EUROPEAN COMMISSION

Brussels, 26.8.2010
COM(2010) 245 final/2

CORRIGENDUM:
Annule et remplace le document COM(2010) 245 final du 19.5.2010
Concerne toutes les versions linguistiques

COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL COMMITTEE AND THE COMMITTEE OF THE REGIONS

A Digital Agenda for Europe

EN

EN

COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL COMMITTEE AND THE COMMITTEE OF THE REGIONS

A Digital Agenda for Europe

TABLE OF CONTENTS

EN **EN**

1. INTRODUCTION

The overall aim of the Digital Agenda is to deliver sustainable economic and social benefits from a digital single market based on fast and ultra fast internet and interoperable applications.

The crisis has wiped out years of economic and social progress and exposed structural weaknesses in Europe's economy. Europe's primary goal today must be to get Europe back on track. To achieve a sustainable future, it must already look beyond the short term. Faced with demographic ageing and global competition we have three options: work harder, work longer or work smarter. We will probably have to do all three, but the third option is the only way to guarantee increasing standards of life for Europeans. To achieve this, the Digital Agenda makes proposals for actions that need to be taken urgently to get Europe on track for smart, sustainable and inclusive growth. Its proposals will set the scene for the longer-term transformations that the increasingly digital economy and society will bring about.

The European Commission launched in March 2010 the Europe 2020 Strategy[1] to exit the crisis and prepare the EU economy for the challenges of the next decade. Europe 2020 sets out a vision to achieve high levels of employment, a low carbon economy, productivity and social cohesion, to be implemented through concrete actions at EU and national levels. This battle for growth and jobs requires ownership at top political level and mobilisation from all actors across Europe.

The Digital Agenda for Europe is one of the seven flagship initiatives of the Europe 2020 Strategy, set out to define the key enabling role that the use of Information and Communication Technologies (ICT) will have to play if Europe wants to succeed in its ambitions for 2020[2].

The objective of this Agenda is to chart a course to maximise the social and economic potential of ICT, most notably the internet, a vital medium of economic and societal activity: for doing business, working, playing, communicating and expressing ourselves freely. Successful delivery of this Agenda will spur innovation, economic growth and improvements in daily life for both citizens and businesses. Wider deployment and more effective use of digital technologies will thus enable Europe to address its key challenges and will provide Europeans with a better quality of life through, for example, better health care, safer and more efficient transport solutions, cleaner environment, new media opportunities and easier access to public services and cultural content.

[1]   EUROPE 2020 - A strategy for smart, sustainable and inclusive growth - COM(2010) 2020.

[2]   The Digital Agenda is built upon wide consultations, in particular on inputs from the *Digital Competitiveness Report 2009* - COM(2009) 390; the Commission's 2009 public consultation on future ICT priorities; the Conclusions of the TTE Council of December 2009, the Europe 2020 consultation and strategy; and the *ICT Industry Partnership Contribution to the Spanish Presidency Digital Europe Strategy:,* the own-initiative report of the European Parliament on *2015.eu* and the Declaration agreed at the informal Ministerial meeting in Granada in April 2010. All these are available at: http://ec.europa.eu/information_society/eeurope/i2010/index_en.htm.

The ICT sector is directly responsible for 5% of European GDP, with a market value of €660 billion annually, but it contributes far more to overall productivity growth (20% directly from the ICT sector and 30% from ICT investments). This is because of the high levels of dynamism and innovation inherent in the sector, and the enabling role the sector plays in changing how other sectors do business. At the same time, the social impact of ICT has become significant – for example, the fact that there are more than 250 million daily internet users in Europe and virtually all Europeans own mobile phones has changed life style.

The development of high-speed networks today is having the same revolutionary impact as the development of electricity and transportation networks had a century ago. With the on-going developments in consumer electronics, the lines between digital devices are fading away. Services are converging and moving from the physical into the digital world, universally accessible on any device, be it a smartphone, tablet, personal computer, digital radio or high-definition television. It is projected that by 2020 digital content and applications will be almost entirely delivered online.

This great potential of ICT can be mobilised through a well-functioning virtuous cycle of activity. Attractive content and services need to be made available in an interoperable and borderless internet environment. This stimulates demand for higher speeds and capacity, which in turn creates the business case for investments in faster networks. The deployment and take-up of faster networks in turn opens the way for innovative services exploiting higher speeds. This process is illustrated in the outer ring of **Figure 1** (below).

Figure 1: **Virtuous cycle of the digital economy**
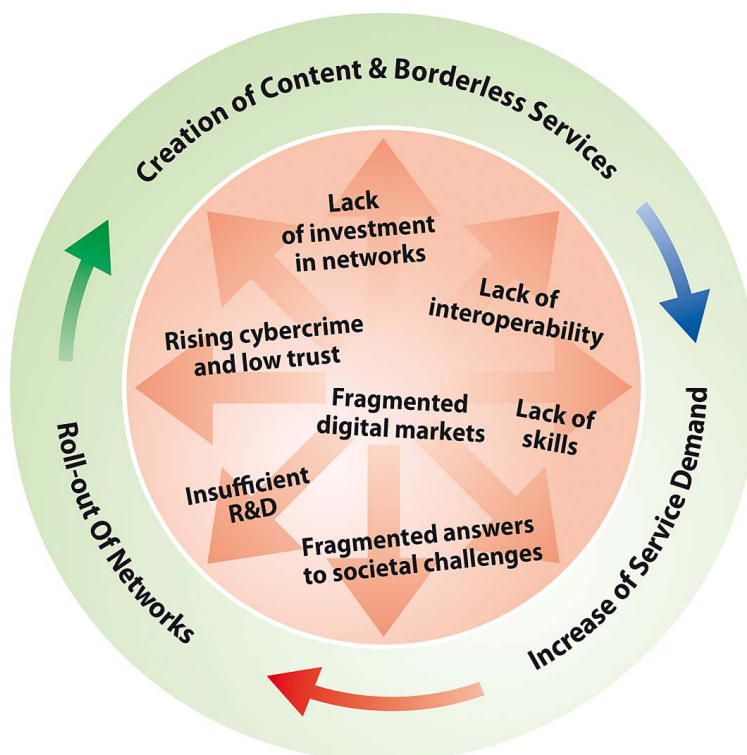
This flow of activity can be largely self reinforcing. It requires a business environment that fosters investments and entrepreneurship. But while the

transformational power of ICT is clear, serious challenges must also be confronted in order to harness it. Although a digital way of life is emerging for many European citizens, on the basis of technology which declares its "worldwide", borderless reach, they cannot accept that a single market designed before the internet is still seriously incomplete online. People's enjoyment of digital technologies, be it as citizens, consumers or workers, is marred by privacy and security concerns, by insufficient internet access, insufficient usability, by lack of relevant skills or by lack of accessibility for all. Europeans are frustrated when ICT do not deliver their promise of better public services. They are concerned that, as the internet has accelerated competition for investments, jobs and economic influence at a global level, Europe is not equipping itself adequately to prosper in this growth sector of the knowledge economy.

Based on consultation with stakeholders and on the insights contained in both the Granada Declaration and the European Parliament Resolution, the Commission has identified the seven most significant obstacles. These are listed in the inner ring of **Figure 1**, and briefly described below. On their own or in combination, these obstacles seriously undermine efforts to exploit ICT, making clear the need for a comprehensive and united policy response at the European level. They show that Europe is lagging behind its industrial partners. Today there are four times as many music downloads in the US as in the EU because of the lack of legal offers and fragmented markets; 30% of Europeans have still never used the internet; Europe has only 1% penetration of fibre-based high-speed networks whereas Japan is at 12% and South Korea is at 15%; and EU spending on ICT research and development stands at only 40% of US levels.

- *Fragmented digital markets*

Europe is still a patchwork of national online markets, and Europeans are prevented by solvable problems from enjoying the benefits of a digital single market. Commercial and cultural content and services need to flow across borders; this should be achieved by eliminating regulatory barriers and facilitating electronic payments and invoicing, dispute resolution and customer trust. More can and must be done under the current regulatory framework to weave a single market in the telecoms sector.

- *Lack of interoperability*

Europe does not yet reap the maximum benefit from interoperability. Weaknesses in standard-setting, public procurement and coordination between public authorities prevent digital services and devices used by Europeans from working together as well as they should. The Digital Agenda can only take off if its different parts and applications are interoperable and based on standards and open platforms.

- *Rising cybercrime and risk of low trust in networks*

Europeans will not engage in ever more sophisticated online activities, unless they feel that they, or their children, can fully rely upon their networks. Europe must therefore address the rise of new forms of crime - "cybercrime" - ranging from child abuse to identity theft and cyber-attacks, and develop responsive mechanisms. In parallel, the multiplication of databases and new technologies allowing remote

control of individuals raise new challenges to the protection of Europeans' fundamental rights to personal data and privacy. The internet has now become such a critical information infrastructure for individuals as much as for the European economy at large, that our IT systems and networks must be made resilient and secure to all sort of new threats.

- *Lack of investment in networks*

More needs to be done to ensure the roll-out and take-up of broadband for all, at increasing speeds, through both fixed and wireless technologies, and to facilitate investment in the new very fast open and competitive internet networks that will be the arteries of a future economy. Our action needs to be focused on providing the right incentives to stimulate private investment, complemented by carefully targeted public investments, without re-monopolising our networks, as well as improving spectrum allocation.

- *Insufficient research and innovation efforts*

Europe continues to under-invest, fragment its efforts, under-use the creativity of SMEs and fail to convert the intellectual advantage of research into the competitive advantage of market-based innovations. We need to build on the talent of our researchers to deliver an innovation ecosystem where European based ICT companies of all sizes can develop world-class products that will generate demand. We therefore need to address the suboptimal character of current research and innovation efforts by leveraging more private investment, better coordinating and pooling of resources, 'lighter and faster' access of digital SMEs to Union research funds, joint research infrastructures and innovation clusters and the development of standards and open platforms for new applications and services.

- *Lack of digital literacy and skills*

Europe is suffering from a growing professional ICT skills shortage and a digital literacy deficit. These failings are excluding many citizens from the digital society and economy and are holding back the large multiplier effect of ICT take-up to productivity growth. This requires a coordinated reaction, with Member States and other stakeholders at its centre.

- *Missed opportunities in addressing societal challenges*

By harnessing the full potential of ICT, Europe could much better address some of its most acute societal challenges: climate change and other pressures on our environment, an ageing population and rising health costs, developing more efficient public services and integrating people with disabilities, digitising Europe's cultural heritage and making it available to this and future generations, etc.

