

Support of innovative SMEs as part of European collaborative research framework programs

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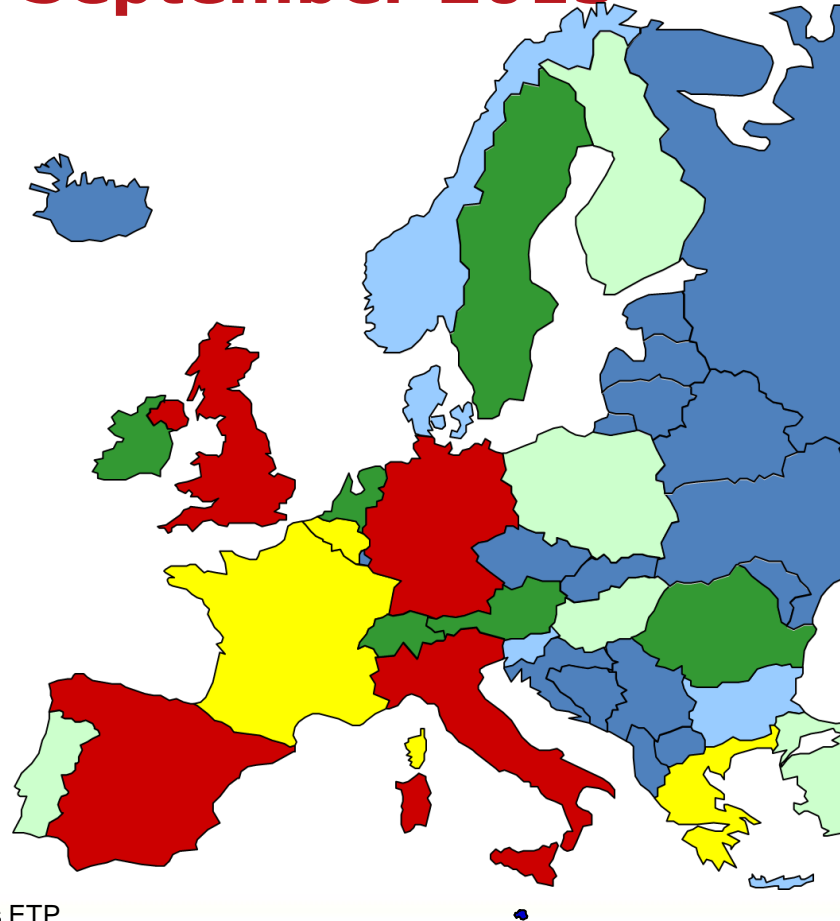
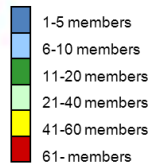
Outline

- Introduction European Technology Platform Net!Works
- Collaborative research programs
- Economic impact of the ICT sector
- Horizon 2020 – The new Framework Research Program
- SME support measures
- Conclusions



Net!Works

Membership – 884 members Status September 2013



Total number of members **884**

| | |
|-------------|-----|
| Industry | 157 |
| Research | 321 |
| SME | 317 |
| Cooperation | 89 |

Steering Board of 25 members (all elected).

In addition:

- Expert Group
- Mirror Group
- Executive Group

Source: Net!Works ETP.

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Net!Works and the Digital Agenda (1/2)

- **The “Digital Single Market” Priority**
 - Net!Works supports the development of all new technologies that make possible a digital single market to exist.
- **The “Interoperability and Standards” priority**
 - Net!Works cooperates with the Commission and with other ETPs in order to develop interoperable standards.
- **The “Trust and Security” priority**
 - Net!Works-related research projects will help Europeans feel that they can fully rely upon their networks.
- **The “Fast and Ultra Fast Internet Access” Priority**
 - Investing in R&D in this sector is the only solution to develop the appropriate innovative technologies.

Source: Net!Works ETP.

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Net!Works and the Digital Agenda (2/2)

- **The “Research and Innovation” priority**
 - Research and innovation on broadband fixed and mobile communication systems is the core of Net!Works.
- **The “Enhancing Digital Skills, Literacy and inclusion” priority**
 - Bringing Internet access subscriptions above 100 Mbps to 50% of Europeans will ensure that websites providing public services are accessible to all citizens.
- **The “ICT-enabled benefits for EU society” priority**
 - Supporting solutions for Grand Societal Challenges such as climate change, health, aging population.

Digital Agenda
1001100101011101110000100 2010-2020
for Europe

Source: Net!Works ETP.

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Net!Works and the Grand Societal Challenges

• The “Environment and Energy Efficiency” Challenge

- Monitoring environmental parameters, and providing the means to have alarms; Efficient resources management; Technology waste.



• The “Health and Demographic Change” Challenge

- Future wireless diagnostic and disease management systems; hospital consultation and emergency scenarios; assistive technologies; well being and personalisation.



• The “Transport” Challenge

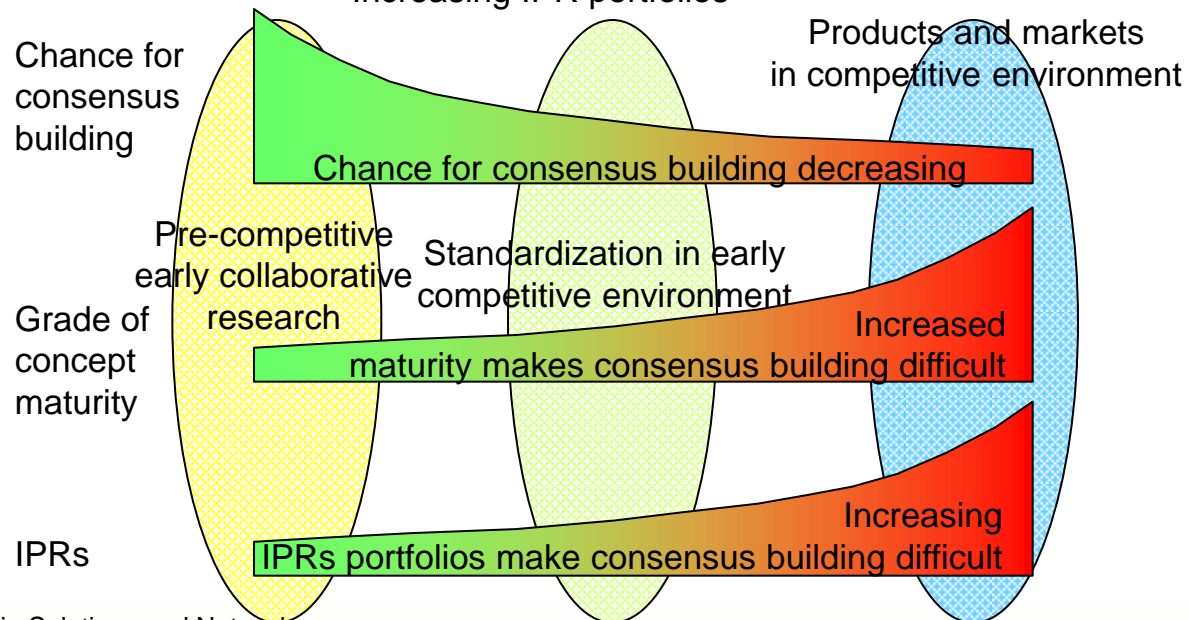
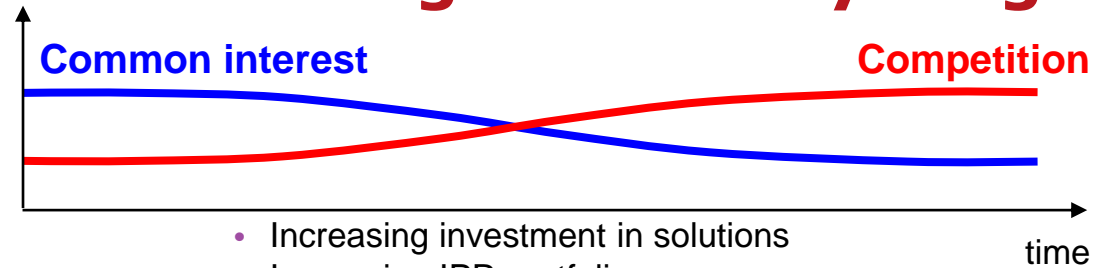
- Urban and road traffic control; efficient trip management; vehicle-to-vehicle (V2V) and vehicle-to-infrastructure (V2I) communications; the mobile office.



Source: Net!Works ETP.

