

THE EUROPEAN
UNION
EXPLAINED



Digital Agenda for Europe

Rebooting
Europe's
Economy

The Digital Agenda for Europe will help Europe's citizens and businesses to get the most out of digital technologies



THE EUROPEAN UNION EXPLAINED

This publication is a part of a series that explains what the EU does in different policy areas, why the EU is involved and what the results are.

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Taxation
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The European Union explained: Digital Agenda for Europe

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Why we need a Digital Agenda for Europe

An efficient, inclusive and innovative digital economy can transform business and society and deliver better products and services using new and more effective processes facilitated by information and communications technologies (ICT). The digital economy is growing at seven times the rate of the rest of the economy, but this potential is currently held back by a patchy pan-European policy framework. Europe is lagging behind other countries when it comes to the fast, reliable and connected digital networks which underpin economies and every part of our business and private lives. When communicating between countries in Europe, citizens currently face varying charges for use, incompatible systems and irregular connectivity across the continent. That is harmful for every citizen, business and innovator in Europe.

The European Union's (EU's) Digital Agenda for Europe aims to reboot Europe's economy and help Europe's citizens and businesses to get the most out of digital technologies.

Launched in May 2010 as the first of seven flagship initiatives under the Europe 2020 growth strategy, the Digital Agenda aims to boost Europe's economy by delivering sustainable economic and social benefits from a digital single market. The Digital Agenda for Europe has achieved significant progress on three main objectives, based on fast and ultra-fast Internet and interoperable applications. It promotes technology as an

'enabler of economic growth, job creation, sustainability and social inclusion across borders and across all European Member States'.

Full implementation of the Digital Agenda would increase European gross domestic product (GDP) by 5 %, or €1 500 per person, over the next 8 years, by increasing investment in ICT, improving digital and information technology skills levels in the labour force, enabling public sector innovation and reforming the framework conditions for the Internet economy. The Digital Agenda for Europe has already achieved progress on three main objectives:

- delivering better, faster and more affordable communications;
- supporting strategic ICT research to boost EU industry;
- boosting digital skills, jobs and entrepreneurship.

Problems and challenges

250 million Europeans use the Internet daily — but there are still millions of European citizens that have never used the Internet at all! People living with disabilities face particular difficulties in enjoying the benefits of new electronic content and services. As ever more daily tasks are carried out online, everyone needs enhanced digital skills to participate fully in society. Jobs held by highly qualified people with ICT skills are expected to rise by 16 million by 2020, while those held by low-skilled workers will decline by 12 million. 90 % of jobs will require basic information technology skills by 2015. The Digital Agenda aims to tackle the digital divide (the gulf between those who have ready access to computers and the Internet, and those who do not).

Digital technology is part of everyday life for most Europeans — but not all ...yet!



Some facts and figures

- *The Internet economy creates 5 jobs for every 2 'offline' jobs lost.*
- *The EU digital economy is growing at 12 % each year and is now bigger than the Belgian national economy.*
- *There are more mobile phone subscriptions in the EU than people.*
- *There are 7 million jobs in the ICT sector in Europe.*
- *It is estimated that half of productivity growth derives from investment in ICT.*

Jobs that require ICT skills are expected to rise by 16 million by 2020.

Guaranteeing fair and affordable access to services and products across the Union: telecommunications networks and services, whether landlines or mobile phones, are becoming the backbone of our society. Affordable access is key.

Citizens are able to enjoy online commercial services and cultural entertainment across borders but EU online markets are still separated by barriers which hamper access to pan-European telecoms and digital services and content. Therefore the EU's policy framework aims at improving competition, driving innovation and boosting consumer rights within the European single market in telecoms.

Digital technologies can also help address these challenges in many areas of our everyday lives and tackle social challenges: to reduce energy consumption, help ageing citizens, revolutionise health services or deliver better public services. ICT can also drive forward the digitisation of Europe's cultural heritage, providing online access for all.

World-class infrastructure and adequate funding are needed to attract Europe's best minds to research. The best research ideas must be turned into marketable products and services. Currently, EU investment in ICT research is still less than half the level of the United States. The Digital Agenda seeks to maintain Europe's competitive edge through increased coordination and elimination of Europe's fragmented efforts.

