: Abi research Mobile OS, Browsers and Applications research service, 2013.
22.- Mobile Game Arch, The future of the European mobile games ecosystem, 2013.

Fair access to new platforms

The global nature of the Internet and the fast scalability of digital services result in services growing in previously unknown speeds. A Global platform like Facebook has worldwide reach and has 1 billion registered users. This creates new and difficult to solve challenges for the way user policies are set and implemented. A recent case involving the woman rights activist group Femen, which was banned from Facebook due to a violation of its user's policy, has brought this issue to the attention of a wider audience.

Through their content policies global digital platforms such as Social Networks, App Stores and Marketplaces can have a far reaching impact on freedom of expression and other important constitutional values, replacing traditional and established public policy processes.

Internal content policies of global platforms need to strike a balance between what is legal and what is considered to be morally acceptable to communities from many different parts of the world. It is not an easy task. In order to be more transparent many companies have published content manifestos to inform users about what kind of content can or cannot be published.

However, dominant digital platforms backed by their terms of usage have also blocked content due to commercial reasons. These actions have raised concerns about anti-competitive behaviours (see case study 9).

Universal Right to access Apple's App Store? French Digital Economy Ministry, Fleur Pellerin, asked the European Commission to examine the takedown of "AppGratis" from its App Store

In April 2013, Apple decided to take the French application AppGratis out of its App Store. App Gratis enables customers to get paid Apps either at a discounted price or even for free.

Apple's unilateral decision, even against its own rules, unleashed a strong debate among stakeholders that denounced an abuse of dominance position by Apple.

Also the French Minister Fleur Pellerin commented the decision by Apple: "The economic model is jeopardized by a unilateral decision… There is an issue of fairness in commercial relations…" she stated.

Moreover, she announced plans to closer investigate how Apple "imposes" its rules on consumers and policymakers. To date, both the French Competition Authorities and the European Commission are investigating possible abuse of dominance regarding Apps Stores.

Let the Web run your smartphone

Consumers believe that Operating Systems do matter. A recent survey conducted by WPP for Telefónica found that 81% of respondents think that Operating Systems are "quite to very" important. We identify two main reasons. The first one is that the current closed Operating Systems are limiting users' Internet experience hampering a portable digital life, interconnectivity or open access to the Internet. And the second is the lack of competition in pricing.

Consumers' choice and competition should not be limited by Operating Systems. That is why Telefónica believes that open Operating Systems could give our customer's a better digital experience. Accordingly, we are working with Mozilla and others within the World Wide Web Consortium (W3C) to build and promote the necessary open standards to enable more fully-featured Web applications on mobile devices (see case study 10).

Telefónica is committed to open the possibilities of technology to everyone and collaboration between all is essential to achieve this desirable goal. Therefore beyond the support to open Operating Systems, we are opening up choices in the market by making smartphones more affordable.

In contrast to prices for connectivity, smartphone prices have been quite stable over the last years (see case study 11). This creates a significant barrier to connect people to the Internet especially in developing countries. This is why we are partner of the Firefox OS alliance which aims at bringing down market devices' prices mainly in emerging markets.

The third platform will be the Web: How Mozilla's Firefox OS will open up the smartphone market

Mobile is increasingly the way consumers access the Web. The currently closed App ecosystems for smartphones has concentrated too much in the hands of just 2 or 3 companies. That is no good news for consumers, developers, OEMs or mobile operators. The key issue missing is an open Mobile Operating System.

With *Firefox OS*, consumers can for the first time buy a smartphone based entirely on open web standards. It basically means that *Firefox OS* frees consumers and developers from the constraints of existing closed ecosystems by using the Web as the platform for all functionalities and applications.

By supporting *Firefox OS*, Telefónica wants to drive the adoption of Open Web Standards across the smartphone sector. "What we believe is that the third platform will be the Web, not a proprietary one", says Carlos Domingo, Director of Product Development and Innovation for Telefónica Digital.

Open Web Standards will restore a level-playing-field in the smartphone sector, allowing operators, handset manufacturers or developers to better meet the needs of consumers. The launch of *Firefox OS* marks a significant milestone for the mobile industry. It opens access to technology to everyone with very affordable smartphone prices (in Spain, for example, ZTE Open is available for €69).

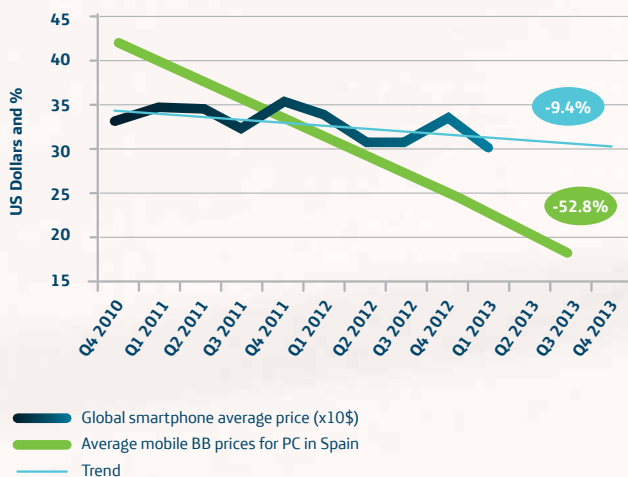# Comparison of average smartphones and broadband connectivity prices

While smartphone prices have remained stable over the last years, prices for connectivity have been steadily falling and penetration growing. When consumers decide to go online for the first time their decision is influenced by both the cost of connectivity and the cost of devices to use the Internet. For smartphones to be able to replace the vast majority of simpler feature phones in the World, their prices will need to drop considerably.

Global Smartphone vs Mobile phone users, 2012 E

5 billion Mobile phone users

1 billion Smartphone users
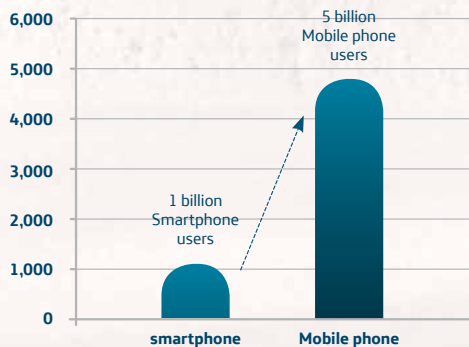
Source: Telefónica analysis based on data from Go-gulf.com

Connectivity prices falling much faster than devices

US Dollars and %

-9.4%

-52.8%

Q4 2010 Q1 2011 Q2 2011 Q3 2011 Q4 2011 Q1 2012 Q2 2012 Q3 2012 Q4 2012 Q1 2013 Q2 2013 Q3 2013 Q4 2013

━━ Global smartphone average price (x10$)
━━ Average mobile BB prices for PC in Spain
── Trend

Source: Telefónica based on Strategy Analytics and company web pages.

02.c Promote interoperable Internet services and applications

KEY TAKEAWAYS

❯ Established communication services are based on global and universal connectivity through numbering and open standards.

❯ Internet-based proprietary applications and services (e.g. VoIP, Messaging) are increasingly substituting such communication services, but interoperability is rare.

❯ Policymakers and regulators should promote interoperability between communication and messaging services to foster competition and improve consumer experience.

From a consumer's perspective, interoperable and interconnected services are key concepts for their digital experience.

Nowadays, most consumers would not believe that, during the early years of telephony, users from one phone company were not able to connect with users from another. It took a while until the possibility to connect and be able to speak with any person on Earth over the phone was guaranteed through interconnectivity based on international standards.

And yet, today, many fast growing Internet Service Providers are offering services that are not interconnected, interoperable or based on open standards. This can be a source of concern, especially when such behaviour can restrict competition and innovation and limit consumers' freedom.

It is hard to imagine a World in which you are unable to send an e-mail or an SMS to another person simply because he or she is using a different e-mail service or mobile network. The reason why e-mails and SMS can be sent and received worldwide, regardless of the mobile operator or device, is that both are based on international and open standards, making them interoperable on a global scale.
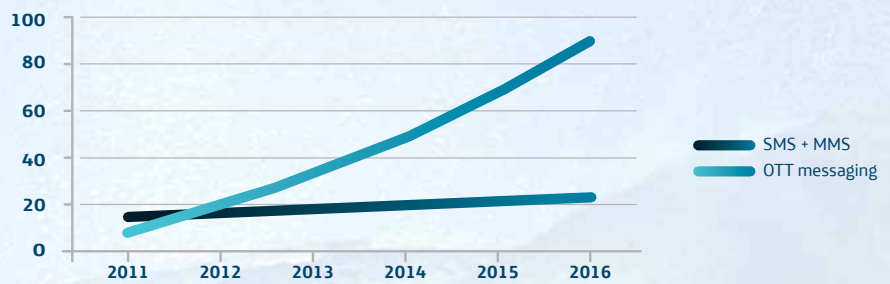
In contrast, popular Messaging Services like *WhatsApp*, *Viber* or *Line* are based on proprietary systems that do not allow for such interconnected experience. In other words: Consumers cannot send a message from one of these services to another, each service just works between users of the same service. The same is true for Voice-over-IP telephony: calling from one VoIP service like *Skype* to another is not possible. Users can just speak to others who use the same service (see case study 12).

13

WhatsApp explosion

- ● WhatsApp users (Mill.)
- ● Messages/day (x10^8)

+14.6Mill./month

+25Mill./month

| | June 2012 | June 2013 | August 2013 |

Source: Telefonica based on Mobile Squared.

14
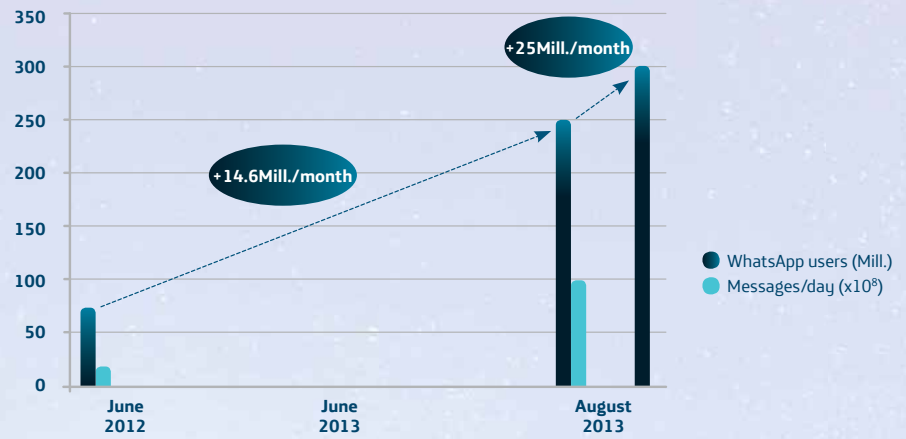
OTT messaging vs SMS: messages sent daily (data in million)

- ▬ SMS + MMS
- ▬ OTT messaging

2011 2012 2013 2014 2015 2016

Source: Telefónica Public Policy & Internet based on Informa (2013).

This is relevant because the current trend shows that Internet-based, proprietary services and private applications are replacing increasingly communication based on open standards and interconnectivity.

In 2012 nearly 18 billion SMS text messages were sent daily but more than 19 billion were sent by all main messenger-apps together[23] (see chart 14).

It is estimated that in 2013 more than 41 billion messages will be sent daily worldwide via proprietary applications while SMS text messages will account for less than half, around 20 billion. Skype has now 280 million active monthly users and WhatsApp 300 million[24]. Due to network effects, missing interoperability and low incremental costs, such Internet-based services can grow exponentially, especially once a critical mass of users is achieved.

SMS text messages are also still growing, often due to innovative tariffs by mobile operators, but are entering into a phase of stagnation and potentially even decline (see chart 15).

Policymakers and regulators should promote open, international standards and interconnectivity to give consumers the freedom to interconnect between digital services. This would safeguard competition by avoiding dominance of specific proprietary services due to network effects and improve the digital experience of consumers (see case study 12).

15

SMS traffic (in Billion)
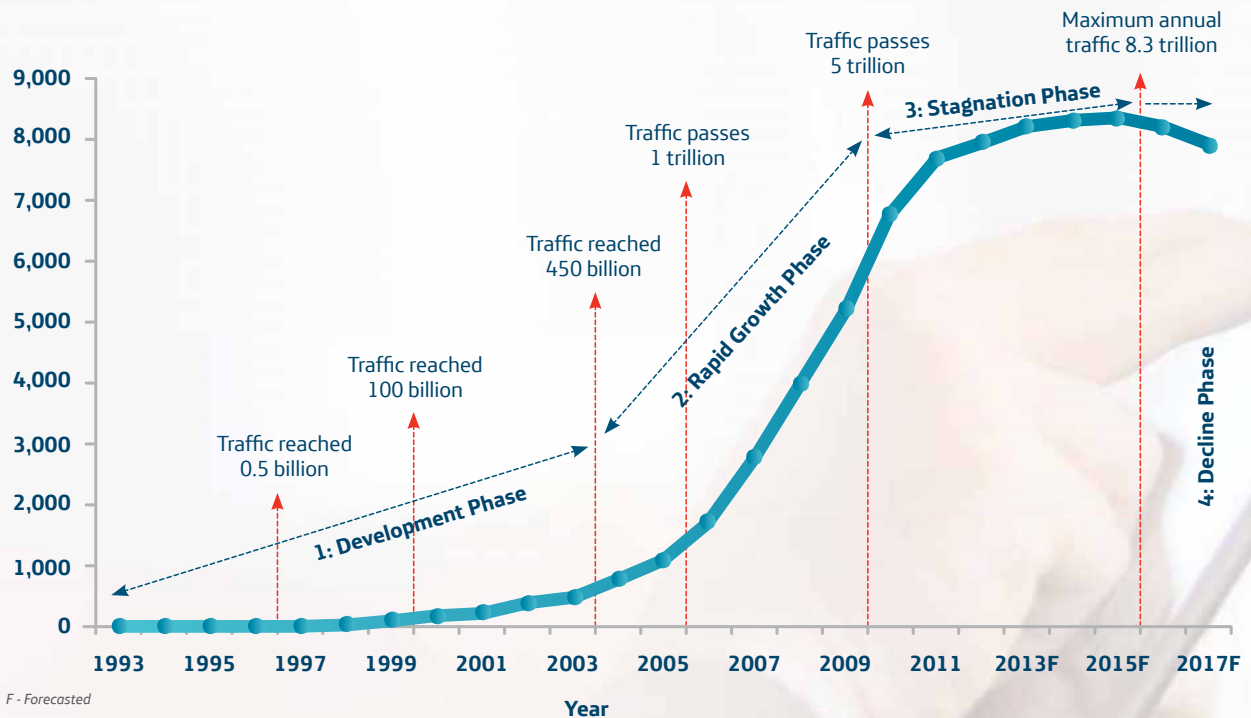
F - Forecasted

Source: Portio Research Ltd.

