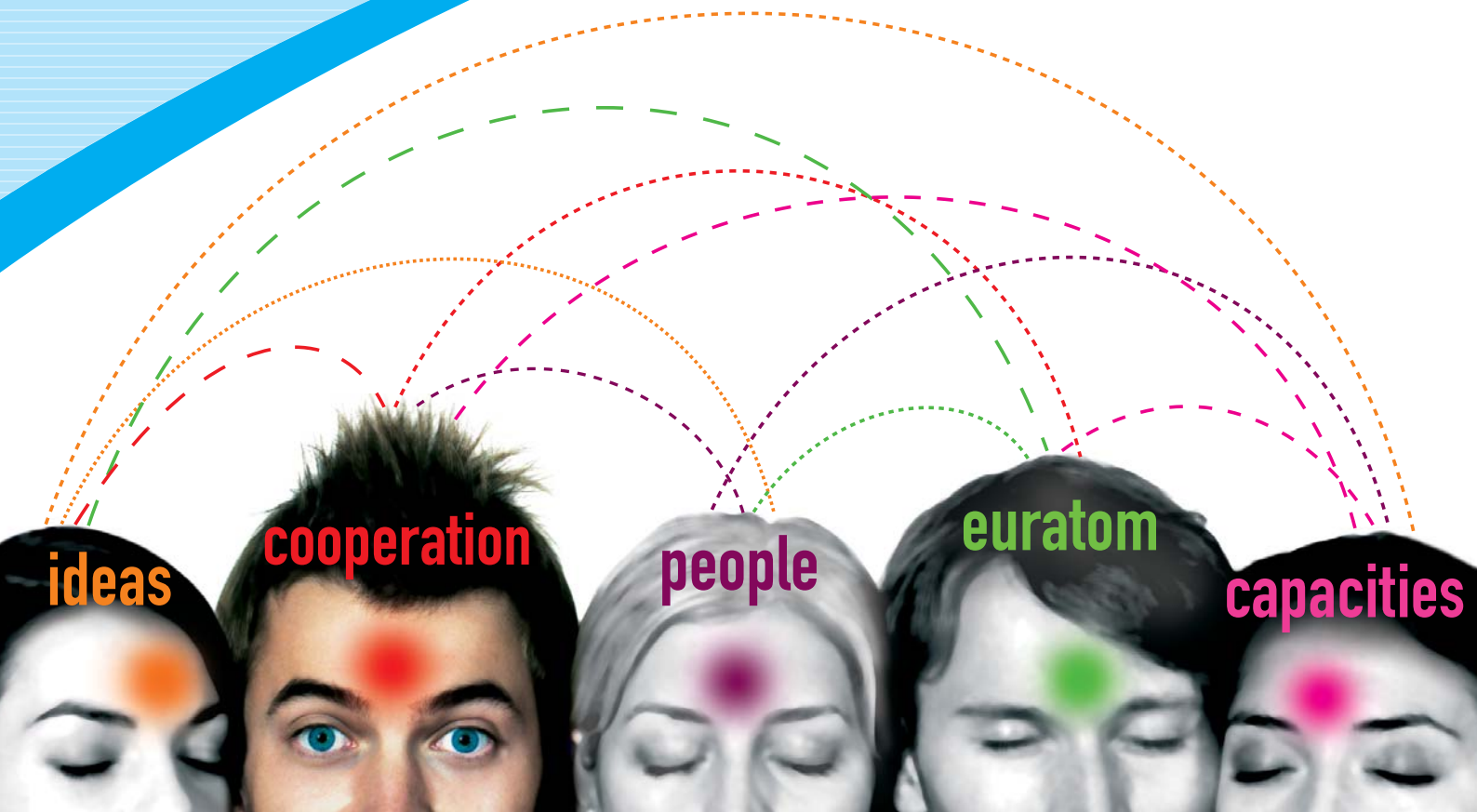




EUROPEAN
COMMISSION

Community research



FP7

Tomorrow's answers start today



FP7 IN A NUTSHELL

FP7 is the short name for the Seventh Framework Programme for Research and Technological Development. This is the EU's main instrument for funding research in Europe and it will run from 2007 to 2013.