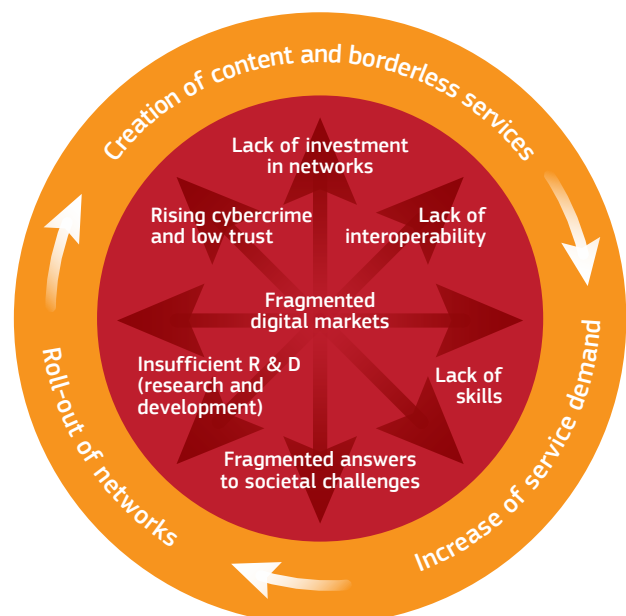


The Digital Agenda for Europe will make digital technology available for all.

Meeting the challenges: the virtuous circle

This great potential of ICT can be mobilised through the virtuous circle of the digital economy. 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.

VIRTUOUS CYCLE OF THE DIGITAL ECONOMY



MEETING THE TARGETS

2014 data shows the European Commission, along with the Member States, on track to complete 95 of their 101 digital actions by 2015, which represents good

progress. EU citizens and businesses are going online more, shopping more and they have greater confidence and skills in ICT.

Broadband	EU average	
	2014	Target
Basic broadband coverage for all	100 %	100 % (2013)
Digital single market		
Population buying online	47 %	50 % (2015)
Cross-border e-commerce	12 %	20 % (2015)
Small to medium-sized enterprises (SMEs) selling online	14 %	33 % (2015)
Digital inclusion (social inclusion that ensures individuals and disadvantaged groups have access to, and skills to use, ICT)		
Regular Internet use	72 %	75 % (2015)
Regular Internet use by disadvantaged people	57 %	60 % (2015)
Population never having used the Internet	20 %	15 % (2015)
Public services		
Citizens interacting online with public authorities	42 %	50 % (2015)
Citizens returning filled-in forms to public authorities electronically	21 %	25 % (2015)

Summary of the Digital Agenda goals

The Digital Agenda for Europe is not just about ticking off items from a long list, it is about using technologies to make a real difference in people's lives. The Commission has set 13 specific goals.

1. The entire EU to be covered by broadband by 2013 (achieved).
2. The entire EU to be covered by broadband above 30 megabits per second by 2020.
3. 50 % of EU households to subscribe to broadband above 100 megabits per second by 2020.
4. 50 % of population shop online by 2015.
5. 20 % of population buy cross-border by 2015.
6. 33 % of small-to-medium-sized businesses make online sales by 2015.
7. Difference between roaming and national tariffs to approach zero by 2015.
8. Increase regular Internet usage from 60 % to 75 % by 2015, and from 41 % to 60 % among disadvantaged people.
9. Halve the proportion of the population that has never used the Internet from 30 % to 15 % by 2015.
10. 15 % of citizens to use e-government by 2015, with more than half returning completed forms.
11. All key cross-border public services, to be agreed by Member States in 2011, to be available online by 2015.
12. Double public investment in ICT research and development to €11 billion by 2020.
13. Reduce energy use for lighting by 20 % by 2020.



Every home and business in Europe will enjoy high speed broadband access.

Broadband: digital oxygen for all

Basic broadband is everywhere in Europe.

The digital economy is growing at seven times the rate of the rest of the economy and without this growth the recession in Europe would have been far worse. Much of this growth has been fuelled by broadband Internet. 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. European Commission Vice-President Neelie Kroes said: 'Fast broadband is digital oxygen, and is essential for Europe's prosperity'. The Digital Agenda aims to spread essential broadband networks throughout Europe, connecting every home and business. With the target of basic broadband connection for all EU citizens already achieved in 2013, the Digital Agenda has two other, more ambitious targets:

- full broadband coverage above 30 megabits per second by 2020;
- 50 % of EU households to be subscribed to broadband above 100 megabits per second by 2020.

