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

Preparing Europe's digital future
i2010 Mid-Term Review

{SEC(2008) 470}

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1. INTRODUCTION

Information and Communication Technologies (ICTs) continue to be a major driver of economic and social modernisation. Today, businesses in the EU devote 20% of investment to ICTs, and the sector accounts for 26% of overall research expenditure. Moreover, 60% of basic public services are now fully available online and more than half of EU citizens use the Internet regularly.[1]

The i2010[2] strategy, launched on 1 June 2005, was the first coherent policy framework for the era of convergent telecommunication and media services. Much progress has been made in the past three years. A few examples suffice to show the breadth of achievements: a new regulatory framework for audiovisual media services is in place; proposals to reform the regulation of electronic communications have been launched;[3] regulation to create a single market for mobile phone use across borders is in operation; initiatives to boost online content in Europe are under discussion;[4] major new R&D and innovation funding initiatives are up and running (the Seventh Research Framework and the ICT Policy Support Programme under the Competitiveness and Innovation Programme — CIP); ground-breaking public private partnerships (Joint Technology Initiatives) have just been launched; and new eInclusion initiatives are on track.[5]

> i2010 aims to 1) establish a European **information space**, i.e. a true single market for the digital economy so as to exploit fully the economies of scale offered by Europe's 500 million strong consumer market; 2) reinforce **innovation and investment in ICT research** given that ICTs are a principle driver of the economy; and 3) promote **inclusion, public services and quality of life,** i.e. extending the European values of inclusion and quality of life to the information society.

Meanwhile, Europe is among the world leaders in the development of the digital economy. The European broadband market, with 90 million lines, has more subscribers than any other economic region, and half of European citizens use the Internet on a regular basis. Some Member States top the world league in broadband take-up, mobile penetration, data traffic. But gaps between Member States are significant and Europe is under-investing when compared to other industrialised regions, as well as facing growing competition from China and India. That is why the policy framework provided by i2010 is needed more than ever today. But does the i2010 framework need adjusting mid-way through its term?

2. I2010 AT MID-TERM

The current assessment of the Lisbon Strategy[6] shows that structural reforms are starting to pay off, but the economic landscape is fragmented. This overall picture is also true for the information society. While the 2007 Strategic Lisbon Report confirms the prominence of ICTs in structural reform and half of Member States have strengthened their R&D and ICT policies, many parts of the EU still lag behind in adopting ICTs.

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1 For all figures quoted, if not specified otherwise, see annexed staff working documents.
2 http://ec.europa.eu/i2010.
3 http://ec.europa.eu/information_society/policy/ecomm/tomorrow/index_en.htm.
4 COM(2007) 836, http://ec.europa.eu/avpolicy/other_actions/content_online/index_en.htm.
5 COM(2007) 694, http://ec.europa.eu/information_society/activities/einclusion/index_en.htm.
6 COM(2007) 803, http://ec.europa.eu/growthandjobs/european-dimension/200712-annual-progress-report/index_en.htm.

During 2007, the Commission reviewed the i2010 approach in the light of today's priorities for growth and jobs. The assessment of the Lisbon strategy, the Single Market Review[7], the implementation of the Innovation Action Plan[8] and the review of the consumer *acquis*[9] have all highlighted the importance of ICTs. The following issues are thus becoming strategic for competitiveness and ICT take-up in Europe:

- Europe has made big progress towards the networked economy, but it needs to shift up a gear to lead the transition to next-generation networks while not slacking off in its efforts to overcome the digital divide.

- Europe should take better advantage of its number one economic asset, the largest consumer market in the developed world; however, despite the global spread of the Internet, further steps are needed to create a Single Market for the digital economy.

- ICT research expenditure is still below target in most Member States. Greater efforts are needed to pool resources by coordinating research and innovation efforts.

- As the Internet permeates daily life, public expectations and concerns about the information society are changing. Safeguards need to evolve to match technology and market developments, without stifling the huge opportunities that online social and economic activity offers.