The EC budget for the next seven years is € 50.5 billion and the Euratom budget for the next five years is € 2.7 billion¹. Overall, this represents a 41% increase from FP6 at 2004 prices and 63% at current prices.

FP7 is also designed to respond to Europe's employment needs and competitiveness.

FP7 supports research in selected priority areas - the aim being to make, or keep, the EU as a world leader in those sectors.

How is FP7 made up?

FP7 is made up of 4 main blocks of activities forming 4 specific programmes plus a fifth specific programme on nuclear research:

Cooperation - Collaborative research

- Health
- Food, Agriculture and Biotechnology
- Information and Communication Technologies
- Nanosciences, Nanotechnologies, Materials and new Production Technologies
- Energy
- Environment (including climate change)
- Transport (including Aeronautics)
- Socio-economic sciences and Humanities
- Security
- Space

Ideas - European Research Council

- Frontier research actions

People - Human Potential, Marie Curie actions

- Initial training of researchers - Marie Curie Networks
- Life-long training and career development - Individual fellowships
- Industry-academia pathways and partnerships
- International dimension - outgoing and incoming fellowships, international cooperation scheme, reintegration grants
- Excellence Awards

Capacities - Research capacities

- Research infrastructures
- Research for the benefit of SMEs
- Regions of Knowledge
- Research Potential
- Science in Society
- Support to the coherent development of research policies
- Specific activities of international cooperation

Nuclear research and training

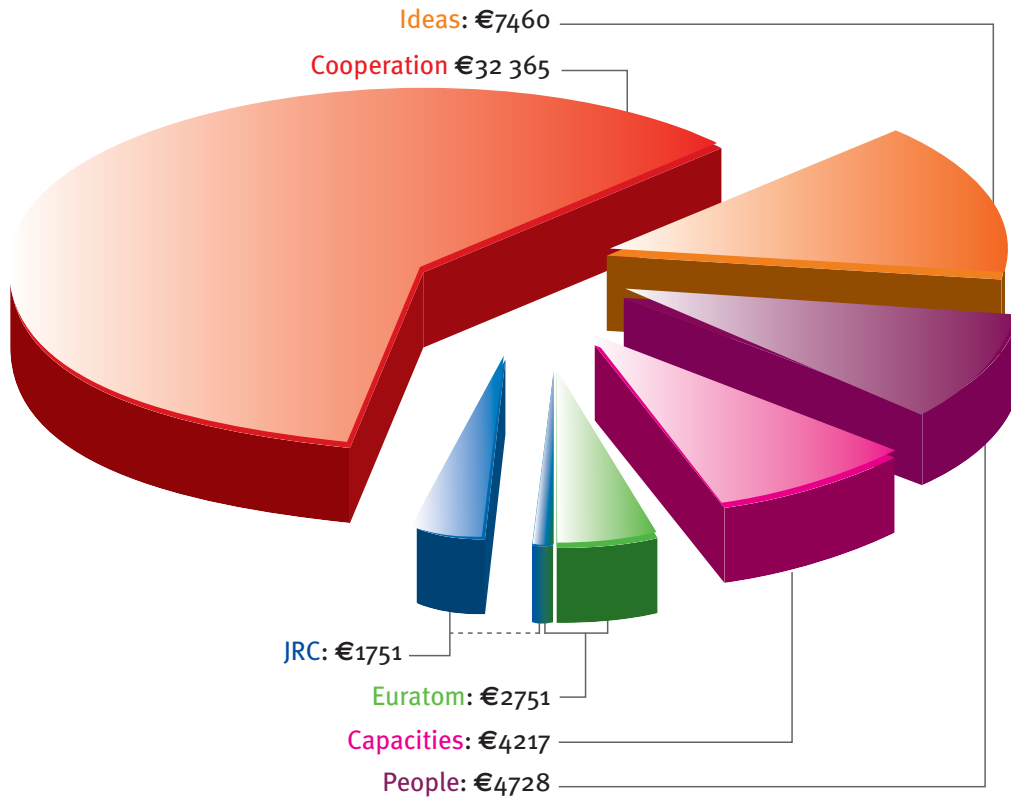
- Fusion energy - ITER
- Nuclear fission and radiation protection