Without fast broadband, essential innovative services such as cloud computing, e-health, smart cities, audiovisual services — and the benefits they bring — will simply not take off.

Progress has been made since the Digital Agenda for Europe was adopted in 2010. Improved **basic broadband is everywhere in Europe** and improved satellite performance now covers the 4.5 % of population not covered by fixed basic broadband. Since 2010, fast broadband coverage has increased by 86 % and subscriptions by 420 %. Mobile broadband take-up has risen by 142 % since 2009.

2014 facts and figures

- 54 % of EU citizens have broadband available at speeds greater than 30 megabits per second.
- 36 % of EU citizens access the Internet via a portable computer or other mobile device.
- 4th generation mobile (long-term evolution — LTE) coverage tripled to 26 % in 1 year.
- **70 % use the Internet regularly** (at least once a week).
- 45 % of individuals use the Internet to buy goods and services.

But despite the considerable progress made in the last decade, there is still a need for continued action until everyone has access to high-speed broadband infrastructure. This is why an EU broadband strategy and policy is needed, defining the aims and targets of broadband development and serving as a point of reference for national broadband strategies and policies.

The European Commission aims to bolster the spread of high-speed broadband by:

- setting out a pan-EU approach to telecoms rules in its **Recommendation on Next Generation Access networks**;
- introducing a package of regulatory measures on consistent non-discrimination obligations and costing methodologies to promote competition and enhance the broadband investment environment;
- introducing revised state aid guidelines for broadband;
- introducing a proposal to complete the telecoms single market and deliver a #Connected Continent.

The overarching aim is to provide a stable legal framework that stimulates investments in an open and competitive environment. In parallel, the EU strives to develop an efficient **spectrum policy** and to facilitate use of the EU's Structural Funds for the digital economy.

The digital single market

A redesigned European telecoms sector

While successive waves of telecoms sector reform by the EU have helped to transform the way telecoms services are delivered in the EU, the EU telecoms market remains fragmented: with 28 distinct national markets, diverging implementation of EU rules and high barriers to entry. There is no single telecoms company that operates across the whole EU.

A genuine single telecom market is necessary to enable efficient telecoms companies to compete on a continental scale, thereby benefiting every European with more choice and seamless service. A single telecoms market will mean economies of scale in the telecoms sector, higher productivity in other economic sectors thanks to more efficient cross-border connectivity, affordable cross-border prices, more

innovation and diversification in products and services — thus allowing Europe to be once again a global digital leader.

That is why the European Commission proposed in 2013 a #Connected Continent package. This includes a proposed regulation to complement the existing regulatory framework with measures that focus on the essential elements needed to create a predictable, pro-competitive and pro-investment framework for the single telecoms market.

The main elements of the regulation ‘concerning the European single market for electronic communications and to achieve a Connected Continent’ are: open Internet, reinforced consumer rights, no extra charges for roaming in the EU, coordinated spectrum assignment and certainty for investors.

Telecoms regulatory reform through the years

1984: EU telecoms policy — common standards and specifications.

1987: First commission green paper on telecoms single market.

1990: Frame directive — Open network provision; EU funds GSM standard, now a €250 billion-a-year industry.

1998: Full opening of markets — monopoly to competition; directive on inter-connection and licensing.

2000: Local loop unbundling — alternative telecom companies access ‘the last mile’.

2003: Regulatory framework extended to all electronic communication including broadcast networks.

2007: Eurotariff — capped maximum roaming prices; retail price reduction in calls, SMS and data over 80 % since 2007.

2011: New rights for customers

- *Changing operators in one day without changing number.*
- *Clarity about services offered.*
- *Better protection of personal data online.*
- *Strengthened EC and Body of European Regulators for Electronic Communications (BEREC) oversight.*

2012: Data roaming up to 91% cheaper compared to 2007.

2014 (summer): Consumers get to choose a separate roaming contract.