The Digital Agenda for Europe frames its key actions around the need to systematically tackle these seven problem areas, which as a horizontal initiative spans, the three growth dimensions set out in Europe 2020. These problem areas are developed in more detail in the individual sections below, demonstrating the pressing need for the actions identified as a set of positive agendas to boost

Europe's social and economic performance. The Commission will remain vigilant for the emergence of additional obstacles and will react accordingly.

The Digital Agenda will require a sustained level of commitment at both EU and Member State levels (including at regional level). It cannot succeed without a major contribution by other stakeholders, including young "digital natives" who have much to teach us. This Agenda is a snapshot of actual and foreseeable problems and opportunities, and will evolve in the light of experience and of the rapid changes in technology and society.

2. THE ACTION AREAS OF THE DIGITAL AGENDA

2.1. A vibrant digital single market

It is time for a new single market to deliver the benefits of the digital era.

The internet is borderless, but online markets, both globally and in the EU, are still separated by multiple barriers affecting not only access to pan-European telecom services but also to what should be global internet services and content. This is untenable. First, the creation of attractive online content and services and its free circulation inside the EU and across its borders are fundamental to stimulate the virtuous cycle of demand. However, persistent fragmentation is stifling Europe's competitiveness in the digital economy. It is therefore not surprising that the EU is falling behind in markets such as media services, both in terms of what consumers can access, and in terms of business models that can create jobs in Europe. Most of the recent successful internet businesses (such as Google, eBay, Amazon and Facebook) originate outside of Europe[3]. Second, despite the body of key single market legislation on eCommerce, eInvoicing and eSignatures, transactions in the digital environment are still too complex, with inconsistent implementation of the rules across Member States. Third, consumers and businesses are still faced with considerable uncertainty about their rights and legal protection when doing business on line. Fourth, Europe is far from having a single market for telecom services. The single market therefore needs a fundamental update to bring it into the internet era.

Tackling these problems requires extensive actions in the areas described below:

2.1.1. *Opening up access to content*

Consumers expect, rightly, that they can access content online at least as effectively as in the offline world. Europe lacks a unified market in the content sector. For instance, to set-up a pan-European service an online music store would have to negotiate with numerous rights management societies based in 27 countries. Consumers can buy CDs in every shop but are often unable to buy music from online platforms across the EU because rights are licensed on a national basis. This contrasts with the relatively simple business environment and distribution channels in other regions, notably the US, and reflects other fragmented markets such as those in Asia (**Figure 2**).

---

[3]   Only one of the nine ICT applications companies present in the Financial Times Global 500 list is European; only four of the top 54 websites visited across Europe are of European origin.

To maintain the trust of right-holders and users and facilitate cross-border licensing, the **governance and transparency of collective rights management** needs to improve and adapt to technological progress. Easier, more uniform and technologically neutral solutions for **cross-border and pan-European licensing** in the audiovisual sector will stimulate creativity and help the content producers and broadcasters, to the benefit of European citizens. Such solutions should preserve the contractual freedom of right holders. Right holders would not be obliged to license for all European territories, but would remain free to restrict their licenses to certain territories and to contractually set the level of licence fees.

If need be, additional measures will be examined which take into account the specificities of all the different forms of online content. In this regard, the Commission does not exclude or favour at this stage any particular option or legal instrument. These issues have also been addressed by Professor Monti in his report "A new strategy for the Single Market", presented to the President of the European Commission on 9 May 2010, on which the Commission will follow up with a Communication before the summer 2010.[4]

Digital distribution of cultural, journalistic and creative content, being cheaper and quicker, enables authors and content providers to reach new and larger audiences. Europe needs to push ahead with the creation, production and distribution (on all platforms) of digital content. For instance, Europe has strong publishers but more competitive online platforms are needed. This requires innovative business models, through which content would be accessed and paid for in many different ways, that achieve a fair balance between right-holders' revenues and the general public's access to content and knowledge. Legislation may not be necessary to enable such new business models to prosper if all stakeholders cooperate on a contractual basis. The availability of a wide and attractive legal online legal offer would also be an effective response to piracy.

---

[4]   See http://ec.europa.eu/commission_2010-2014/president/news/press-releases/pdf/20100510_1_en.pdf, chapter 2.3

Figure 2: Music downloads - US level four times bigger than the EU

Music single downloads per quarter (in millions)
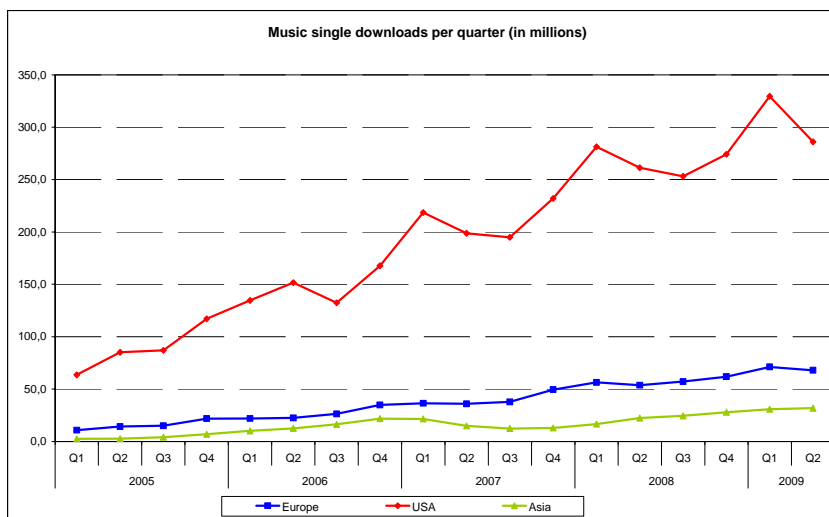
Source: Screen Digest

Public authorities should play their part in promoting markets for online content. The challenges of convergence should be addressed in all reviews of public policy, including tax matters. For example, governments can stimulate content markets by making **public sector information** available on transparent, effective, non-discriminatory terms. This is an important source of potential growth of innovative online services. The re-use of these information resources has been partly harmonised[5], but additionally public bodies must be obliged to open up data resources for cross-border applications and services[6].

ACTIONS

The Commission will:

- **Key Action 1: Simplify copyright clearance, management and cross-border licensing** by

    - Enhancing the governance, transparency and pan European licensing for (online) rights management by proposing a **framework Directive on collective rights management** by 2010;

    - Create a legal framework to facilitate the digitisation and dissemination of cultural works in Europe by proposing a **Directive on orphan works** by 2010, to conduct a dialogue with stakeholders with a view to further measures on **out-of print works,** complemented by rights information databases;

    - By 2012, review the **Directive on Re-Use of Public Sector Information,** notably its scope and principles on charging for access and use;

- **Other actions:**

---

[5] Directive 2003/98/EC on the re-use of public sector information.
[6] This revision will also take into account the recent OECD Recommendation of the Council for Enhanced Access and More Effective Use of Public Sector Information.

- After an extensive stakeholder dialogue, report by 2012 on the need for additional measures beyond collective rights management allowing EU citizens, online content services providers and right-holders to benefit from the full potential of the digital internal market, including measures to promote cross-border and pan-European licenses, without excluding or favouring at this stage any possible legal option;

- In preparation thereof, issue a Green Paper addressing the opportunities and challenges of online distribution of audiovisual works and other creative content by 2010;

- On the basis of the review of the Directive on the enforcement of intellectual property rights, and following extensive stakeholder dialogue, report by 2012 on the need for additional measures to reinforce the protection against persistent violations of intellectual property rights in the online environment, consistent with the guarantees provided in the Telecoms Framework and fundamental rights on data protection and privacy.

2.1.2. *Making online and cross border transactions straightforward*

European consumers are still not getting the gains of price and choice that the single market should offer because online transactions are too complicated. Fragmentation also limits demand for cross-border eCommerce transactions. Less than one in ten eCommerce transactions are cross-border, and Europeans often find it easier to conduct a cross-border transaction with a US business than with one from another European country. As many as 92% of individuals who order goods or services over the internet do so from national sellers, rather than cross-border. Technical or legal reasons, such as refusal of non-domestic credit cards, cause as many as 60% of attempted cross-border internet shopping orders to fail. This highlights the urgency of tackling the regulatory barriers holding back European businesses from trading cross-border. The Commission identified these barriers in the Communication on Cross-Border Business to Consumer e-Commerce in the EU[7].

Europe has a common currency but the market for **electronic payments** and **eInvoicing** is still fragmented along national borders. Only in an integrated payment market will it be possible for enterprises and consumers to rely on safe and efficient payment methods[8]. This is why the **Single Euro Payment Area (SEPA)** should be completed without delay. SEPA will also provide a launch platform for value added services linked to payments, such as the development of a European eInvoicing framework.

The e-money Directive[9] should be swiftly implemented so as to open the way for new market entrants to offer innovative e-money solutions – such as mobile wallets - without a loss of protection of consumer funds. This new market could be as large as €10 billion by 2012.

---

[7] Cross-Border Business to Consumer e-Commerce in the EU - COM(2009) 557.
[8] E-payment and e-invoicing are prerequisites for e-Justice such as small claims procedures or online payment of procedural costs.
[9] Directive 2009/110/EC on the taking up, pursuit and prudential supervision of the business of electronic money institution.

Electronic identity (eID) technologies and authentication services are essential for transactions on the internet both in the private and public sectors. Today the most common way to authenticate is the use of passwords. For many applications this may be sufficient, but more secure solutions are increasingly needed[10]. As there will be many solutions, industry, supported by policy actions – in particular eGovernment services - should ensure interoperability based on standards and open development platforms.

<div style="border:1px solid black;">

ACTIONS

The Commission will:

- **Key Action 2:** Ensure the completion of the Single Euro Payment Area (SEPA), eventually by binding legal measures fixing an end date for migration before 2010 and facilitate the emergence of an interoperable European eInvoicing framework through a Communication on eInvoicing and by establishing a multistakeholder forum;

- **Key Action 3**: In 2011 propose a revision of the **eSignature Directive** with a view to provide a legal framework for cross-border recognition and interoperability of **secure eAuthentication systems**;

- **Other actions:**

    - Evaluate by end 2010 the **impact of the e-Commerce Directive** on online markets and make concrete proposals.

Member States should:

- Implement swiftly and coherently the **key Directives supporting the digital single market**, including the Services Directive, Unfair Commercial Practices Directive and the Telecoms Framework;

- Transpose by 2013 the **VAT Directive[11]** ensuring equal treatment for eInvoicing with paper invoices.