Joint Research Centre

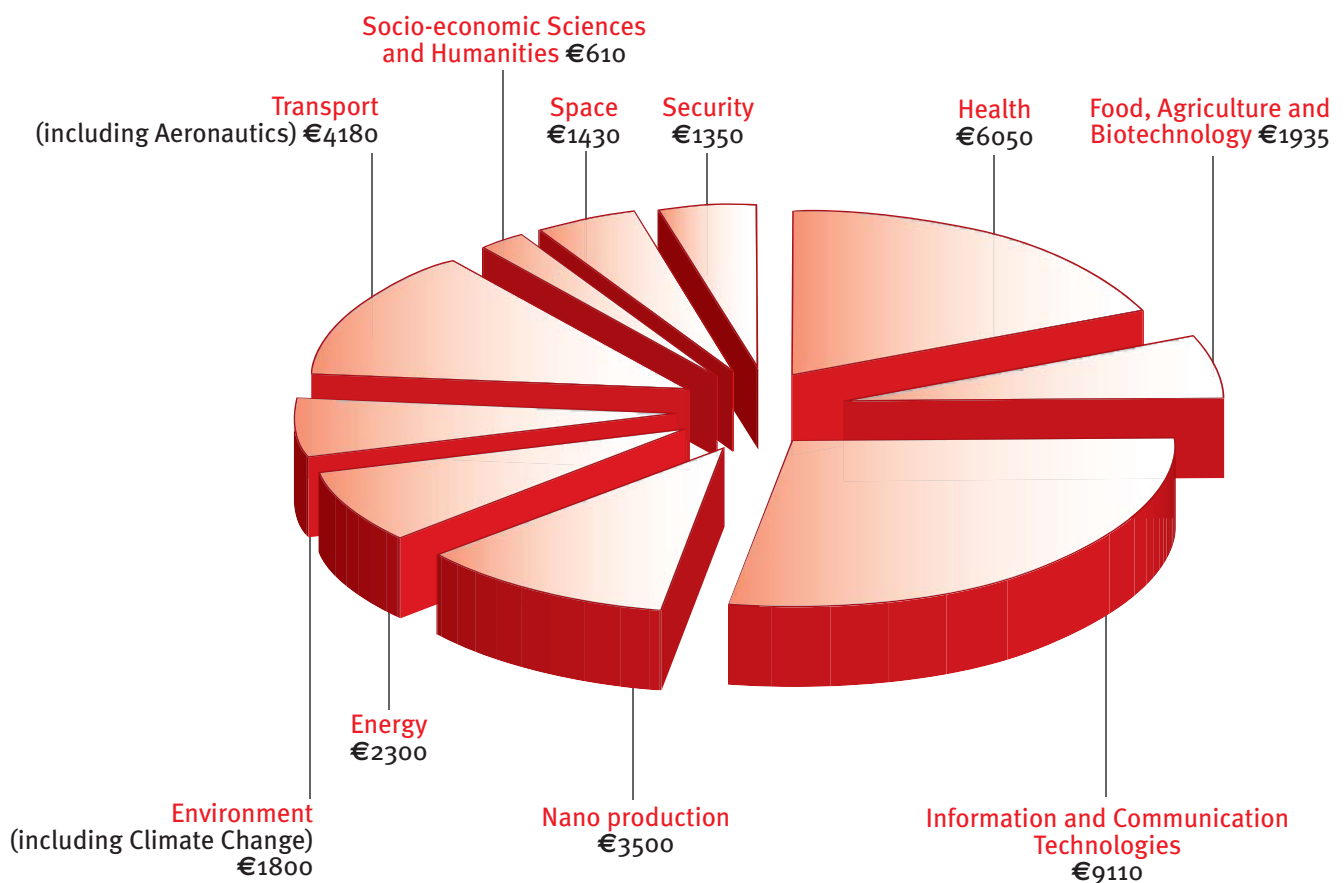
- Direct actions in Euratom
- Non-nuclear actions