This Communication makes concrete proposals for re-orienting i2010 to meet these challenges by further promoting competitiveness and ICT take-up in Europe.

3. THE CHALLENGE OF FUTURE NETWORKS AND THE INTERNET

Digital convergence is now a reality and the Internet is an essential tool for our economies and daily lives. Broadband is becoming the standard mode of connectivity. Online content is developing fast, mainly in new and user-created content areas.

The European broadband market is developing rapidly and already outstrips that of the United States. The penetration rate reached 20% of the population in January 2008, a threefold increase since enlargement in 2004, with Denmark, Finland and The Netherlands being world leaders. However, there are now some signs of fatigue: growth in penetration is slowing down and there are increasing gaps between Member States in terms of take-up, speed, price and coverage. Bandwidth requirements are on the rise, and although speeds are developing similarly to those in the United States, the migration to high-speed broadband in the EU is sluggish.

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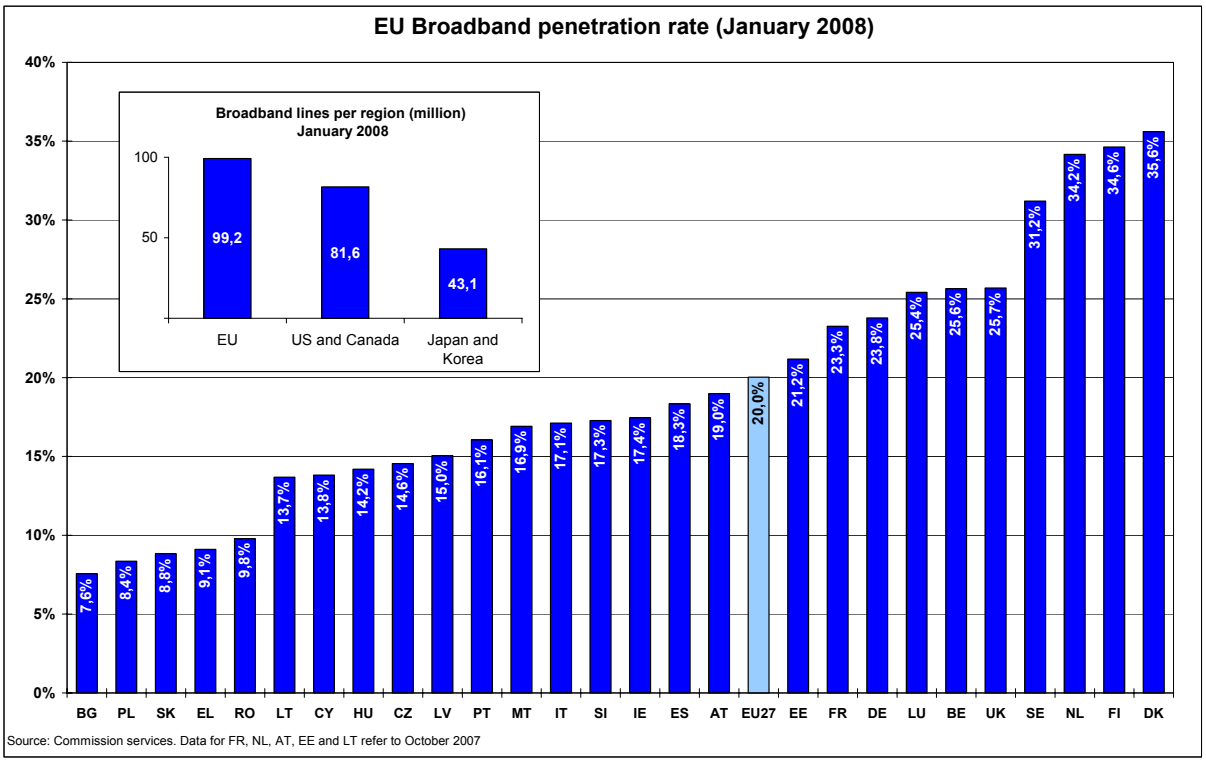
7 COM(2007) 724, http://ec.europa.eu/internal_market/strategy/index_en.htm.
8 COM(2006) 502, http://ec.europa.eu/enterprise/innovation/index_en.htm.
9 http://ec.europa.eu/consumers/rights/cons_acquis_en.htm.