23.- Informa, VoIP and IP messaging: Operator strategies to combat the threat from OTT players, 2013.

24.- MobileSquared, OTT services blow up the mobile universe. Operators must act now, September 2013.

Missing interconnectivity of VoIP services: Cisco appeal against Microsoft's acquisition of Skype

Cisco, together with the Italian VoIP provider *Messagenet*, presented legal objections against the take-over of *Skype* by *Microsoft in 2011*. While it did not oppose the merger, *Cisco* asked European Regulators to impose rules about *"standards-based interoperability"* on the new entity. *Cisco* argued that video-to-video calls need to be "as easy and seamless as e-mail is today". Without interoperability rules being forced on *Microsoft* it feared that the future of video communications would be in danger.

According to *Microsoft*, one third of the world's voice calls are running over *Skype*'s platform, with around 300 million users using the service for more than 100 minutes every month.

And yet users of *Skype* are unable to call other VoIP services (e.g. *Viber*) due to a lack of interoperability. This contrasts completely with the established universal connectivity model of communications, based on global numbering and interoperability and is likely to endanger competition and consumer experience in the future.

| Whatsapp | Viber | Skype |

Telefónica A Digital Manifesto. An open and safe Internet experience for all

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02.d Open access to the Internet

KEY TAKEAWAYS

❯ Transparency, leading to informed customer choice, and competition for Internet access is the best way to ensure open and high-quality Broadband Internet access.

❯ Competition Authorities should not allow any discrimination or other anti-competitive practices and intervene on a case-by-case basis.

❯ Any regulation should not hinder evolution of business models and innovation.

Public debate around the importance of preserving an Open Internet is wrongly often only focused on how to ensure open and "neutral" access to the Internet (Net Neutrality). Telefónica supports the principles[25] on an Open Internet access set up by FCC (US Federal Communications Commission), but we also believe that competition and alternative infrastructures to access the Internet, giving customers a choice, are the best way to ensure an open and high-quality access to the Internet. Telefónica also believes that having more than just open access is needed to have a truly open Internet (see other chapters on *Open Agenda*).

The Net Neutrality debate goes beyond network infrastructure. It involves all stakeholders in the Internet Value Chain: network providers, CAP, OS developers or devices manufacturers. It is the basis for an Open Internet.

Transparency together with competition is the best option to secure an open access to the Internet. Consumers, by having transparent and clear information on how different providers manage Internet traffic, the real speed of the Internet access service and other relevant service characteristics that may apply such as data caps, will be able to properly choose the tariff that better suits their needs, among all competing offers available in the market. At the same time, a competitive market, where a level-playing-field enables companies to compete on equal footing and provide differentiated offers to customers, will result in companies competing to better suit customer needs and provide them with the best service possible. Any unfair market practices and non-competitive behaviour of market participants to the detriment of consumers or other market participants should trigger the intervention of Competition Authorities.

As such, we believe that competition law –rather than dedicated 'Net Neutrality' rules– is the best way to safeguard the interests of consumers.

25.- *FCC Report, Preserving a free and open Internet, 2010.*

Should policymakers believe that commercial activities of Internet Access Providers are to be regulated by specific Net Neutrality regulation, it is vital that they avoid any fragmentation of markets. Such fragmentation would give rise to different and walled Internets, limiting legal certainty of global providers as well as the scope for innovation.

Most importantly, Net Neutrality regulation should leave sufficient room for "trial and error" for Internet access tariffs and new business models. As the Internet evolves, customer gets more sophisticated, demanding different and improved service characteristics. Access Service Providers should be able to meet these needs. Just having speed and data volumes as the only differentiating parts of Internet access reduces customer choice and limits opportunities for new business models. Quality-of-Service (QoS) should also be part of differentiation of Internet access services.

If companies are not allowed to develop innovative products and services –for example the "*Spotify Premium*" from Telefónica (see case study 14) - then consumer choice and freedom are restricted.

Telefónica's position on Net Neutrality

> Telefónica supports Net Neutrality principles giving users an open, unrestricted and non-discriminative access to Internet content, applications and services of their choice;

> Transparency together with competition is the best way to secure an Open and Neutral access to Internet;

> Any Net Neutrality regulation should leave room for innovation and new business models based on Quality-of-Service differentiation;

> An open and non-discriminatory approach should be applied in all parts of the Internet Value Chain.

Net Neutrality in Europe? The proposal of the European Commission

Neelie Kroes
Vice-President and Commissioner for the Digital Agenda,
European Commission

The European Commission has put forward in September 2013 a draft Regulation for an EU Digital Single Market. This Regulation has various parts and also lays down principles to safeguard Net Neutrality. It defines the differences of "Internet Access Service" and "Specialised Service" and provides consumer safeguards, including the right of end-users to access and distribute information and content and to run applications and use services of their choice. At the same time it also acknowledges Internet access providers' right to apply reasonable traffic management measures. Consumer rights are also protected by securing transparency of Internet access service tariff plans, pricing conditions, quality of the service (such as upload and download speeds) and any restrictions that may apply. It also provides safeguards for quality of Internet access service by empowering National Regulatory Authorities to impose minimum Quality-of-Service requirements on Internet Access Service providers.

By the end of 2013, the draft Regulation was at the European Parliament for consideration, with Net Neutrality-related issues being analyzed by two Committees: the IMCO (Internal Market and Consumers) Committee and the ITRE (Industry & Energy) Committee.

Both Committees are proposing some changes to the draft Regulation and in the case of Net Neutrality specifically ask for:

> Grant BEREC the power to provide guidelines to define in what cases traffic management is allowed and for Quality-of-Service.

> Allow traffic management for Quality-of-Service differentiation of services based on Internet access and the provision of specialized services.

However, the draft reports from both Parliamentary Committees are still at an early stage in the legislative process and the approval of the EU Digital Single Market Regulation is not expected before 2014.

≡14

Rhapsody and Spotify Premium, an example of a successful cooperation between Telefónica and competing providers Rhapsody and Spotify

Telefónica and Spotify have signed an agreement by which Telefónica has exclusive rights to offer Spotify Premium to its Spanish customers. In less than 4 months since the launching of the service, 50,000 Telefónica customers have joined it, proving the attractiveness of the offer. Spotify Premium allows Telefónica customers to listen to more than 20 million songs anywhere and from any device –PC, tablet, smartphone– for 2 years for only €4.99 + VAT per month. This price represents a 40% discount over its regular market price.

Telefónica has also reached an agreement with Rhapsody, a music streaming service competing with Spotify. Telefónica will be providing access to Rhapsody's catalog of 20 million tracks to its customers in Germany and Latin America. Thanks to Telefónica Rhapsody gains access to the Latin America market for the first time ever.

Another example of successful cooperation between operators and Internet services, is the deal between Shazam Entertainment Ltd. and America Movil, which includes an agreement to pre-install Shazam's audio-matching App on mobile phones sold by America Movil in Latin America.

02.e Open names for an Open Web

KEY TAKEAWAYS

❯ Generic top-level domain names (gTLDs), such as .book or .app, can be the base for providing new services over the Internet.

❯ Leaving closed gTLDs to the exclusive use of just a few entities could close part of the Internet infrastructure to others.

❯ This could hamper the development of new business models and be a barrier to fair competition.

After more than five years of extended discussions, ICANN announced in June 2012 the list of applicants for new gTLDs. The change from the "classical" .com, .org or .country code (.es, .de, .fr) to a much longer list of domain names will introduce new ways of interaction with users, new business models and new marketing opportunities for businesses and other entities.

Almost 2,000 candidatures where received, more than half of them falling under the "generic" type of domain name, meaning that they do not cover a brand name nor a geographical reality, but a generic denomination of a service or economic activity (see chart 16). Examples could be .mobile, .app, .cloud, .music or .insurance.

Most of the candidatures where received from North America and Europe, creating a clear imbalance when comparing this with the weight in terms of population of the same geographic areas (see chart 17).

The problem of generic Internet names is that the domain holder can close its assigned part of the Internet infrastructure to other legitimate providers of such generic services.

These problems have determined some business associations such as the GSMA or US Telecom to send their strong opposition to a number of generic candidatures such as .phone, .mobile, .cloud or .app, among others. They consider that these applications will have an adverse impact on consumers and will hinder the possibility of others to compete in the cyberspace on an equal footing with the new generic TLDs owners.

Telefónica is of the opinion that it is questionable leaving generic top level domain names in the hands of companies if they want to use them as closed domains. This could constitute a barrier to fair competition.

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Distribution of new ICANN gTLDs by type

- Generic names
- Brands
- Geo names

Source: Telefónica based on ICANN figures.

17

New gTLDs are unequally distributed around world regions

- % Population
- % gTLDs

	Asia Pacific	Africa	Europe	Latam & Car.	North America
% Population	61%	15%	11%	8%	5%
% gTLDs	16%	1%	35%	1%	47%
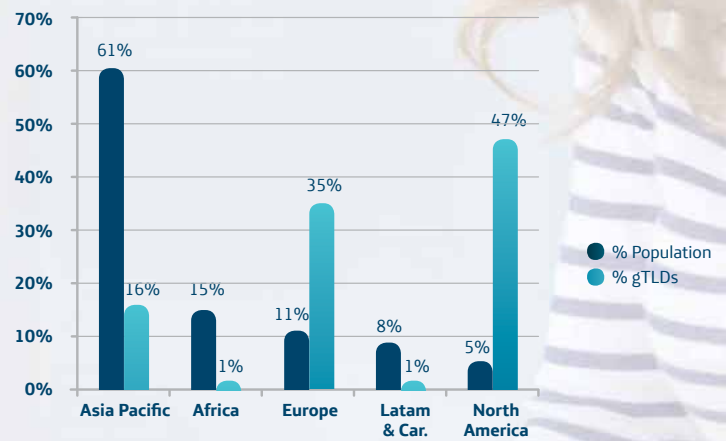
Source: Telefónica based on ICANN data.

New gTLD - generic names: a new threat for the openness of the Internet?

Could .phone, .mobile, .cloud or .app be closed and in the hands of a single company? What will happen then with services offered by other companies in these markets?

All these problems have been analysed by the ICANN Governmental Advisory Committee (GAC), which has identified a "non-exhaustive list of strings" that it considers to be generic terms and where exclusive registry access is sought by the applicant.

Take the example of .app. It is quite conceivable that whoever acquires this domain name could not just offer a whole suite of services to App developers, but also gain a dominant position that could be troubling from a competitive point of view. Life would be much more difficult for developers who are blocked from using .app by the new "gatekeeper" of this gTLD.

There are also implications for customer choice. It is possible that customer confidence might be eroded for applications not included under the .app umbrella, and regarding other companies providing services to App developers who are not certified by the .app owner.

.amazon for the Amazonians?

During the past ICANN meeting in Durban, its Governmental Advisory Board (GAC) recommended not to accept the application .amazon from the US based Internet retailer.

The GAC's recommendation was prompted by objections from some Latin American Governments who argued that ".amazon is a geographic name that represents important territories of some of their countries, which have relevant communities, with their own culture and identity directly connected with the name". They further argued that "allowing private companies to register geographic names as gTLDs to reinforce their brand strategy or to profit from the meaning of these names does not serve, in our view, the public interest".

Following the GAC's decision an application for .patagonia was withdrawn by the US outdoor clothes company Patagonia.

Although the final decision is not yet taken, it seems that .amazon will stay for the Amazonians.

02.f   Cooperate for speeding-up innovation

KEY TAKEAWAYS

> Increasingly collaborative, Open Innovation processes are replacing traditional R+D of companies.

> The Internet is based on Open Standards which have been set by stakeholders in collaborative and transparent processes.

> Intellectual property protection is useful but should not lead to undue restrictions of innovation in the fast-changing Digital Economy.

> Standards help making digital services interoperable and create bigger markets.

> Telefónica is committed to Open Innovation and to boost digital innovation by helping to create thousands of start-ups.

In recent years, companies have realised that it is very difficult to compete with service and product proposals developed just from within. As a consequence, successful companies are opening up their innovation processes to third parties to an extent that these companies are placing the same emphasis on ideas generated from outside the company as on those generated from within.

This trend is called Open Innovation, and its most obvious example is the smartphone. The success of the *iPhone* was not just due to innovation in the hardware or touch screen user interface. Applications developed by third parties and downloaded through the Apple App Store have been a major factor in the popularity of the *iPhone*.

One of the defining characteristics of the Web is that it is built on royalty-free standards. Since its outset, the existing technical standards and foundations were developed through an open and collaborative process between stakeholders. All basic Internet technologies such as TCP/IP,

HTTP and HTML are fully open and free for anyone to modify, recompile and redistribute without license agreements or fees. Aiming to preserve open standards, a set of "Openstand principles"[26] was set up in 2012 representing a common ground for establishing standards through open processes and consensus-based decision making.