</div>

2.1.3. *Building digital confidence*

Today, under EU law, citizens in the EU enjoy a series of rights that are relevant to the digital environment, such as freedom of expression and information, protection of personal data and privacy, requirements for transparency and universal telephone and functional internet services and a minimum quality of service.

However, these rights are scattered across various laws and are not always easy to grasp. Users must be able to find simple, codified explanations of their rights and obligations, set out in a transparent and understandable way, e.g. via online platforms, building on the prototype of the eYou Guide[12].

---

[10]   Which is why the Commission has proposed a European Strategy on Identity Management under the Stockholm Programme - COM(2010) 171.

[11]   Amending Directive 2006/112/EC, as proposed by the Commission in 2009.

[12]   http://www.ec.europa.eu/eyouguide.

A lack of trust in the online environment is meanwhile seriously hampering the development of Europe's online economy. Among people who did not order online in 2009, the top reasons were: payment security concerns, privacy concerns, and trust concerns (**Figure 3,** below). The ongoing general review of the data protection regulatory framework aims to modernise all relevant legal instruments to meet the challenges of globalisation and to create technology neutral ways of enhancing trust and confidence by strengthening citizens' rights.

Figure 3: Reasons for not buying online (% of individuals who have not ordered online in 2009)

Reasons for not buying online (% of individuals that have not ordered online during last year), 2009
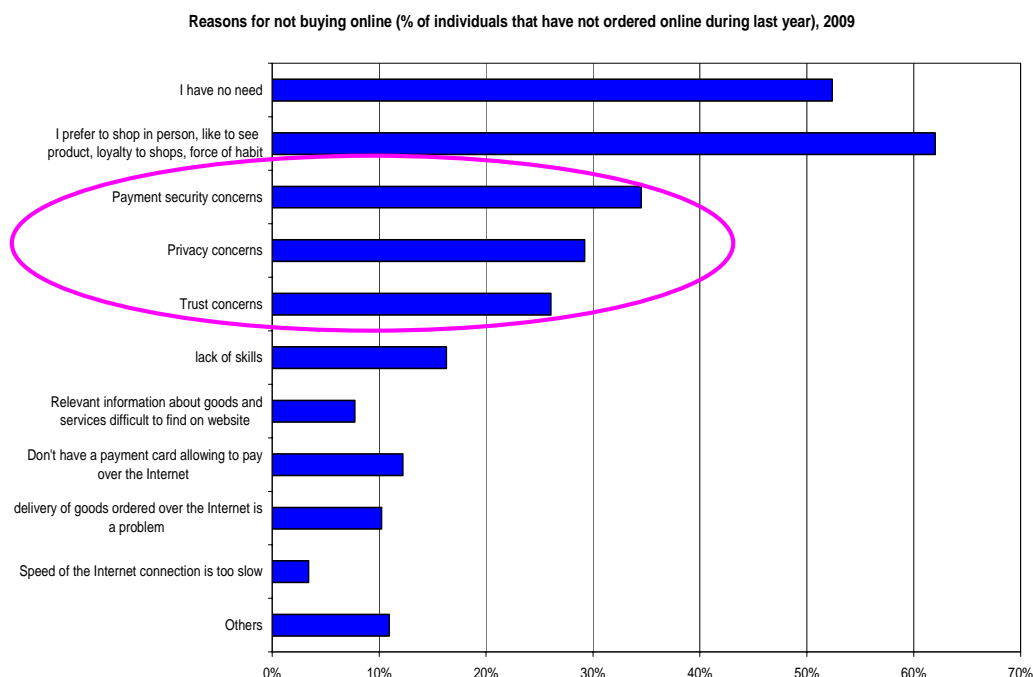
Source: Eurostat Community Survey on ICT Usage by Households and by Individuals 2009

Consumers will not **shop online** if they do not feel their rights are clear and protected. Although the E-Commerce Directive imposes transparency and information requirements on information society services providers and establishes minimum information requirements on commercial communications[13], close monitoring is needed to make sure the information requirements are respected.

The Unfair Commercial Practices Directive[14] and the Distance Marketing of Financial Services Directive[15] will remedy the situation to a certain degree. The proposed Directive on Consumer Rights[16] needs to be adopted swiftly, building confidence for consumers and traders in cross-border purchases online. But the Commission will also investigate how to improve rights of consumers buying digital products. Cross-border transactions online can also be made easier by increasing the

---

[13] Directive 2000/31/EC. In addition, it may be necessary to update provisions such as limited liability of information society services in line with technological progress.

[14] Directive 2005/29/EC.

[15] Directive 2002/65/EC.

[16] Cf. http://ec.europea.eu/consumers/rights/cons_acquis_en.htm.

coherence of European contract law, based on a high level of consumer protection. The Commission will also launch an EU-wide strategy to improve Alternative Dispute Resolution systems and propose an EU-wide online redress tool for eCommerce and improve the access to justice online. In addition, the comparability of consumer prices, e.g. through benchmarking, product testing or price comparison websites, could be improved to drive competition and to enhance consumer protection.

There is scope to build confidence by creating **EU online trustmarks** for retail websites. The Commission envisages pursuing this idea, in consultation with all stakeholders.

ACTIONS

The Commission will:

- **Key Action 4** Review the EU **data protection regulatory framework** with a view to enhancing individuals' confidence and strengthening their rights, by the end of 2010;

- **Other actions:**

  - Propose by 2012 an optional **contract law instrument complementing the Consumer Rights Directive** to overcome the fragmentation of contract law, in particular as regards the online environment;

  - Explore by 2011, via a Green Paper, initiatives on consumer Alternative Dispute Resolution in the EU with a view to making proposals for an **EU-wide Online Dispute Resolution** system for eCommerce transactions by 2012;

  - Explore proposals in the field of **collective redress**, based on stakeholder consultation;

  - Issue a **Code of EU Online Rights** by 2012 that summarises existing digital user rights in the EU in a clear and accessible way, complemented by an annual sweep of breaches of online consumer protection law and appropriate enforcement measures, in coordination with the European Network of Consumer Protection Agencies;

  - Create a stakeholder platform by 2012 for EU **online trustmarks,** notably for retail websites.

2.1.4.   Reinforcing the single market for telecommunications services

Today, Europe's telecom markets are partitioned on a Member State basis, with purely national, rather than Europe-wide, numbering, licensing and spectrum assignment schemes. These national structures are increasingly challenged by global competition and the internet.

The Commission's first priority will be the **swift and consistent implementation of the amended regulatory framework**, together with greater co-ordination of spectrum use and, where necessary, harmonisation of spectrum bands, to create economies of scale in equipment and service markets. Since the single market demands that similar regulatory issues be given correspondingly similar treatment,

the Commission will prioritise the provision of guidance on key regulatory concepts under the electronic communications rules, in particular costing methodologies and non-discrimination, and will also look for durable solutions for voice and data roaming by 2012.

The Commission will also leverage the expertise of the newly-created Body of European Regulators for Electronic Communications in **tackling obstacles that prevent European businesses and citizens from making the fullest possible use** of cross-border electronic communications services. For example, improved harmonisation of national numbering regimes on the basis of the current framework could help European manufacturers and retailers by enabling sales, after-sales and customer enquiry services over a single Europe-wide number, while the better functioning of socially useful numbers (e.g. 116 numbers used for hotlines for missing children) will benefit citizens. Similarly, improved comparability (e.g. through benchmarking) of user and consumer prices will drive competition and enhance consumer protection.

Finally, the Commission will assess, on the basis inter alia of practical input from stakeholders, the **socio-economic cost of non-Europe in telecoms markets**, outline the benefits of a better-integrated market, and propose appropriate steps to reduce this cost.

ACTIONS

The Commission will:

- Propose measures for an increased harmonisation of **numbering resources for provision of business services across Europe by 2011**;

- On the basis of the **European Radio Spectrum Policy Programme**[17], coordinate the technical and regulatory conditions applying to spectrum use and, where necessary, harmonise spectrum bands to create economies of scale in equipment markets and allow consumers to use the same equipment and avail themselves of the same services across the EU;

- Conduct by 2011 an investigation into the **cost of non-Europe in telecommunication markets** to take further measures to reinforce the benefits of the single market.

2.2. Interoperability and standards

We need effective interoperability between IT products and services to build a truly digital society.

The internet is the best example of the power of technical **interoperability**. Its open architecture gave interoperable devices and applications to billions around the world. But to reap the full benefits of ICT deployment interoperability between devices, applications, data repositories, services and networks must be further enhanced.

---

[17]   See Key Action 8.

2.2.1. Improving ICT standard-setting

Europe's standard-setting framework must catch up with fast-moving technology markets because **standards** are vital for interoperability. The Commission will continue the **review of European standardisation policy** by following up on its White Paper "Modernising ICT standardisation in the EU"[18] and the related public consultation. Reflecting the rise and growing importance of ICT standards developed by certain global fora and consortia, one important aim is to allow their use in legislation and public procurement.

Moreover, guidance on transparent ex-ante disclosure rules for **essential intellectual property rights** and **licensing terms and conditions** in the context of standard-setting, to be provided in particular in the forthcoming reform of EU standardisation policy as well as in updated antitrust rules on horizontal co-operation agreements, could contribute to lower royalty demands for the use of standards and thus to lower market entry costs.

2.2.2. Promoting better use of standards

Public authorities should make best use of the full range of **relevant standards** when procuring hardware, software and IT services, for example by selecting standards which can be implemented by all interested suppliers, allowing for more competition and reduced risk of lock-in.

2.2.3. Enhancing interoperability through coordination

A key action to promote interoperability between public administrations will be the Commission's adoption of an ambitious **European Interoperability Strategy** and the **European Interoperability Framework** to be drawn up under the ISA programme (Interoperability Solutions for European Public Administrations[19]).

Since not all pervasive technologies are based on standards the benefits of interoperability risk being lost in such areas. The Commission will examine the feasibility of **measures that could lead significant market players to license interoperability information** while at the same time promoting innovation and competition.

ACTIONS

The Commission will:

- **Key Action 5**: As part of the review of EU standardisation policy, propose legal measures on ICT interoperability by 2010 to reform the **rules on implementation of ICT standards in Europe** to allow use of certain ICT fora and consortia standards;

- Other actions:

---

[18]   Modernising ICT Standardisation in the EU - The Way Forward - COM(2009) 324.
[19]   Interoperability solutions for European public administrations (ISA) (OJ L 260, 3.10.2009, p. 20). ISA replaces the IDABC programme (Interoperable delivery of pan-European eGovernment services to public administrations, businesses and citizens (OJ L 181, 18.5.2004, p. 25).