Open Internet (net neutrality)

The blocking and throttling of Internet content should be banned, giving users access to the full and open Internet regardless of the type of their Internet subscription. In addition, companies could provide 'specialised services' with assured quality (such as Internet protocol television, video on-demand, apps including high-resolution medical imaging and business-critical data-intensive cloud applications) as long as the quality of the open Internet is not impaired. These rules are not only for the benefit of the consumers but will also underpin new innovative companies which will be able to launch services without fear of their being blocked or throttled, and to design new services requiring a guaranteed quality of service.

Stronger consumer rights across the EU

New rights include the right to plain language contracts with more comparable information, greater rights to change provider or contract, the right to a 12-month contract for consumers who do not wish for a longer contract, the right to walk away from the contract if promised Internet speeds are not delivered and the right to have e-mails forwarded to a new e-mail address after changing Internet provider.

Roaming

Thanks to the EU's action on roaming, consumers and businesses already enjoy cheaper communications. Roaming costs are down by 50 % for voice and by 93 % for data since 2007.

The EU plans to end roaming charges by the end of 2015.



However, roaming charges still push many EU citizens to switch off their smart devices when they are abroad and are a major impediment to the development of machine-to-machine communications and the success of connected cars in Europe. The #Connected Continent regulation aims to ensure that customers throughout the Union are able to use their phones and smartphones at domestic rates while travelling throughout the EU ('roam like at home'). Currently the European Parliament would like to end roaming charges by December 2015. Discussions are ongoing within the Council which represents Member States and the European Parliament to find an agreement.

Coordinated spectrum assignment

Mobile operators will be able to develop more efficient and cross-border investment plans, thanks to stronger coordination of timing, duration and other conditions of assignment of spectrum. Member States will remain in charge of spectrum assignment, while operating within a more coherent framework. Such a framework will ensure that Europeans get more 4G mobile access and Wi-Fi, while expanding the market for advanced telecoms equipment.

Harmonised European virtual broadband access products

Standard virtual access products will enable electronic communications service providers to expand their operations across Member States, thus providing better and more competitive choices for business-end customers, who need seamless communications in the single market regardless of where their sites and employees are located — contributing to job creation and growth of the European economy.

Simpler rules for telecoms operators

More alignment in authorisation conditions and conditions for withdrawal of authorisation will allow reducing red tape for telecoms operators.

Certainty for investors

The adoption of the recommendation on costing methodologies and non-discrimination provides Europe's national regulators with an integrated set of pro-competitive rules giving market players the stability and legal certainty for long-term planning and investment. This is achieved first by further harmonising and stabilising costs that incumbent operators may charge for giving others access to their existing copper networks; and, second, ensuring that access seekers have truly equivalent access to networks. Where competitive constraints and non-discrimination are ensured, the prices for wholesale access to 'next generation' broadband should be determined by the market rather than by regulators, meaning less red tape for operators.

Easier and cheaper deployment of high-speed networks

In addition to the regulatory improvements, the Commission has also addressed the fact that the roll-out of high-speed networks is still too costly and slow. Civil engineering works, such as the digging up of roads to lay down fibre broadband, accounts for up to 80 % of the cost of deploying high-speed networks. A patchwork of rules and administrative practices at national and sub-national level also complicate the process.

In April 2010 the European Parliament and Council approved a new EU directive which overcomes problems such as: inefficiencies or bottlenecks concerning the use of existing physical infrastructure (for example ducts, conduits, manholes, cabinets, poles, masts, antennas,

New regulations will make it easier and cheaper to install and maintain high-speed networks.



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towers and other supporting constructions), bottlenecks related to coordination of civil works, inefficiencies regarding administrative permit granting, and, finally, bottlenecks concerning in-building infrastructure.

This directive will save companies 20–30 % of the overall cost of infrastructure deployments, a staggering €40–60 billion, and will lead to less digging thanks to synergies across the sectors, in particular between telecom operators and utility companies.

Opening access to online

The digital single market aims to offer every European the chance to access online content and services throughout the EU, and gives businesses of all sizes the opportunity to reach more than 500 million consumers. It also means increased economies of scale for telecoms operators. Online platforms are an easy way to distribute and exchange all kind of content: music, films, pictures and more. Consumers have high expectations — they want to be able to enjoy the content of their choice at any time and on a range of devices. But this is not always possible. It can be difficult for example, for a Maltese consumer to download from a German website. Often, difficulties with accessing content online are due to licensing issues. Efficient collective rights management within the Digital Agenda will enable innovative and consumer-friendly content distribution across Europe.