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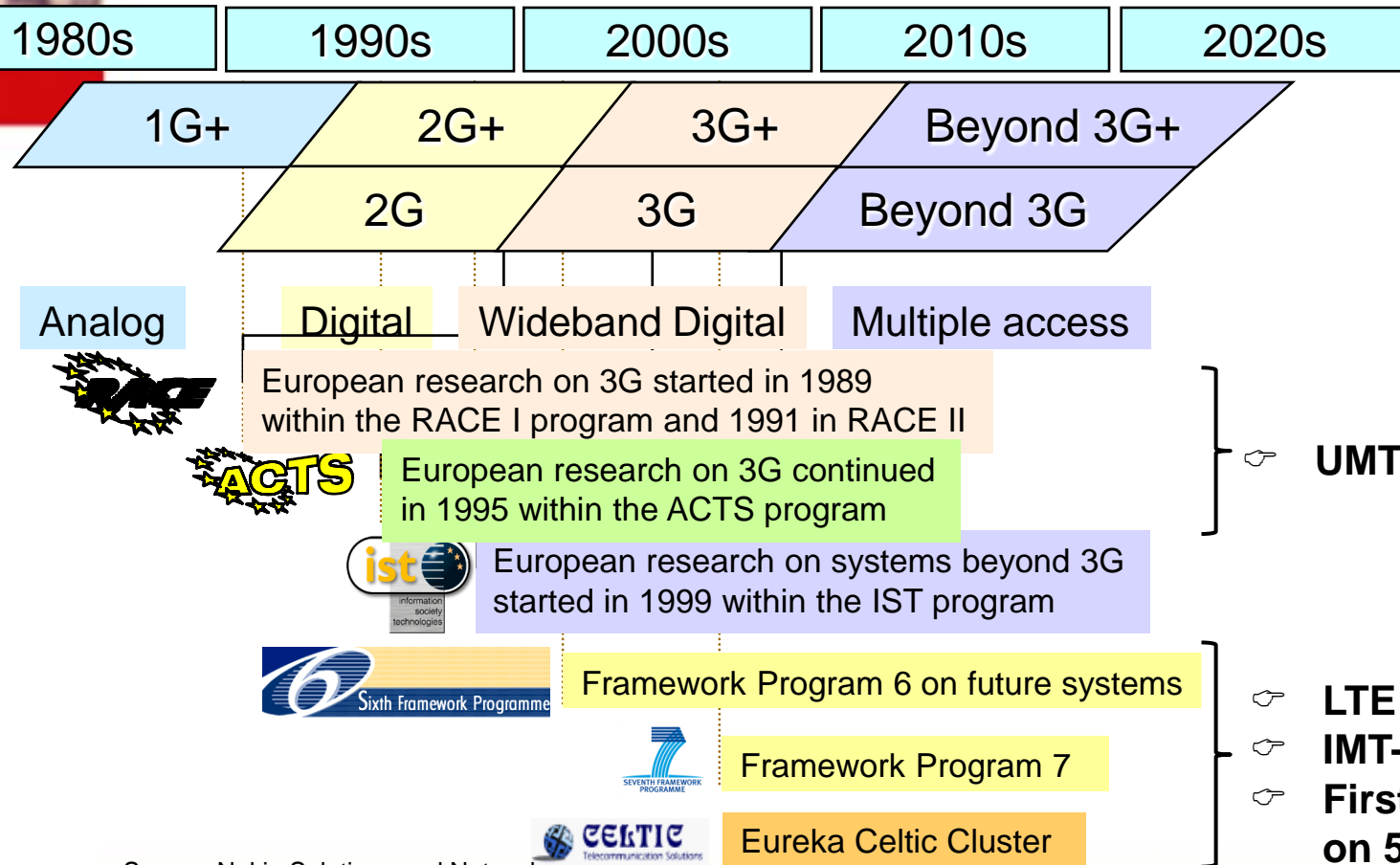
Collaborative research: International consensus building at an early stage



Source: Nokia Solutions and Networks.

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European research programs on mobile and wireless



Source: Nokia Solutions and Networks.

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Success stories

1991

The development of the **GSM** standard was part of the early formation of the European Union at the level of technology and mobile communications. For the first time, a solution was developed for Europe and the world enabling users to roam internationally using only one phone. Europe pooled its R&D, industrial base and services to provide the user with a mobile world without national borders. This initiative and the further collaborative R&D created a new generation of technologists focused on European and global needs.

The GSM group was formed in 1982. GSM networks are now accessible in more than 85% of the world's land area.

First commercially introduced in 1991

2001

European research projects developed the key contributions to the **3G UMTS** standard in the '90's. 3G systems provide users with broadband multi-media mobile communications, including voice and video services, mobile Internet access, mobile TV services and machine to machine communications services. Key Framework Programme co-funded project:

FRAMES (FP 4)

First introduced in 2001

2010

European research projects developed key contributions to the **LTE system** in the '00's. **LTE** provides high speed mobile broadband connectivity to laptops, smart phones, tablet PC's and other mobile devices. On-line gaming services, streamed video and cloud computing services are brought to life by LTE.

The LTE service is already commercially available in Stockholm and is being introduced widely in European cities in 2011.

Key Framework Programme co-funded projects:

WINNER (FP 6),
WINNER II (FP 6)

First introduced in 2010

future

The technical basis for ultra high speed broadband and M2M communication using energy efficient techniques are research challenges being addressed in Framework Programme 7 projects at present. European research has to continue in Framework Programme 8 to ensure that European organisations further develop their leadership positions in communications technologies!

2025 and beyond

Source: Net!Works ETP.

Net!Works

Success stories on mobile communication




**EUROPEAN RESEARCH & INNOVATION
IN TELECOMMUNICATIONS**

**SUCCESS STORIES
MOBILE COMMUNICATIONS**

**An international success story which has
its origins in EU-funded research projects**




**MANY OF THE BASIC CONCEPTS
AND TECHNOLOGIES USED IN
THE 3G UMTS STANDARDS AND
THE NEWER LTE STANDARD HAD
THEIR ORIGINS IN FRAMEWORK
PROGRAMME COLLABORATIVE
RESEARCH PROJECTS, CO-FUNDED
BY THE EUROPEAN UNION.**

The growth of mobile communications, since the launch of the GSM system on the market in 1991, has been phenomenal. Mobile communications has changed people's lives for the better the world over by enabling people to communicate anytime and anywhere. Mobile communication drives productivity growth and economic performance across all sectors of the economy and is expected to continue to do so for many years to come. The services enabled by mobile networks made a strong contribution to the rapid growth in the ICT sector in Europe and generated several million new jobs. The results of Framework Programme research projects have played a key role in enabling this growth. The projects developed the basic concepts, processes and product innovations, contributing to several generations of mobile communication systems and services (e.g. GSM, UMTS, DVB, LTE and IMT-Advanced), over a twenty-five year period.

The introduction of mobile technology accelerated the global growth in the ICT sector. The Information and Communication Technologies (ICT) sector now generates 5% of European GDP, with an annual value of € 660 billion. ICT has become a ubiquitous technology and investments in ICT are responsible for at least 50% of European productivity growth in recent years.


We can already see a dramatic increase in data traffic on converged mobile and fixed communications networks generated by smart city, smart energy, environmental monitoring and health applications. By 2020, enormous growth in network traffic is expected. The European success story resulting from the investment in collaborative research projects is certain to continue for many years to come, if Europe continues to invest in collaborative research!

Source: Net!Works ETP.



HISTORY OF MOBILE COMMUNICATIONS


1991



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Key Framework Programme co-funded project:
• FRAMES (FP 4)

First introduced in 2001

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European research projects developed key contributions to the **LTE system** in the '00's. **LTE** provides high speed mobile broadband connectivity to laptops, smart phones, tablet PCs and other mobile devices. On-line gaming services, streamed video and cloud computing services are brought to life by LTE. The LTE service has been progressively introduced in European cities since 2011.

Key Framework Programme co-funded projects:
• WINNER (FP 6)
• WINNER II (FP 6)

First introduced in 2010

FUTURE



The technical basis for ultra high speed broadband and M2M communication using energy efficient techniques are research challenges being addressed in Framework Programme 7 projects at present. European research has to continue in Framework Programme 8 to ensure that European organisations further develop their leadership positions in communications technologies!

2025 and beyond

www.networks-otp.eu
netsoc.future-internet.eu

THIS LEAFLET IS DESIGNED AND PRINTED THANKS TO FUNDING FROM THE EUROPEAN UNION'S COMMUNITY SEVENTH FRAMEWORK PROGRAMME (FP7) 2007-2013 UNDER GRANT AGREEMENT N°247162

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Success stories on optical communication and broadband access



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EUROPEAN RESEARCH & INNOVATION IN TELECOMMUNICATIONS

SUCCESS STORIES

OPTICAL COMMUNICATIONS

AN INTERNATIONAL SUCCESS
BOLSTERED BY EU-FUNDED RESEARCH

Hardly visible to end-users, 90% of all digital information is transported over optical networks. Fibre-optic communication is the backbone of the information society today. It will become even more important in the future.



From ground breaking discoveries, such as optical fibres and EDFAs over products such as WDM systems and OXC's to global standards such as SDH, OTN and ASON, Europe has been at the forefront of optical communications R&D for nearly 50 years. The EU Framework Programme played a pivotal role in developing several generations of optical networks over the last 25 years.

7 of the top 20 network operators are headquartered in Europe. 6 of the 20 largest optical equipment manufacturers have major R&D centres in Europe and represent more than 30% of the global equipment market. Two of the top 3 component manufacturers have operations in Europe. Over a hundred SME's and universities deliver complementary innovation on network, system, or component levels. According to a recent Photonics21 study, optical technologies leverage a telecommunication infrastructure market of 350 Billion € and impact more than 700,000 jobs in Europe.

By 2020, at least a 10-fold increase in fibre capacity and Tb/s per wavelength will be required. Fibre communication will move closer to the user and will become a critical infrastructure in datacentre, private, home, vehicle and sensor networks. Based on its strength and expertise, Europe is well positioned to respond to these challenges, if it continues to invest!

MANY ARCHITECTURES, CONCEPTS AND TECHNOLOGIES HAD THEIR ORIGINS IN COLLABORATIVE RESEARCH PROJECTS, CO-FUNDED BY THE EUROPEAN UNION.