- Promote appropriate rules for essential intellectual property rights and licensing conditions in standard-setting, including for **ex-ante disclosure,** in particular through guidelines by 2011;

- Issue a Communication in 2011 to provide **guidance on** the link between ICT standardisation and public procurement to help public authorities to **use standards to promote efficiency and reduce lock-in**;

- Promote interoperability by adopting in 2010 a European Interoperability Strategy and European Interoperability Framework;

- Examine the feasibility of **measures** that could lead significant market players to license **interoperability information** to report by 2012.

Member States should:

- Apply the **European Interoperability Framework** at national level by 2013;

- Implement **commitments on interoperability and standards** in the Malmö and Granada Declarations by 2013.

2.3. Trust and security

Europeans will not embrace technology they do not trust - the digital age is neither "big brother" nor "cyber wild west".

Users must be safe and secure when they connect online. Just like in the physical world, cybercrime cannot be tolerated. Besides, some of the most innovative and advanced online services – such as eBanking or eHealth - would simply not exist if new technologies were not fully reliable. So far, the internet has proved remarkably secure, resilient and stable, but IT networks and end users' terminals remain vulnerable to a wide range of evolving threats: in recent years, spam emails have grown to the point of heavily congesting e-mail traffic on the internet - various estimates suggest between 80 % to 98 % of all circulating emails[20] - and they spread a wide range of virus and malicious software. There is a growing scourge of identity theft and online fraud. Attacks are becoming increasingly sophisticated (trojans, botnets, etc.) and often motivated by financial purposes. They can also be politically motivated as shown by the recent cyber-attacks that targeted Estonia, Lithuania and Georgia.

Addressing those threats and strengthening security in the digital society is a shared responsibility – of individuals as much as of private and public bodies, both at home and globally. For instance, to tackle sexual exploitation and child pornography, alert platforms can be put in place at national and EU levels, alongside measures to remove and prevent viewing of harmful content. Educational activities and awareness raising campaigns for the wider public are also essential: the EU and Member States can step up their efforts, e.g. through the Safer Internet Programme, providing information and education to children and families on online safety, as

---

[20] See for instance the European Network and Information Society Agency spam survey 2009 (January 2010).

well as analysing the impact on children of using digital technologies. Industries should also be encouraged to further develop and implement self-regulatory schemes, in particular as regards protection of minors using their services.

The right to privacy and to the protection of personal data are fundamental rights in the EU which must be – also online - effectively enforced using the widest range of means: from the wide application of the principle of "Privacy by Design"[21] in the relevant ICT technologies, to dissuasive sanctions wherever necessary. The EU's revised framework for electronic communications clarifies the responsibilities of network operators and service providers, including their obligation to notify breaches of personal data security. The recently launched review of the general data protection framework will include a possible extension of the obligation to notify data security breaches. The implementation of the ban on spam will be reinforced using the Consumer Protection Cooperation (CPC) network.

An effective and rapid implementation of the EU action plan for the protection of critical information infrastructure[22] and of the Stockholm Programme[23] will trigger a wide range of measures in the field of network and information security and the fight against cybercrime. For instance, to react in real-time conditions, a well functioning and wider network of Computer Emergency Response Teams (CERTs) should be established in Europe, including for European institutions. Cooperation between CERTs and law enforcement agencies is essential and a system of contact points should be promoted to help prevent cybercrime and respond to emergencies, such as cyber attacks. Europe also needs a strategy on identity management, notably for secure and effective eGovernment services[24].

Finally, cooperation of relevant actors needs to be organised at global level to be effectively able to fight and mitigate security threats. This can be channelled as part of discussions on Internet Governance. At a more operational level, internationally coordinated information security targeted actions should be pursued, and joint action should be taken to fight computer crime, with the support of a renewed European Network and Information Security Agency (ENISA).

ACTIONS

The Commission will:

- **Key Action 6:** Present in 2010 measures aiming at a **reinforced and high level Network and Information Security Policy**, including legislative initiatives such as a modernised European Network and Information Security Agency (ENISA), and measures allowing faster reactions in the event of cyber attacks, including a CERT for the EU institutions;

- **Key Action 7**: Present measures, including legislative initiatives, to **combat cyber attacks against information systems** by 2010, and related rules on jurisdiction in

---

[21] This principle means that privacy and data protection are embedded throughout the entire life cycle of technologies, from the early design stage to their deployment, use and ultimate disposal.

[22] COM(2009) 149.

[23] COM(2010) 171.

[24] Such a strategy has been proposed under the Stockholm Programme.

cyberspace at European and international levels by 2013;

- **Other actions:**

    - Establish a **European cybercrime platform** by 2012;

    - Examine the feasibility by 2011 to create a **European cybercrime centre**;

    - Work with global stakeholders notably to strengthen **global risk management** in the digital and in the physical sphere and conduct internationally coordinated targeted actions against computer-based crime and security attacks;

    - Support EU-wide cyber-security preparedness exercises, from 2010;

    - As part of the modernisation of the EU personal data protection regulatory framework[25] to make it more coherent and legally certain, explore the extension of security breach notification provisions;

    - Give guidance by 2011 for the implementation of new Telecoms Framework with regard to the **protection of individuals' privacy and personal data**;

    - Support **reporting points for illegal content online** (hotlines) and awareness campaigns on online safety for children run at national level and enhance pan-European cooperation and sharing of best practice in this field;

    - Foster multi-stakeholder dialogue and self-regulation of European and global service providers (e.g. social networking platforms, mobile communications providers), especially as regards use of their services by minors.

Member States should:

- Establish by 2012 **a well-functioning network of CERTs at national level** covering all of Europe;

- In cooperation with the Commission carry **out large scale attack simulation** and test mitigation strategies as of 2010;

- Fully implement **hotlines for reporting offensive or harmful online content**, organise awareness raising campaigns on online safety for children, and offer teaching online safety in schools, and encourage providers of online services to implement self-regulatory measures regarding online safety for children by 2013;

- Set up or adapt **national alert platforms** to the Europol cybercrime platform, by 2012, starting in 2010.

2.4. Fast and ultra fast internet access

We need very fast Internet for the economy to grow strongly and to create jobs and prosperity, and to ensure citizens can access the content and services they want.

---

[25] See Key Action 4.

The future economy will be a network-based knowledge economy with the internet at its centre. Europe needs widely available and competitively-priced fast and ultra fast internet access. The Europe 2020 Strategy has underlined the importance of broadband deployment to promote social inclusion and competitiveness in the EU. It restated the objective to bring basic broadband to all Europeans by 2013 and seeks to ensure that, by 2020, (i) all Europeans have access to much higher internet speeds of above 30 Mbps and (ii) 50% or more of European households subscribe to internet connections above 100 Mbps.

To reach these ambitious targets it is necessary to develop a comprehensive policy, based on a mix of technologies, focusing on two parallel goals: on the one hand, to guarantee universal broadband coverage (combining fixed and wireless) with internet speeds gradually increasing up to 30 Mbps and above and over time to foster the deployment and take-up of next generation access networks (NGA) in a large part of the EU territory, allowing ultra fast internet connections above 100 Mbps.

2.4.1. *Guarantee universal broadband coverage with increasing speeds*

Without strong public intervention there is a risk of a sub-optimal outcome, with fast broadband networks concentrated in a few high-density zones with significant entry costs and high prices. The spill-over benefits created by such networks for the economy and society justify public policies guaranteeing universal broadband coverage with increasing speeds.

For this purpose, the Commission intends to adopt a Communication outlining a common framework within which EU and national policies should be developed to meet the Europe 2020 targets. These policies should, in particular, lower the costs of broadband deployment in the entire EU territory, ensuring proper planning and coordination and reducing administrative burdens. For instance, the competent authorities should ensure: that public and private civil engineering works systematically provide for broadband networks and in-building wiring; clearing of rights of way; and mapping of available passive infrastructure suitable for cabling.

Wireless (terrestrial and satellite) broadband can play a key role to ensure coverage of all areas including remote and rural regions. The central problem to develop wireless broadband networks today is access to radio spectrum. Mobile internet users already experience congestion on networks because of inefficient use of radio spectrum. In addition to frustrating users, innovation in markets for new technologies is stifled, affecting €250 billion of activity annually[26]. A forward-looking European spectrum policy should, while accommodating broadcasting, promote efficient spectrum management, by mandating the use of certain digital dividend frequencies for wireless broadband by a fixed future date, by ensuring additional flexibility (also allowing spectrum trading) and by supporting competition and innovation.

Beside this, national, EU and EIB funding instruments should be used for well targeted broadband investments in areas where the business case is currently weak and, therefore, only such focused intervention can render investments sustainable.

---

[26] Cf. *Conditions and options in introducing secondary trading of radio spectrum in the European Community*, European Commission 2004.

2.4.2. *Foster the deployment of NGA networks*

Today in Europe internet access is mainly based on the first generation of broadband, meaning internet accessed over legacy telephone copper and TV cable networks. However, citizens and businesses around the world are increasingly demanding much faster NGA networks. In this respect, Europe is still lagging behind some of our main international counterparts. A significant indicator is the level of fibre to the home penetration, which is very low in Europe and far below certain leading G20 nations (see **Figure 4**).