¹According to <http://register.consilium.europa.eu/doc/12032/06>

The indicative breakdown (€ million) of FP7



The Cooperation Programme breakdown (€ million)





Tackling major research themes, together

Cooperation
Budget: €32 billion

Under the programme “Cooperation”, research support will be provided to international cooperation projects across the European Union and beyond. In 10 thematic areas, corresponding to major fields in science and research, the programme will promote the progress of knowledge and technology. Research will be supported and strengthened to address European social, economic, environmental, public health and industrial challenges, serve the public good and support developing countries.

“Cooperation” supports research actions in the following thematic areas:

- Health
- Food, Agriculture and Biotechnology
- Information and Communication Technologies
- Nanosciences, Nanotechnologies, Materials and new Production Technologies
- Energy
- Environment (including Climate Change)
- Transport (including Aeronautics)
- Socio-economic Sciences and Humanities
- Space
- Security

‘Cooperation’ in FP7

www.ec.europa.eu/research



HEALTH

Budget: € 6 billion (2007 - 2013)

The objective of the health research programme is to improve the health of European citizens, and increase and strengthen the competitiveness and innovative capacity of European health-related industries and businesses. Global health issues, like emerging epidemics, will also be addressed. European collaboration with developing countries will allow those countries to develop research capacities.

What's the benefit for citizens:

Citizens will benefit from European health research since its emphasis will be put on: translational research (i.e. the translation of basic discoveries in clinical applications), the development and validation of new therapies, methods for health promotion and prevention including the promotion of healthy ageing, diagnostic tools and medical technologies, and sustainable and efficient healthcare systems.

Clinical research will tackle a number of diseases such as cancer, cardiovascular, infectious, mental and neurological diseases, and in particular those linked with ageing, such as Alzheimer's and Parkinson's diseases. Through international multi-centre trials involving the required number of patients, new drugs and treatments would be developed in a shorter time frame.

What's the benefit for researchers:

European-funded health research will focus on:

- **Biotechnology, generic tools and medical technologies for human health**
 - High-throughput research
 - Detection, diagnosis and monitoring
 - Prediction of suitability, safety and efficacy of therapies
 - Innovative therapeutic approaches and intervention
- **Translating research for human health**
 - Integration of biological data and processes
 - Research on the brain and related diseases, human development and ageing
 - Translational research in infectious diseases (HIV/AIDS, malaria, tuberculosis, SARS, avian influenza)
 - Translational research in major diseases: cancer, cardiovascular disease, diabetes/obesity, rare diseases, other chronic diseases including rheumatoid diseases, arthritis and musculoskeletal diseases
- **Optimising the delivery of healthcare to European citizens**
 - Translation of clinical outcome into clinical practice
 - Quality, efficiency and solidarity of health care systems including transitional health care systems and home care strategies
 - Enhanced disease prevention and better use of medicines
 - Appropriate use of new health therapies and technologies

What's the benefit for industry and SMEs:

Research-based SMEs are the main economic drivers of healthcare, biotechnology and medical technologies. Strong EU-based biomedical research will enhance competitiveness of the European pharmaceutical and healthcare industries. It is therefore imperative that the EU creates an environment conducive to innovation in the public and private sectors.

FOOD, AGRICULTURE AND BIOTECHNOLOGY

Budget: €1.9 billion (2007 - 2013)

The advancement of knowledge in the sustainable management, production and use of biological resources (microbial, plant and animal) will provide the basis for safer, eco-efficient and competitive products and services for agriculture, fisheries, feed, food, health, forest-based and related industries. Important contributions to the implementation of existing and prospective policies and regulations in the area of public, animal and plant health and consumer protection are anticipated. New renewable energy sources will be supported under the concept of a European knowledge-based bio-economy.

What's the benefit for citizens:

Science, industry and society will come together to address the social, economic and environmental challenges of sustainable management of biological resources. They will also exploit advances in microbial, plant and animal biotechnologies to develop new, healthier, eco-efficient and competitive products and services. Rural and coastal development will be addressed by boosting local economies whilst preserving our heritage and variety of cultures.