Graph 1:



High quality monitoring is crucial to the design of the appropriate policy framework. The Commission proposes to benchmark overall performance of Member States on a range of factors which could include current take-up, speeds, rural coverage, affordability, innovation and other socio-economic dimensions. The Commission will develop, in consultation with the Member States, a Broadband Performance Index that will seek to compare broadband developments in the Member States.

Investment in next-generation networks is not going ahead as quickly as Europe needs. Consequently, the Commission will in 2008 clarify the regulatory provisions for next-generation access in a Recommendation. In addition to fixed-line infrastructure, wireless is increasingly emerging as an alternative infrastructure, especially but not only in rural areas. The Communication on the 'digital dividend'[10] has called for some frequencies to be made available to allow a balanced mix of high-definition broadcasting, mobile TV and wireless broadband.

With the Internet Protocol (IP) now the primary means of providing services, applications and content, a new more powerful version, IPv6, needs to be implemented. This will extend the available number of IP addresses considerably and allow more novel applications based on wireless technologies, which will expand broadband connectivity to include new mobile devices enabling ubiquitous usage. Radio-frequency identification devices (RFID) and sensor technologies embedded in products will generate much more machine-to-machine communication and extend the Internet to the 'Internet of Things'.

10 COM(2007) 700, http://ec.europa.eu/information_society/policy/radio_spectrum/index_en.htm.

Taking a longer-term view, the Commission is preparing the ground for this future Internet of Things, for example through its work on RFID, Internet governance and network integrity[11]. In 2008, the Commission will issue a recommendation on RFID, to ensure legal certainty and ease privacy and security concerns. Furthermore, to bring together the various future-oriented actions and facilitate a coherent policy for preparing the information society for the future of the Internet, the Commission will issue a Communication on the future of networks and the Internet in 2008.

Actions in 2008:

- Develop a broadband performance index and invite Member States to set national targets for high-speed Internet usage to reach a 30% penetration rate among the EU population by 2010;

- Help prepare the information society for the future Internet economy by issuing a Communication on the future of networks and Internet;

- Facilitate the transition to new networks by issuing a recommendation on Next Generation Access;

- Promote the Internet of Things through a Recommendation on RFID, focusing on privacy and security issues;

- Propose measures to ensure a high level of resilience of critical communication networks and information infrastructure (like the Internet) and to guarantee continuity of services;

- Propose a set of actions to facilitate the transition to IPv6.

4. TOWARDS A TRUE SINGLE MARKET — THE CONTRIBUTION OF ICTS

Completing a single market for the information society and media is one of the main objectives of the i2010 initiative. Important steps have been taken recently with the adoption of the Commission's proposals for the reform of telecommunication rules and the launch of the Content Online initiative.

The EU regulatory framework has had a largely positive impact on European electronic communication markets, but has been unsuccessful in delivering sufficient consistency in regulatory approaches. The fragmentation of regulation across the 27 Member States, including the enforcement of remedies, threatens to become a serious obstacle to the development of the Single Market and to hinder the emergence of pan-European services.

In the reform of the regulatory framework for electronic communications[12], the Commission has made proposals to ensure greater consistency. It has proposed the creation of a 'European Electronic Communications Market Authority (EECMA)', which will draw on the expertise of national regulatory authorities. It will also facilitate a coordinated approach to spectrum across Member States. To reap the benefits of a single mobile market, facilitating the emergence of pan-European mobile services and the exploitation of economies of scale, the

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[11] See http://ec.europa.eu/information_society/policy/ecomm/tomorrow/index_en.htm.

[12] http://ec.europa.eu/information_society/policy/ecomm/tomorrow/index_en.htm.