The investment of Framework Programme funds in optical communications has created a network of experts from industry and academia, provided education and has contributed directly and indirectly to the creation of over a hundred thousand jobs in Europe for highly-skilled knowledge workers. The collaborative approach of the projects allowed consensus building on central topics such as the optical network evolution and network control. The results, disseminated in publications and standard contributions, formed a solid foundation for the product roadmaps of participating system/component manufacturers and enabled network operators to develop their technology introduction strategies ahead of time.



Net!Works

EUROPEAN RESEARCH & INNOVATION IN TELECOMMUNICATIONS

SUCCESS STORIES

BROADBAND INTERNET ACCESS

AN INTERNATIONAL SUCCESS
BOLSTERED BY EU-FUNDED RESEARCH

The Internet has become a basic utility for homes and businesses in the same way as electricity or water. Affordable, reliable and secure broadband connectivity is essential to making full use of the services that the Internet offers nowadays. The demand for even more high-speed connectivity is constantly growing, driven by new Internet services with multi-media rich content. To take full advantage of such services, faster, smarter and cheaper high-speed access network technologies are required. Work by scientists in European research programmes is making ultra-high-speed broadband networks a reality for all Europeans, using technology that can cost-effectively deliver up to 1Gb/s both to your front door and within the home network.

Availability of cost efficient and highly scalable broadband access technologies is critical if all European citizens are to benefit from a broadband Internet connection by 2015, from a 30Mb/s connection by 2020 and that at least 50% of households have a 100 Mb/s connection by 2020, as promised by the European Commission in its Digital Agenda. This will make it possible to cope with the explosion of the number and variety of devices being used to connect to the Internet to increasingly use multimedia-based services. New broadband access technologies are also a key pre-condition for enabling new business models providing benefits for a wide variety of service providers, network operators and customers.



Early research in broadband access, e.g. by the project MUSE (2004-2006), set the foundations of the European success story of broadband Internet access. It resulted in innovative network concepts for high speed access to multimedia services. PIEMAN created ground breaking ideas for a future broadband optical access and metro-area network. Advanced optical equipment developed in the GANDALF project will enable simultaneous provision of broadband services through wireless and wireline access.

High speed optical access, using 10 Gb/s WDM-PON and cost-efficient delivery of 1Gb/s in home networks, have been in the focus of the ALPHA project. In the OMEGA project, a super-fast network for the multimedia home has been demonstrated, taking advantage of a range of wired, radio and optical communication technologies. Projects such as SARDANIA feature an innovative approach towards increasing the reach and quality of service of fibre optic networks for European users to areas of up to 100 km enabling the connection of remote, rural areas.

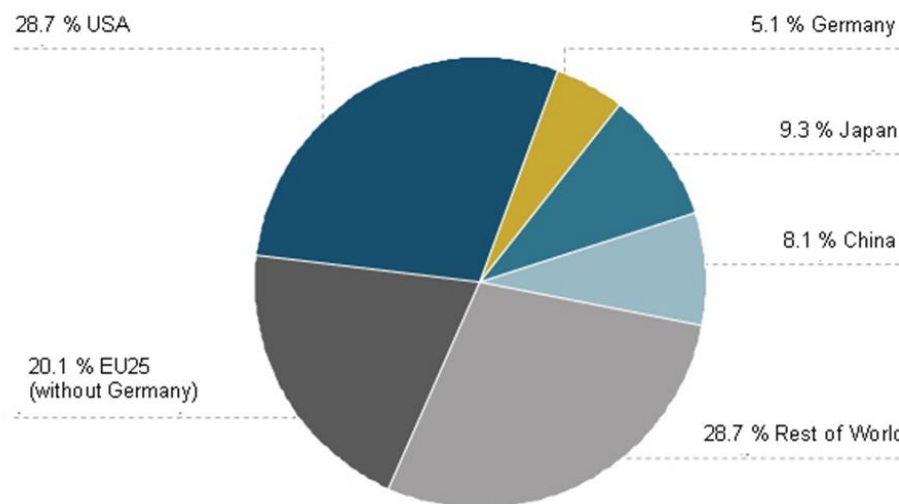
Exploitation of these research activities is on-going and will leverage the extensive innovation potential provided by these projects. In fact, the exploitation of this research is essential if we are to be able to provide the network capability that will soon be needed to cope with the rapidly growing demand for multimedia content, from pictures to videos to 3D and soon holography, used on a large variety of devices using wired and wireless access at home and at work.

Source: Net!Works ETP.

Importance of the ICT and networking sector for society and economy

- According to Bitkom worldwide ICT market volume increased in 2010 by nearly 5% to about 2500 Billion €
- Biggest ICT market are USA with market share of 28.7 %
- For example Germany with 5.1% global market share is No. four after the USA, Japan and China

World market share for ICT in 2010
without consumer electronics



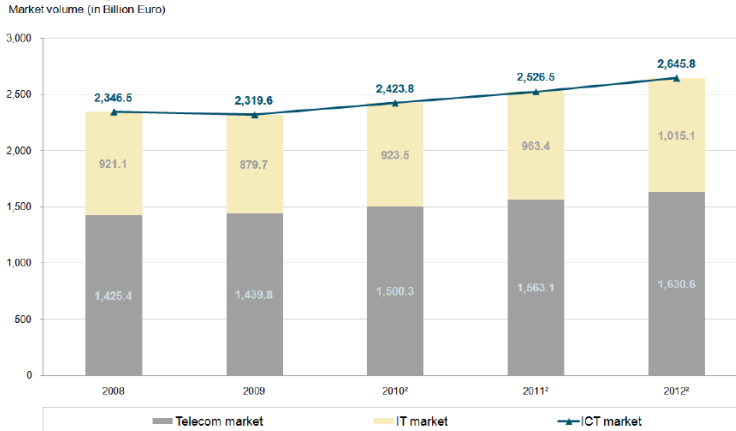
BITKOM: Basis EITO

Source: Bitkom: Bitkom Branchenbarometer 2012,
http://www.bitkom.org/de/markt_statistik/64074_64903.aspx.

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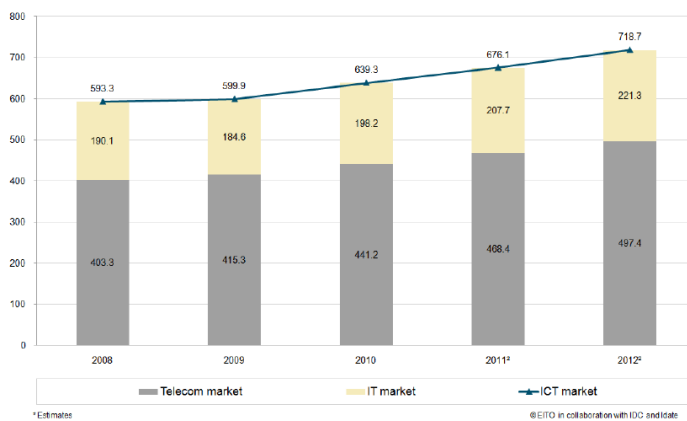
Source: EITO Report including Consumer Electronics, 2011.

Global ICT market I



World ICT market value 2008 – 2012*

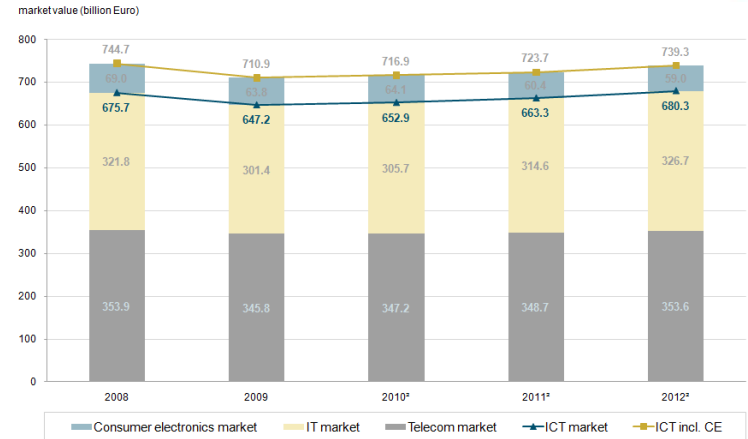
* Data and forecast are based on information available as of May 2011



APAC ICT market value 2008 – 2012*

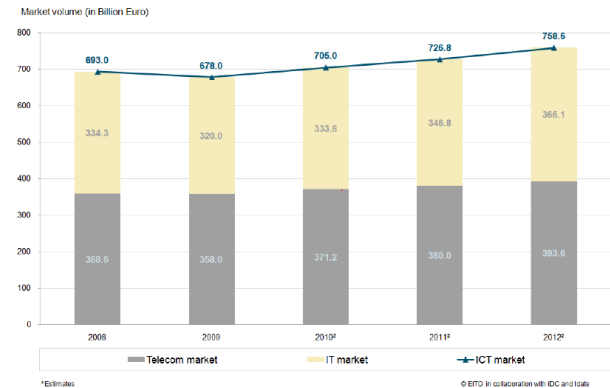
* Data and forecast are based on information available as of May 2011

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EU25 ICT market value 2008 – 2012*