What's the benefit for researchers:

Research will be carried out on the safety of food and feed chains, diet-related diseases, consumer food choices and the impact of food and nutrition on health.

Research activities will include:

- Sustainable production and management of biological resources from land, forest, and aquatic environments: enabling research on sustainable production systems; plant and animal production and health; animal welfare; fisheries and aquaculture, including exploitation and sustainable use of their biodiversity.
- Tools to implement relevant strategies, policies and legislation supporting the European knowledge based bio-economy.
- The integrity and control of the food chain ("fork to farm") will be subject to research, addressing food, health and well-being.
- Life sciences and biotechnology for sustainable non-food products and processes will develop improved crops and forest resources, feed-stocks, marine products and biomass technologies for energy, environment, and high added value products such as materials and chemicals.

Several European Technology Platforms contribute to setting common research priorities in various fields, like food technologies and processes, plant genomics, forestry and forest-based industries, global animal health, and animal farm breeding.

What's the benefit for industry and SMEs:

The creation of a European Bio-Economy is expected to open the way for innovations and effective technology transfer, aiming to include all industries and economic sectors that produce, manage and otherwise exploit biological resources as well as related services from the supply or consumer industries. These activities are in line with the European strategy on life sciences and biotechnology and is expected to promote competitiveness of European agriculture and biotechnology, seed and food companies and in particular high-tech SMEs, while improving social welfare and well-being.

INFORMATION AND COMMUNICATION TECHNOLOGIES (ICTs)

Budget: € 9.1 billion (2007 - 2013)

ICTs play a crucial role in boosting innovation, creativity and competitiveness of all industry and service sectors. We are entering a new phase of development that will drive growth and sustainable development for the coming decades; however, this growth will only be captured if we invest now in research and innovation for the next generation of technologies.

What's the benefit for citizens:

ICTs are opening up many new opportunities for European citizens and consumers. There is a wide range of applications including healthcare provision, transport systems, as well as innovative interactive systems for entertainment and learning. Innovation in ICT can help improve illness prevention and safety of care, facilitate active participation of patients and enable personalisation of care and can also tackle problems associated with the ageing population.

What's the benefit for researchers:

Under FP7, ICT research activities will cover strategic priorities in areas of European industrial and technological leadership, such as communication networks, embedded computing, nano-electronics and technologies for audiovisual content.

Research areas will include:

- Network and service infrastructure stability and security;
- Performance and reliability of electronic systems and components;
- Personalised ICT systems;
- Digital content management.

What's the benefit for industry and SMEs:

ICTs account for nearly half of the productivity gains in our economies today. The gains stem both from the production of innovative high value ICT-based goods and services and from improvements in business processes through the diffusion, adoption and use of ICTs across the economy.

ICT-intensive sectors include manufacturing, automotive, aerospace, pharmaceuticals, medical equipment and agro-food, as well as financial services, media and retail. Benefits reported by firms, as a result of increased use of ICTs, include faster product development, cost and overhead reductions, faster and more reliable transactions, better relationships with customers and suppliers, improved levels of customer service and support, and enhanced collaboration opportunities.

FP7 will facilitate the creation of new forms of networked business processes and applications, as well as new engineering approaches for the application of ICT in manufacturing.

NANOSCIENCES, NANOTECHNOLOGIES, MATERIALS AND NEW PRODUCTION TECHNOLOGIES

Budget: € 3.5 billion (2007 - 2013)

The activity of Nanotechnologies, Materials and Production Technologies has a strong socio-economic relevance. Nanotechnologies enable novel solutions and could result in improved performance in the entire production sector as well as in the health/medicine/agriculture domains.

What's the benefit for citizens:

The design of new production processes could signal a reduction of pollutant emissions and a more rational use of natural resources. At the same time product innovation, with safer and more reliable consumer products, and cleaner vehicles, combined with innovation in the construction industry aim to meet people's needs and improve their quality of life, by lowering risks and bettering health and welfare. Promotion of more sustainable consumption patterns leads to improvements in health, personal awareness and behavioural change of citizens.