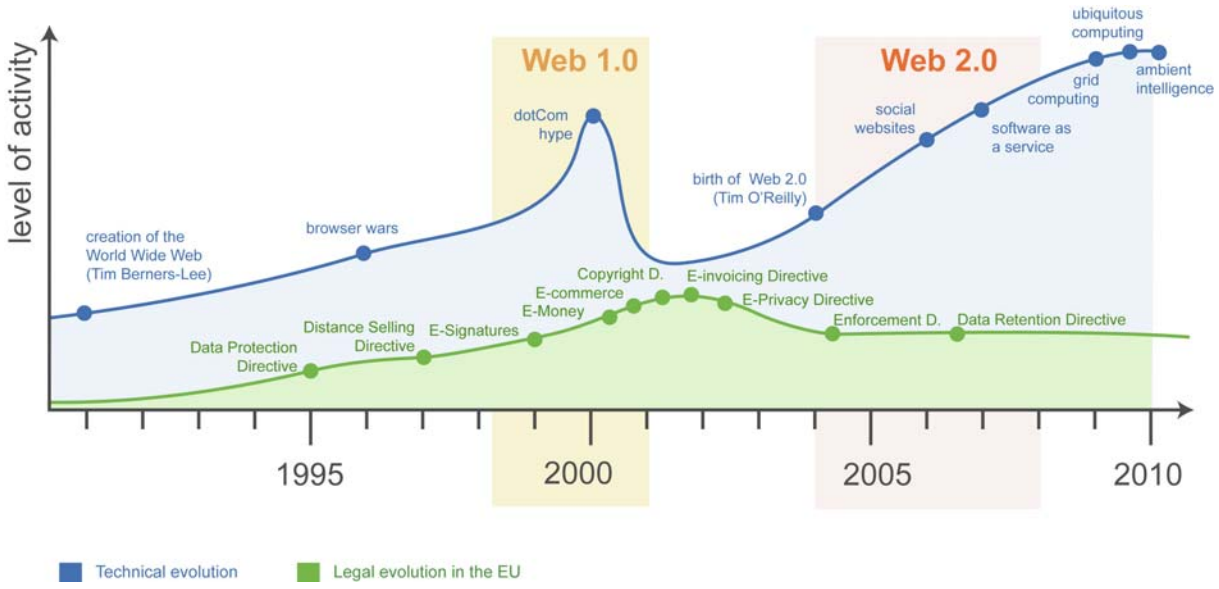
spectrum reform proposals promote more trading of spectrum within the EU as well as service and technological neutrality.

The Single Market review[13] underlines the potential of ICTs to open up the Single Market for the benefit of citizens, businesses and public authorities: the free movement of knowledge and innovation should be promoted as a 'fifth freedom' in the Single Market. The EU should improve the framework conditions for innovation, in particular in the information society, by accelerating the setting of interoperable standards and moving towards more common spectrum management. The Commission has been working on improving ICT standardisation and will come forward with a proposal by the end of 2008.

A clear priority for the EU is to close the important gaps in the Single Market, particularly in services, and this includes: streamlining of procedures, reduction of administrative burdens, and promoting transborder market access in particular for public procurement. Applications would include: interoperable provision of pan-European eGovernment services and the cross-border recognition of eSignatures.

The legal framework governing the information society and the sometimes fragmented implementation in the Member States can make it difficult to exploit the potential of ICTs on a European scale, risking increasing barriers to cross-border online trade. It is necessary to address overlapping requirements, gaps or inconsistencies in implementation and to keep pace with technological change (see graph 2 below) to ensure the efficient functioning of the "e-Internal Market". For example, eInvoicing will be addressed during 2008 and 2009 by an Expert Group that will identify regulatory shortcomings and eInvoicing business requirements, and will propose to the Commission by end-2009 a framework to promote full recognition of e-invoices in cross-border transactions.

Graph 2: Evolution of the legal and technical landscape



Source: DLA Piper, 2007

13 COM(2007) 724.

Actions:

- Support the adoption of the regulatory package for e-Communications and in particular the creation of the EECMA;
- Make spectrum management more efficient by facilitating the harmonisation and trading of the pan-European part of frequencies;
- Develop pan-European public services, with the aid of the large-scale pilots under the ICT Policy Support Programme;
- Propose improvements to the EU's ICT standardisation system;
- Adopt an Action Plan to further promote eSignature and e-authentication;
- Implement the European electronic invoicing framework.