* Data and forecast are based on information available as of May 2011



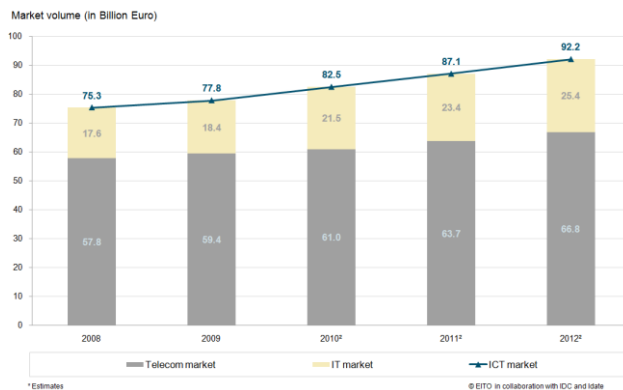
USA ICT market value 2008 – 2012*

* Data and forecast are based on information available as of May 2011

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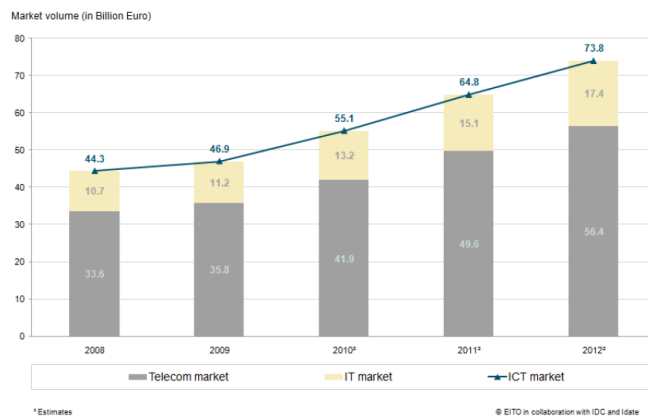


Global ICT market II



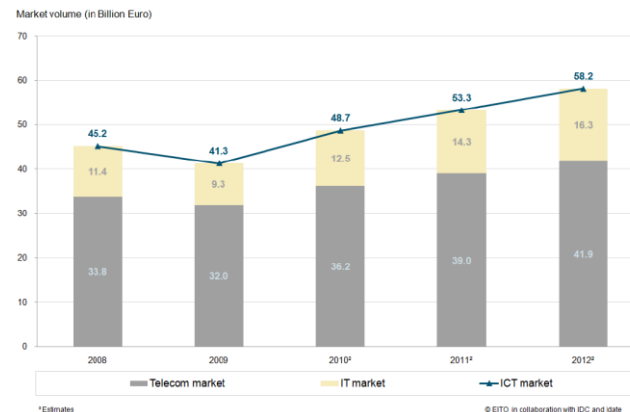
Brazil ICT market value 2008 – 2012*

* Data and forecast are based on information available as of May 2011



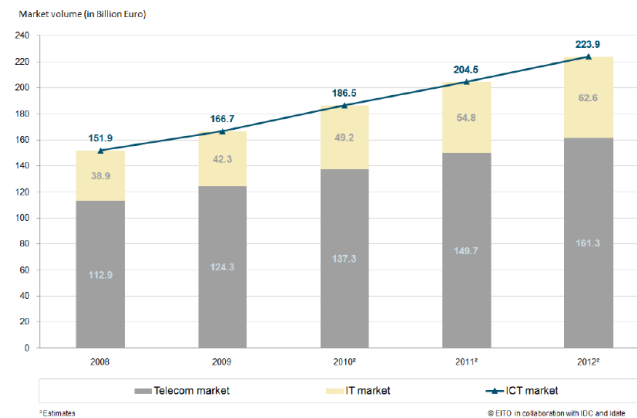
India ICT market value 2008 – 2012*

* Data and forecast are based on information available as of May 2011
Source: EITO Report including Consumer Electronics. 2011.



Russia ICT market value 2008 – 2012*

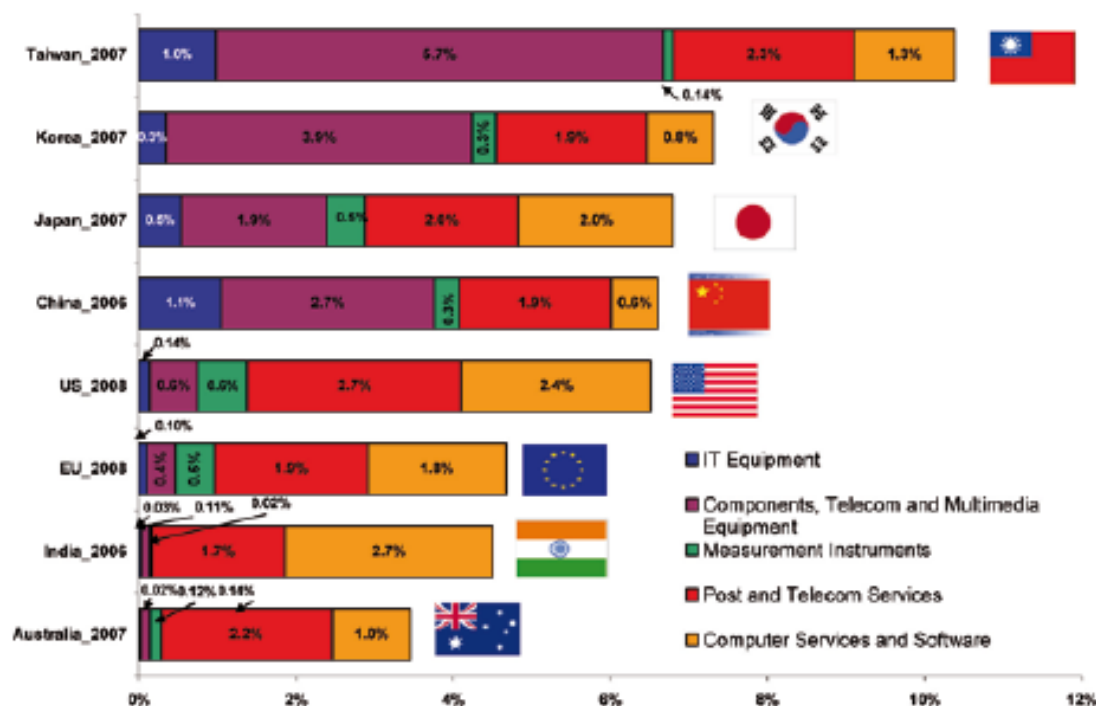
* Data and forecast are based on information available as of May 2011



China ICT market value 2008 – 2012*

* Data and forecast are based on information available as of May 2011

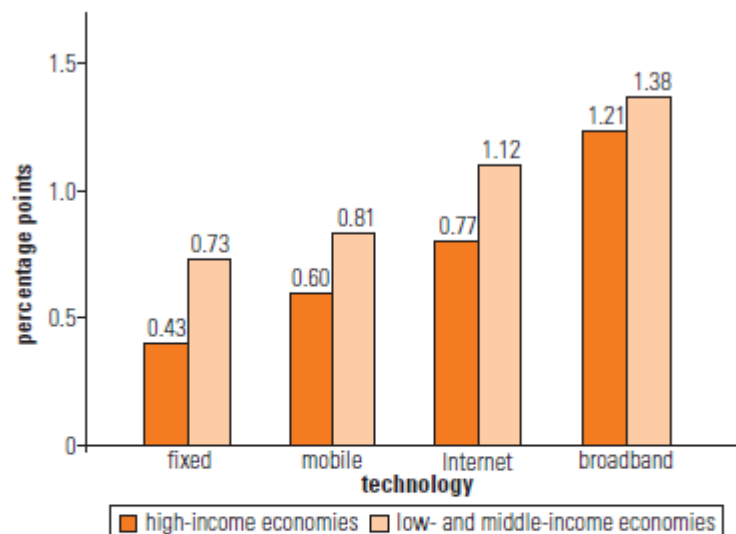
Economic weight of the ICT sector % of sector's value added in GDP



Source: JRC-IPTS based on data from EUROSTAT, OECD, EU KLEMS, and IPTS.¹³

Source: Joint Research Center of the European Commission: The 2011 Report on R&D in ICT in the European Union, 2011, <http://ftp.jrc.es/EURdoc/JRC65175.pdf>.