The introduction of nanotechnology results also present a new spectrum of risks and issues of an ethical nature, which are being tackled. Ethical issues refer to human integrity and dignity (e.g. "chips" to monitor or control behaviour of humans), risks linked to health and environmental hazards.

What's the benefit for researchers:

Nanosciences and Nanotechnologies

The objective is to create materials and systems with predefined properties and behaviour, based on increased knowledge and experience at the nano scale. This will lead to a new generation of products and services across a range of applications, while minimising any potential adverse environmental and health impacts.

Materials

Research will focus on developing new multifunctional surfaces and materials with tailored properties and predictable performance for new products and processes as well as for their repair.

New production

The basis for innovation in this area will be new knowledge and its application towards sustainable production and consumption patterns. This entails the appropriate conditions for continuous innovation (in industrial activities and production systems, including design, construction, devices, and services) and for developing generic production "assets" (technologies, organisation and production facilities as well as human resources) while also meeting safety and environmental requirements.

Integration of technologies for industrial applications

The integration of knowledge and technologies of the three areas of research above is essential in order to speed up the transformation of the European industry and economy, while adopting a safe, socially responsible and sustainable approach. The research will focus on new applications and novel solutions responding to major challenges as well as to the RTD needs identified by different European Technology Platforms mentioned above.

What's the benefit for industry and SMEs:

Increased industrial competitiveness and high quality products would protect European jobs and therefore promote social and economic cohesion. Emerging Technological Platforms will also emphasize social aspects through their pan-European strategies. The overall aim will be to maximise added value for Europe. New regulations and standards have always been a by-product of industrial technology progress and these "platforms" will now certainly modernise and consolidate them in several areas of human activity.

ENERGY

Budget: € 2.3 billion (2007 - 2013)

Energy systems are confronted with major challenges. The urgency to identify and develop adequate and timely solutions is justified by the alarming trends in global energy demand, the finite nature of conventional oil and natural gas reserves, and the need to dramatically curb greenhouse gas emissions. These actions would effectively mitigate the devastating consequences of climate change, the damaging volatility of oil prices (in particular for the heavily oil-dependent transport sector) and geopolitical instability in supplier regions.

What's the benefit for citizens:

Citizens will benefit from energy research through more affordable energy costs and through more efficient use of energies provided by different sources. Consequently, this will help reduce the causes of climate change, which will benefit everyone directly.

What's the benefit for researchers:

Researchers will help transform the current energy system into a more sustainable one, making it less dependent on imported fuels. The end result will be a diverse mix of energy sources, in particular renewable ones, energy carriers and non-polluting sources. Energy efficiency, which includes rationalising use and storage of energy, will be enhanced, thus addressing the pressing challenges of security of supply and climate change.

Activities in the energy area include:

- Hydrogen and fuel cells
- Renewable electricity generation
- Renewable fuel production
- Renewables for heating and cooling
- CO₂ capture and storage technologies for zero emission power generation
- Clean coal technologies
- Smart energy networks
- Energy efficiency and savings
- Knowledge for energy policy making

What's the benefit for industry and SMEs:

Europe's industry has developed world leadership in a number of energy generation and energy efficiency technologies. It is the pioneer in modern renewable energy technologies, such as solar energy, bio- and wind energy. The EU is also a global competitor in power generation and distribution technologies and has a strong research capacity in the area of carbon capture and sequestration. In order to maintain this position, Europe's industries must continue their efforts through international collaboration.

ENVIRONMENT (including Climate Change)

Budget: € 1.8 billion (2007 - 2013)

The challenges posed by the increasing natural and man-made pressures on the environment and its resources require a coordinated approach at pan-European and international levels.

What's the benefit for citizens:

We need to better understand and cope with issues such as climate change and identify environmentally friendly technologies in order to improve our management of both natural and man-made resources. The activities will address policy needs such as the sustainability impact assessments of EU policies and the follow up to the Kyoto and post-Kyoto actions on climate change.