'Patent Wars'

Technology patents are another mechanism which can be used by technology companies to dominate markets, especially in the application space. An example of this has been the attempt by *Apple* to patent gestures such as "pinch to zoom". This patent application has actually been recently rejected by the U.S. patent office. Another example would be Honeywell's patent suit against the start-up company producing the Nest Internet-connected thermostat. There are many other examples of patents being miss-used by large companies to block innovation.
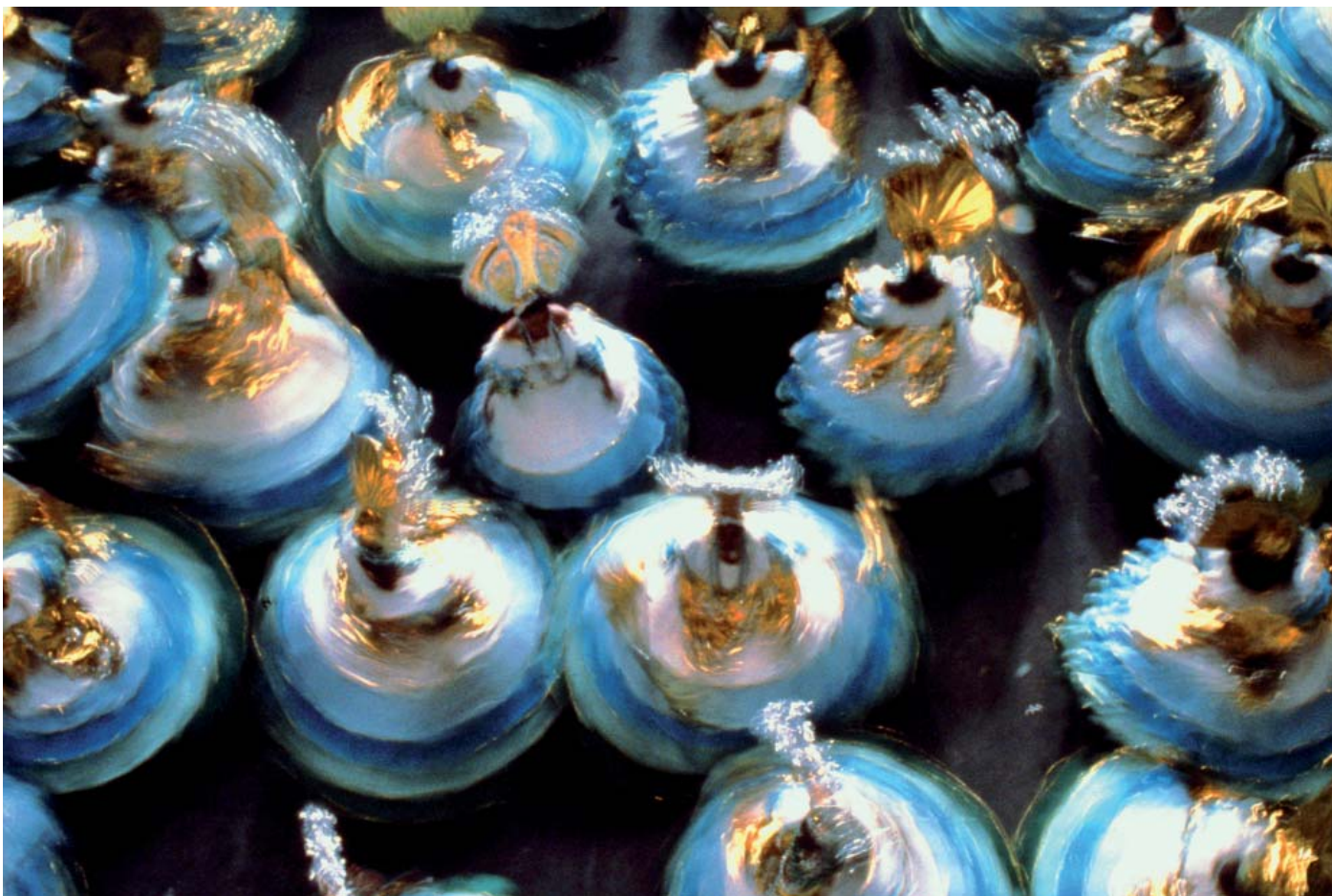
The problems existing with outdated patent protection mechanisms are exacerbated by so called "patent trolls"– entities which only exist to use patents to sue others for infringement and compensation. All these examples seem to point towards an obvious solution: a full review of the patent protection landscape with the express aim of striking the correct balance between protecting intellectual property and preventing companies from using patents to restrict competition or slow-down innovation in the digital sector.

The role of 'Standards'

Making new, innovative digital services growing fast can be closely linked to standardization of technologies. Standards are a good way of achieving interoperability between products and services, which creates scale-effects and bigger markets. The impact of standards on annual GDP growth could range from 0.3% to 1%[27]. Market-driven standardization has appeared in the last

years, as the creation of specific industry consortia such as for example the World Wide Web Consortium (W3C), whose standards for HTML or XML are used worldwide. Indeed, such market-driven standards are the reasons why the Internet is a truly global and interconnected on a global scale.

However, collaboration on technology between companies is often a prerequisite for such market-driven processes. And for this to happen, public authorities need to be open and allow for pre-competitive standardization cooperation amongst competitors. Closer pre-competitive collaboration between companies in many areas, such as e-Health, m-payments or smart grids, would create a win-win situation:

❯ It would bring innovative products and services faster to consumers and businesses;

❯ It would help companies to quickly establish scale for new products and services, bringing down prices.

27.- *European Commission, Using standards to support growth, competitiveness and innovation, Guide Book Series. How to support SME Policy from Structural Founds, 2012.*

Telefónica has decided to better enable innovation around and outside it. Therefore, Telefónica currently collaborates with technological leaders and organizations from 40 countries and more than 150 universities around the World. It also participates at many innovation and R+D fora, thus creating one of the largest innovation ecosystems of the ICT sector.

In the end, innovation means growth and more employment (see chart 18) and Telefónica is strongly committed to positively contribute to economic and social wealth.

Telefónica's digital division, Telefónica Digital, is also actively engaging regarding Open Innovation. For example, *Zuum* and *Wanda*, the mobile payment services recently launched in Latin America, are just a couple of the many results of Telefónica's "multi-linear" innovation model. In this particular case, both services have been developed together with *MasterCard*.

Telefónica has also opened up its innovation processes through the creation and management of open ecosystems with customers, other profit and non-profit companies, accelerators and incubators,

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18

Correlation between innovation and Employment (2013)
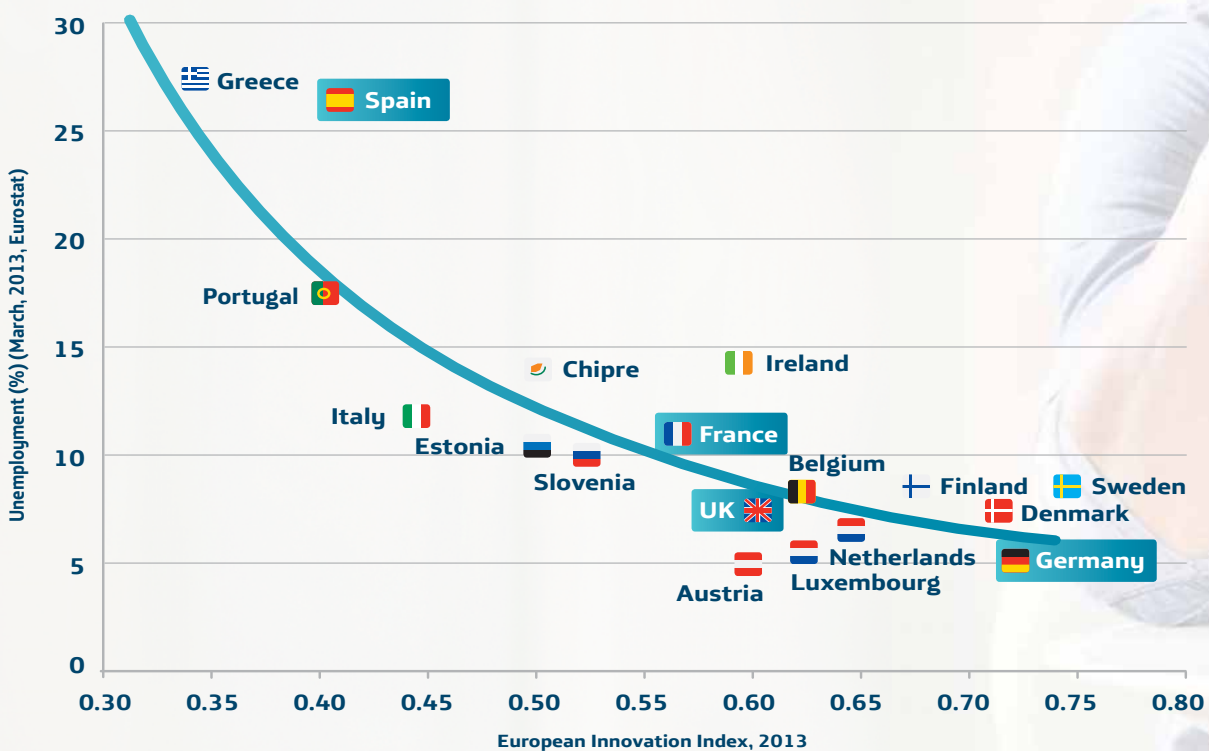
Source: Telefónica based on Deusto Business School, 2013.

and start-ups that offer new services and product innovation (see case studies 17 and 18). Telefónica also involves customers in co-creation activities in real settings, making it possible to get real insights to develop new innovative services.

It is also good news for innovation that the number of accelerators and incubators for start-ups is constantly growing. In Europe only this number has risen by nearly 400% over the last years (see chart 19). As a consequence, Europe and the United States have today a comparable number of start-up programs per capita.

Telefónica pledged to support
1,000 start-ups globally by 2015.

19

**European start-up programs have increased
by around 400% since the start of the crisis**

Accumulated number of start-up programs in 10 European countries since 2001

**14 %
CAGR**

**29 %
CAGR**

2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013
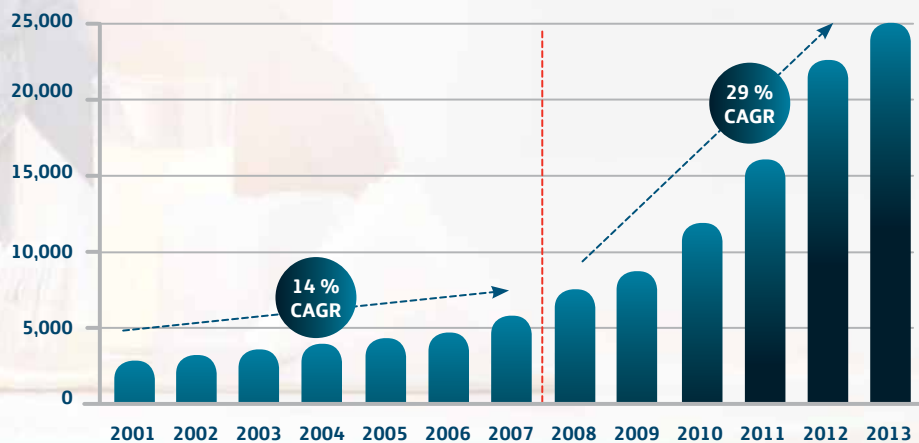
Source: Telefónica, The Accelerator and Incubator Ecosystem in Europe, 2013.

Telefónica's plans to boost digital innovation by 2015

Telefónica has various projects to encourage technological entrepreneurship and innovation, such as the following:

▸ **Amerigo**[28]: an international network of technological Venture Capital funds.

▸ **Wayra**[29]: a start-up incubator that aims to enhance innovation by detecting new talents in Latin America and Europe in the field of Internet and new Information and Communication Technologies (ICT).

▸ **Talentum Startups**[30]: a program that helps students to develop their innovation ideas.

▸ **Talentum Schools**[31]: a program that encourages the next generation of digital creators.

▸ **Think Big**: a Pan-European program with a vision to equip young people with the skills and confidence to thrive in our digital world.

All united with one overarching vision to create thousands of start-ups and digital creators by 2015.

Telefónica targets by 2015

Impact	Impact	Impact	Impact
50 Startups	**1,000** Startups	**2,500** Talentums	**500,000** Kids & Teens
4 Countries	**12** Countries	**2,000** Startups	**5** Countries
		50 Accelerators	
		6 Countries	

amerigo | wayra. | talentum **Startups** | talentum **Schools**

Launched in	2010	2011	2012	2013

Target group	25-75 years old	5-25 years old

28.- Amerigo: http://pressoffice.telefonica.com/jsp/base.jsp?contenido=/jsp/notasdeprensa/notadetalle.jsp&id=0&idm=eng&pais=1&elem=18703

29.- Wayra: http://wayra.org/en

30.- Talentum Startups: https://talentum.telefonica.com/Principal/Startups

31.- Talentum Schools: http://www.talentumschools.com/web/guest/informacion-padres

Wayra: a Telefónica program to encourage technological entrepreneurship and innovation

≡18

Wayra (meaning 'wind' in Quechua) aims to act as an accelerator for the development of future Silicon Valleys in countries where Telefónica is present. We want to help halt the 'brain drain' which sees talented entrepreneurs move from Latin America or Europe to California, because they cannot secure the financing and support they need in their home countries. Wayra was created in Latin America in April 2011 to identify ideas with strong potential in ICT and to boost their development by providing them with technology and mentoring support while financing them. Entrepreneurs are invited to submit their projects to Wayra. Selected projects receive financing (in exchange for 5% to 10% share), access to Telefónica resources (including management and technical expertise) and a place to work. There are 14 Wayra academies all over the World: in Argentina, Brazil, Chile, Colombia, Mexico, Peru, Venezuela, Spain, the UK, Ireland, Germany and the Czech Republic. By the end of 2013, Wayra has achieved the following results:

❯ **Over 23,000 projects were submitted**;

❯ **and more than 300 new companies have been selected for acceleration with a total investment of €10 million by Telefónica**. Many of them have received financing by third parties.

It is a win-win situation. Telefónica gets access to a wider pool of ideas, and the start-up companies we are supporting have the opportunity to offer their innovations to our more than 300 million customers.

How to cook a wiki: the cooperation of Telefónica with elBullifoundation

≡19
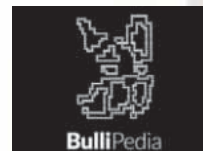
The BulliPedia[32] will be an online database that will hold every bit of gastronomic knowledge ever uncovered. It has been created by Ferran Adrià -widely regarded as the world's best chef – and Telefónica Digital, which will help bring his vision to life by bringing technology to the core of The BulliPedia. The BulliPedia is the result of the collaboration between 10 Fridays and elBullifoundation.

10 Fridays is a Telefónica R+D program, through which the company's engineers can use up to ten Fridays to develop their own ideas. The purpose of this initiative is to encourage creativity and innovation within our engineering team.

elBullifoundation is a private foundation with the backing of Ferran Adrià and Juli Soler. It has been created to pursue two main objectives: to safeguard the legacy of El Bulli and to create the BulliPedia.

32.- For more information: http://www.bullipedia.com/

02.g Seizing the chance of Open Data

KEY TAKEAWAYS

> Open Data means the possibility for everyone to freely access available public data.

> Public data should be available in an interoperable way for commercial and non-commercial use.

> The use of open public data represents an important opportunity for new services and innovation.