Figure 4: Fibre to the Home (FTTH) penetration in July 2009
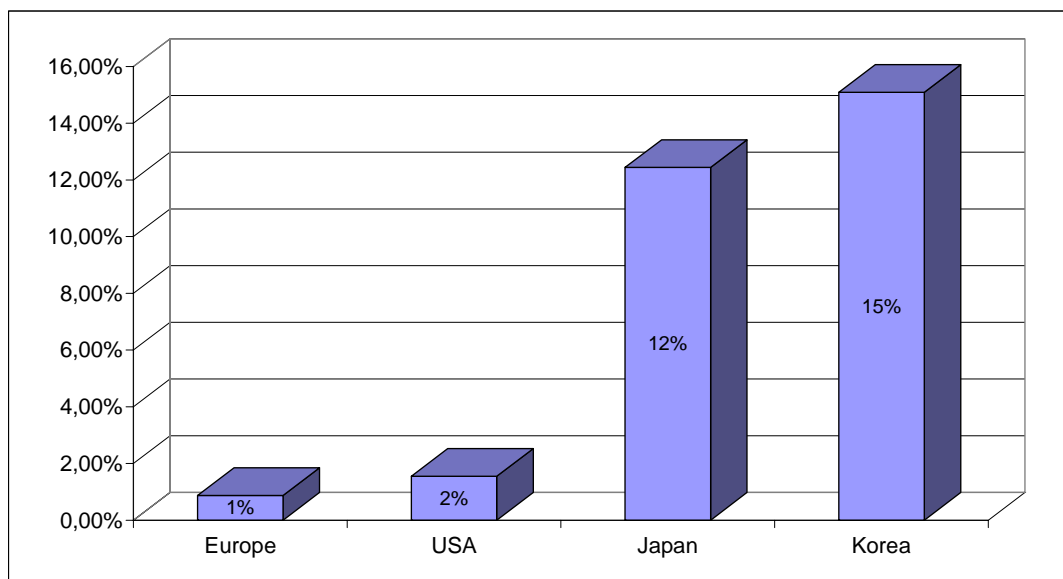
Source: Point Topic

To foster the deployment of NGA and to encourage market investment in open and competitive networks the Commission will adopt a NGA Recommendation based on the principles that (i) investment risk should be duly taken into account when establishing cost-oriented access prices, (ii) National Regulatory Authorities should be able to impose the most appropriate access remedies in each case, allowing a reasonable investment pace for alternative operators while taking into account the level of competition in any given area and (iii) co-investments and risk-sharing mechanisms should be promoted.

2.4.3. *Open and neutral internet*

The Commission will also monitor closely the implementation of the new legislative provisions on the open and neutral character of the internet, which safeguard users' rights to access and distribute information online and ensure transparency about traffic management[27]. The Commission will launch a public consultation before summer 2010 as part of its more general commitment to report by the end of the

---

[27] Article 8(4)(g) of the Directive 2002/21/EC on a common regulatory framework for electronic communications networks and services; Articles 20(1)(b) and 21(3)(c) and (d) of the Universal Service Directive.

year, in the light of market and technological developments, on whether additional guidance is required, in order to secure the basic objectives of freedom of expression, transparency, the need for investment in efficient and open networks, fair competition and openness to innovative business models.

ACTIONS

The Commission will:

- **Key Action 8:** Adopt in 2010 a Broadband Communication that lays out a common framework for actions at EU and Member State to meet the Europe 2020 broadband targets, including:

  - Reinforce and rationalise, in this framework, the **funding of high-speed broadband** through EU instruments (e.g. ERDF, ERDP, EAFRD, TEN, CIP) by 2014 and explore how to attract **capital** for broadband investments **through credit enhancement** (backed by the EIB and EU funds);

  - Propose an ambitious **European Spectrum Policy Programme** in 2010 for decision by the European Parliament and the Council that will create a co-ordinated and strategic spectrum policy at EU level in order increase the efficiency of radio spectrum management and maximise the benefits for consumers and industry;

  - Issue a Recommendation in 2010 to **encourage investment in competitive Next Generation Access networks** through clear and effective regulatory measures.

Member States should:

- Develop and make operational **national broadband plans** by 2012 that meet the **coverage and speed and take-up targets** defined in Europe 2020**,** using public financing in line with EU competition and state aid rules[28], the Commission will report annually on progress as part of the Digital Agenda governance;

- Take measures, including legal provisions, to **facilitate broadband investment,** such as making sure that civil engineering works systematically involve potential investors, clearing rights of way, mapping available passive infrastructure suitable for cabling and upgrading in-building wiring;

- Use fully the **Structural and Rural Development Funds** that are already earmarked for investment in ICT infrastructures and services;

- Implement the **European Spectrum Policy Programme,** so as to ensure the co-ordinated allocation of the spectrum needed to meet the target of 100% coverage of 30mbps internet by 2020, and the **NGA Recommendation**.


2.5.   Research and innovation

Europe must invest more in R&D and ensure our best ideas reach the market.

---

[28]   Community Guidelines for the application of State aid rules in relation to rapid deployment of broadband networks (OJ C 235, 30.9.2009, p. 4).

Europe continues to under-invest in ICT related research and development. Compared to major trading partners such as the US, R&D in ICT in Europe is not only a much smaller proportion of total R&D spend (17% compared to 29%, but in absolute terms represents around 40% of US expenditure (**Figure 5** - €37 billion, versus €88 billion in 2007).

Figure 5: Total ICT R&D spending in billion €(2007)
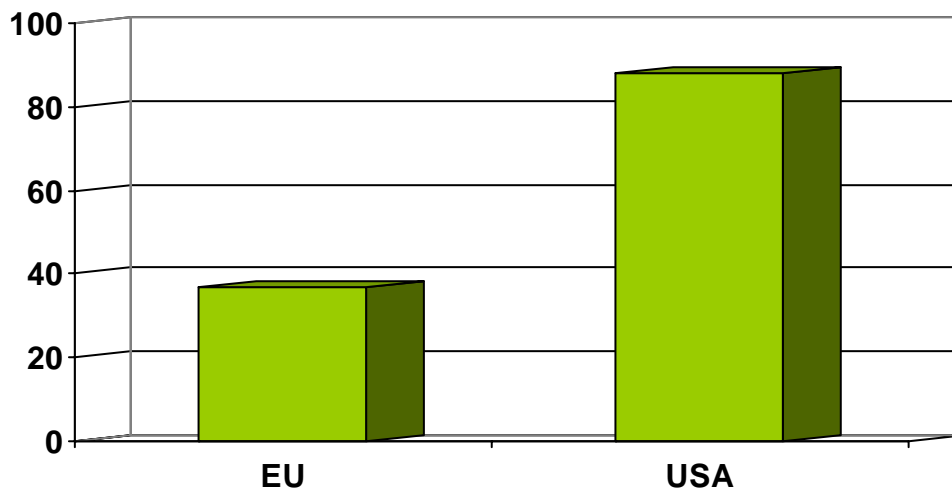
Source: Eurostat and IPTS-JRC

Given that ICT represents a significant share of total value-added in European industrial strengths such as automobile (25%), consumer appliances (41%) or health and medical (33%), the lack of investment in ICT R&D is a threat to the entire European manufacturing and service sectors.

The investment gap is related to three main problems:

- Weak and dispersed public R&D effort; e.g. the EU public sector spends less than 5.5 B €per year on ICT R&D, far below the levels of competing economies.

- Market fragmentation and dispersion of financing means for innovators, are limiting factors for the growth and development of ICT innovative businesses and notably SMEs.

- Europe is slow in the uptake of ICT-based innovations, notably in areas of public interest. While societal challenges are major drivers of innovation, Europe makes little use of procurement of innovation and R&D to improve quality and performance of its public services.

2.5.1. *Step up efforts and efficiency*

The Commission will present in 2010 a comprehensive research and innovation strategy which is the "Innovation Union" flagship to implement Europe 2020[29]. Building on the European strategy for leadership in ICT[30], Europe must step up, focus and pool its investments to keep its competitive edge in this field and continue to invest in high-risk research, including multi-disciplinary fundamental research.

Europe should also build its innovative advantage in key areas through reinforced eInfrastructures[31] and through the targeted development of innovation clusters in key fields. It should develop an EU-wide strategy on "cloud computing" notably for government and science[32].

2.5.2. *Driving ICT innovation by exploiting the single market*

Europe's public sector expenditure should be used to spur innovation while raising the efficiency and quality of public services. European public authorities must join forces to align regulation, certification, procurement and standardisation in favour of innovation. Public and private partnerships and stakeholder fora are needed that lay out joint technology roadmaps, from research to commercialisation, for harnessing innovation to social need. Knowledge transfer activities should be managed effectively[33] and supported by suitable financial instruments[34] and publicly funded research should be widely disseminated through Open Access publication of scientific data and papers[35].

2.5.3. *Industry-led initiatives for open innovation*

ICT drives value creation and growth across the economy. This means that industry is increasingly in need of open and interoperable solutions to exploit ICT across all sectors. Industry-led initiatives aiming at **standards and open platforms for new products and services** will be supported in EU-funded programmes. The Commission will reinforce the activities bringing together stakeholders around common research agendas in areas such as the Future Internet including the Internet of Things and in key enabling technologies in ICT.

<div style="border:1px solid #000; background:#e0e0e0; text-align:center; padding:1em">

ACTIONS

</div>

---

[29] Cf. The 2009 Report on R&D in ICT in the European Union.

[30] A strategy for ICT research and innovation in Europe - Raising the game - COM(2009) 116.

[31] GÉANT high-capacity electronic communication network and the EGI European Grid Infrastructure.

[32] The strategy should consider economic, legal and institutional aspects.

[33] See Commission Recommendation on the management of intellectual property in knowledge transfer activities and Code of practice for universities and other public research organisations - C(2008) 1329.

[34] E.g. investment guarantees from the European Investment Fund and other EIB instruments.

[35] To this end the Commission will appropriately extend current Open Access publication requirements as stipulated in Commission Decision C(2008) 4408 (more information on this pilot is available at http://ec.europa.eu/research/science-society/index.cfm?fuseaction=public.topic&id=1680).

The Commission will:

- **Key action 9: Leverage more private investment** through the strategic use of pre-commercial procurement[36] and public-private partnerships[37], by using structural funds for research and innovation and by maintaining a pace of 20% yearly increase of the ICT R&D budget at least for the duration of FP7;

- Other actions:

  - Reinforce the **coordination and pooling of resources** with Member States and industry[38], and put greater focus on demand- and user-driven partnerships in EU support to ICT research and innovation;

  - Starting in 2011 propose measures for '**light and fast'** access to EU research funds in ICT, making them more attractive notably to SMEs and young researchers in view of a wider implementation within the revision of the EU RTD Framework;[39]

  - Ensure sufficient financial support to joint ICT research infrastructures and innovation clusters, develop further eInfrastructures and establish an EU strategy for cloud computing notably for government and science;

  - Work with stakeholders to **develop** a new generation of web-based applications and services, including for multilingual content and services, by supporting standards and open platforms through EU-funded programmes.

Member States should:

- By 2020, **double annual total public spending** on ICT research and development spending from €5.5bn to €11bn (which includes EU programmes), in ways that **leverage an equivalent increase in private spending** from €35 billion to €70 billion;

- **Engage in large scale pilots** to test and develop innovative and interoperable solutions in areas of public interest that are financed by the CIP.

2.6. Enhancing digital literacy, skills and inclusion

The digital era should be about empowerment and emancipation; background or skills should not be a barrier to accessing this potential.