Once completed, the digital single market aims to simplify copyright clearance, management and cross-border licensing by enhancing the governance, transparency and multi-territory licensing for (online) collective rights management.

Meanwhile, the introduction and EU-wide roll-out of electronic identification and electronic trust services (like electronic signatures, electronic seals, time stamp, electronic delivery service and website authentication) will allow people and businesses to act with confidence within a borderless digital single market, connecting consumers and providers from all over Europe.

The audiovisual media services directive brings EU-wide coordination of national legislation on all audiovisual media. It updates the 1989 television without frontiers directive for the digital age in areas like advertising rules, advertising 'unhealthy' foods and beverages in children's programmes, and promotes areas including media literacy, co- and self-regulation, and access for persons with a hearing or visual impairment.

A consumer-friendly digital single market

Tech start-ups are booming in Europe, creating millions of jobs and earning billions in revenues.

The EU application (app) economy is worth €17.5 billion in revenue, representing 1.8 million jobs today and nearly 5 million by 2018.

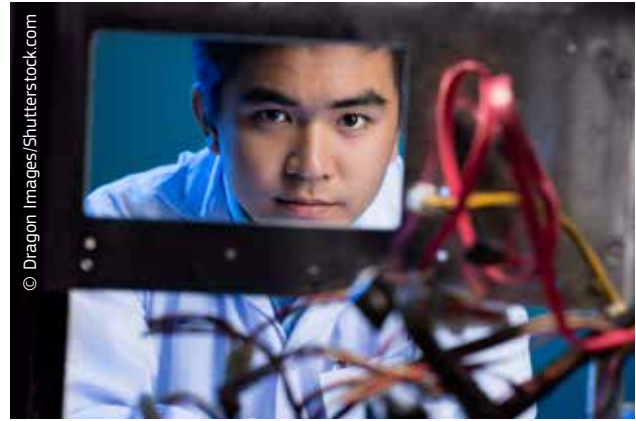
The European Commission's StartUpEurope action plan aims at strengthening the business environment for web and information communications technology entrepreneurs in Europe, helping entrepreneurs to get the resources they need and contributing to innovation, growth and jobs.

At this time, e-commerce remains insufficiently developed in the EU. Consumers have difficulties accessing online shops and businesses find it hard to offer their services in other EU countries.

In 2013, 47 % of EU citizens had purchased goods or services online, but only 12 % from another EU country. Just over 14 % of EU businesses were selling online. The Digital Agenda aims are that:

- 50 % of the population should be buying online by 2015;
- 20 % should buy goods online across borders;
- 33 % of small-to-medium-sized businesses should be making online purchases by this date.

The Digital Agenda for Europe will modernise EU rules on the digital single market to make e-commerce easier. The Commission's 2012 e-commerce action plan aims to double the volume of e-commerce in Europe by 2015 with initiatives to streamline postal delivery; facilitate card, electronic and mobile payments, and increase trust in online shopping through a strategy to improve on Internet security in Europe and better protect against cyberattacks.



EU initiatives create a fertile business environment for web and information communications technology entrepreneurs.

Replacing paper invoices by e-invoices across the EU could lead to roughly €240 billion in savings over a 6-year period, according to studies. The intention is that e-invoicing will become the predominant method of invoicing in Europe by 2020. The public sector could save up to €1 billion per year if all invoices were submitted in electronic format.

The Internet is a great example of numerous devices and applications working together anywhere in the world. Therefore the EU seeks to ensure that new information technology devices, applications, data repositories and services interact seamlessly anywhere — just like the Internet. The Digital Agenda identifies improved standard-setting procedures and increased interoperability as the keys to success.

How digital can help in our daily lives

The Digital Agenda's aim is not only to get every European online, but to help people find their way in the digital world and make the digital world work for a better society. Computers, mobile phones and digital technologies are a central part of our daily lives, and can address many of the challenges that we face: from car safety to ageing well; from better public services to a sustainable environment, etc.

Safety on roads

Human error is involved in around 95 % of all traffic accidents on Europe's roads, in which more than 30 000 people are killed and some 1.5 million injured every year. E-safety 'smart' technologies, based on the powers of computers and telecoms, can make a major difference to these figures.