Information is one of the fundamental building blocks of the Digital Economy. Users, businesses and society increasingly expect new services to be more personalized and based on their unique needs. The idea of having "free access" to certain data is having more and more supporters among governments, public administrations and all publicly funded activities such as scientific investigations. By the end of 2011, 28 countries had already platforms in place where public data was available. Most of them are related to social relevant domains: health, weather and environmental, criminality, education or traffic.

Open Data offers an impressive array of possibilities for administrations, companies and citizens. The potential economic impact worldwide of Open Data might annually reach €2.25 trillion in seven domains[33]. The three sectors that might mobilize most economic value are education (€661 million), transportation (€535 million) and the consumption sector (€386 million). In education, for example, new programs could be developed to increase the impact of teaching through the design of tailored lessons according to students' records.

Only in the EU27 it is estimated that the direct economic impact of Open Data on the economy was of around €32 billion in 2010, with annual growth rate of 7%[34].

The potential benefits range from greater efficiency for public and private sector organizations to better economic growth, more employment and workforces, and greater transparency of public bodies which makes it easier for citizens to hold them accountable.

The availability of Open Data might help to solve many of the current social and economic challenges we face: reduce energy consumption and pollution, optimize the traffic or improve health assistance. That is why public administrations are acting accordingly at regional and national levels. For example, European Institutions are actively encouraging EU Member States to make as much public sector information available for re-use as possible, and at the same time the EU has developed a common legal framework for the re-use of public sector information.

33.- McKinsey& Company, Open Data: Unlocking innovation and performance with liquid information, 2013.
34.- Cap Gemini, Open Data Economy: Unlocking Economic Value by opening Government and Public Data, February 2013.

The benefits of Open Data:
The San Francisco Open Data Initiative

As interest in Open Data continues to grow, cities around the World have been testing new ways in which data can be used to create public services, new Apps or enable new relationships between citizens and municipal government. New York and San Francisco led the way, with San Francisco launching an Open Data platform in 2009. In October 2012 the Mayor of San Francisco announced new Open Data legislation which includes the appointment of a Chief Data Officer (CDO). The City will also assign coordinators for Open Data in each of its departments.

San Francisco's Open Data policies are "creating jobs, improving our city and making it easier for residents and visitors to communicate with government", commented Mayor Lee.

Several European Open Data initiatives are also on track:

> **The EU Open Data Portal:** This portal is a single point of access to a growing range of data produced by the institutions and other bodies of the European Union. Data are free to use, reuse, link and redistribute for commercial or non-commercial purposes. The portal aims to promote the innovative use of these data and to engage with the user community for EU Open Data;

> **PublicData.eu:** PublicData.eu is a research prototype of a pan-European data catalogue and federation mechanism. The portal's backend uses CKANs harvesting framework to retrieve, normalize and convert dataset metadata from 25 catalogues across Europe, including national and regional as well as official and community-driven efforts. CKAN is one of the world's leading open-source data portal platforms, a powerful data management system that makes data accessible – by providing tools to streamline publishing, sharing, finding and using data. CKAN is

aimed at data publishers (national and regional governments, companies and organizations) wanting to make their data open and available. CKAN development is managed by Open Knowledge Foundation, a non-profit organization dedicated to finding solutions to the technical and social problems of opening up knowledge and data.

The US Administration has also developed initiatives to make data more available, discoverable and usable, i.e. more open. The Project Open Data[35] aims to foster a more democratic environment while promoting economic and social opportunities for citizens. This initiative is conceived to help agencies adopt Open Data Policy and unlock the potential of government data with great success.

In fact, Smart cities like Smart Santander (see case study 2) are a combination of the monitoring capacity of sensors and using the obtained data to optimize processes and design new solutions (see case study 20).

Telefónica is committed to support initiatives which optimize the use of Open Data. We believe that the whole potential of Open Data will best be reached in a data "ecosystem" in which public entities, companies, App developers and consumers can offer and consume every kind of digital services.

Building such an ecosystem is closely related to the establishment of a platform that allows collecting and storing diverse data and massive processing (Big Data) while permitting third parties access through API's guaranteeing privacy, security and data protection.

Therefore, we believe that Public Data should be freely available to everyone to use and republish. To fully take advantage of open data, we consider essential that:

› Public data should be available for everybody without any restrictions;

› Public data should be available and digitally and online accessible, ready to use;

› Public data should be shaped for its reuse and redistribution, even for transformation.
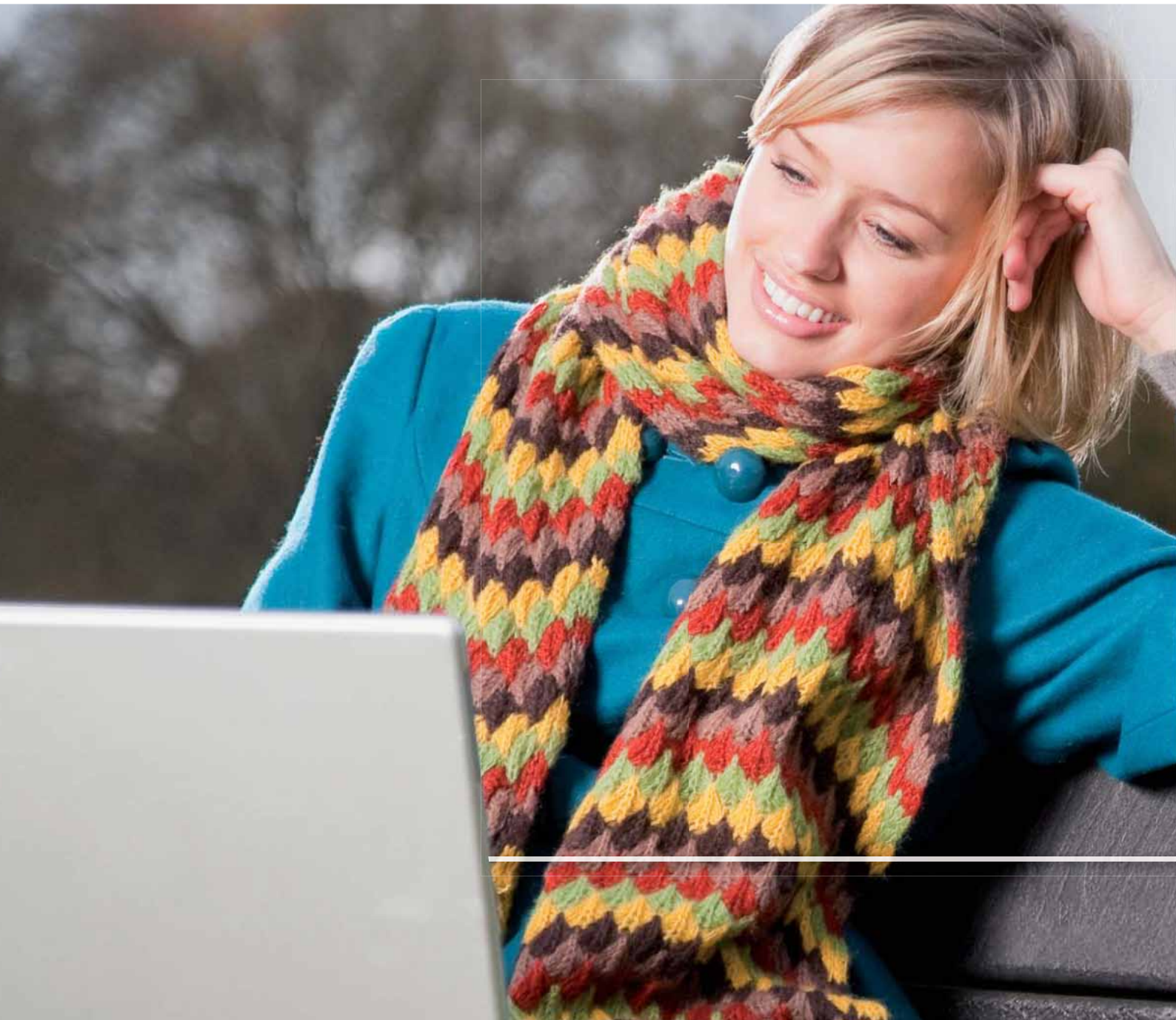
On the other hand, the two main mobile Operating Systems platforms, iOs and Android, together with the Amazon "Cloud" might become the biggest digital services ecosystems. However, the majority of this data remains "closed" in these proprietary ecosystems. As the available technology makes it more feasible to exploit the potential of data, ways should be explored to make also the value of this data available to give benefits back to society and businesses. Also Telefónica is exploring ways of using social relevant data (see case study 21) and many start-ups are searching new options of exploiting the impressive value of data.

Open Data will only be able to deliver its full benefits if the public and private sector contribute to a vibrant Open Data ecosystem and data protection is provided through robust policies and systems.

Open Data Institute: a smart cooperation agreement to explore a better future

Telefónica has recently signed a partnership agreement with the Open Data Institute (ODI). The ODI was set up in 2012 with support from the UK Government to drive economic growth through the application of Open Data.

Telefónica is working with the ODI to explore how anonymised and aggregated data can be used in a responsible way to deliver benefits back to business and society. Telefónica and the ODI are sharing knowledge on how best to extract insights from large amounts of data. Telefónica is also supporting some of ODI's start-ups through Wayra, Telefónica's start-up accelerator program.

During the last Campus Party in London, Telefónica, The Open Data Institute and the MIT held a "Datathon". They put together a selection of open datasets and encouraged a number of teams to come up with new ideas, concepts and applications that would demonstrate how data can be used to benefit society.

02.h Redefining Education

KEY TAKEAWAYS

> Digital technology will transform education in the coming years.

> Frameworks and standards for digital Education should be open to make services work on and between all devices.

> Telefónica is supporting innovative education through the use of ICTs to help to open digital education to all.

The current education system, at World level, is under debate. In particular, the traditional teaching methods, the contents, the tools used and the role of teachers, professors and students are some of the issues that are being criticized.

For years, digital technologies have proven successful in transforming sectors such as Healthcare and Finance, and they will also have a transformative role in Education in the coming years. Already 10% of the projects that are supported by Wayra (Telefónica start-ups incubator, see case study 18) are focusing on e-learning solutions.

At Telefónica, **we have identified 5 trends how ICT technologies and services will contribute to the transformation of education, based on ubiquitous mobile connectivity and services**:

> Global and virtual education centres;

> Online games to learn while playing and simulators to learn while trying out;

> P2P and collaborative environments in learning;

> Content generation by everybody, especially by students, e.g. through new Mobile Apps and Mobile learning;

> Customized education, which means that the student participates in the self-organisation of its education.

Some US universities are already transforming the way they give courses and classes through the use of digital technology. Specifically, since the beginning of 2012, top US universities such as Harvard, MIT and the University of California have been partnering with other world top universities to give a more interactive variant of online courses called Massive Open Online Course – MOOC[36]. These courses, which are available globally to hundreds of thousands of people at a time, depend on digital technology. MOOCs are easy to use with low entry barriers and professors involved believe that these courses mark the beginning of the change of higher education in the 21st century (see case study 22).

36.- *"Redefining education on the Web", The Global Edition of the New York Times, 2013.*

MOOCs: the latest way by which universities are transforming education through the use of ICTs

MOOC

Massive Open Online Courses (MOOCs) differ from traditional education not only in the technology they use or the amount of people they reach but also in that "they are there to help you learn, not to evaluate your intelligence".

Major MOOC platforms have been created recently, such as:

> **edX**: a Harvard and M.I.T. joint venture created in May 2012 in which participate other 27 universities.

> **Coursera**: a commercial venture launched by two computer science professors at Stanford in April 2012 which partners with 84 universities and offers more than 400 courses.

> **Udacity**: another commercial startup started in January 2012 with around 30 courses available.

> **MiriadaX**[37]: an open platform created by Universia and Telefónica Learning Services with the support of CSEV Foundation, with more than 60 courses offered by around 50 Latin American and European universities.

> **UNED COMA**, with more than 25 courses offered by UNED, Spain's National Distance Learning University, in collaboration with CSEV Foundation.

In order to make resources more accessible, frameworks and standards need to be open. Accordingly, the European Commission launched in September 2013 the "Opening Up Education" initiative, which aims to increase the use of digital technologies for learning and teaching through the development of Open Educational Resources and policies across the European Union.

Such open frameworks and standards would also allow regional and national digital contents markets to grow, create new market opportunities for local start-ups and prevent single entities from dominating the market.

Telefónica is improving the quality of education by implementing superior pedagogical models, promoting collaborative networking efforts, training teachers, and connecting teachers and students from different countries to foster the exchange of educational and intercultural value. We also boost innovative education through awards, such as the "Telefónica Foundation Award of Innovative Education", whose main aim is to make a change in the classrooms through

the acknowledgement of teachers that work with ICTs in an innovative way; and congresses such as the "EducaRed International Congress", which provides a space for debate on subjects concerning Information and Communication Technologies (ICTs) and education.

Telefónica also has several programs that contribute directly to the innovation of education:

> **Think Big:** we have committed to teach Digital Literacy to 50,000 students through our Think Big Schools program, collaborate with innovative digital partners, develop creative tools and digital platforms to engage young people in the possibilities of technology and enable them to thrive in our digital world (see case study 23);

> **Telefónica Learning Services (TLS)**, which is our comprehensive online learning solution for education and training, relies on a multi-skilled team of educators, consultants, technology experts, web developers, web designers, managers, teachers, tutors and student assessors that develop a wide range of eLearning products and services for Telefónica's customers;

> **Fundación Telefónica Classrooms**, a project for digital inclusion that promotes the use of new technologies as an essential tool for the improvement of educational quality in Latin America;

> **Fundación Telefónica Labs**, a project that offers business and digital skills training to young people between 14-16 years. The best training projects can be included in Think Big Youth - another Telefónica program that aims to boost the entrepreneurial spirit among the youth. An example of a Fundación Telefónica Lab is the Mobile Learning Lab. Mobile Learning, which is the learning based on the use of mobile devices (smart phones, tablets, iPods and iPads), is considered the emerging technology that will have the strongest impact in education going forward.

The European Commission states that:

"Learners using different devices, including different hardware and software configurations, should not be prevented from using the same educational resources. Neither should producers of digital content see their chosen format limit the potential number of users of their resources.

