



**ALCATEL-LUCENT RESPONSE
TO THE CONSULTATION ON
The Future "EU 2020" Strategy**

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1) ICT at the heart of the EU2020 strategy

Information and Communication Technologies (ICTs) are increasingly intertwined in our daily activities. ICT infrastructure is a vital part of European economy and society, either providing essential goods and services or constituting the underpinning platform of other critical infrastructures/sector.

The ICT sector is vital for all segments of society. Businesses rely on the ICT sector both in terms of direct sales and for the efficiency of internal processes. **ICTs are a critical component of innovation and are responsible for nearly 40% of productivity growth.**

The ICT sector currently represents 12 million jobs in the knowledge industries in Europe and generates 6% of the EU GDP¹. At EU-27 level, each worker in the sector contributes €105,000 to the economy each year. This is more than twice the EU average of €50,000² across all sectors.

Thus the European ICT sector is a powerful driver of sustainable growth and employment. It plays a major role in boosting innovation, creativity and competitiveness across *all* industry and service sectors. Today the worldwide ICT market has reached € 2000bn and is still growing at 4% per year. Europe represents 34% of this market³ and its impact will be increased and extended to other sectors.

ICTs are also **pervasive for the work of governments and public administrations**: the uptake of eGovernment services at all levels, as well as new applications such as innovative solutions related to health, energy, transport and political participation, make the public sector heavily dependent on ICTs. Last, but not least, citizens increasingly rely on and use ICTs in their daily activities.

Our societies and culture are inevitably becoming digital. Sooner or later, all human activities will evolve towards their digital era. This concerns all fields of our lives: health, transport, knowledge, culture, and more. Internet evolution has been characterized⁴ by the transition from “sharing” in Web1.0 (Web) to “contributing” in Web2.0 (user-generated content) to “co-creating” in Web3.0 (collaborative production, semantic Web).

The Internet and the next generation access network will be the society and economy backbone, all being connected through very high speed broadband to the IP world.

¹ EU press release Reference: IP/09/397 Date: 13/03/2009

² CEBR report. “The changing economic impact of the telecommunications sector in the EU”. Brussels Dec. 2008.

³ European Competitiveness Report 2006; EITO 2006

⁴ Dutton

Today the network must provide security, mobility, quality of service in the environment of exploding data rates, the number of connected devices, and applications. The network needs to become intelligent to face the explosion of connected devices & services (internet of Things/Internet of Services).

The new challenges for our ICT networks are enormous. We are placing more dependencies on them, transforming with new technologies, competing in a very challenging environment - and we must bring all of this together with a very high level of robustness, scalability, reliability and security.

Europe has huge potential, thanks to one of the most dynamic telecommunications Market in the world and one of the most important pool of researchers and technology know how in key areas such as telecommunications, consumer electronics and semi-conductors. Moreover European citizens are leading users of ICT. People are key.

Nevertheless Europe has also often been considered unable to reap the benefits of the global economy. With an ICT market estimated at around €437,5 bn (compared to the US € 423,7 bn and China € 83,1 bn)⁵, the growth potential is estimated as being lower in Europe than in the US and in China.

We are at the dawn of a new revolution that will radically shape a new way of living and working through Next Generation Access and Services and Europe should act.

2) Digital Economy plan: Setting the path for investment in Secure and Trusted Next generation Infrastructure

- The development of digital economy is considered as a key factor for EU economy growth and competitiveness, internet and broadband being at the heart of the digital engine;
- Across Europe, several States have launched - or plan to do so - national digital economy development plans: Digital Britain, Digital France 2012, German government Broadband strategy,..;
- Such a plan could involve all stakeholders and cover very high speed mobile and fixed broadband deployment, coverage targets for underserved areas, role of local communities, spectrum, digital usages, etc...

End users want services at home at work and on the go. Simple put, the services must be on when they need them. Broadband is becoming more ubiquitous in both the wireless and wired domains (typically varying country by country). The full coverage and high bandwidth capabilities of advanced 3G/4G wireless (especially LTE) are drivers for both increased bandwidth per cell site and increased cell-site density using a range of base station sizes, from classic macro cells down to smaller

⁵ Source IDATE 2006

micro, pico and femto base stations. In the wired domain, Fiber will gradually become the preferred fixed access technology: statistics show that by 2010-11, 1/3 of all new wired broadband FTTH deployment will be based on fiber, which is already unavoidable in aggregation and backhauling.