5. FACING THE CHALLENGE OF COMPETITIVENESS THROUGH INNOVATION AND RESEARCH

Research and innovation are at the top of the EU agenda for economic reform. But although 22 out of 27 Member States have identified these areas as key challenges in their national reform programmes and have foreseen over 14% of the Structural Fund investments in 2007-2013 for RTD and innovation, the target of 3% of GDP on research by 2010 is still out of reach.[14]

The EU spends only about half as much on ICT R&D as the US, and is specialised in sub-sectors with low research intensity. ICTs represent about 30% of the overall research effort in most developed countries, and the gap between the EU's efforts and those of its main competitors is undermining its future ability to lead information society innovations.

To stimulate an increase in investment, the EU has shown the way by making ICTs the single largest item within FP7. The EU is also pioneering public-private partnerships with the launch of the Joint Technology Initiatives ARTEMIS (embedded systems) and ENIAC (nanoelectronics). The Joint National Programmes are designed to leverage more R&D investment from both Member States and industry.

Financial support is complemented by a set of demand-side measures for innovation, such as the Lead Market Initiative[15]. The initiative focuses on high-potential markets in Europe and relies on a mix of R&D and innovation financing, public procurement of innovation, regulatory instruments, and coordination and partnership with Member States and stakeholders.

Procurement for innovation is underutilised in the EU. This includes in particular the procurement of R&D to bring about radical improvements in public services while at the same time creating opportunities for European companies to acquire international leadership in new markets and promoting consumer friendly standards.

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14 COM(2007) 803.

15 COM(2007) 860, http://ec.europa.eu/enterprise/leadmarket/leadmarket.htm.

The European Technology Platforms have helped bring about a more strategic and coordinated European research agenda and develop European, national and regional research and innovation programmes and policies, but there needs to be more cross-fertilisation among them.

eHealth Lead Market Initiative: An ageing society together with a dramatic increase in chronic diseases and an increasing demand for better healthcare will lead to an explosion of healthcare costs. ICTs play a key role in the transformation of healthcare systems and Europe has invested massively in R&D for healthcare applications. Forecasts expect an increase of 43% of the market volume by 2020, bringing it to €30 billion from currently €21 billion within the EU-15 in 2006. But eHealth systems in the Member States are not easily compatible. The eHealth Lead Market Initiative thus aims to develop a European market for innovative eHealth technologies and to combat fragmentation in the way healthcare is delivered in the different Member States.

eHealth is a good example of how ICT innovation can serve overarching European policy goals.[16] ICTs can also help achieve the EU's ambition to address climate change and increase energy efficiency. First of all, the ICT sector itself can 'get its own house in order' by improving energy efficiency at the level of components, systems and applications. For example, depending on the application, the energy-saving potential of data centres is between 20-70%. But more broadly, ICTs can improve energy efficiency across the economy through 'dematerialisation', enabling new business models, and through improved monitoring and finer control of processes and activities. As a first step, the Commission will focus on ICTs as an enabler to improve energy efficiency.

Following the evaluation of the Sixth Framework Programme[17], the Commission will in 2009 launch a set of initiatives to ensure Europe's leadership further developing ICTs, to modernise and improve the quality and efficiency of its public sector and to master the technologies essential for the economy and society. This process will be launched with a Communication on ICT research and innovation in 2009 and defining preparatory actions in FP7 and the CIP.

The contribution of ICTs to the Lisbon goals is further enhanced by the development of e-infrastructures (such as GEANT or Grids), which help build new research environments, driving productivity and the quality of the science performed. These infrastructures link researchers in all domains with huge bandwidth and computing power, removing geographical constraints and facilitating distributed collaboration, thus creating synergies between dispersed research groups and enhancing their potential to address more complex challenges.