What's the benefit for researchers:

Sustainable management of the environment and its resources requires multidisciplinary and integrated research in order to advance our knowledge on the interactions between the climate, biosphere, ecosystems and human activities. This will help us to develop new environmental technologies, tools and services.

The "Environment" programme will be implemented under the following activities and areas:

Climate change, pollution and risks

- Pressures on environment and climate
- Environment and health
- Natural hazards

Sustainable Management of Resources

- Conservation and sustainable management of natural and man-made resources and biodiversity
- Management of marine environment

Environmental Technologies

- Environmental technologies for observation, simulation, prevention, mitigation, adaptation, remediation and restoration of the natural and man-made environment
- Protection, conservation and enhancement of cultural heritage
- Technology assessment, verification and testing

Earth observation and assessment tools

- Earth and ocean observation systems, monitoring methods for the environment and sustainable development
- Forecasting methods and assessment tools for sustainable development

What's the benefit for industry and SMEs:

Strengthening the EU position in world markets for environmental technologies will contribute to sustainable consumption, production, delivering sustainable growth through business opportunities and improved competitiveness, while protecting our cultural and natural heritage. Special attention will be given to technologies on water supply and sanitation, on sustainable chemistry, on construction and on forestry, in association with the respective European Technology Platforms. The socio-economic dimension will influence their development and introduction to the market and their subsequent application.

TRANSPORT

Budget: €4.1 billion (2007 - 2013)

Transport is one of Europe's strengths - the air transport sector contributes to 2.6% of the EU GDP with 3.1 million jobs and the surface transport field generates 11% of the EU GDP employing some 16 million persons. But, transport is also responsible for 25% of all the EU emissions of CO₂.

What's the benefit for citizens:

During FP7 at least €4 billion will be allocated to fund EU research in order to develop safer, "greener" and "smarter" European transport systems for the benefit of all citizens. Research on transport will also have a direct impact on other major areas such as trade, competition, employment, environment, cohesion, energy, security and the internal market.

What's the benefit for researchers:

The need for new transport networks and infrastructures in Europe is growing and development costs are increasing. Their development at the European level can become a reality only through the collaborative activities of the various RTD providers.

It is imperative to address the different political, technological and socio-economic challenges in a cost-effective manner on issues such as the "clean and safe vehicle" of the future, interoperability and intermodality especially with respect to waterborne and rail transport. Also, developing technologies in support of the Galileo system and its applications will be essential in implementing European policies.

The activities envisaged to be addressed during the lifetime of FP7 will be:

- Aeronautics and air transport (reduction of emissions, work on engines and alternative fuels, air traffic management, safety aspects of air transport, environmentally efficient aviation)
- Sustainable surface transport- rail, road and waterborne (development of clean and efficient engines and power trains, reducing the impact of transport on climate change, intermodal regional and national transport, clean and safe vehicles, infrastructure construction and maintenance, integrative architectures)
- Support to the European global satellite navigation system –Galileo and EGNOS (navigation and timing services, efficient use of satellite navigation)

What's the benefit for industry and SMEs:

Investment in transport research is needed to ensure that European transport industries have a technological advantage allowing them to be competitive globally. In addition, FP7 Transport Research activities will also provide SMEs at the cutting edge of innovation with improved access to pan-European research programmes and their related benefits.

SOCIO-ECONOMIC SCIENCES AND THE HUMANITIES

Budget: €610 million (2007 - 2013)

Europe is confronted with a series of social and economic challenges, it is therefore important to better understand them and tackle them effectively by designing suitable policies. Europe's long tradition in this area of research together with the different social, economic and cultural approaches, offers a unique opportunity for carrying out this type of research at the EU level.

What's the benefit for citizens:

During FP7, EU research in Socio-economic Sciences and the Humanities promises to study and offer answers to questions regarding the demographic change and quality of life; education and employment in view of the current economic trends; global interdependence and the transfer of knowledge; the well-being of democracies and political participation; cultural diversity and the values.