Interoperability and portability standards for educational resources have to be defined and ensured across devices, platforms and brands to provide a level playing field for all market players. Standards should also ensure that resources could be used across different platforms thus enhancing their effectiveness..."[38]

38.- *Communication from the European Commission, Opening up Education: Innovative teaching and learning for all through new Technologies and Open Educational Resources, SWD (2013) 341 final.*

How ICTs boost innovative education: The Think Big School Program

Think Big School[39] is a Pan European program that welcomes young people into a world of ideas and technology, giving them the opportunity to practice the principles of entrepreneurship by creating and expressing themselves on digital platforms. It exposes young people from all backgrounds to the possibilities of technology in a company such as Telefónica and supports Telefónica own employees in their digital journey. It has been developed in collaboration with Telefónica Foundation, Junior Achievement Young Enterprise and the Mozilla Foundation.

Think Big School was launched in July 2012 and operates across Europe. It is integrated with our broader youth program and engages a wide range of stakeholders to ensure that the possibilities of digital education are open to all. Telefónica has committed to teach Digital Literacy to 50,000 students through the Think Big School program.

How ICTs improve education: the Mati-Tec success case study

The Mati-Tec project is an applied technology program to solve math exercises targeting fourth-, fifth-, and sixth-graders, that includes readings and dynamic interactive programs. The aim of Mati-Tec is to generate a change in the teaching-learning process in a defined group of elementary school students in order to improve their performance in mathematics through the use of a mobile device with educational applications. Mati-Tec has been designed by Tecnológico de Monterrey researchers with the support of Fundación Telefónica Mexico and other strategic partners.

The Mati-Tec project tries to overcome the poor learning results detected in elementary school by transforming the current pedagogical model. It consists on "transmitting the teacher's knowledge" into a truly constructivist model which transforms the students – individually and collectively – in active agents of their own change, i.e. by favouring skills and values over knowledge. The results of the first stage of the projects show that the mathematical reasoning of the students has improved between a 10% and 13%.

39.- http://www.fundacion.telefonica.com/es/educacion_innovacion/thinkbig/schools/index.htm

03.
Building Digital Confidence_

a. Transparency and control for digital citizens
b. Privacy, Identity and a New Deal on Data
c. Safety and Cyber-Security

> *Our customers want to be able to trust and have confidence in the digital world. We agree and we want to create Digital Confidence by making their digital life and Internet experience safe and by empowering them to control their personal data.*

Eva Castillo Sanz
Member of the Board of Directors of Telefónica S.A.

03. Building Digital Confidence

KEY TAKEAWAYS

❯ Consumer trust and confidence are critical for a thriving Digital Economy.

❯ The three main goals for policymakers and the industry should be:
- Put people in control of their personal data.
- Keep people's identities private.
- Keep people's data safe.

Trust and confidence are probably the most relevant values for sustained growth of the Digital Economy. However, as many researchers have highlighted:

"…there is a crisis of confidence: the public is uncomfortable about the way personal information and behavioural data are collected by government and commercial companies. There is a danger that this loss of confidence will lead to people sharing less information and data, which would have detrimental results for individuals, companies and the economy." [40]

The willingness of people to share data is a fundamental prerequisite of a data driven economy, so establishing and sustaining customer's confidence is critical. The reality is that many people have the feeling of having lost the control of the information they shared.

Public concern about the use of data, particularly personal data, by business or public sector could severely limit the economic and social benefits foreseen by Big Data analytics.

It is normal that there are tensions and trade-offs. We need to find the right balance and establish systems of governance and accountability with which people are comfortable. There are no simple answers, especially given the complexity of the ecosystem and the variety of actors and interests.

Part of the solution must be to ensure that individuals feel in control of what, when and how they share information. This means people having real choices about how their personal data is used. And where data is anonymous, people need to feel that in the digital environment their identity is protected to the same extent that it has been in the physical World.

40.- Jamie Bartlett, Data Dialogue- Demos, 2012. http://www.demos.co.uk/files/The_Data_Dialogue.pdf

**Latch from Eleven Paths
A switch for Digital Services
that provides end users the
control over their digital life**

Eleven Paths

Eleven Paths, a Telefónica Company, has recently developed a new service, Latch, which provides end users with total control over the availability of their digital services and thus increases the security of their digital identities.

Latch implements a digital switch enabling to turn off and on users' accounts over the Internet (social media, e-mail, bank accounts, credit & debit cards and others) during users' defined timeframes: at nights, over weekends. While accounts are turned off, no interaction with such account is possible, not even being able to login. Any attempt to access or interaction with the account will trigger an alarm message to the user.

By virtually turning off accounts during given timeframes, Latch reduces times of exposure of the services immediately increasing security for consumers and businesses.

Together with being in control of their personal data and knowing that their identity remains private, people need to understand and participate in a clear value exchange based on their data. They need to know what is in it for them, from targeted offers and discounts they value to solutions to the huge and shared problems faced by society.

All in all, we propose three pillars of Digital Confidence that should inform and shape the design of a new digital experience:

> Put people in control of their personal data: transparency and control for digital citizens;

> Keep people's identities private: privacy, identity and a New Deal on Data;

> Keep people's data safe: safety and cyber-security.

Together, these three elements comprise a new and sustainable approach for data sharing. Their acceptance as global principles would help to establish common ground from which to realise the economic and social benefits of the Digital World.

Telefónica supports this approach and believes that these principles would definitely help to build common ground for a successful global Digital Economy while delivering significant benefits to individuals and to society. Dr. Alex Pentland takes a similar position, highlighting the simple but powerful idea of data ownership[41] –"own your own data" *(see chapter on Privacy, Identity and a New Deal on Data)*– and the need to promote public policies that "encourage the combination of massive amount of anonymous data to promote Common Goods"[42].

41.- WEF, The Global Information Report 2008-2009. Mobility in a Networked World, 2009.
42.- Idem.

03.a   Transparency and control for digital citizens

KEY TAKEAWAYS

> Improved transparency is key for higher confidence of consumers in digital services.

> Internet users are especially concerned about the use of their personal data.

> Better transparency for online search is necessary to enable consumers to distinguish between information and advertisement.

To guarantee a higher level of trust and confidence in digital and online services, transparency about the conditions of use of Internet services must be improved. This relates especially to the use of personal data by such services but extends to ensure that users can properly distinguish if information is advertisement or not.

The Data Dialogue

Losing control of personal information is the most significant concern of consumers[43]:

> **80%** are worried about companies using personal information without permission.

> **76%** are concerned about personal information being shared by third parties.

The public expects the amount of data sharing to increase in the future:

> Regarding sharing data with private companies **45%** expect to be less comfortable and **20%** expect to feel more comfortable.

> About sharing information with government **39%** expect to feel less comfortable and **17%** expect to feel more comfortable.

This is important for tools like search engines and social networks, which have become essential for the use of the Internet. Search engines are often not sufficiently transparent about how their search results are ranked or highlighted to their users. Of course, this is unsurprising given the business model of such services which is based on advertisement. Since 2006 spending for online advertisement has steadily increased and today in Europe it is equivalent to a quarter of the total spend, surpassing newspapers to become the second biggest media category after television[44].

This trend is reshaping the advertising business and with it the future of written publications. Advertising codes and regulations exist in the 'offline World' for traditional media like newspaper and TV, but for the Internet, such rules are not yet written.

Increasingly, organic search results –results that appear based on their relevance to search terms– are losing ground to advertising (see case study 26). This creates confusion as users are not sufficiently aware of the basis of search results. Policymakers and regulators should consider the relevance of these developments as they seek to build a trusted, dynamic and competitive digital environment.

43.- The Data Dialogue, UK research commissioned by Telefónica http://www.demos.co.uk/fi les/The_Data_Dialogue.pdf
44.- http://www.iab.nl/wp-content/uploads/downloads/2013/08/2013_08_28_IAB_Adex_Benchmark.pdf

What is at stake?
Consumer choice

New businesses flourish on the Web based on advertising models which often lack transparency from a consumer perspective. Users cannot easily distinguish between information and advertising, or they are simply overwhelmed with unwanted offers. They do not choose; others do so for them. Facebook, for example, recently introduced advertising on its 'walls', causing confusion as it is often not easy to differentiate between 'posts by friends' and advertising.

The case of Search Engines merits detailed consideration. A recent post by Tutorspree Blog illustrates how Google's own products take up most of the screen space in a search. As results are ranked following the commercial interest of Google, users do not obtain neutral information. European Commissioner Joaquin Almunia detailed the problematic practices of Google as follows[45]:

1. *The favorable treatment, within Google's web search results, of links to Google's own specialized web search services as compared to links of competing specialized web search services (for instance, services allowing users to search for specific categories of information such as restaurants, hotels or products).*

2. *The use by Google, without consent, of original content from third party web sites in its own specialized web search services. This may reduce competitors' incentives to invest in the creation of original content.*

3. *Conditions on publishers preventing them from displaying search advertisements from Google's competitors on their websites; and*

4. *Contractual restrictions on advertisers, preventing them from porting and managing their search advertising campaigns across Google and competing search advertising platforms.*

45.- *Joaquín Almunia's Speech: "The Google antitrust case: what is at stake?", October 2013.*

03.b Privacy, Identity and a New Deal on Data

KEY TAKEAWAYS

> The current crisis of confidence of consumers about the use of their data needs to end for a thriving Digital Economy.

> Not all data is the same: a risk-based approach to data protection and self-regulation mechanisms like "Privacy by design" must strike the right balance between the protection of privacy and enabling innovation.

> Privacy regulation should cover the whole digital value chain and avoid the current regulatory asymmetries ('Same service, same rules').

Over the last years, there has been a growing crisis of confidence about the use of data. Consumers feel increasingly uncomfortable about the way their data are used and processed. In the UK, the reality is that almost 3 out of 4 people feel that they have lost control of information they have shared[46]. Yet, because of the impressive social and individual benefits to be realised, people are sharing their data more than ever before. These apparently contradictory trends indicate an inherent contradiction that may ultimately impact the stability of the Digital Economy.

We live in an age of sharing. It is a given. Therefore, the extraordinary changes in the ability to detect, communicate, store and analyse data ('Big Data'), fast networks, cloud computing and the Internet of Things ('M2M'), pose new challenges to companies and regulators in terms of privacy and security. They need to respond in a dynamic and flexible way that reflects the diversity of views.

There is a growing opinion that what is needed is a 'New Deal on Data', in which citizens have workable guarantees about their privacy and whilst their identity is protected, they are content for data to be used, shared and analysed to achieve positive and accepted social goals.

In any case, privacy is difficult to define as it is framed by culture and law. In Europe, for example, privacy is recognized as a fundamental right. This is reflected in most of the Constitutions of the Members States and also in the Charter of Fundamental Rights of the EU and in the Treaty on the Functioning of the EU. In other regions of the World and in particular in the United States, by contrast, privacy and data protection have a very different legal basis, more related to consumer rights.

46.- Jamie Bartlett, Data Dialogue- Demos, 2012. http://www.demos.co.uk/files/The_Data_Dialogue.pdf
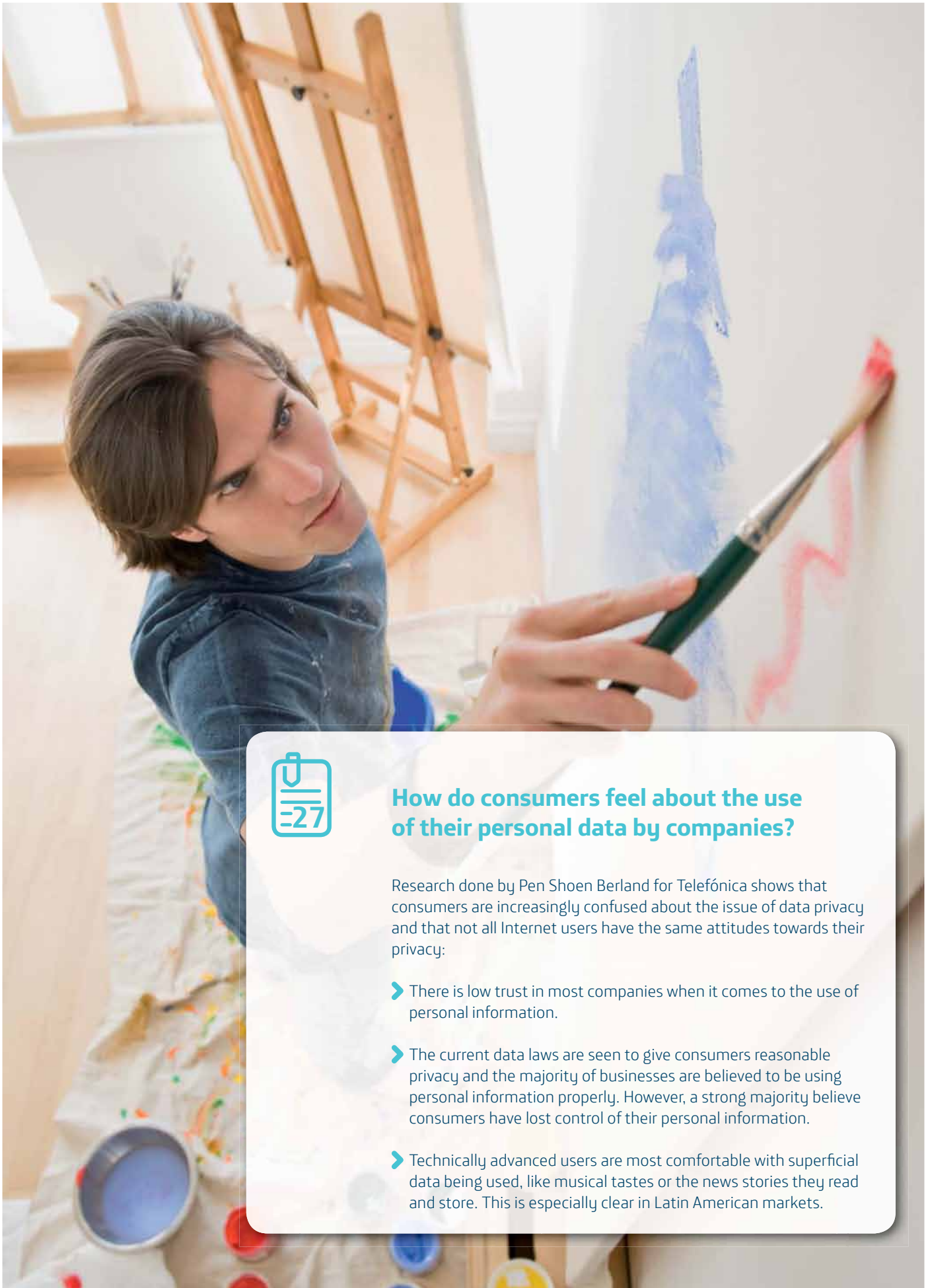
How do consumers feel about the use of their personal data by companies?