Actions:

- Launch the Joint Technology Initiatives as the first true Europe-wide public-private research partnerships;
- Promote the European Technology Platforms, in particular closer cooperation among them;
- Implement the eHealth lead market initiative: eHealth innovation scorecards; Recommendation on eHealth interoperability; address standardisation and certification needs; measures to improve legal certainty;
- Promote the role of the public sector as a first buyer of innovation;

[16] COM(2007) 860.

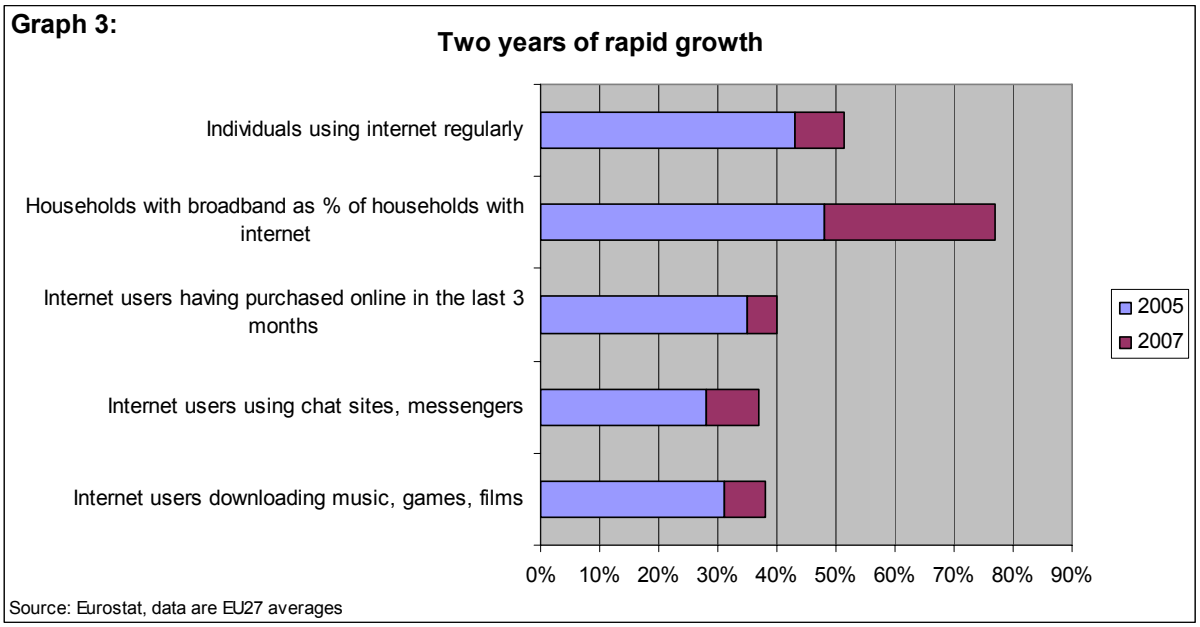
[17] An independent panel chaired by Mr Esk Aho will issue its report mid-2008.

- Issue a Communication on ICTs and energy efficiency;
- Launch a process to ensure Europe's leadership in ICTs with a Communication on ICT Research and Innovation;
- Promote the role of e-Infrastructures in a changing and global research environment.

6. THE NEED TO DEVELOP A LONG-TERM POLICY AGENDA FOR USERS IN THE DIGITAL ENVIRONMENT

The Internet is now part of daily life: in 2007 one in every two Europeans was a regular Internet user and nearly 80% of households using the Internet had already migrated from dial-up to broadband, with users increasingly embracing new applications.

Graph 3:



Nevertheless, nearly 40% of Europeans do not use the Internet at all and 46% of European households still do not have Internet access.

The Commission is working step by step towards realising the ambition of making the information society accessible to all Europeans. The eInclusion initiative provides a strategic framework to boost the effective participation of groups at risk of exclusion and to improve the quality of life through the use of ICTs. The latter issue is also addressed in the i2010 flagship initiatives, such as the Intelligent car initiative, which have been developing into policy strands in their own rights.