Importance of the ICT and networking sector on economic growth

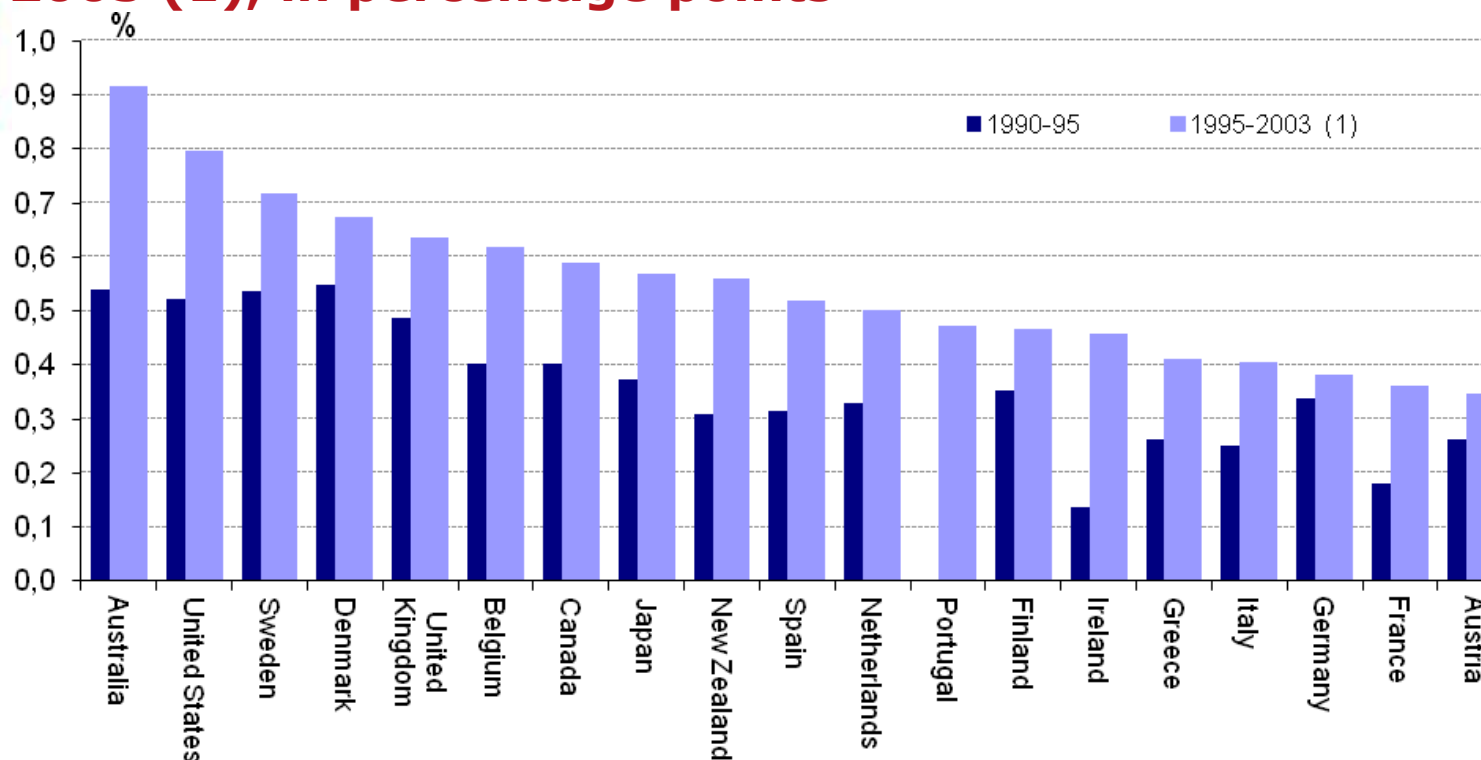


Source: Qiang 2008.

Note: The y axis represents the percentage-point increase in economic growth per 10-percentage-point increase in telecommunications penetration. All results are statistically significant at the 1 percent level except for that of broadband in developing countries, which is at the 10 percent level.

Source: Worldbank, Information and Communication for Development: Extending Reach and Increasing Impact – Economic impacts of broadband, 2009,
http://siteresources.worldbank.org/EXTIC4D/Resources/IC4D_Broadband_35_50.pdf.

OECD Key ICT indicators: Contributions of ICT investment to GDP growth, 1990-95 and 1995-2003 (1), in percentage points

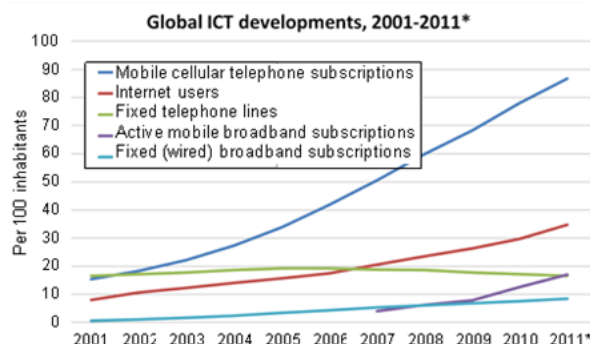


1) 1995 – 2002 for Australia, France, Japan, New Zealand and Spain

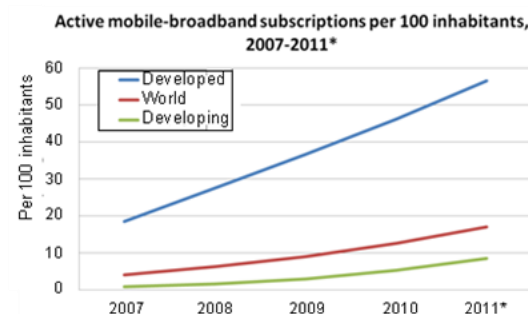
Source: OECD Productivity Database, September 2005, <http://www.oecd.org/statistics/productivity>.

Penetration rates for different networking technologies

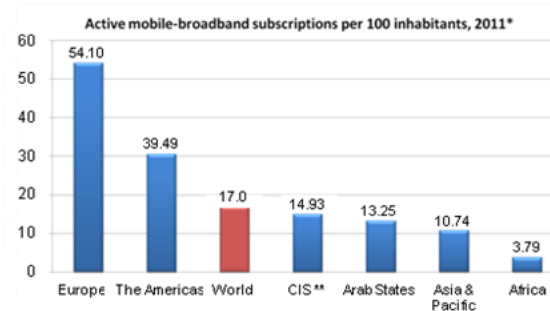
- ITU is supporting these expectations, where the number of subscribers is growing globally



* Estimate
Source: ITU World Telecommunication / ICT Indicator database



* Estimates
The developed/developing country classifications are based on the UN M49, see: <http://www.itu.int/ITU-D/ict/definitions/regions/index.html>
Source: ITU World Telecommunication / ICT Indicator database



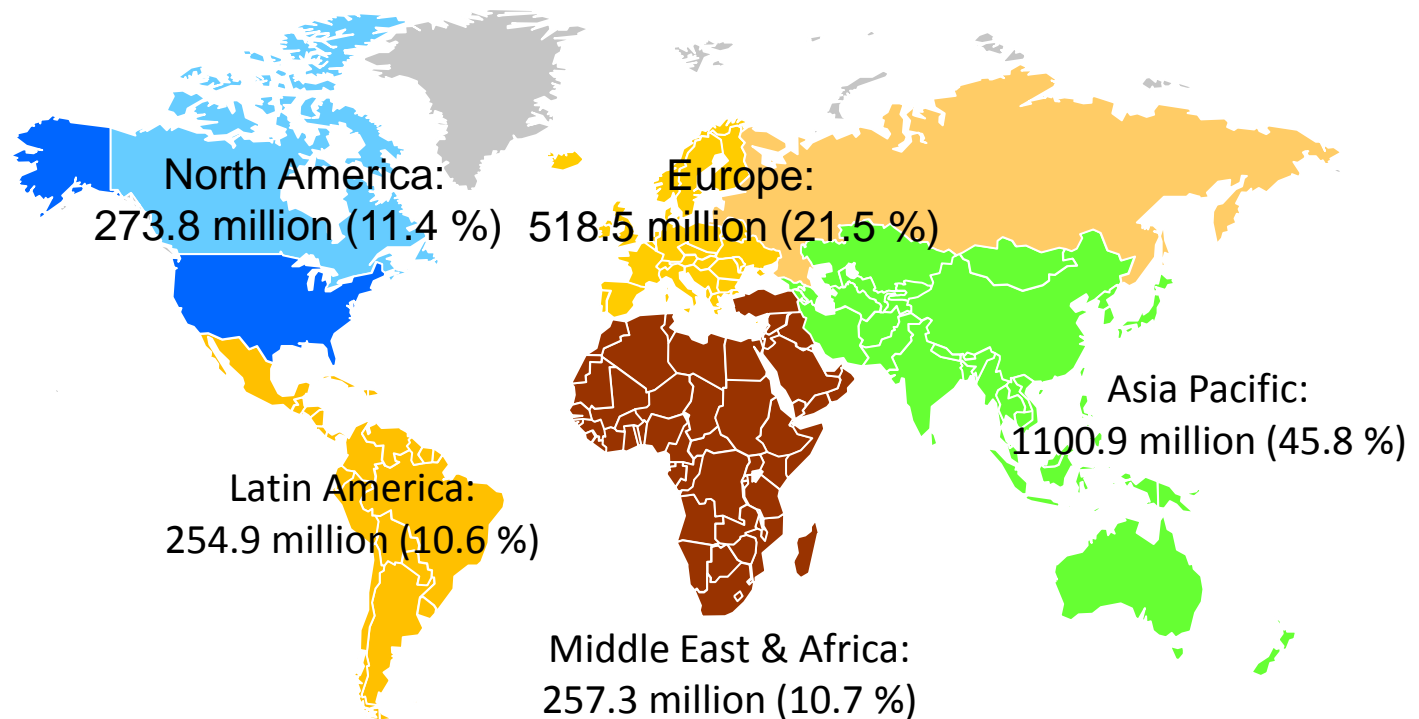
* Estimates
** Commonwealth of Independent States
Regions are based on the ITU BDT Regions, see: <http://www.itu.int/ITU-D/ict/definitions/regions/index.html>
Source: ITU World Telecommunication / ICT Indicator database

Source: ITU, <http://www.itu.int/ITU-D/ict/statistics>.

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Worldwide Internet audience Status: June 2012

- The global Internet with more than 2.4 billion users globally

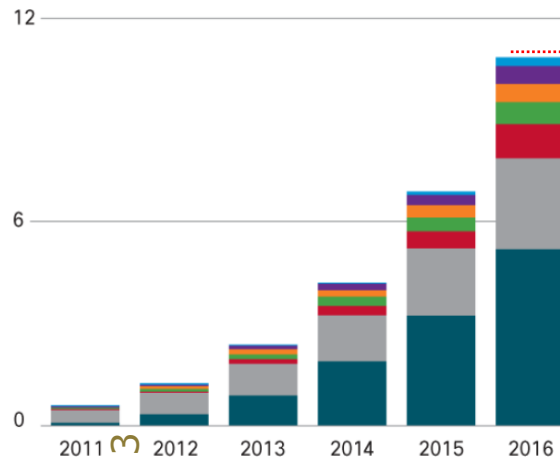


Source: Internet statistics: <http://www.internetworldstats.com>.