Next Generation Access Networks

- The roll out of fiber based next generation access networks raises questions about access architecture (P2MP, P2P) and effective competition in the local loop;
- Based on its worldwide experience of FTTH roll out with more than 70 operators, Alcatel-Lucent promotes technology neutral access architectures based on non discriminatory access to passive infrastructure (mainly ducts, sewers or masts), implementation of a fibre flexibility point located close to buildings in very dense areas or upper in the network for lower density areas and sharing of the fibre last drop from the fibre flexibility point to the end user's premises;
- This technology neutral access networks enables different types of competition ranging from infrastructure based in market driven areas to service based competition (bitstream wholesale) in policy driven areas;
- Alcatel Lucent also emphasizes to key role of Local Communities for broadband coverage and bandwidth increase;
- By funding fibre based backhaul networks, local communities can foster private investments in medium and low density areas and encourage competition between operators through copper local loop unbundling;
- Fibre based backhaul networks are also crucial to prepare the migration from high to very-high speed fixed and mobile services - fibre based backhaul networks are access technology agnostic (LTE, Wimax, FTTC, FTTH).

Trusted and Secure information society

ICT infrastructures are critical, as their **disruption or destruction would have a serious impact on vital societal functions**. Recent examples include the large-scale cyber-attacks targeting Estonia in 2007 and the breaks of transcontinental undersea cables in 2008. The **World Economic Forum** estimated in 2008 that there is a 10 to 20% probability of a major CII breakdown in the next 10 years, with a potential global economic cost of approximately 250 billion US\$.⁶

To fully realize the economic and social opportunities of the information society, all stakeholders must have a **high level of confidence and trust in them**.

⁶ Global Risks 2008

Europe should promote and increase citizens' trust in ICTs, through a **better protection of personal data and privacy**

In 2007, **Bell Labs ARECI study** makes 10 recommendations. We should encourage the continued implementation of the ARECI Study recommendations:

- That **promote highly available ICT infrastructure**, such as those directed at supply chain integrity and trusted operations, expert-consensus voluntary best practices, and private-public partnerships
- That **address crisis response**, such as those directed at emergency preparedness, priority communications over public networks, formal mutual aid agreements, information sharing and critical sector interdependencies
- **Create awareness of our social and economic dependencies all ICT infrastructures and be vigorous in**
- **Private Sector, Member States and European Institutions to work together**, each bringing their key attributes - expertise, resources, policy influence and interests

Recommendations:

The European Commission should launch an ICT task force with all the relevant stakeholders to develop key policy recommendations.

This task force should have focus on specific issues:

- Next Generation Networks take-up,
- Security and privacy and
- New business models for Europe (Europea's challenge to ensure that all bottlenecks are identified and ensure an effective competition on services and applications)

European institutions should invite Member States to adopt pro-active policies aimed at spurring NGA investment and preventing the Digital Divide through:

- **Creation of Next Generation Access Forums**
Must address deployment in suburban and rural areas
- **Establishment of national Very High Speed Broadband Strategies**
Need broadband coverage to 30% European population by 2010 and 40% European population with Very High Speed by 2012
- **Close involvement of local communities in the definition of Very High Speed broadband strategies**
Public Funds should be encouraged to support local investment in ICT infrastructure open to all players
- **Confirmation of technology and architectural neutrality**

Fibre paradigm is different from copper and need flexible approaches according to investment requirements

- **European institutions need to play an active role by supporting local communities in above mentioned actions**
- **EC should push the creation public forums addressing best practices for NGA deployment in urban, sub-urban and rural areas**

3) Identify and promote cross sectoral use of ICT

Europe is facing major challenges such as demographic problem, energy consumption and climate change. ICT is a major enabler.

It is important to develop new services/applications to take benefit of the infrastructure investment. We should unleash the potential of ICT. **These enablement aspects will be key to experiment and ensure that Europe will be at the forefront of innovation. Nevertheless it requires an active participation not only of the ICT sector but also of the sector impacted.**

For example, the transformation into an energy-efficient and low-carbon economy will continue to be a policy objective of the next Commission, especially in light of the current crisis. Forrester predicts that overall ICT can lead to a 15% reduction of emissions.⁷ Recent studies demonstrate that ICT-based monitoring and managing of resources can reduce energy consumption in buildings by 17% and reduce carbon emissions in transport logistics by up to 27%.⁸ In particular, investment into ICT applications to improve industrial motors and automation and grid management can add considerable savings in carbon emissions.⁹

Innovative ICT-enabled business models and working practices can further reduce the demand for energy.