The reform of the legal framework for electronic communications will strengthen user rights in the telecoms sector by making it easier to make informed choices before purchasing products and to switch providers. Access to emergency services through '112' will be improved and users with disabilities will benefit from greater access to services. Privacy and security provisions will also be strengthened. In addition, in line with its obligations, the Commission will report in 2008 on the application of the universal service obligations in the light of social, economic and technological developments.

eCommerce is not progressing as fast as other Internet domains. The complexity and diversity of products and services are making it more difficult for consumers to judge the quality of what is offered on the market, and a lack or perceived lack of trust and security when using new technologies and services could be hindering wider take-up. Clarifying users' rights and obligations is a first priority, which will be addressed in 2008. Raising trust and confidence in the online world is also crucial. The current review of EC consumer law will address these issues, in particular by harmonising and improving users' rights and obligations.[18] In this context, the Commission will make a proposal that aims at increasing confidence in cross-border transactions (including online transactions) by simplifying and improving the consumer regulatory framework.

The noticeable rise of online content, especially user-created content, is largely driven by new business models that increasingly rely on online advertising. The protection of copyright remains a constant concern for Member States and the Commission. The launch of the Content Online platform[19] will provide a forum to discuss these issues. On the issue of the disclosure of personal data for copyright protection, the Court of Justice[20] has highlighted the need to strike a balance between the fundamental rights of intellectual property and personal data protection.

Social networking, or the participative web, is one of the growth phenomena of the past four years, becoming one of the most popular online applications for Europeans, after email and online search. In 2007, 24% of European citizens participated in online fora, up from 18% in 2006, with even stronger interest among the younger generations. The e-Participation initiative explores the Internet as a way of bringing political messages to the citizen. The rise of more participative ways of using the Internet leads to new challenges as well. A growing number of users are concerned about content quality, information accuracy, the integrity of information privacy and the protection of minors. Those starting to advertise and distribute content and to generate earnings from this through user-created content platforms are confronted with unauthorised use of their copyright-protected content. These challenges will be addressed further in 2008.

Actions:

- Report on the universal service obligations;
- Implement the eInclusion initiative: proposal on eAccessibility legislation; Ambient Assisted Living flagship to respond to the challenge of an ageing population; review of digital literacy policies; eInclusion summit;
- Publish a guide that explains users' rights and obligations in the digital environment;
- Launch the next phase in the review of the consumer *acquis* — Framework Directive on Consumer Contractual Rights;
- Launch Safer Internet 2009-2013 for the protection of minors and the fight against illegal content;

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18 COM(2006) 744, p. 1, http://ec.europa.eu/consumers/rights/cons_acquis_en.htm.
19 COM(2007) 724.
20 Case C-275/06.

- Respond to the challenges to privacy and trust stemming from new converging services in the future ubiquitous information society;

- Launch the Content Online Platform;

- Address issues concerning the interoperability and transparency of digital rights management systems (DRMs) for consumers in the Recommendation on Content Online.

7. CONCLUSION

This Communication confirms the important contribution of information society and media policies to the achievement of the Lisbon goals. It also confirms the validity of i2010 as the reference framework for European information society and media policies. It makes concrete proposals for i2010 to be re-oriented to further promote competitiveness and ICT take-up in Europe. In 2008-2009 the Commission will also develop the long-term agenda for information society and media policies, and prepare an assessment of the overall contribution of ICTs to Europe's economic performance[21]. There is a crucial need to develop European policies that both encourage the competitiveness of the leading countries and address the gaps between the high and low performers, thus countering fragmentation among Member States.

[21] Support for this will be drawn from ongoing analysis and consultations on the following topics: the economic and social impact of ICTs, including on employment; the legal and economic aspects of a Single Market for the information society; future policy needs for new networks and the Internet, privacy and trust issues in the ubiquitous information society; user-created content; a long-term reflection on the role of ICTs in sustainable development; and the development of an information society for all, including regional policies, http://ec.europa.eu/information_society/eeurope/i2010/studies/index_en.htm.