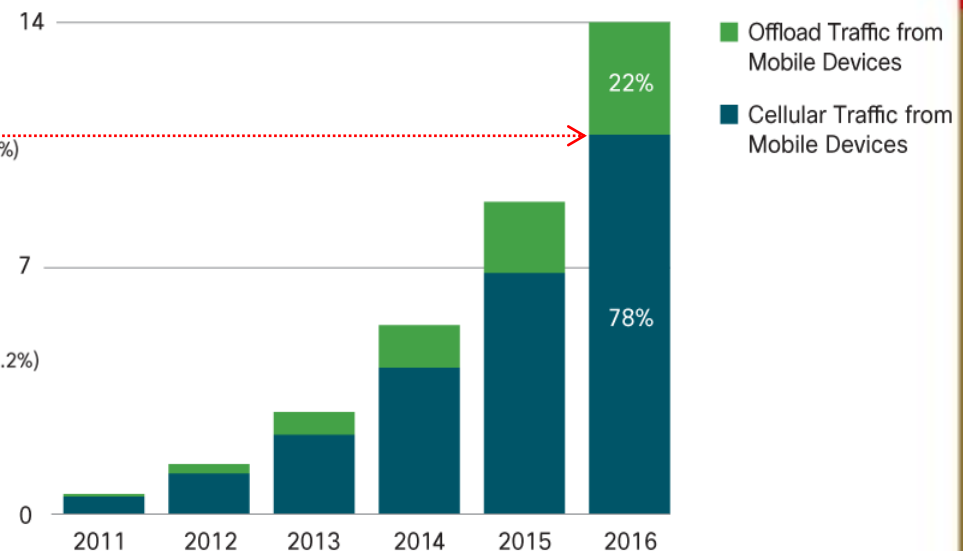
Consumer Internet traffic growth forecast

Exabytes per Month



Figures in legend refer to traffic share in 2016.
Source: Cisco VNI Mobile, 2012

Exabytes per Month



Source: Cisco VNI Mobile, 2012



Source: Cisco: Cisco Visual Networking Index: Forecast and Methodology, 2011-2016, February 2012,
http://www.cisco.com/en/US/netsol/ns827/networking_solutions_sub_solution.html#-forecast.

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LTE deployments and commitments

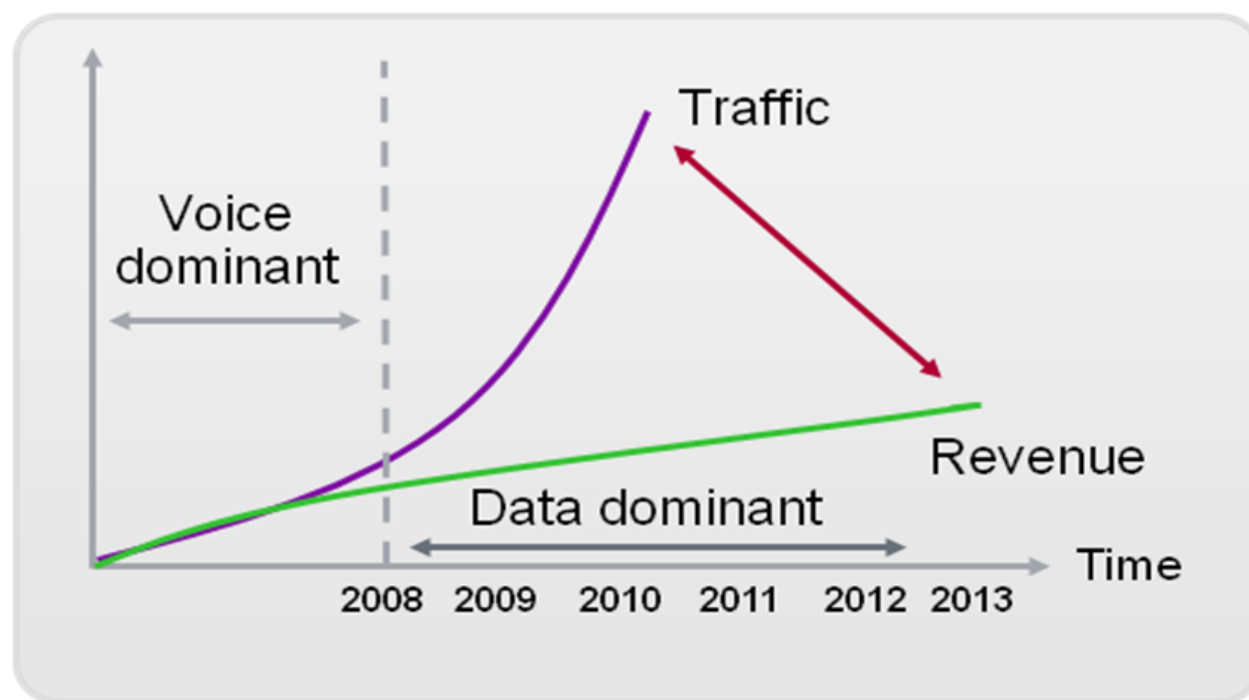
Net!Works



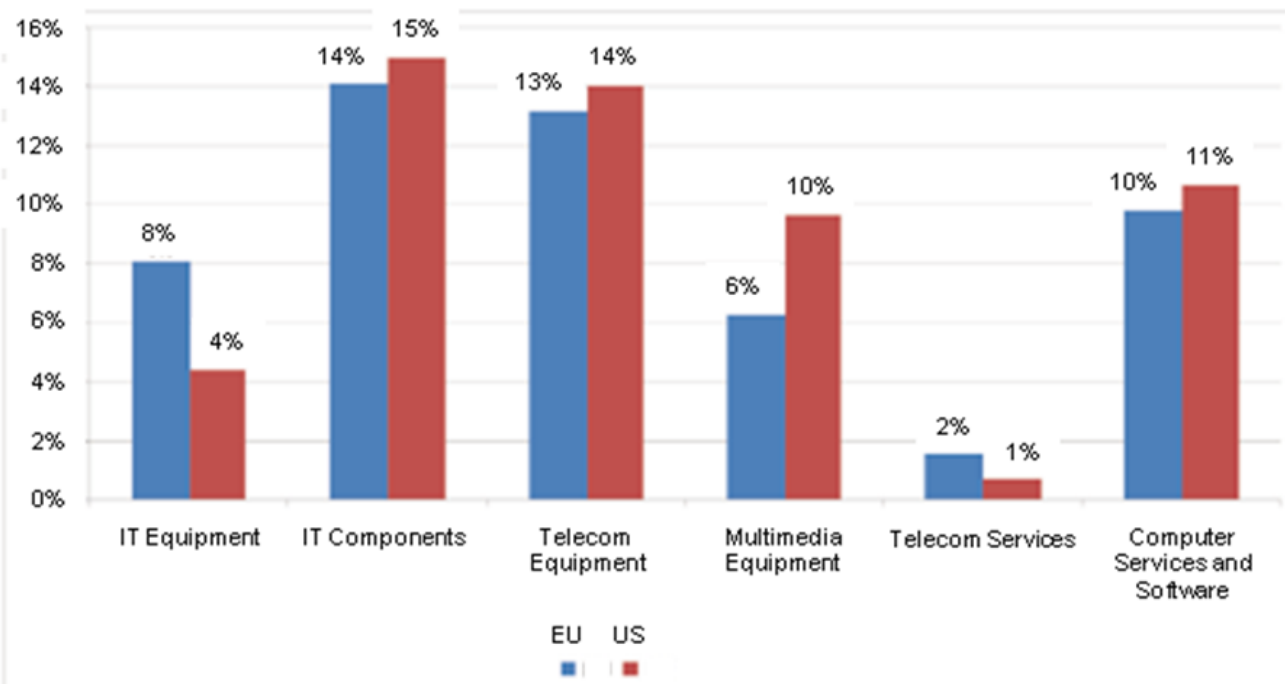
LteMaps shows all global LTE deployments commitments. It includes a variety of commitment levels including intentions to trial, deploy, migrate, etc. There is one  red marker per country for all operators to show commitments and one  blue marker to show actual deployments.

Source: Lte World: Global LTE Deployment Status, <http://ltheworld.org/blog/global-lte-deployment-status>.

Economic challenges for mobile broadband network deployment and operation



R&D intensities (R&D investment/net sales) in EU and US Scoreboard companies



Note: the ICT Scoreboard is an extract of ICT companies from the 2009 EU Industrial R&D Investment Scoreboard.

Source: Joint Research Center of the European Commission: The 2011 Report on R&D in ICT in the European Union, 2011, <http://ftp.jrc.es/EURdoc/JRC65175.pdf>.

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Position paper on economic impact



SUCCESS STORIES

EUROPEAN TELECOMMUNICATIONS INFRASTRUCTURES: A FAIRY TALE?

Telecommunication infrastructures built in Europe supported a high quality of life both in developed and developing countries. Then, the recession came, accompanied by intense competition from the rest of the world, places that did not necessarily share European values such as privacy and cultural diversity, and threatened to make Europe lose its edge in the area of telecommunications. Luckily however, the European Union made it possible for people to benefit from internet services, leading to an even better quality of life.

We can make the fairy tale that is Europe's continuous leading edge in the area of telecommunications into a reality, but only if we take the right decisions now.