Research done by Pen Shoen Berland for Telefónica shows that consumers are increasingly confused about the issue of data privacy and that not all Internet users have the same attitudes towards their privacy:

> There is low trust in most companies when it comes to the use of personal information.

> The current data laws are seen to give consumers reasonable privacy and the majority of businesses are believed to be using personal information properly. However, a strong majority believe consumers have lost control of their personal information.

> Technically advanced users are most comfortable with superficial data being used, like musical tastes or the news stories they read and store. This is especially clear in Latin American markets.

Furthermore, individual behaviours and values in relation to data privacy are dynamic and shaped by technological innovation, culture and the personal and social benefits to be obtained from sharing personal data. Yet, despite the complexity of diverse legal and cultural contexts, it is clear that a new approach is necessary. And it must be an approach that has people at the heart of it. A secure, transparent and private digital experience will provide a strong basis for sustainable growth in the Digital Economy.

It is also necessary to take a risk-based approach to data protection. That is why Telefónica suggests that a clear distinction between personal and anonymous data is helpful.

Personal information which identifies us, such us bank details, telephone numbers, or home address, can be considered 'personal data' and should be treated accordingly. 'Behavioral data', like location or purchasing history, can be analyzed and used to deliver services without ever identifying the individuals involved. With anonymous data there is less possibility of any adverse impact on individuals, and potentially huge social benefits to be realized.

Organizations should take into account the nature, scope, context and purposes of data processing operations and the related risks to individuals that might arise when creating and operating data-driven services.

Users confidence and the proposal of a New Deal on Data

Professor Alex 'Sandy' Pentland, MIT and Board advisor to Telefónica Dynamic Insights proposes a New Deal on Data[47]:

"In short, to achieve the exciting possibilities of a data driven society, we require what I have called the New Deal on Data – workable guarantees that the data needed for public goods are readily available while, at the same time, protecting the citizenry. Maintaining protection of personal privacy and freedom is critical to the success of any society."

47.- *For more information: http://blog.digital.telefonica.com*

Same service, but different rules?

In 1997, when the first e-Privacy Directive was adopted in the EU, specific Data Protection rules for telecommunications operators may have been justified. But today, with such a broad range of online service companies collecting and processing even larger volumes of personal data, there can be no justification for such an approach. Equally meaningless are the obligations established especially for telecommunications operators in the Data Retention Directive or in the Data Breaches Notification Regulation. These lead to significant competitive disadvantage when compared to online service providers.

The different use of data by different kinds of companies is based on regulatory asymmetries: telecommunications providers cannot use the information contained within text messages, yet the contents of a web email and instant messages are routinely used by other ICT companies to target advertising.

This is not only confusing for customers but also not justifiable from a legal perspective.

Against the background of global convergence and competition, the co-existence of all these various sector-specific rules with the future General Data Protection Regulation (GDPR) of the EU would be incompatible with the principle of sector and technological neutrality. The result would be negative for both businesses and consumers, as consumers would face inconsistent privacy experiences for functionally equivalent services. They would need to understand whether the service was being provided by a telecom operator or an online service provider in order to assess the degree to which their data is protected.

The on-going review of the EU Data Protection legal framework is a unique opportunity to achieve a true level playing field and apply technological neutral principles to all stakeholders.

In the current converged World, the distortions between sectors are not justifiable and should be removed in order to enable sustained growth across the Digital Ecosystem. The best option for consumers would be to include the principle of confidentiality of communications within the general Data Protection legislation, thereby removing any need for the e-Privacy Directive.

As they create new, data-driven services, organizations should be accountable for the actions that they take to protect the interests of individuals. An important and effective measure is to establish 'privacy by design', embedding consideration of privacy within the product or service design and development process. Privacy impact assessments, codes of conduct, certification and other assurance mechanisms are all important components of a comprehensive approach to data privacy in this context.

Whilst user data is very often at the core of successful services and applications on the Internet, the nature and quantity of personal data used is often not transparent to users. This rightly leads to public and political concerns, which need to be addressed in a holistic manner, considering the whole digital value chain. This is important because in the digital ecosystem there are many intermediaries belonging to different industries and thereby subject to different regulations and competition policies when, in fact, they are providing the same service to the same people. They are not yet considered a group of firms in a same business model.

Moreover, increasingly some digital services, are gaining dominant positions globally whilst being based outside of the territories where the services are used. Such services are not always subject to national rules, meaning that responsibilities are diluted in the digital value chain.

These facts bring undesirable consequences: on the one hand, individuals are deprived of the protections to which they are entitled and, on the other hand, some companies are able to participate in new, data-driven business models whilst others face barriers to participation due to their geographical location or to the industry in which they operate.

Telefónica believes that a 'level-playing-field' between all parts of the Digital Value Chain is an essential enabler for growth. Privacy protections need to apply regardless of geographical location or the economic sector of the service provider (traditional communication service or new Internet-based services). Equally, in order to boost growth in digital markets and future technologies, regulation and competition policy should be adapted to the new Digital Ecosystem. Policymakers should apply a simple principle: 'Same service, same rules'. In other words, the protection of individuals should be technologically and geographically neutral. For example, the processing of personal data of data subjects residing in the European Union by a controller not established in the Union, should be subject to European Data Protection rules.

How Telefónica's new Privacy Policy helps improving Digital Confidence of our customers

As part of Telefónica's strategy to design a new digital experience based on trust and confidence (Digital Confidence), we approved in early 2013 a global Privacy Policy. This policy establishes how Telefónica will protect the privacy of our customers and everyone who entrusts their personal data to us.

The Privacy Policy establishes mandatory common behavior rules and guidelines for all our regions and entities and creates clear and coherent positions regarding our privacy practices and data protection.

It creates the framework for a culture of privacy based on three pillars:

› Self-regulation of user's rights and security, far beyond international and local laws;

› Privacy as a driver of trust and confidence, and key attributes of Telefónica;

› Privacy as an enabler of innovation, welfare and prosperity in the Digital World.

Telefónica's Privacy Committee, headed by its Chief Privacy Officer, ensures that the principles set out in the Privacy Policy are implemented. At the same time, the Privacy Committee is the internal and external point of reference for all stakeholders of Telefónica in relation to privacy.

03.c   Safety and Cyber-Security

📝 KEY TAKEAWAYS

> In a hyper-connected World, safety and cyber-security are key for societies and economies.

> International cooperation between governments and stakeholders is essential to protect consumers and businesses.

> Governments should be more transparent about national security measures and must respect Human Rights and the rule of law.

> A global scope is needed to make child protection measures more effective.

Today, almost everyone is connected. Most countries, companies, entities and users are now critically dependent on technology in many different areas: commerce, finance, healthcare, emergency services, transportation, food distribution, education and more. The increased connectivity and volume of activity on the networks has brought with it a parallel rise of cybercrime.

A powerful cybercrime industry, controlled by mafias, has been born and is undermining the confidence of users in the network and on the Internet. Thus, securing cyberspace is one of the most important issues to be tackled on a global scale.

All parts of the ecosystem, including individuals and organizations, are vulnerable to cyber-security threats. And cyber-security must be a shared responsibility amongst all actors: administrations, private sector companies and consumers.

Users have to adopt basic measures of self-protection, with public administrations having a leading role in fostering the creation of a cyber-security culture among citizens.

It is essential that public administrations do the following:

> Improve the legal framework and cooperation between states to eliminate loopholes that cyber criminals can use due to the global nature of the Internet;

> Develop cyber-security standards and homologation processes that must be met by personal devices vendors in order to trade their products;

> Mandate and foster adoption of DNSSec in government infrastructures.

Private sector companies work on cyber-security should include:

> Intensify its efforts for "security by design", especially for personal devices and in social networks, to secure customer experience;

> Enhance ways of collaboration to define and update standards and best practices that allows to maintain a secure cyber space;

> Agree on the adoption of a single cyber-security standard to establish an appropriate security and privacy baseline.

Telefónica is already working along these lines to ensure the security of our networks and services and the confidentiality and integrity of customer data:

> We have strict security certification processes with ours vendors, and have recently started an even closer cooperation with one of our main vendors to validate and enhance the security of the vendor's' equipment;

> We also have 4 Computer Emergency Response Teams (CERTs), two located in Latin America and two in Europe, which jointly manage cyber threats and the protection of our networks, services and customers globally; overall, we have around 700 Network security professionals;

> We have implemented a strict internal cyber-security audit plan, performed yearly, to ensure the effectiveness of our cyber-security model.

According to the European Commission, the security of around **148,000** computers is compromised each day[48].

The World Economic Forum estimates that there is a 10% likelihood of a major critical information security breakdown at a cost of **€184 billion**[49].

48.- *European Commission, MEMO/12/221 28/03/2012, Frequently Asked Questions: the new European Cybercrime Centre.*
49.- *BusinessEurope comments on the Commission proposal for a cybersecurity - September 2013.*

Telefónica A Digital Manifesto. An open and safe Internet experience for all

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Relative frequency of global news reports 2005-2012

January 2005 = "100"

Cybercrime
Homicide

Source: UNODC calculations from Dow Jones Factiva.

Telefónica intends to be part of the solution for our customers regarding cyber-threats. We recently created *Eleven Paths*, a company that aims to develop new, simple and easy-to-use services that make the Internet safer and more secure for everyone (see case study 31).

Between April and December 2012, the types of threats detected on the Google Android platform increased by more than 30 times from **11,000** to **350,000**, and are expected to reach one million in 2013[50].

Communication networks and the Internet are the backbone of modern societies and economies so any failure is likely to have consequences far beyond the online world.

This makes information systems a natural target for terrorists and other organized crime organizations. It has led to a new type of crime, fought in cyberspace and targeting information and communications systems.

The EU Cyber-Security strategy[51] rightly highlights innovation as the ultimate way to achieve cyber resilience. Public policy and legislation must therefore foster private sector innovation, not stifle it. Any regulatory intervention to 'fix' the technologies involved could hinder innovation in an area which is rapidly evolving.

50.- Andrea Renda, "Cybersecurity, digital warfare and the future of Internet governance", June 2013, http://www.ceps.eu/ceps/dld/8190/pdf

51.- http://ec.europa.eu/digital-agenda/en/news/eu-cybersecurity-plan-protect-open-internet-and-online-freedom-and-opportunity-cyber-security

Protecting the digital lives of Telefónica's customers: Eleven Paths

As online fraud, e-crime and other emerging threats migrate from computers to tablets and smart phones, Telefónica is developing products and services to protect customers and their digital lives. It has created a new company called Eleven Paths that has the task of developing new cyber-security services.

Eleven Paths will radically change the way companies provide security services to customers and big corporations. Eleven Paths is focused on mobile, Cloud Computing and social networking platforms. It is leading a revolution in the development of products and services that will protect customers in their digital lives.

Eleven Paths' products launched include Metashield family of products, allowing to clean up metadata from most of office documents thus preventing the disclosure of any kind of sensitive information aside from the strictly necessary; and Faast, a Persistent Pen-testing solution that implements and automatizes all known pen-testing techniques executing a continuous vulnerability analysis to the systems to determine the possible vulnerabilities that could lead to security breaches.

Faast   **Metashield**

"Security must be a key pillar of the Internet and services architecture from the beginning. We want to radically change the way companies provide security services to customers and big corporations. The Digital World is changing the rules and security services need to adapt to this new challenge very fast," said Chema Alonso who leads Eleven Paths.

The extension of security requirements to all parts of the Internet Value Chain is an essential element to create a safer online environment for consumers. All digital services should be subject to at least basic security requirements, for example regarding the adoption of risk management practices and the report of security breaches.

Telefónica has therefore just opened a new data center close to Madrid which guarantees the highest level of data security to our customers (see case study 32).

Cyber-security is, by definition, a crossborder issue. It is therefore important to achieve also a globally consistent policy approach. Globally harmonized and comprehensive strategies and technical standards are necessary to secure the cyberspace and governments and all stakeholders should cooperate to bundle their efforts.

Making Cloud Computing safe: Telefónica's new European cloud data centre

In April 2013, Telefónica opened its largest data centre[52] to house its range of digital services, including cloud computing and customer outsourcing. The centre comprises a total of 23 Information Technology (IT) rooms and a built area of 65,700m^2, on a plot of land the size of 8 football pitches. 'Alcalá Data Centre' operates as Telefónica's cloud services base for Europe.

At its new Data Centre, Telefónica will provide the latest in outsourcing services for infrastructures, housing, backup, storage, monitoring, complete outsourcing of systems and IT contingency services. Special emphasis will also be placed on new Cloud services, offering customers a Virtual Data Centre service. This is a flexible and made-to-measure facility, offering organisations a private space in a secure environment, in which they can install all the business applications they need, such as e-mail, intranet, corporate website, CRM, management tools, and e-Commerce platforms.

Telefónica will invest a total of €300 million in the new Data Centre, which will guarantee 99.995% annual reliability. It is the largest centre in the World with Tier IV certification from the Uptime Institute, which guarantees the highest level of fault tolerance.

52.- For more information: http://blog.digital.telefonica.com

Digital Fundamental Rights and National Security

The increased digitalization of human activity and our societies has also broadened the scope of State functions like policing and security. This has brought various challenges around freedom of speech and protection of citizens against undue infringement of their privacy by governments. Most of these issues are existent also in the off-line world, but the Internet its vast amount of private data and real-time information has provided a new dimension. Especially the revelations on mass electronic surveillance by government intelligence services has opened a political debate on how to balance national security, fundamental rights and the rule of law.

Telefónica believes that these debates are important to restore trust of Internet users by providing transparency about government activities and by getting political agreement on the right balance between national security and Human Rights of citizens.

An important initiative to build global common ground between States is the UN resolution co-sponsored by Brazil and Germany, titled "The right to privacy in the digital age". The resolution calls:

❯ To end privacy violations and prevent further privacy incursions and ensure that national laws, practices and procedures conform to existing international Human Rights obligations;

❯ To establish independent national oversight mechanisms capable of maintaining transparency and accountability for State surveillance of communications;

❯ And requests the United Nations High Commissioner for Human Rights to present a report on the protection and promotion of the right to privacy in the context of domestic and extraterritorial surveillance

and/or interception of digital communications and collection of personal data, including on a mass scale, to the Human Rights Council at its twenty-seventh session and to the General Assembly at its sixty-ninth session.