As more daily tasks are carried out online, from applying for a job to paying taxes or booking tickets, using the internet has become an integral part of daily life for many Europeans. Yet, 150 million Europeans – some 30% - have never used the internet. Often they say they have no need or that it is too expensive. This group is largely

---

[36] In 2011-13, the Commission will co-finance five new actions on pre-commercial procurement involving Member States.

[37] E.g. in 2011-13, the Commission will be supporting six public-private partnerships from ICT in FP7 for a total funding of €1 billion and leveraging around €2 billion of private spending.

[38] Building on the experience in the jointly coordinated programme AAL and the ERANET+ calls in Photonics, new actions will be proposed for 2011-12 in areas such as eHealth and smart lighting.

[39] One important building block is the recent Commission Communication "Simplifying the implementation of the Research Framework Programme", COM(2010) 187.

made up of people aged 65 to 74 years old, people on low incomes, the unemployed and the less educated.

In many cases the take-up gap is due to lack of user skills such as digital and media literacy, not only for employability but also for learning, creating, participating and being confident and discerning in the use of digital media. Accessibility and usability are also problems for Europeans with disabilities. Bridging this digital divide can help members of disadvantaged social groups to participate on a more equal footing in digital society (including services of direct interest to them such as eLearning, eGovernment, eHealth) and to tackle their disadvantage through increased employability. Digital competence is thus one of the eight key competences which are fundamental for individuals in a knowledge-based society[40]. It is also key for all to understand how to be safe online.

In addition, ICT cannot function effectively as a European growth sector and as a motor of competitiveness and productivity gains across the European economy without skilled practitioners. The EU economy is hampered by a shortage of ICT practitioner skills: Europe could lack the skills to fill as many as 700,000 IT jobs by 2015[41].

2.6.1.   *Digital literacy and skills*

It is essential to educate European citizens to use ICT and digital media and particularly to attract youngsters to ICT education. The supply of **ICT practitioner and e-business skills,** i.e. the digital skills necessary for innovation and growth, needs to be increased and upgraded. In addition, given there are 30 million women between the ages of 15-24[42], it is necessary to improve the attractiveness of the ICT sector for professional use and in particularly for the production and design of technology. All citizens should be made aware of the potential of ICT for all kind of professions. This calls for multi-stakeholder partnerships, increased learning, recognition about digital competences in formal education and training systems, as well as awareness raising and effective ICT training and certification outside formal education systems, including the use of online tools and digital media for re-skilling and continuing professional development[43]. Based on the experience gained from the first "European e-Skills Week" (1-5 March 2010)[44], the Commission will support the in 2010 and thereafter, national and European awareness raising activities with a view to promote ICT education, careers and jobs to young people as well as to foster digital literacy among citizen and ICT training for the workforce and the adoption of best practices.

---

[40]   Cf. Recommendation of the European Parliament and of the Council of 18 December 2006 on key competences for lifelong learning.

[41]   *eSkills Monitor study. Monitoring eskills supply and demand in Europe,* European Commission 2009, see http://www.eskills-monitor.eu/. Depending on economic scenarios, the e-skills gap could be between 384,000 and 700,000 jobs.

[42]   Data Eurostat 2008.

[43]   Further proposals in this regard will be made in the forthcoming Europe 2020 flagship "Innovation Union".

[44]   See: http://eskills-week.ec.europa.eu.

2.6.2. *Inclusive digital services*

The benefits of the digital society should be available to all. The Commission will examine, in the light of its recent public consultation,[45] how best to meet demand for basic telecom services in today's competitive markets, what role universal service could play in achieving the objective of broadband for all, and how universal service should be financed. Should it appear necessary to do so, the Commission will bring forward proposals in regard to the Universal Service Directive[46] by the end of 2010.

There is also need for concerted actions to make sure that new electronic content is also fully available to persons with disabilities. In particular, public websites and online services in the EU that are important to take a full part in public life should be brought in line with international web accessibility standards[47]. Moreover, the UN Convention on the Rights of persons with disabilities contains obligations concerning accessibility[48].

ACTIONS

The Commission will:

- **Key Action 10**: Propose **digital literacy and competences** as a priority for the **European Social Fund regulation** (2014-2020);

- **Key Action 11**: By 2012, develop tools to **identify and recognise the competences of ICT practitioners and users**, linked to the European Qualifications Framework[49] and to EUROPASS[50] and develop a European Framework for ICT Professionalism to increase the competences and the mobility of ICT practitioners across Europe;

- Other actions:

  - **Make** digital literacy and skills **a priority of the "New skills for new jobs" Flagship** to be launched in 2010[51], including the launch of a multi-stakeholder **sectoral council for ICT skills and employment** to address demand and supply aspects;

  - Promote a **higher participation of young women and women returners in the ICT workforce** through support for web-based training resources, game based eLearning and social networking;

  - Develop in 2011 an online consumer education tool on new media technologies (e.g. consumer rights on the internet, eCommerce, data protection, media literacy, social networks etc.). This tool will provide

---

45   See http://ec.europa.eu/information_society/policy/ecomm/library/public_consult/index_en.htm.

46   Directive 2002/22/EC on universal service and users' rights relating to electronic communications networks and services.

47   Notably the Web Content Accessibility Guidelines (WCAG) 2.0.

48   Cf. http://www.un.org/disabilities/convention/conventionfull.shtml.

49   Cf. Recommendation of the European Council and the Parliament on the European Qualifications Framework for lifelong learning.

50   Cf. Decision No 2241/2004/EC of the European Parliament and of the Council of 15 December 2004 on a single Community framework for the transparency of qualifications and competences (Europass).

51   Cf. New Skills for New Jobs - COM(2008) 868 - e-Skills for the 21st Century - COM(2007) 496 - and the forthcoming Europe 2020 flagship.

customised information and education materials for consumers, teachers and other multipliers in the 27 Member States;

- Propose by 2013 EU-wide indicators of digital competences and media literacy;

- Systematically evaluate accessibility in revisions of legislation undertaken under the Digital Agenda, e.g. eCommerce, eIdentity & eSignature, following the UN Convention on the Rights of Persons with Disabilities;

- Based on a review of options, make proposals by 2011 that will make sure that public sector websites (and websites providing basic services to citizens) are fully accessible by 2015;

- Facilitate by 2012, in cooperation with Member States and relevant stakeholders, a **Memorandum of Understanding on Digital Access for persons with disabilities** in compliance with the UN Convention.

Member States should:

- Implement by 2011 **long-term e-skills and digital literacy policies** and promote relevant incentives for SMEs and disadvantaged groups;

- Implement by 2011 the **provisions on disability** in the Telecoms Framework and the Audiovisual Media Services Directive;

- Mainstream **eLearning in national policies** for the modernisation of education and training, including in curricula, assessment of learning outcomes and the professional development of teachers and trainers.

2.7. ICT-enabled benefits for EU society

Smart use of technology and exploitation of information will help us to address the challenges facing society like climate change and the ageing population.

The digital society must be envisioned as a society with better outcomes for all. The deployment of ICT is becoming a critical element for delivering policy objectives like supporting an ageing society, climate change, reducing energy consumption, improving transportation efficiency and mobility, empowering patients and ensuring the inclusion of persons with disabilities.

2.7.1. ICT for environment

The EU has committed to cutting its greenhouse gas emissions by at least 20% by 2020 compared to 1990 levels and to improving energy efficiency by 20%. The ICT sector has a key role to play in this challenge:

- ICT offer potential for a structural shift to less resource-intensive products and services, for energy savings in buildings and electricity networks, as well as for more efficient and less energy consuming intelligent transport systems;

- The ICT sector should lead the way by reporting its own environmental performance by adopting a common measurement framework as a basis for setting

targets to reduce energy use and greenhouse gas emissions of all processes involved in production, distribution, use and disposal of ICT products and delivery of ICT services[52].

Cooperation between the ICT industry, other sectors and public authorities is essential to accelerate development and wide-scale roll out of ICT-based solutions for smart grids and meters, near-zero energy buildings and intelligent transport systems. It is essential to empower individuals and organisations with information that will help them to reduce their own carbon footprint[53]. The ICT sector should deliver modelling, analysis, monitoring and visualisation tools to evaluate the energy performance and emissions of buildings, vehicles, companies, cities and regions. Smart grids are essential for the move to a low carbon economy. They will enable active control of transmission and distribution via advanced ICT infrastructure communication and control platforms. For the different grids to work together efficiently and safely, open transmission-distribution interfaces will be needed.

For instance, almost 20% of electricity consumption worldwide is used for lighting. About 70% of electricity consumption can be saved by combining an advanced technology known as Solid State Lighting (SSL) with intelligent light management systems. SSL lighting is based on technologies developed by the semiconductor industry, in which Europe has a strong position. To achieve emissions reductions, a mix of awareness-raising, training and multi-stakeholder cooperation is required.

ACTIONS

The Commission will:

- Key Action 12: Assess by 2011 whether the **ICT sector has complied with the timeline to adopt common measurement methodologies** for the sector's own energy performance and greenhouse gas emissions and propose legal measures if appropriate;

- Other actions:

    - Support **partnerships between the ICT sector and major emitting sectors** (e.g. buildings and construction, transport and logistics, energy distribution) to improve the energy efficiency and greenhouse gas emissions of these sectors by 2013;

    - Assess by 2011 the potential **contribution of smart grids to the decarbonisation** of energy supply in Europe and define a set of minimum functionalities to promote the interoperability of Smart Grids at European level by the end of 2010;

---

[52] Communication COM(2009) 111 and Commission Recommendation C(2009) 7604 on mobilising Information and Communications Technologies to facilitate the transition to an energy-efficient, low-carbon economy.

[53] In terms of societal challenges, the 2008 Eurobarometer opinion poll across the 27 EU countries revealed that for most citizens a healthy environment is as important to their quality of life as the state of the economy. A 64% majority considers that environmental protection must be given priority over the competitiveness of the economy. However, 42% of the citizens still feel badly informed – especially about the health impacts of pollution. At the same time, 63% agree that policies aimed at protecting the environment are a motivation to innovate.

> - In 2011 publish a **Green Paper on Solid State Lighting (SSL)** to explore the barriers and to put forward policy suggestions; it will in parallel support demonstration projects using the CIP.
>
> *Member States should:*
>
> - Agree by the end of 2011 **common additional functionalities for smart meters**;
>
> - By 2012 include **specifications for total lifetime costs** (rather than initial purchase costs) for all public procurement of lighting installations).