Why is it important?

Empowerment and opportunity come from access to relevant information and from a reinforcement of the individual's ability to communicate. Telecommunications infrastructures and related services are a conduit for this empowerment and opportunity creation.

Investment in ICT, more particularly into telecommunication infrastructures are worthwhile and cost effective to support some of Europe's main societal challenges including but not limited to: cleaner environment; smart, green and integrated transport; and health & wellbeing. Telecommunications infrastructures promote sustainable development, leading to a better quality of life.

TELECOMMUNICATIONS FOR A CLEANER ENVIRONMENT

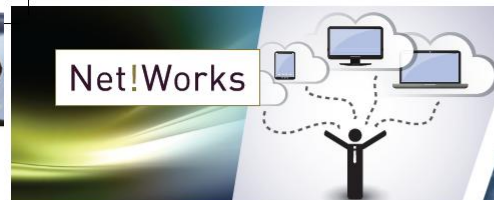
High concentrations of suspended particulates adversely affect human health, provoking a wide range of respiratory diseases and exacerbating heart disease and other conditions. Fuel combustion by motor vehicles is another major source of suspended particulate emissions in urban areas. These emissions are particularly detrimental human health because pollutants are emitted at ground level.

Energy use becomes more efficient and environmentally cleaner technologies are introduced as income per capita increases because people become more concerned about how the environment affects their health. To prevent global change, concerted efforts are needed from the government of most countries.

Other than being able to target urban air pollution, the use of sensor networks, enabled by telecommunications infrastructures can also be used to detect air and water pollution, floods, fires, volcano eruptions, and many other dangerous occurrences, thereby promoting cleaner environment and safer climates that causes less harm to the bio economy and to humans.

TELECOMMUNICATIONS FOR SMART, GREEN AND INTEGRATED TRANSPORT

80% of the European population lives in urban areas. Their mobility needs often result into a number of problems, such as traffic congestion, increased pollution levels and/or greenhouse gas emissions, excessive travelling time, and energy consumption. These problems can be alleviated by exploiting Intelligent Transportation Systems. The development of telecommunication technologies and ICT as a whole leads to more effective and efficient use of road infrastructures. >>>



>>> Data from public transportation infrastructures can be gathered, transformed into useful management information, and used to accurately predict the number of transportation facilities needed, and be dispatched at any given time.

Telecommunications infrastructures enable smart, green, and integrated transportation systems, which in turn promote a cleaner environment and more efficient energy consumption. A widespread adoption of such systems in urban areas would have a tremendous impact on citizens' quality of life. Traffic congestion would be reduced, and a number of energy-related and environmental problems (pollution and energy consumption) that negatively affect human health can be alleviated as well.

GDP growth (%)

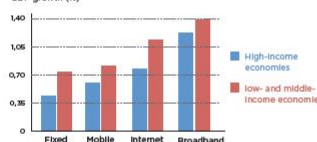


Figure 1: effect of broadband penetration on GDP growth in high-income economies, and low- and middle-income economies

TELECOMMUNICATIONS FOR BETTER HEALTH AND WELLBEING

Life expectancy at birth and the under-5 mortality rate are the two statistical indicators used to monitor the health of a country's population. They are often cited as overall measures of a population's quality of life because they indirectly reflect many aspects of people's welfare. In general, the higher a country's income per capita, the higher is its life expectancy. GDP has a positive influence on the quality of life of the people.

There is also a positive correlation between the penetration of mobile phones and boost in GDP per capita, and between an increase in broadband network and general economic growth. Figure 1 indicates that increased broadband penetration can create GDP growth up to 128% points in low- and middle income economies, and a 127% points in high income economies. Efficient telecommunications infrastructures increases GDP both in developing and developed countries.

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SO WHAT IS THE CONCLUSION?

Efficient telecommunications infrastructures have a positive influence on the quality of life of the people in high-income countries and on life expectancy in low- and middle income economies.

When Europe invests in research and innovation in ICT and telecommunication infrastructures, it ultimately leads to sustainable development and a better quality of life for the people in Europe and beyond.

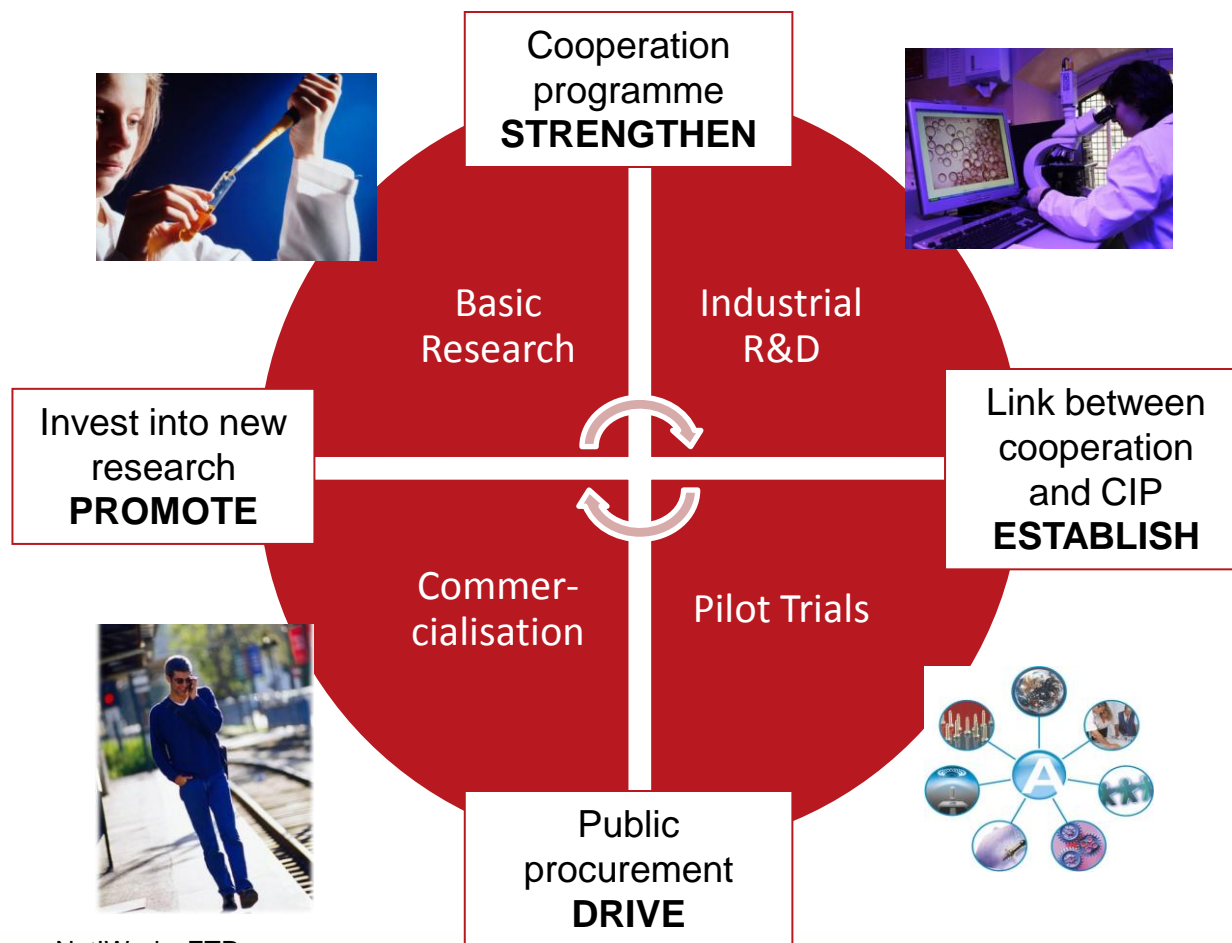


www.networks-etp.eu
netsoc.future-internet.eu

Source: Net!Works ETP.