At regional level, the European Union is intending to restore trust and confidence of Europeans by updated Data Protection legislation and a new European Cyber-Security strategy.

Telefónica is actively engaged in improving security of networks and protect our customers' data and believes our customers should have freedom of expression and their privacy be protected, independent of the specific digital platform, network or services they use. Accordingly, Telefónica is part of the wider *Telecommunication Industry Dialog*[53] in order to promote a set of principles on freedom of expression and privacy worldwide.

However, any solution needs to rely on a close and transparent engagement between all relevant stakeholders and governments. Telefónica asks governments to be more transparent about necessary National Security measures and requests and welcomes the current public debate because it is the best way to find the right balance between privacy and security for our societies. Ultimately, it is up to policymakers and the international community of States to define the right proportionality between national security measures and the protection of Fundamental Rights, to make sure that fair and transparent processes on national and international level exist and to fully respect the rule of law.

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Protecting the most vulnerable users

Child safety is a very sensitive and important issue and there is considerable consensus that making protecting measures global in scope would hugely increase their effectiveness. Yet different cultural and legal norms create the challenge that there is no universally accepted view of what defines a person as a child, or of what is appropriate for children, making "inappropriate content and behaviour" hard to define. Children, teenagers and also the elderly are also especially at risk from identity theft and digital fraud.

Telefónica's has developed a child protection strategy that is driven by customer insights. It includes commitments to raising awareness, self-regulation, stakeholder dialogue and the development of specific products and services that help to keep children safe online[54].

Self-regulation has been mainly built on the industry agreements reached through open dialogue around key child safety needs identified (e.g. Framework Agreement backed by the European Commission to promote a safe environment for minors in their use of mobile telephone communications, in 2007; National Code of Good Conduct in all the European markets; Mobile Alliance Against Child Sexual Abuse Content Online, in 2008; the CEO Coalition to make Internet a Better Place for Kids, in 2011; and the ICT Principles in 2012).

Since 2012, Telefónica has been an active member of the CEO coalition of European Vice-President Neelie Kroes to make the Internet a better place for kids (see case study 33). Telefónica is committed to work with a wide range of business partners across the ecosystem, to contribute actively to progress towards the goals established by the coalition.
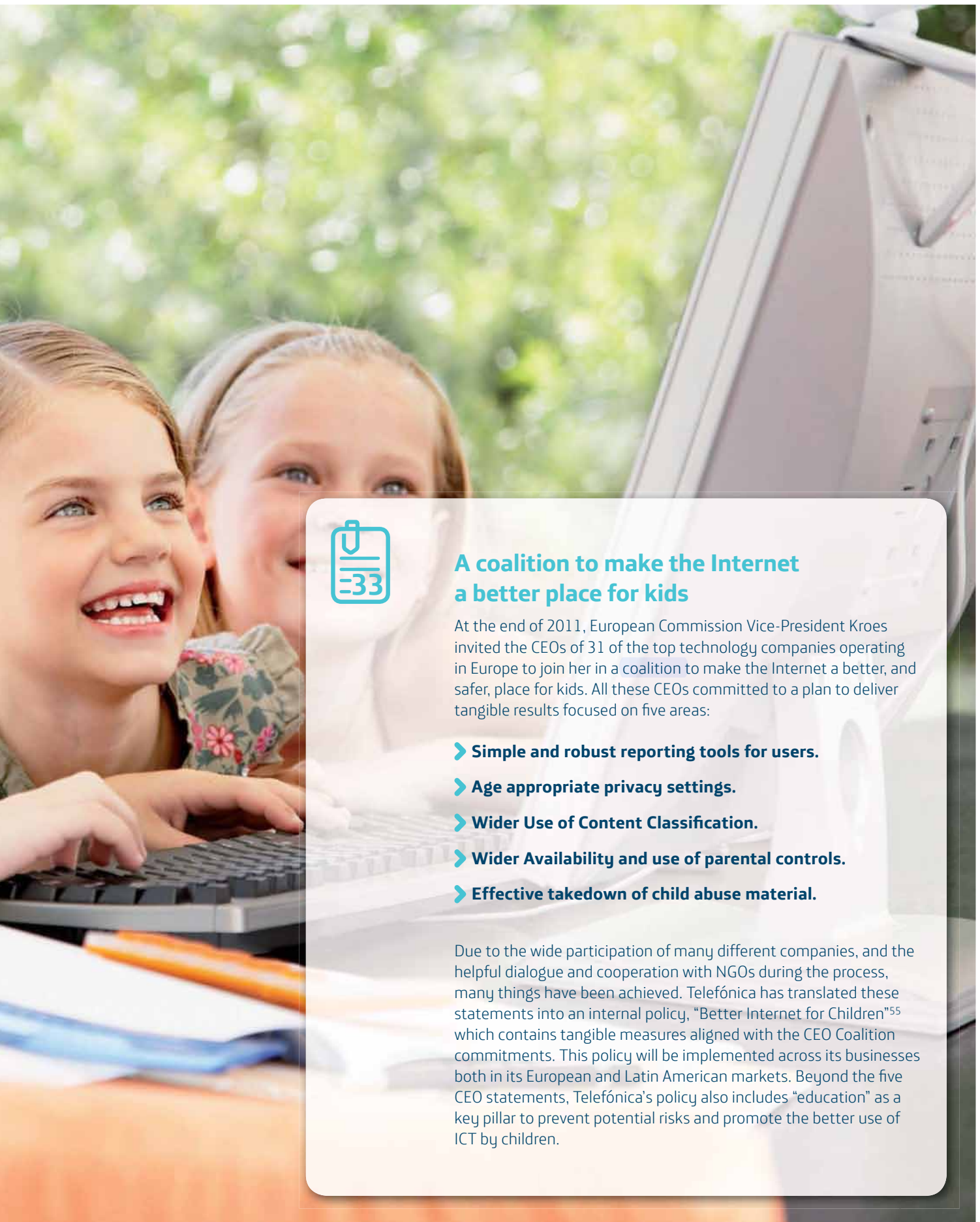
A coalition to make the Internet a better place for kids

At the end of 2011, European Commission Vice-President Kroes invited the CEOs of 31 of the top technology companies operating in Europe to join her in a coalition to make the Internet a better, and safer, place for kids. All these CEOs committed to a plan to deliver tangible results focused on five areas:

> **Simple and robust reporting tools for users.**

> **Age appropriate privacy settings.**

> **Wider Use of Content Classification.**

> **Wider Availability and use of parental controls.**

> **Effective takedown of child abuse material.**

Due to the wide participation of many different companies, and the helpful dialogue and cooperation with NGOs during the process, many things have been achieved. Telefónica has translated these statements into an internal policy, "Better Internet for Children"[55] which contains tangible measures aligned with the CEO Coalition commitments. This policy will be implemented across its businesses both in its European and Latin American markets. Beyond the five CEO statements, Telefónica's policy also includes "education" as a key pillar to prevent potential risks and promote the better use of ICT by children.

55.- *http://ec.europa.eu/digital-agenda/en/self-regulation-better-internet-kids*

04.
Global Internet Governance_

> *The Internet can only be sustainable if its governance is adapted to its rapid technologic and social evolution. Today, in contrast to only five years ago, the majority of Internet users stem from emerging economies outside the USA and Europe, and they are using smartphones and mobile networks to access it. The Internet Governance model must be flexible enough to allow for the future evolution of the Internet. All stakeholders, including governments, should work together in transparent processes to make sure that everyone can use the Internet with confidence that his or her security and privacy is respected.*

Carlos López Blanco
Global Head of Public and Corporate Affairs of Telefónica S.A.

04. Global Internet Governance

📝 ## KEY TAKEAWAYS

> Due to the growing diversity of the Internet and its huge social and economic impact, its governance has become more challenging and an issue of international politics.

> Internet Governance must achieve the right balance of global and local issues. Existing governance processes like the IGF have been successful and become more diverse and international.

> Telefónica believes that the multistakeholder model is the best way to govern the Internet but that it needs to evolve and be improved.

First created as a military communications system, the Internet was adopted by the academic and research community before developing into todays mass medium. Its policy rules have been continuously adapted throughout this evolution, although the speed of change that characterizes its growth has led to understandable 'growing pains' and friction between different interest groups.

The Internet's non-hierarchical, distributed architecture was conceived as a mean to guarantee communication between geographically dispersed computers and networks. This decentralized character of the Internet is the basis of its success, but can also make it challenging to establish accountability for the different aspects of its operation and impact. This dilemma must be reconciled in order to guarantee a reliable, safe and Open Internet.

Over the last years the globalization of the users of the Internet and its growing importance as a commercial platform has put the consensus-based, multistakeholder model of its governance under stress. For this reason, Internet Governance has emerged from being a mostly technical and operational issue to become a matter of significant international strategic importance and politics.

Interestingly, while the Internet governance model has been criticized by some stakeholders, it has been growing constantly by number of participants and number of platforms and fora (see charts 21 and 22). Despite these challenges, the collective will of most stakeholders is now driving a renewed momentum towards healthy and strong consensus.

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Participation at the Internet Governance Forum (IGF)

Participants

Nairobi — 1,781

1,700

Rio de Janeiro — 1,661

>1,600

1,600 — Bali

1,600 — Baku

1,500 — 1,480

1,451

Sharm el-Shekh

Vilnius

Athens — 1,300   Hyderabad   1,280

- Individuals
- National IGFs
- Regional IGFs
- Others

Year

2006   2007   2008   2009   2010   2011   2012   2013

Source: Telefónica analysis.

22
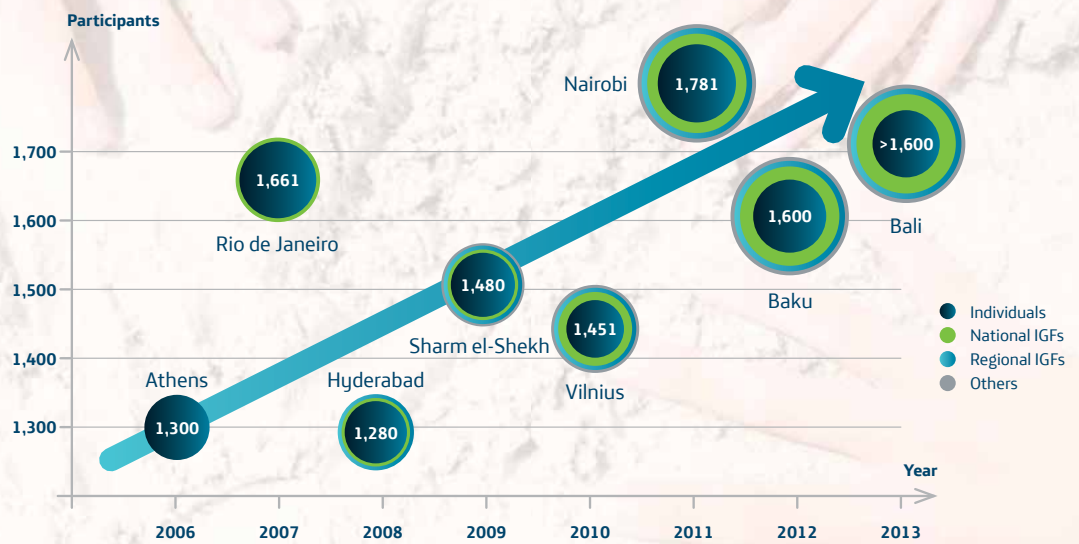
Breakdown of IGFs by type

60

50

40

30

20

10

0

2006   2007   2008   2009   2010   2011   2012   2013

- Others
- Regional IGFs
- National IGFs
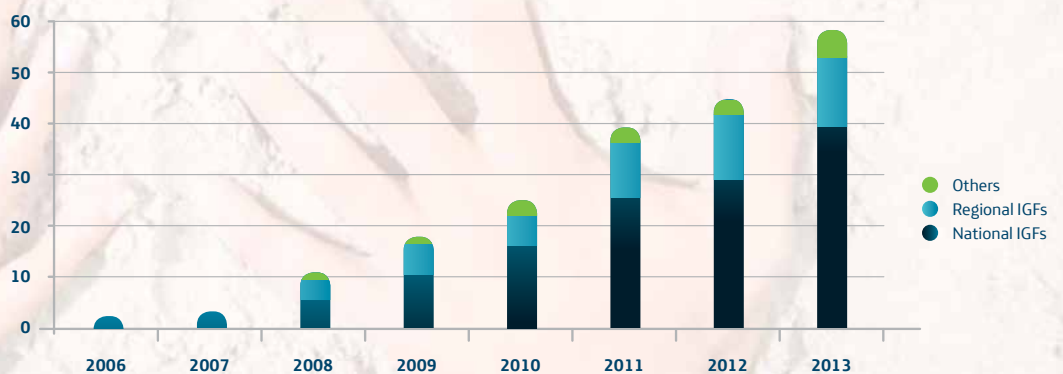
Source: Telefónica analysis.

From 2007 and 2013, **56 new fora** devoted to Internet Governance have been created, of which **39** are **national**, and **17 regional** or serving groups of **specific interests**.

A good example of this is the internationalization in ICANN. ICANN is working with the global Internet Governance community to define principles to guide their governance process, including its approach to global stakeholder engagement, government relations and the definition of global and regional responsibilities. ICANN has already opened its first two regional hubs in Singapore and Turkey and three engagement centres in Beijing, Geneva and Montevideo. Additionally ICANN seems to involve better its Governmental Advisory Group, which represents governments, and is establishing stronger dialogue with regional groups to enlarge its international presence.

Despite good progress, there is more work to be done by all stakeholders to find the necessary common ground. Telefónica believes that the multistakeholder governance model is the best way to safeguard the global nature and success of the Internet, but that the model –as the Internet itself– needs to evolve and be improved.

Towards a better governance of the Internet? The proposal of Brazil and the "Montevideo Statement" by Internet organizations

Dilma Rousseff
President of the Federal Republic of Brazil

The President of Brazil, Dilma Rousseff, has proposed international rules to ensure transparency and prevent the Internet for being used to develop surveillance and espionage. In her words, Brazil wants a "global civil framework on Internet Governance".

To work towards that goal, Brazil, together with other countries, will organize the "Global Multistakeholder Meeting on the Future of Internet Governance" in Sao Paulo in April 2014. The aim is to continue to work, in an open multistakeholder forum, on how to ensure a vivid and global Internet, which also provides for the protection of the basic Human Rights of its users.