The EU's **eCall system** saves lives by having the car automatically dial 112 — Europe's single emergency number — in case of a serious accident, dramatically accelerating the arrival of emergency rescue teams. The eCall system is to be introduced in all new models of passenger cars and light-duty vehicles, and will be supported across the EU as well as Iceland, Norway and Switzerland by 2015.

The eCall system speeds up emergency service response times. Times go down to 50 % in the countryside and 60 % in built-up areas. The quicker response will save thousands of lives in the EU every year. The severity of injuries will be considerably reduced in tens of thousands of cases. It is also possible to make an eCall by pushing a button inside the car. As eCall normally 'sleeps', it does not allow vehicle tracking outside emergencies.

Smart cities

A smart city is a place where the traditional networks and services are made more efficient with the use of digital and telecommunication technologies for the benefit of its inhabitants and businesses. The EU is investing in research and innovation in the information communications technology sector and developing policies to improve the quality of life of citizens and make cities more sustainable in view of Europe's **2020 targets**.

To speed up the deployment of these solutions, the European Commission has launched the **European Innovation Partnership** on smart cities and communities that brings together city leaders, businesses and community representatives and provides these actors with a forum in which they can identify, develop and deploy innovative solutions and make them a reality. The European Innovation Partnership on smart cities and communities focuses on sustainable urban mobility, sustainable districts and built environment and integrated infrastructures and processes across energy, information communications technologies and transport. The smart city concept goes beyond the use of information communications technologies for better resource use and less emissions. It means smarter urban transport networks, upgraded water supply and waste disposal facilities, and more efficient ways to light and heat buildings. And it also

Digital and telecommunication technologies can make traditional networks and services used in cities more efficient.



encompasses a more interactive and responsive city administration, safer public spaces and meeting the needs of an ageing population.

The Commission made available approximately €200 million for smart cities and communities in the 2014–15 budgets of the Horizon 2020 research and innovation programme, to accelerate progress and enlarge the scale of the roll-out of smart cities solutions. There will also be possibilities to access the European Structural and Investment Funds.

Climate change

Technology can positively affect efforts to reduce carbon emissions and make Europe greener. Initiatives such as smart cities, the intelligent transport system, air traffic management solutions for the single European sky and European rail traffic management solutions all employ information communications technology know-how to provide cleaner energy, produce less waste and make our environment — its water, air and surroundings — safer.

While information communications technologies can help to reduce pollution and wasted energy, the information communications technology sector itself is responsible for carbon emissions which are rapidly growing and initiatives in the Digital Agenda for Europe are included to address this situation and help information communications technologies to minimise their own environmental impact.

Security online

Many Europeans have concerns about digital security. Only 12 % of European web users feel completely safe making online transactions. Threats such as malicious software and online fraud unsettle consumers and dog efforts to promote the online economy. The Digital Agenda proposes a number of practical solutions, including a coordinated European response to cyberattacks and reinforced rules on personal data protection.

A high level of network and information security across the EU is essential to ensure consumer confidence and to keep the online economy running. A vital element of this is establishing a cybersecurity strategy for the EU and the Commission proposal for a directive on network and information security. Both involve legal measures and incentives to make the EU's online environment the most secure in the world.



The Digital Agenda for Europe offers practical solutions to make online actions more secure.

As network and information systems are globally interconnected, cybersecurity has a global dimension too. The EU is active in an EU–United States working group on cybersecurity and cybercrime. Cybersecurity is also discussed in wider Internet-related issues in multilateral forums, such as the Organisation for Economic Cooperation and Development, the United Nations General Assembly, the International Telecommunication Union, the Organisation for Security and Cooperation in Europe, the World Summit on the Information Society and the Internet Governance Forum.

These activities on network and information security are supported by the European Network and Information Security Agency, as well as by the Computer Emergency Response Team for the EU institutions.

The EU works across a range of areas to make the Internet safer, including against cybercrime. An EU directive has been adopted to fight large-scale attacks on information systems, along with an overarching cybersecurity strategy of the EU. In parallel, at Europol headquarters in the Hague, the European Cybercrime Centre has been set up, dedicated to strengthening the EU's defences against online organised crime — fraud, theft of credit card details, extortion through virus attacks and similar crimes.