Some examples:

Transport:

Infrastructure modernization spurred by:

- 1) **Traffic congestion and safety requirements;**
- 2) **Increased focus on operational efficiency and customer satisfaction**

⁷ (<http://www.forrester.com/Research/Document/0,7211,46761,00.html>)

⁸ See Communication from the Commission on mobilizing Information and Communication Technologies to facilitate the transition to an energy-efficient, low-carbon economy, COM (2009) 111 final.

⁹ A report by consulting firm McKinsey, published in June 2008 identifies four major areas where ICT could be more systematically applied: Industrial motors and automation (savings of 0.97 GtCO₂e in 2020, worth €68 billion); Logistics (1.52 GtCO₂e, with energy savings worth €208 billion); Buildings (1.68 GtCO₂e, worth €216 billion), and Grid technologies (2.03 GtCO₂e, worth €79 billion).

- Massive “intelligent infrastructure” investment programs - for rail, highways and airports - via consolidation & modernization of existing networks or green-field deployments
- Further investments in passenger information systems, on-board multimedia communications platforms, web - tools (e.g. payment,), automatic toll systems, etc.

Electricity:

Strong need for infrastructure modernization due to past underinvestment, change in demand profile (e.g. air conditioning) and shift to green /eco-sustainable technologies

- “Smart grids” powered by electronics are key to optimize brown-field assets, increase operational efficiency and reduce carbon footprint
- Renewable energy sources drive further investments due to change in grid characteristics
- Emerging trend around “smart metering” for consumption optimization (residential and corporate)

Healthcare:

Need to modernize hospital/clinics infrastructure due to ICT underinvestment; macro trends around aging populations, cost of chronic diseases and shortage of skilled labor drive more radical healthcare transformation programs worldwide

- Upgrade of legacy communication systems and applications
- Gradual transformation of healthcare practices from information intensive to communications intensive (“networked care pathways”)
- Emerging trend around “telecare” for chronic diseases or assisted living

But to ensure success in these new business/services, Europe should develop technologies that are easy to use and share a common standard because it will always be the users that have the final word.

Recommendation:

- Creation of European Lighthouse Projects to establish lead markets in the Digital Economy, such as ICT-enabled energy generation and transmission systems, health informatics and IT-based logistics and traffic management;
- pro-active European innovative public procurement policy should also be encouraged

4) R&D investment designing the future and promote innovation

In the context of globalisation, Europe’s R&D assets are challenged by new R&D platforms in terms of cost, skills and volume (i.e. in China or in India).

The international race to invent the future of ICT is well under way. Europe can build on its strong technological capability to position itself in the new world Internet order. European organizations have the potential to significantly contribute to the design of the future of ICT, building on their skills in collaboration, to reduce the risk of investment in R&D and to stimulate economic activity and innovation, supporting the Lisbon objectives

The important thing to stress is the fact that it will happen anyway. Europe has to build up a level of scale (to lower prices) and steer this new market to the European-based technology solution. We can't sit still. If we do the world will simply adopt some other technology. Europe should take the benefit of its market potentiality and its pool of researchers.

Europe has major strengths

- Internal market
- Internet and mobile penetration
- consumer appetite for new usages and new services
- leading industry

Look at the future of internet from a global perspective:

- crisis - productivity, new business, growth
- environment, climate change: reduce energy consumption
- quality of life, new services

When we talk about the future of the internet a holistic approach is necessary. Europe should not consider one aspect to ICT prior to the others. Infrastructure/Services/Things will all be key without distinction. Under-estimate one aspect will jeopardize the future. ICT landscape is changing. A key issue for Europe is to embrace and have a global picture of the future.

The next step is for the European ICT industry, the numerous applications sectors, the European Commission and national authorities to embark on a **common strategy** of complimentary investments in research and initiatives to develop, deploy and stimulate usage of new technologies and services in innovative ways.

5 main directions:

- To Address the challenges of the Future of ICT/Internet through a European industry Research initiative;
- To develop an integrated and structured approach across National and European R&D programs to overcome any fragmentation of efforts;
- Large investment in R&D should be accompanied by a solid policy of leading edge markets development and stimulation of innovation through public procurement;
- To stimulate a pan-European coordinated approach on matters relating to standardization and the single market ;
- To raise awareness of all European citizens and leaders about the clear and visible benefit of investment in Future Internet development.