Separately, the key organizations involved in the governance of Internet resources (e.g. ICANN, IETF) have published in October 2013 the so-called "Montevideo Statement" which calls for an internationalization of Internet Governance and its processes and platforms[56].

56.- See http://www.icann.org/en/news/announcements/announcement-07oct13-en.htm

05.
Adapt Public Policies to the new Digital Markets_

> *With over 215 million connections and 179 million mobile customers, Telefónica leads the Digital Revolution in Latin America. We have invested over €110 Billion in the region to bring connectivity and broadband to everyone. Policymaker and Regulators need to assure that policy frameworks are adapted to the changed situation of digital markets and allow for innovation and investments.*

Santiago Fernández Valbuena
Chief Strategy Officer and Member of the Board
of Directors of Telefónica S.A.

05. Adapt Public Policies to the new Digital Markets

KEY TAKEAWAYS

> Regulations need to be updated to reflect the realities of the Digital Economy.

> Increased competition and more dynamic markets should reduce the need for regulation.

> New markets should be analysed from a consumer perspective and all services must be regulated on a technology-neutral basis.

> Same service, same rules: policies and regulation need to create a level-playing-field for competing digital services.

> In dynamic and fast-changing digital markets, case-by-case decisions are less likely to restrict growth and innovation than regulation. Where new policies are needed they should be forward-looking and allow for flexibility of regulatory authorities.

The digital communications sector is made up of many markets with some common characteristics: they are fiercely competitive and constantly changing. In recent years, technological convergence has led to a radically different competitive environment. In today's developed economies, cable television providers are often the leading providers of broadband Internet while telecommunication operators and companies offer Internet-based communication services like VoIP (Internet telephony). In the Digital Economy, everyone can compete against everyone, but everyone can also cooperate with everyone.

Policymakers and regulators have the difficult task of keeping track of this fast-moving environment. Regulatory frameworks across the world are mainly based upon the liberalization of communication services in the 1990s. They established separate rules and different authorities to oversee audiovisual content, cable television and telecommunications. For the Internet it is often unclear which national authority is responsible: in the USA this issue is currently treated in court.

Regulatory frameworks focus mainly on intra-modal competition, like competition between mobile operators, but not on inter-modal competition, such as competition between mobile operators and providers of Internet based telephony. But for customers it is largely irrelevant which platform or technology is used to provide the service. From a constitutional, economic and competition law perspective this leads to an unacceptable situation in which companies carry out the same business activity and compete for the same customers but are subject to different standards and constraints. In short, competition law and regulation have not kept up with the evolution of the Internet and the changed competitive landscape of the Digital Economy.

No need for more regulation

The Digital Economy has changed the competitive dynamic in many markets making many established rules and regulations unnecessary or even obsolete. Moreover, inappropriate rules can result in stifle innovation and refrain potential business models and attractive digital services not been brought to markets. Therefore, a more effective and smarter approach is urgently needed. There is in many cases no need for more regulation. Policymakers should better do a thorough and forward-looking analysis to define desired policy outcomes, then draft appropriate regulation and also remove outdated rules.

Telefónica believes that policymakers and regulators should fundamentally review all existing regulation applicable to the new Digital Economy, taking into account the following principles:

> **Convergence of markets**: regulation should recognize increased competition between entities and services that previously operated in separate markets, ensuring equality of treatment and supervision for the benefit of the fair competition;

> **Level-playing-field**: the same services need to be governed by the same rules, independent of underlying technologies. Policymakers should decrease the amount and use of ex ante regulation and rather be oriented on reaching desired policy outcomes by intervening ex-post in cases of anti-competitive behaviour of market participants;

> **Investment-friendly environment**:
the economic sustainability of the
underlying Internet infrastructure
and new broadband investments
needs to be secured. This is the
fundamental basis to provide Internet
and new services to consumers in
the future.

Current policies and regulatory
approaches, especially for the
intensively regulated communication
and broadband markets, are often
outdated and do not fit to this fast
evolving competition. Sticking to
them has a cost: markets are unfairly
distorted towards less regulated parts
of the Internet Value Chain, creating an
unsustainable environment for long-term
investments and negative effects on
quality of services infringing consumer
choice in the long run.

In a dynamic, innovative and fast
changing environment like the Digital
Economy, supervision needs to rely
more on outcome-based policy-making,
case-by-case competition overview and
informed consumer choice based on
transparent offers.

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Review tax regimes for Digital Services

Fairness should be sought across all policies that impact the Digital Ecosystem. International tax regimes, many of which were designed long before the Internet was born, have proven to be old-fashioned and have not been able to match technological change introduced by the new Digital Economy.

Recently, public and policy concern has been raised, because some digital and Internet businesses have been able to use national tax regimes weaknesses to pay little or no tax at all, while registering record profits. Due to their service-based business model, and global reach, many Internet companies are enjoying a privileged position compared to most of their competitors.

It is governments' responsibility to take action and fix their tax systems, working together internationally to build a comprehensive approach reflecting the global reach and scope of the Digital Economy. The OECD, at the request of the finance ministers of the G20, has shaped an Action Plan aimed at ensuring that multinational companies pay their fair share of taxes. **It is a 15-point Action Plan on Base Erosion and Profit Shifting (BEPS[57]) which focuses on:**

> Strengthen foreign-controlled companies rules;

> Prevent abuse of tax treaties;

> Prevent the artificial avoidance of permanent establishment status;

> Make dispute resolution mechanisms more efficient;

> Develop a multilateral instrument;

Also, at their recent European Council meeting, EU Heads of State or Government identified that fiscal and tax policy is an obvious example in which existing rules should be reviewed in order to remove the imbalances and unjustified competitive advantages enjoyed by some operators of Digital services. As a result of that, the European Commission has decided to set up a Commission Expert Group on Taxation of the Digital Economy, aiming to monitor the evolution of taxation policy related to the Digital Economy. Among its tasks, the Expert Group will monitor the relation between operations of companies active in the Digital Economy and their contribution to tax revenues of Member States detect deficiencies in the adaptation of current international tax rules to the Digital Economy and provide possible solutions.

Telecommunications and broadband service providers make significant financial contributions to society. Such contributions range from the taxes paid at national level to the considerable payments they make for the rights of radio spectrum and specific taxes levied on its use.

High taxation clearly reduces the capacity of broadband and communication providers to invest in new infrastructure. Given the much lower levels of taxes paid by many Internet Service companies when compared to telecommunications providers, policymakers should take steps to ensure a more equitable regime. Fair taxation of companies across the Digital Ecosystem will enable investment in both innovative digital start-ups and in the broadband infrastructure that they need for growth.

Especially concerning are recent tendencies by some governments to create specific taxes on communication and broadband providers in order to subsidize other sectors such as the content and television industry. Disguised as contributions to culture, such subsidies remove considerable funds that might otherwise be invested in broadband infrastructure and research and development. These subsidies are especially unjustified given the strong financial performance and growth of the content industry in recent years.

Create convergent rules for audiovisual services and television

Just a few years ago, the only ways to distribute television were terrestrial broadcasting, satellite and cable. Comprehensive regulation of these audiovisual services ensured that transport capacity was fairly distributed and that audiovisual programming reflected cultural and local diversity. When broadband providers started offering television services over Internet platforms, the audiovisual regulation was applied accordingly. Today, customers increasingly consume audiovisual services offered by Internet Service companies like *Netflix*, *Hulu* or *YouTube/Google* over their broadband connections. *Netflix* and *YouTube* video streaming alone already account for half of the total Internet traffic in the USA (see chart 23).

Audiovisual policies need to be reviewed to reflect this new competitive situation and user behaviour. Such review should also consider the impact of new media consumption on the Internet as part of

ecosystems like Operating Systems and Application Stores. Convergence in the audio-visual world is expanding the market by introducing new competitors which are not subject to the same regulatory regime. Policies such as national quotas that aim to provide consumers access to specific content might no longer be necessary given the choice of audiovisual platforms and hundreds of different television and video channels. Thus, 'must carry' obligations are no longer relevant because the Internet enables customers to access and consume all types of content.

Audiovisual policies need to reflect new consumer behaviours and a changed competitive situation and apply in the same way to all services regardless of the technologies used for the delivery of the contents.

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Video streaming from Netfix and YouTube is already responsible for half of the fixed bandwith in the USA – and Europe is heading the same way

% of fixed access traffic downloads

32.3%	●	Netfix
17.1%	●	YouTube
6.7%	●	Other video
43.9%	●	Other

% of fixed access traffic downloads

24.3%	●	YouTube
16.0%	●	Other video
59.7%	●	Other
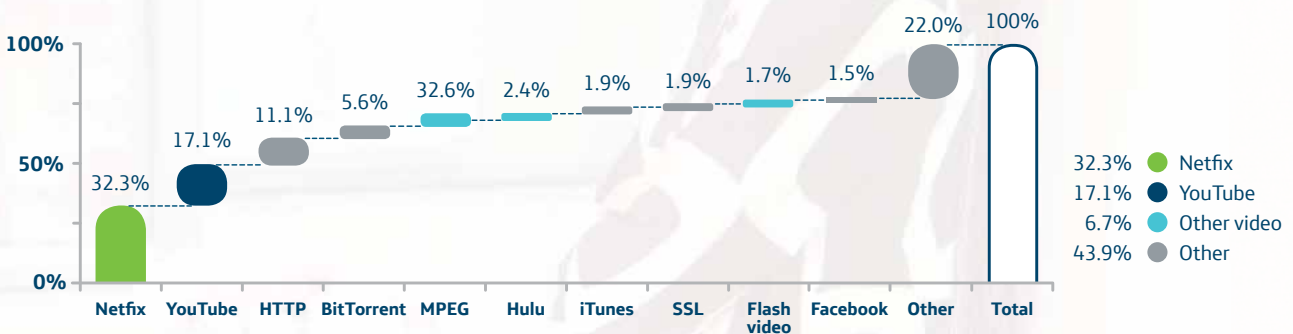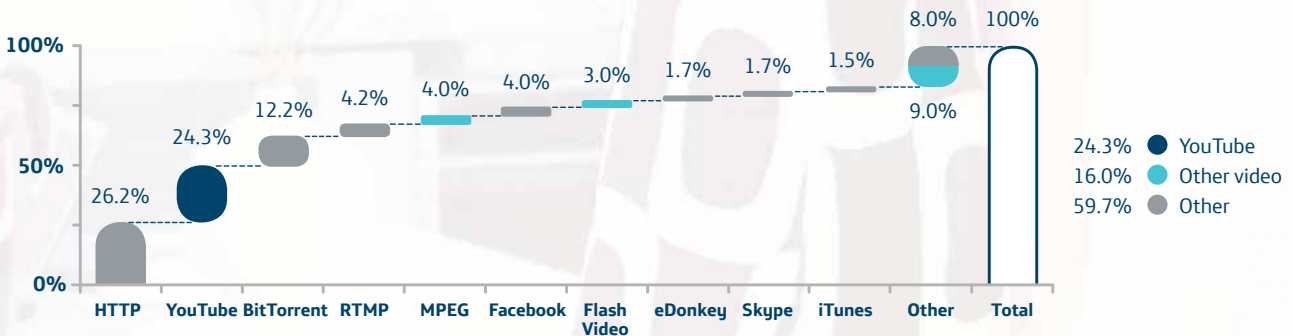
Source: Sandvine "Global Internet Phenomena Report 1H2013".

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Modernize competition law approach

Given the rapid development of the Digital Economy, it should be the task of Competition Authorities to ensure fair market conditions. In general, case-by-case decisions by Competition Authorities are a better instrument to deal with emerging challenges than ex-ante regulation. Regulatory rules will often be outdated before the legislative process is completed and rules implemented. Also, regulation does not provide the necessary flexibility, potentially stifling innovation and the development of new value propositions for consumers.

Also competition authorities must adapt their work to the reality of the digital markets:

> **New markets should be primarily defined based on competition between platforms rather than on the specific services they enable:** While social networks and Internet search engines are profoundly different services, they are fiercely competing platforms in the fast-growing online advertising market, as both are delivering targeted advertising based of information about their users[58];

> **Industry cooperation for the development of technical standards should be seen as positive.** Common standards and joint services can be a good way to faster establish the necessary base of customers for new services. The positive impact of standardization and cooperation in achieving industry growth should be better recognized by Competition Authorities (see case study 35).

58.- *CEPS Digital Forum Academic Papers, Neutrality and Diversity in the Internet Ecosystem, 2011.*

Industry cooperation for a Near Field Communication (NFC) standard

Initiated in 2011, the NFC standard aims at leveraging mobile payment services in Europe by defining the tools to develop a SIM-based NFC ecosystem. This standard is currently developed with a cross-industry approach, involving primarily mobile network operators and handset-manufacturers.

The NFC standardization process engages over 40 industry players which allows for competition within a standard, contrary to quasi-monopolistic market structures often generated by proprietary platforms. Stakeholder involvement is also crucial to achieve critical mass when launching a new network service, such as NFC mobile wallets. Additionally, the NFC technology is also crucial for the introduction of services in other sectors such as transports, logistics and retail.

Given the pace of technological development and the level of global competition in the Telecom sector, it is essential for the NFC success that standardization is fast and takes into account the time-to-market of the product. The so-called Euro 5 initiative (including Deutsche Telekom, France Telecom/Orange, Telecom Italia, Telefónica and Vodafone) was a first initiative to speed up the crucially needed standardization process and interoperability of systems in order to develop business models.

The investigation opened by Commissioner Almunia led to legal uncertainty, required a change in the established working methodology and delayed the introduction of the product in the market.

To support these legitimate needs for coordination and time-to-market, the European Commission as a whole has a key role to ensure that strategic coordination across industries in standard setting is facilitated and promoted.

Competition law should not be an obstacle to standardization processes. Particularly in those industries where interoperability is at stake, the need for cooperation among competitors should be understood by the authorities. There is no need to change antitrust rules but implementation of competition policy and practice of authorities should be done with sufficient flexibility to achieve the time-to-market needs of markets and business.

Appendix_

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CHARTS

NOTES

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Blog: http://www.publicpolicy.telefonica.com/blogs/

Edition:
Telefónica, S.A.

Design and layout by:
IMAGIA*officina*.es

Printed by:
TF Artes Gráficas

Date of publication:
January 2014

Legal deposit: M-36669-2013

Telefonica

A Digital Manifesto
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