To ensure a safer Internet for kids, the Commission has adopted a number of initiatives including a European Strategy for a Better Internet for Children. The European Commission supports the **Insafe/Inhope** network of safer Internet centres across all Member States which helps to empower children and young people to use the Internet, as well as other online and mobile technologies, positively, safely and effectively. It also convened the **CEO coalition**, under which 31 top tech companies completed a series of changes and **introduced tools** for better consumer protection.



The European Strategy for a Better Internet for Children aims to make the web safer for kids.

A directive has also been adopted to tackle the sexual exploitation of children, covering the prosecution of offenders, protection of victims and prevention measures. Furthermore, in December 2012, ministers of justice and representatives from 52 countries met in Brussels to form a global alliance against child sexual abuse online. The alliance has committed to strengthening the resources to identify more of the victims appearing in child abuse photos and videos online.

Health

Europeans live longer than ever, and because of new and expensive treatments, the costs of health and social care will rise substantially to about 9 % of EU GDP in 2050. Information communications technologies can contribute by providing European citizens with better, cheaper and higher quality services for health, social care and **ageing well**. The introduction of information communications technologies and telemedicine alone is estimated to improve efficiency of healthcare by 20 %. Moreover, information communications technologies empower users of every age to better manage their health.

eHealth will be critical to keep healthcare affordable and accessible to all in the ageing societies of Europe. The intention is to provide Europeans with secure access to their online medical health records not just at home but also when they are travelling anywhere in the EU. This would facilitate the work of doctors and enable patients to get the best help if they are seeing a doctor at home or in another EU country.

The EU **eHealth action plan** covers areas as diverse as patient rights in cross-border healthcare, funding

advanced research and development and ensuring that electronic health record systems are compatible internationally. It also provides a roadmap to empower patients and healthcare workers, to link up devices and technologies, and to invest in research towards the personalised medicine of the future. This means providing smarter, safer and patient-centred health services. Given the fast and growing uptake of tablets and smartphones, the action plan also includes a special focus on mobile health: patient information, advice, access to health professionals available on a mobile device through specialist applications (mHealth).

Some facts and figures

- *Home telemonitoring of heart patients can improve survival rates by 15 %, reduce hospital days (the number of days spent in hospital as an inpatient) by 26 % and save 10 % in nursing costs.*
- *ePrescriptions can reduce errors in drugs dosage by 15 %.*

eHealth will be critical to keep healthcare affordable and accessible to all in the ageing societies of Europe.



Digital research, development and innovation

Digital research and innovation will drive Europe's future prosperity and quality of life. As a whole, the information and communication technology sector represents 4.8 % of the EU economy. It generates 25 % of total business expenditure in research and development. Investments in information communications technologies account for 50 % of all European productivity growth. Research and innovation are at the heart of the EU's Digital Agenda, where programmes fund research projects bringing together Europe's best scientists and engineers.

The current **information communications technology research programme** focuses on, among other areas of research:

- **Robotics:** making the most of this growing market through a public-private partnership between public authorities, industry and academia. It will improve EU industrial competitiveness through robotic technologies, provide robots and robotic services to help solve some of the EU's societal challenges, such as ageing, address ethical and legal issues, and develop strategic goals.
- **Components and systems:** funding key technologies essential for tomorrow's products and services. This includes support for electronics, cyber-physical systems, advanced computing, smart manufacturing, future lightning, photonics and more.
- **Electronics:** The global electronics market is worth approximately €218 billion, increasing 5 % annually

The Digital Agenda for Europe will help drive research and innovation in Europe for years to come.



and employing 220 000 people in Europe. Industry plans to invest €100 billion by 2020, creating 250 000 EU jobs. The EU's electronics initiative will leverage €6 billion of investment in microelectronics production.

- **Emerging technologies:** encouraging new ideas and long-term research, exploring solutions in areas as diverse as personalised medicine, disease prevention, autonomous smart devices for everyday life and machines capable of human interaction.
- **Language technologies:** supporting research into language and digital content to open up Europe's digital single market to all Europeans.
- **Digital futures:** To reflect on ICT policies beyond 2020, and create long-term visions for policies for 2040-50.