2.7.2. *Sustainable healthcare and ICT-based support for dignified and independent living[54]*

The deployment of eHealth technologies in Europe can improve the quality of care, reduce medical costs and foster independent living, including in remote places. An essential condition for success is that these technologies incorporate the right of individuals to have their personal health information safely stored within a healthcare system accessible online. To exploit the full potential of new eHealth services, the EU needs to remove legal and organisational barriers, particularly those to pan-European interoperability, and strengthen cooperation among Member States.

The eHealth Lead Market Initiative[55] will promote standardisation, interoperability testing and certification of electronic health records and equipment. New telemedicine services such as online medical consultations, improved emergency care and portable devices allowing monitoring the health condition of people suffering from chronic disease and disabilities have the potential to offer a freedom of movement that patients have never previously enjoyed.

Ambient Assisted Living (AAL) technologies put ICT within the reach of all. The EU AAL-dedicated **Joint Programme** with Member States and related advanced research, as well as applications such as telecare and online support for social services will be reinforced: to cover the certification of carers (i.e. so that they can provide an interface to information services for people that would otherwise have difficulty to use the internet); and to establish new ways to put ICT at the service of the most vulnerable members of society. This programme will make sure that the digital society permits a more independent and dignified life for people who are frail or suffer from chronic conditions and for persons with disabilities. The AAL will promote innovation and the deployment of ICT solutions in key areas such as fall prevention (which affects more than one third of people over 65) and support for sufferers of dementia (touches more than 7 million people in the EU), with a target of doubling the take-up of independent living arrangements for the elderly by 2015.

> **ACTIONS**
>
> *The Commission will work with Member States competent authorities and all interested stakeholders to:*
>
> - **Key Action 13:** Undertake pilot actions to equip **Europeans with secure online access**

---

[54] These actions will contribute to a European Innovation Partnership, foreseen in Europe 2020.
[55] Cf. COM(2007) 860 and SEC(2009) 1198.

to their medical health data by 2015 and to achieve by 2020 widespread deployment of telemedicine services;

- **Key Action 14:** Propose a recommendation defining a **minimum common set of patient data** for interoperability of patient records to be accessed or exchanged electronically across Member States by 2012[56];

- **Other actions:**

    - Foster EU-wide **standards**[57], **interoperability testing and certification** of eHealth systems by 2015 through stakeholder dialogue;

    - Reinforce the **AmbientAssisted Living (AAL) Joint Programme** to allow older people and persons with disabilities to live independently and be active in society.

2.7.3. Promoting cultural diversity and creative content

The 2005 UNESCO Convention on cultural diversity (ratified at EU level in 2006), provides for the promotion and protection of cultural diversity across the world and applies equally to new digital environments. In fact the new digital media can permit a wider distribution of cultural and creative content, because the reproduction is cheaper and quicker and creates more opportunities for authors and content providers to reach new and larger – even global - audiences. The internet is also a driver of greater pluralism in the media, giving both access to a wider range of sources and points of view as well as the means for individuals – who might otherwise be denied the opportunity – to express themselves fully and openly.

In Europe, digital cinema take-up has been slower than foreseen because of technical (standards) and economic (business model) issues. Some types of cinemas are even threatened with closure because of the high costs of digital equipment. Therefore, support to digitisation of cinemas is necessary to safeguard cultural diversity.

Fragmentation and complexity in the current licensing system also hinders the digitisation of a large part of Europe's recent cultural heritage. Rights clearance must be improved, and *Europeana* - the EU public digital library - should be strengthened. Increased public funding is needed to finance large-scale digitisation, alongside initiatives with private partners provided that they allow a general accessibility of Europe's common cultural heritage online.[58] Europe's cultural heritage should also be made better accessible to all Europeans by advancing and using modern translation technologies.

The Audiovisual Media Services Directive governs the EU-wide coordination of national legislation on all audiovisual media; both traditional TV broadcasts and on-demand services. It includes provisions for the promotion of European works both in TV-like and on-demand services.

---

[56]   In line with data protection requirements.

[57]   Under Mandate 403 (CEN).

[58]   The Commission has asked a *"comité des sages"* to make recommendations on these issues by the end of 2010, see press release IP/10/456.

<div style="border: 1px solid black;">

ACTIONS

The Commission will:

- **Key action 15**: By 2012 propose a **sustainable model for financing** the EU public digital library *Europeana* and digitisation of content;

- **Other actions:**

    - By 2012 propose measures following the results of the consultation on its Green Paper on "**Unlocking the potential of cultural and creative industries**";

    - Issue by 2011 a Recommendation on promoting digitisation of European cinema;

    - Ensure the implementation of the provisions of the **Audiovisual Media Services Directive concerning cultural diversity**, where appropriate through co- and self-regulation and request information from Member States on their application by the end of 2011.

</div>

2.7.4. *eGovernment*

eGovernment services offer a cost-effective route to better service for every citizen and business and participatory open and transparent government. eGovernment services can reduce costs and save time for public administrations, citizens and businesses. They can also help mitigate the risks of climate change, natural and man-made hazards by including the sharing of environmental data and environment-related information. Today, despite a high level of availability of eGovernment services in Europe, differences still exist amongst Member States and the take-up of eGovernment services by citizens is low. In 2009, only 38% of EU citizens used the internet for accessing eGovernment services, compared to 72% of businesses. General internet take up will be lifted if the usage and quality and accessibility of public online services rises.

European governments are committed to making user-centric, personalised, multi-platform eGovernment services a widespread reality by 2015[59]. To that end governments should take steps to avoid any unnecessary technical requirements, for example applications that only work in specific technical environments or with specific devices. The Commission will lead by example in implementing smart eGovernment. These services will support streamlined administrative processes, facilitate information sharing and simplify interaction with the Commission, thereby empowering users and improving the efficiency, effectiveness and transparency of the Commission.

Most **public online services do not work across borders** to the detriment of the mobility of businesses and citizens. Public authorities have so far focused on national needs and have not sufficiently taken into account the single market dimension of

---

[59]   The Commission is working with Member States on an Action Plan to implement the commitments in the 2009. eGovernment Declaration Malmö.

eGovernment. Yet several single market initiatives and legal instruments (such as the Services Directive or the eProcurement Action Plan) rely on the possibility for businesses to interact and do business with public administrations by electronic means and across borders[60].

Therefore Europe needs better administrative cooperation to develop and deploy cross-border public online services. This includes the implementation of seamless eProcurement as well as practical e-identification and e-authentication cross border services (including mutual recognition of security levels for authentication)[61].

eEnvironment services, as a category of eGovernment services, are either still under-developed, or fragmented along national borders. Community law in this area should be reviewed and modernised. Secondly, innovative solutions such as advanced sensor networks, can help fill gaps in the required data.

ACTIONS

The Commission will:

- **Key Action 16**: Propose by 2012 a **Council and Parliament Decision** to ensure **mutual recognition of e-identification and e-authentication** across the EU based on online 'authentication services' to be offered in all Member States (which may use the most appropriate official citizen documents – issued by the public or the private sector);

- **Other actions:**

    - Support **seamless cross-border eGovernment services in the single market** through the Competitiveness and Innovation Programme (CIP) and Interoperability Solutions for European Public Administrations (ISA) Programme;

    - Review by 2011 the Public access to Environmental Information Directive;[62]

    - Work with Member States and stakeholders to implement **cross-border eEnvironment services**, notably advanced sensor networks;

    - Define by 2011 concrete steps in a **White Paper** on how to **inter-connect e-procurement capacity** across the single market;

    - Lead by example on open and transparent eGovernment by creating in 2010 and implementing an ambitious **eCommission 2011-2015 action plan**, including full electronic procurement.

Member States should:

- Make **eGovernment services fully interoperable**, overcoming organisational, technical

---

or semantic barriers and supporting IPv6;

- Ensure that the Points of Single contact function as fully fledged eGovernment centres beyond requirements and areas covered by the Services Directive;

- Agree by 2011 on **a common list of key cross-border public services** that correspond to well defined needs – enabling entrepreneurs to set up and run a business anywhere in Europe independently of their original location, and allowing citizens to study, work, reside and retire anywhere in the European Union. These key services should be available online by 2015.

2.7.5   Intelligent Transport Systems for efficient transport and better mobility

Intelligent Transports Systems (ITS) make transport more efficient, faster, easier and reliable. The focus is on smart solutions to integrate passenger and freight flows across transport modes and provide sustainable solutions to infrastructure bottlenecks affecting roads, railways, sky, sea and waterways.

For road transport, and its interfaces with other modes, the ITS Action Plan and its associated Directive support the deployment of real-time traffic and travel information and dynamic traffic management systems to relieve congestion and encourage greener mobility, while improving safety and security. The Air Traffic Management Solutions for the Single European Sky (SESAR) will integrate air navigation services and supporting systems. River Information Services (RIS) and e-Maritime services allow for better, safer and more efficient river and maritime transport. The European Rail Traffic Management System aims at a Europe wide automatic speed control system, while telematic applications for rail freight services[63] and passenger services will support cross-border services, providing passengers with journey planning tools (including connections to other trains and modes, support for reservation, payment and luggage tracing) as well as real time updates.

ACTIONS

The Commission will:

- Increase the speed of ITS take-up, in particular for road and urban transport by, applying the proposed ITS Directive in support of interoperability and rapid standardisation;

- By 2010, adopt the Air Traffic Management Solutions for the Single European Sky (SESAR) deployment strategy;

- Propose by 2011 a Directive for the deployment of e-Maritime services;

- Propose in 2011 a Directive setting out technical specifications for telematic applications for rail passenger services.

Member States should:

- Fulfil their obligations under the European Rail Traffic Management System (ERTMS)

---

[63]   OJ L 13, 18.1.2006, p.1

deployment plan, in particular as regards the lines due to be equipped by 2015.

2.8. International aspects of the Digital Agenda

The European Digital Agenda aims to make Europe a powerhouse of smart, sustainable and inclusive growth on the global stage. The seven pillars in the Digital Agenda all have international dimensions. The Digital Single Market in particular needs an external face because progress on many of the policy issues can only be made on an international level. Interoperability and standards recognised at the world scale can help promote more rapid innovation by lowering the risks and costs of new technologies. Addressing rising cyber security threats also needs to take place in an international context. Also, the European regulatory solutions that are based on equity of opportunity, transparent government and governance and markets that are open to competition are providing inspiration elsewhere in the world. Finally, it is also important to benchmark European progress in the Digital Agenda against the best international performance.