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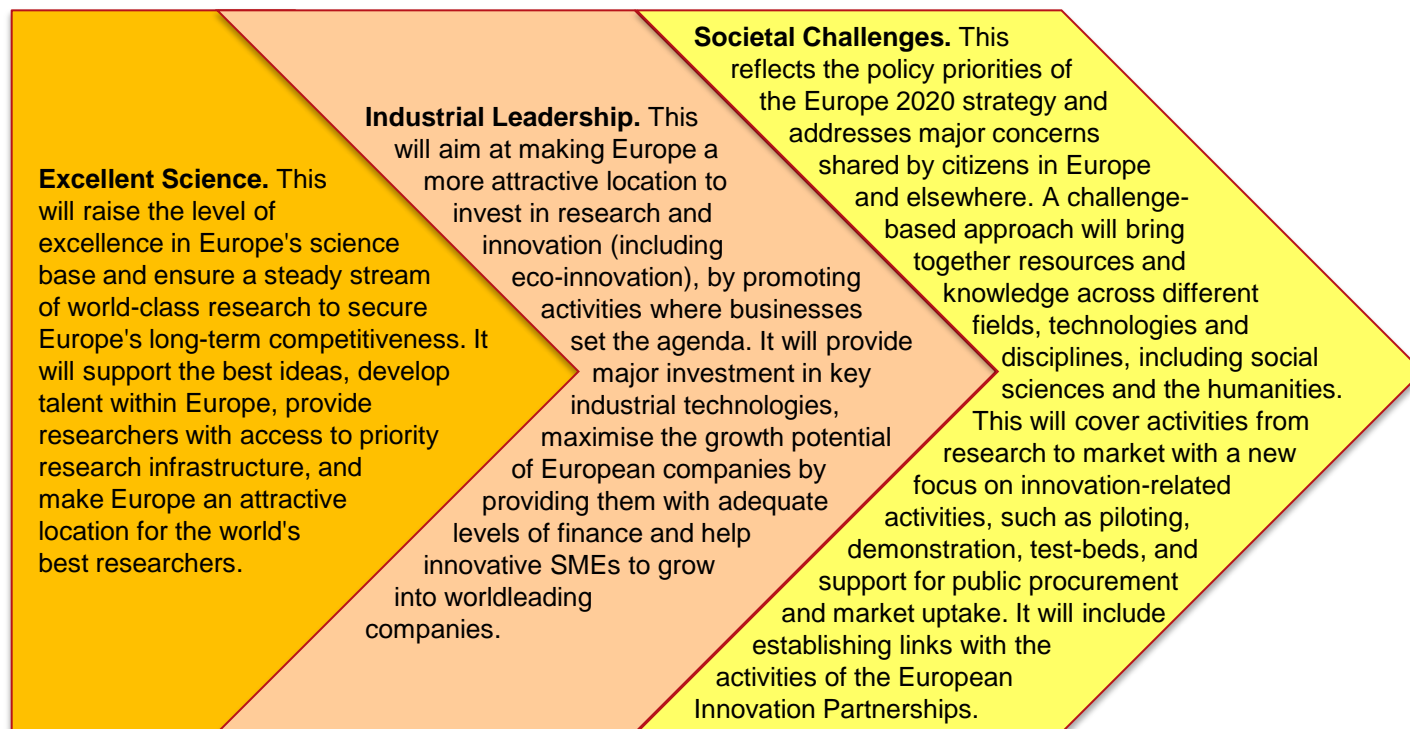
Communication networks R&I



Source: Net!Works ETP.

Structure of Horizon 2020

- Horizon 2020 will address three priorities in one program
 - Excellent Science
 - Industrial Leadership
 - Societal Challenges



Source: Horizon 2020 Commission proposal, 2011 / Net!Works ETP.

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Excellent Science

- Support the most talented and creative individuals and their teams to carry out frontier research of the highest quality by building on the success of the *European Research Council*
- Fund collaborative research to open up new and promising fields of research and innovation through support for *Future and Emerging Technologies (FET)*
- Provide researchers with excellent training and career development opportunities through the *Marie Skłodowska-Curie actions*¹⁵ ('*Marie Curie actions*')
- Ensure Europe has world-class *research infrastructures (including einfrastructures)* accessible to all researchers in Europe and beyond

Source: Horizon 2020 Commission proposal, 2011.

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Societal Challenges

- Health, demographic change and wellbeing
 - Food security, sustainable agriculture, marine and maritime research and the bio-economy
 - Secure, clean and efficient energy
 - Smart, green and integrated transport
 - Climate action, resource efficiency and raw materials
 - Inclusive, innovative and secure societies
-
- In this part ICT objectives for application domains

Source: Horizon 2020 Commission proposal, 2011.

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Industrial Leadership

- Build leadership in enabling and industrial technologies, with dedicated support for
 - **information and communication technologies**
 - Nanotechnologies
 - advanced materials
 - Biotechnology
 - advanced manufacturing and processing
 - Space
 - while also providing support for cross-cutting actions to capture the accumulated benefits from combining several Key Enabling Technologies
- Facilitate access to risk finance
- **Provide Union wide support for innovation in SMEs.**

Source: Horizon 2020 Commission proposal, 2011.

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Industrial Leadership

- An integrated approach to Key Enabling Technologies
 - ICT plays an important role as it embraces some of the KETs and provides the key basic infrastructures, technologies and systems for vital economic and social processes and new private and public products and services. European industry needs to remain at the cutting edge of technological developments in ICT, where many technologies are entering a new disruptive phase, opening up new opportunities.
- **Information and Communication Technologies (ICT)**
 - *A new generation of components and systems:* engineering of advanced and smart embedded components and systems
 - *Next generation computing:* Advanced computing systems and technologies
 - ***Future Internet: Infrastructures, technologies and services***
 - *Content technologies and information management:* ICT for digital content and creativity
 - *Advanced interfaces and robots:* Robotics and smart spaces
 - *Micro- and nanoelectronics and photonics:* Key enabling technologies related to micro- and nanoelectronics and to photonics

Source: Horizon 2020 Commission proposal, 2011.

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SME support measures

Strengthening the participation of SMEs

- SMEs represent 85% of all actors in the creative industry sector
- SMEs have significant innovation potential and have the agility to bring revolutionary technological breakthroughs and service innovation to the market
- It is expected that around 15% of total budget will go to SMEs
- Access to risk finance will have a strong SME focus
 - For Debt facility
 - SME focus will be strengthened by working with financial intermediaries at national and regional levels to provide loans to single beneficiaries for investment in research and innovation
 - Guarantees to financial beneficiaries making loans to beneficiaries
 - The Equity facility
 - Focus on early-stage investments, while having the possibility to make expansion and growth-stage investments
 - Provide venture capital to individual enterprises in the early stage (start-up window)

Source: Horizon 2020 Commission proposal, 2011.

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Innovation in SMEs

- The SME instrument will cover all fields of science, technology and innovation
- Three phases will cover the whole innovation cycle
 - Phase 1: Concept and feasibility assessment
SMEs will receive funding to explore the scientific or technical feasibility and the commercial potential of a new idea (proof of concept)
 - Phase 2: R&D, demonstration, market replication
Research and development supported with particular focus on demonstration activities (testing, prototype, scale-up studies, design, piloting innovative processes, products and services, performance verification etc.) and market replication
 - Phase 3: Commercialisation
This phase will provide support activities aiming to facilitate access to private capital and innovation enabling environments
Measures promoting pre-commercial procurement and procurement of innovative solutions

Source: Horizon 2020 Commission proposal, 2011.

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Objectives for SME support

- Support for research intensive SMEs
 - Promotion of market-oriented innovation of R&D performing SMEs
 - Targets research intensive SMEs in high-technology sectors
- Enhancing innovation capacity of SMEs
 - Activities may include awareness raising, information and dissemination, training and mobility activities, networking and exchange of best practices, developing high quality innovation support mechanisms and services
- Supporting market-driven innovation
 - Enhancing innovation capacity of SMEs by improving framework conditions for innovation as well as tackling specific barriers preventing growth of innovative firms
 - Specialised innovation support (on e.g. IP exploitation, networks of procurers, support to technology transfer offices, strategic design)

Source: Horizon 2020 Commission proposal, 2011.

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Horizon 2020 Regulation

Article 18

Small and medium-sized enterprises

1. Particular attention shall be paid to ensuring the adequate participation of, and innovation impact on, small and medium-sized enterprises (SME) in Horizon 2020. Quantitative and qualitative assessments of SME participation shall be undertaken as part of the evaluation and monitoring arrangements.
2. Specific actions shall be undertaken within the specific objective "Leadership in enabling and industrial technologies" set out in Point 1 of Part II of Annex I and each of the specific objectives under the priority "Societal challenges" set out in Points 1 to 6 of Part III of Annex I. These specific actions shall take the form of a dedicated SME instrument that is targeted at all types of SMEs with an innovation potential and shall be implemented in a consistent manner and tailored to the needs of SMEs as set out under the specific objective "Innovation in SMEs" in Point 3.3.(a) of Part II of Annex I.
3. The integrated approach set out in paragraphs 1 and 2 is expected to lead to around 15% of the total combined budget for the specific objective on "Leadership in enabling and industrial technologies" and the priority "Societal challenges" going to SMEs.

Source: Horizon 2020 Commission proposal, 2011.

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Horizon 2020 Work Program

2014: Support the growth of ICT innovative Creative Industries SMEs

- SMEs co-exist with global players and often face difficulties in adopting state of the art ICT technologies and accessing finance
- Operation on fragmented and localised target markets
- ICT tools and technological innovation fundamental for the creative industries and their competitiveness
- Goal to increase competitiveness of European creative industries by
 - stimulating ICT innovation in SMEs
 - effectively building up and expanding a vibrant EU technological ecosystem for creative industries' needs and
 - fostering exchanges between the creative industries SMEs and providers of ICT innovative solutions
- Scope to stimulate the adoption and deployment of innovative ICT solutions by creative industries SMEs

Source: Horizon 2020 Draft Work Program.

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Horizon 2020 Work Program

2014-15: Open Disruptive Innovation Scheme (ODI)

- Specific Challenge to provide support to a large set of early stage high risk innovative SMEs for fast prototyping and replication of innovative ideas
- Objective of ODI is threefold
 - Nurture promising innovative ideas and enable co-creativity in innovative solutions
 - Support their development and demonstration
 - Help for wider deployment or market uptake
- Scope: ODI scheme specifically designed to foster innovative bottom-up ideas to support validation, fast prototyping and demonstration of disruptive innovation
- Support actions to support exploitation and commercialisation

Source: Horizon 2020 Draft Work Program.

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Conclusions

- Europe has a long history of successful collaborative research framework programs
- Basic concepts of several globally accepted standards in the ICT domain were developed in collaborative research projects and exploited in global standardisation
- ICT and in particular access to broadband communication has positive impacts on economic growth and the creation of new businesses
- Europe is now launching a new framework program “Horizon 2020”
- Support of SMEs has special attention by means of specific measures like access to finance to support the different steps for research, development and market introduction

Source: Net!Works ETP.

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