Some facts and figures on robotics

- *The global robotics market is worth €15.5 billion a year; €3 billion a year in the EU.*
- *The EU has a 25 % share of the global industrial robotics market and 50 % of the professional service robotics sector.*
- *The number of people over 65 years old in the EU will rise to over 30 % by 2060. 'Eldercare social robots' can help to perform daily tasks such as lifting or cooking, or set off an alarm if an in-built camera registers that a person has fallen.*
- *A new robotics public private partnership will receive €700 million of EU funding, leveraging €2 billion in private investment.*

Cloud computing

Over the last 7 years, the EU has invested €340 million into research into cloud computing (the practice of using a network of remote servers hosted on the Internet to store, manage, and process data, rather than a local server or a personal computer), offering EU businesses privileged access to this market which, under the European Cloud strategy, could create 2.5 million jobs and boost GDP by €160 billion by 2020.

However, obstacles exist and the EU's three-pronged cloud computing strategy aims to:

- cut through the jungle of different standards;
- identify safe and fair contract terms and conditions;
- establish a **European Cloud Partnership**, with public authorities and industry, to stimulate the take-up and effective use of cloud computing, particularly by Europe's public sector.

Cloud computing can only work at EU-scale or greater, and demand for it will drive further investments in better networks. The cloud is an important tool in regard to superfast broadband. The #Connected Continent package could boost the cloud computing market in Europe, as, among others, it aims at improving the quality of service that new services (such as cloud computing, video-conferencing and 3D printing) can offer.

Big and open data

Data have become a key asset for the economy and our societies, as much as human and financial resources. Whether it is geographical information, statistics, weather data, research data, transport data, energy consumption data or health data, the need to make sense of 'big data' (data sets that are too large and complex to manipulate or interrogate with standard methods or tools) is driving innovations in technology, the development of new tools and new skills.

Good use of data can bring opportunities to more traditional sectors such as transport, health or manufacturing. Improved analytics and data processing, especially big data, will make it possible to:

- transform Europe's service industries by generating a wide range of innovative information products and services;
- increase the productivity of all sectors of the economy through improved business intelligence;

- more adequately address many of the challenges that face our societies;
- improve research and speed up innovation;
- achieve cost reductions through more personalised services;
- increase efficiency in the public sector.

Relevant EU activities

- Elements of a **data value chain strategy**.
- Funding research and innovation activities in the field of 'big data' and 'open data' (data that can be freely used, reused and redistributed by anyone).
- The policy on **open data**, in particular:
 - **legislation** on reuse of public sector information, such as the public sector information directive (Directive 2003/98/EC), the national implementing rules as well as rules on reuse of the Commission's own data;
 - **non-legislative measures** supporting the opening up of public sector information;
 - **open data portals**.
- Facilitating the use and reuse of publications and data resulting from scientific research experiments funded at least partially from public funds — commonly referred to as **open access**.

Some facts and figures

- *Opening up public data will be worth €10 billion per year until 2020.*
- *The economic gains from opening up public data could amount to €40 billion a year in the EU.*

Outlook



Digital Agenda for Europe will contribute significantly to the EU's economic growth and spread the benefits of the digital era to all sections of society.

The digital economy is here to stay. It will continue to bring Europeans opportunities and challenges and help Europe to prosper and grow. The Commission will continue to promote policies that connect citizens via high speed and affordable Internet broadband. As ICT will become part of every business and policy decision we make, the European Commission will strive to be part of the technological revolution. It will seek to develop incentives for new digital business models, encourage digital jobs and start-ups and will be ready to future-proof all digital-related activities. Finally, it will guarantee that, with the support of its Member States, Europeans will have access to an open, inclusive and trusted Internet.

Find out more

- ▶ **European Commission, Directorate-General for Communications Networks, Content and Technology:**
<http://ec.europa.eu/dgs/connect/en/content/dg-connect>
- ▶ **Digital Agenda for Europe:** <http://ec.europa.eu/digital-agenda/en>
- ▶ **Horizon 2020:** http://ec.europa.eu/research/horizon2020/index_en.cfm
- ▶ **Digital Futures:** <http://ec.europa.eu/digital-agenda/en/digital-futures>
- ▶ **Questions about the European Union? Europe Direct can help:** 00 800 6 7 8 9 10 11 —
<http://europedirect.europa.eu>