Thus an international dimension of the Digital Agenda in order to complete the actions above is crucial, in particular given the strategic importance of the internet. Europe must continue to play a leading role, in line with the Tunis Agenda, in promoting a governance of the internet as open and inclusive as possible. Today and even more so in the future, the internet will encompass a wide array of devices and applications permeating all parts of life - regardless of the geography. It is a formidable instrument for freedom of speech worldwide.

To foster innovation also internationally, the Commission will work towards favourable external trade conditions for digital goods and services, e.g. develop a stronger partnership to deliver market access and investment opportunities, reduce tariff and non-tariff barriers at global level, improve IPR protection and avoid market distortions.

The Information Technology Agreement (ITA) of 1997 has brought tangible results in promoting the up-take of information technology in Europe and worldwide. But the ITA, however, now needs be updated to take account of new developments, especially technology and product convergence.

Also in the area of digital services and intellectual property the technological progress will need to be further reflected in international trade agreements.

ACTIONS

The Commission will:

- Promote the internationalisation of internet governance and global cooperation to maintain the stability of the internet, on the basis of the multi-stakeholder model;

- Support the continuation of the Internet Governance Forum beyond 2010;

- Work with third countries **to improve international trade conditions** for digital goods and services, including with regard to intellectual property rights;

- Seek a mandate to update international agreements in line with technological progress or, where appropriate, propose new instruments.

3. **IMPLEMENTATION AND GOVERNANCE**

The toughest challenge is to ensure rapid adoption and implementation of these measures necessary to meet our objectives. We need a shared determination and a common vision to achieve this step change for Europe.

The success of the Digital Agenda requires meticulous execution of its comprehensive set of actions in accordance with the Europe 2020 governance structure. As depicted in **Figure 6**, the Commission will therefore:

1. **Set up an internal coordination mechanism** – at its core a Commissioners' Group to ensure effective policy coordination across the different policy areas, with particular reference to the set of legislative initiatives proposed under the Digital Agenda (Annex 1).

Figure 6 : The European Digital Agenda Governance Cycle
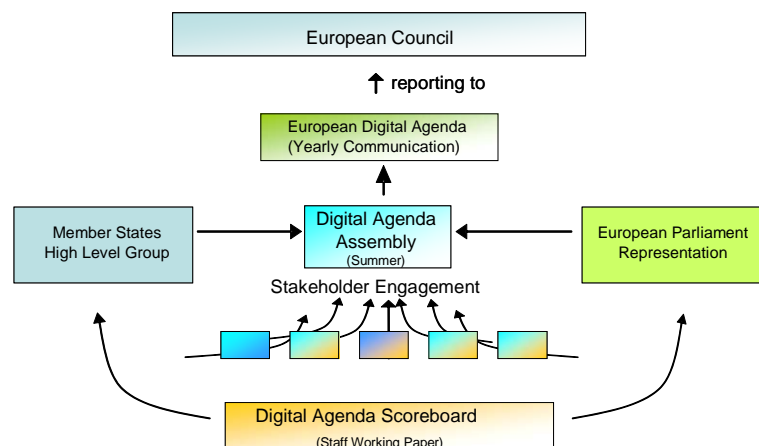
2. Cooperate closely with Member States, the European Parliament and all interested stakeholders, in particular by:

- Establishing a 'High Level Group' to work with Member States;

- Engaging in regular dialogue with representatives of the European Parliaments;

- Setting up action-oriented platforms on the seven action areas with a wide range of stakeholders.

3.	**Chart progress on the Digital Agenda** by the annual publication in May of a scoreboard including[64]:

- Socio-economic developments based on key performance indicators, selected on the basis of their relevance to the main policy issues (Annex 2)[65];

- An update of progress on the full set of policy actions identified in the Digital Agenda.

4.	Organise a wide stakeholder debate on the progress as tracked in the digital scoreboards in the form of an **annual Digital Assembly** in June, bringing together Member States, EU institutions, citizen's representatives and industry to assess progress and emerging challenges. The first Digital Assembly will be held in the first half of 2011.

5.	The Commission will report on the results of these activities in an Annual Progress Report to the European Council in accordance with the Europe 2020 governance structure.

---

[64]	These scoreboards will lay the foundations for the evaluation framework of the Digital Agenda.

[65]	The indicators are mainly drawn from the Benchmarking framework 2011-2015 endorsed by the EU Member States in November 2009. This is a conceptual framework for collection of information society statistics as well as a list of core indicators for benchmarking

Annex 1: Table of legislative actions

Commission legislative action/proposals	Planned delivery date
A vibrant digital single market	
Key Action 1: Propose a framework Directive on collective rights management, establishing pan-European licensing for (online) rights management	2010
Key Action 1: Propose a Directive on orphan works to facilitate digitisation and dissemination of cultural works in Europe	2010
Key Action 4: Review the EU data protection regulatory framework, to enhance individuals' confidence and strengthening their rights	2010
Make proposals updating the e-Commerce Directive for online markets	2010
Key Action 2: Propose measures to make Single Euro Payment Area (SEPA) migration obligatory by a future fixed date	2010
Key Action 3: Review the eSignature Directive to ensure cross-border recognition and interoperability of secure eAuthentication systems	2011
Propose a contract law instrument complementing the Consumer Rights Directive	2011
Propose measures for an increased harmonisation of numbering resources for provision of business services across Europe	2011
Report on the review of the Directive on the enforcement of intellectual property rights	2012
Report on the need for additional measures needed to promote cross-border and pan-European licences	2012
Key Action 1: Review the Directive on Re-Use of Public Sector Information, notably its scope and principles on charging for access and use	2012
Propose an EU-wide Online Dispute Resolution system for eCommerce transactions	2012
Interoperability and standards	
Key Action 5: Make proposals to reform of rules on implementation of ICT standards in Europe to allow use of certain ICT fora and consortia standards	2010
Issue guidelines on essential intellectual property rights and licensing conditions in standard-setting, including for ex-ante disclosure	2011

Commission legislative action/proposals	Planned delivery date
Report on the feasibility of measures that could lead significant market players to license interoperability information	2012
Trust and security	
Key Action 6: Propose a Regulation to modernise the European Network and Information Security Agency (ENISA) and make proposals to set up CERT for EU institutions	2010
Key Action 4: As part of the modernisation of the EU personal data protection regulatory framework, explore the extension of security breach notification provisions	2010
Key Action 7: Propose legal measures to combat cyber attacks	2010
Key Action 7: Propose rules on jurisdiction in cyberspace at European and international levels	2013
Fast and ultra fast internet access	
Key Action 8: Propose a decision by the European Parliament and Council on a European Spectrum Policy Programme for more efficient management of radio spectrum	2010
Key Action 8: Issue a Recommendation to encourage investment in competitive NGA networks	2010
Enhancing digital literacy, skills and inclusion	
Make proposals to ensure public sector websites (and websites providing basic services to citizens) are fully accessible by 2015	2011
Key Action 10: Propose digital literacy and competences as a priority for the European Social Fund regulation (2014-2020)	2013
ICT-enabled benefits for EU society	
Propose a set of minimum functionalities to promote the interoperability of Smart Grids at European level	2010
Propose, if necessary, common measurement methodologies for ICT sector energy performance and greenhouse gas emissions	2011
Issue a Recommendation on digitisation of European cinema	2011
Review the Public Access to Environmental Information Directive	2011

Commission legislative action/proposals	Planned delivery date
Propose a Directive for the deployment of e-Maritime services	2011
Propose a Directive setting out technical specifications for telematic applications for rail passenger services	2011
Key Action 14: Issue a recommendation defining a minimum common set of patient data for interoperability of patient records to be accessed or exchanged electronically across Member States	2012
Key Action 16: Propose a Council and Parliament Decision requesting Member States to ensure mutual recognition of e-identification and e-authentication across the EU based on online 'authentication services'	2012

Annex 2: Key Performance Targets

These indicators are mainly drawn from the Benchmarking framework 2011-2015[66] endorsed by the EU Member States in November 2009.

1.   Broadband targets:

- Basic broadband for all by 2013: basic broadband coverage for 100% of EU citizens. (Baseline: Total DSL coverage (as % of the total EU population) was at 93% in December 2008.)

- Fast broadband by 2020: broadband coverage at 30 Mbps or more for 100% of EU citizens. (Baseline: 23% of broadband subscriptions were with at least 10 Mbps in January 2010.)

- Ultra-fast broadband by 2020: 50% of European households should have subscriptions above 100Mbps. (No baseline)

2.   Digital single market:

- Promoting eCommerce: 50% of the population should be buying online by 2015. (Baseline: In 2009, 37 % of the individuals aged 16-74 ordered goods or services for private use in the last 12 months.)

- Cross-border eCommerce: 20% of the population should buy cross border online by 2015. (Baseline: In 2009, 8 % of the individuals aged 16-74 ordered goods or services from sellers from other EU countries in the last 12 months.)

- eCommerce for business: 33% of SMEs should conduct online purchases/sales by 2015. (Baseline: During 2008, 24% and 12% of enterprises was, respectively, purchasing/selling electronically, for an amount equal to or greater than 1% of the turnover/total purchases.

- Single market for telecoms services: the difference between roaming and national tariffs should approach zero by 2015. (Baseline: In 2009, the roaming average price per minute was 0.38 cents (call made) and the average price per minute for all calls in the EU was 0.13 cents (roaming included).

---

[66]   For more information see Benchmarking framework 2011-2015; This is a conceptual framework for collection of statistics on the information society as well as a list of core indicators for benchmarking.

3. Digital inclusion:

- Increase regular internet use from 60% to 75% by 2015 and from 41% to 60% for disadvantaged people. (Baseline figures are for 2009).

- Halve the proportion of population that has never used the internet by 2015 (to 15%). (Baseline: In 2009, 30% of individuals aged 16-74 had never used the internet.)

4. Public services:

- eGovernment by 2015: 50% of citizens using eGovernment, with more than half of them returning filled in forms. (Baseline: In 2009, 38% of individuals aged 16-74 had used eGovernment services in the last 12 months, and 47% of them used eGovernment services for sending filled forms.)

- Cross-border public services: by 2015 online availability of all the key cross-border public services contained in the list to be agreed by Member States by 2011. (No baseline)

5. Research & innovation:

- ICT R&D increase: Double public investment to €11 billion. (Baseline: ICT government budget appropriations or outlays on R&D (ICT GBAORD) was 5,7 billion nominal euros in 2007.)

6. Low Carbon Economy:

- Promotion of low energy lighting: By 2020 at least 20% overall reduction in energy use on lighting. (No baseline.)