What's the benefit for researchers:

The link between research and policy is safeguarded by ensuring that the issues examined are of high priority at the European level and are addressed by Community policies. In fact, research at the EU level has particular advantages; it can develop European-wide data which are needed to heighten our awareness of complex issues.

The research questions to be addressed within the timeframe of the FP7 will be drawn from the following areas:

- Growth, employment and competitiveness in a knowledge society (innovation, competitiveness and labour market policies; education and life-long learning; and economic structures and productivity)
- A combination of economic, social and environmental objectives in a European perspective (socio-economic models within Europe and across the world; economic and social and cohesion across regions, the social and economic dimensions of environmental policy)
- Major trends in society and their implications (demographic change, reconciling family and work, health and quality of life, youth policies, social exclusion and discrimination)
- Europe in the world (trade, migration, poverty, crime, conflict and resolution)
- The citizen in the European Union (political participation, citizenship and rights, democracy and accountability, the media, cultural diversity and heritage, religions, attitudes and values)
- Socio-economic and scientific indicators (the use and value of indicators in policy-making at macro and micro levels)
- Foresight activities (the future implications of global knowledge, migration, ageing, risk and the emerging domains in research and science).

What's the benefit for industry and SMEs:

Throughout FP7, industry and SMEs will actively be encouraged to participate in all themes, especially those under the Cooperation programme. The themes tackled by the SSH offers them the dual opportunity to operate as participants in knowledge creation as members of teams but also as recipients of knowledge putting it in application.

SPACE

Budget: €1.4 billion (2007 - 2013)

In the last 20 years, Europe has become a technology pioneer through applications such as the Earth Observation and Galileo. Europe has invested in the exploration of space with cost-effective missions and supported collaborative initiatives with the European Space Agency securing its strategic role in this domain.

What's the benefit for citizens:

Recently, the European Union decided to invest in GMES (Global Monitoring for Environment and Security) which will be instrumental in managing the consequences of natural disasters and climate change. Galileo, amongst other applications, will aid the development of the search and rescue mechanism (SAR).

The EU funded research will contribute to the development of a European Space Policy. This in turn, will support Community policies in the areas of agriculture, environment, fisheries, transport and telecommunication either through space-observation tools or space-based solutions.

What's the benefit for researchers:

Space-based science is an important driving force for new technological developments that have an impact on our daily lives.

Research activities during the lifetime of FP7 will be drawn from the following areas:

- Space-based application at the service of European society (developing satellite observation systems and the GMES services for the management of the environment, security, agriculture, forestry and meteorology, civil protection and risk management)
- Exploration of space (the provision of support for collaborative initiatives between ESA or national space agencies, co-ordinate efforts for the development of space-borne telescopes)
- Research and Technological Development for strengthening Space foundations (support research for long term needs such as space transportation, bio-medicine, life and physical sciences in space)

What's the benefit for industry and SMEs:

Space is a strategic industrial sector for growth and its applications underpin economic activity and government services. European companies, with SMEs being the overwhelming majority, are key actors in the worldwide commercial market of satellite manufacturing, launch services, satellite operations and downstream service providers. In order to sustain a competitive industry new research and technologies are required and the support offered through FP7 promises to create these opportunities.

SECURITY

Budget: €1.3 billion (2007 - 2013)

European security is a precondition for prosperity and freedom. The need for a comprehensive security strategy encompassing both civil and defence security measures must be addressed.

What's the benefit for citizens:

We need to invest in knowledge and develop further technologies in order to protect our citizens from threats such as terrorism, natural disasters and crime while respecting privacy and safeguarding fundamental rights.

During FP7, EU funded research will tackle themes linked to civil security (anti-terrorism and crisis management) and will contribute to a whole range of Community policies such as transport, mobility, civil protection, energy, environment and health. By co-operating and coordinating efforts on a Europe-wide scale, the EU can better understand and respond to risks in a constantly changing world.

What's the benefit for researchers:

Security related research is expected to generate new knowledge and promote the application of new technologies in the field of civil security.

Research in the timeframe of the FP7 will address the following areas:

- Security of citizens (technology solutions for civil protection, bio-security, protection against crime and terrorism)
- Security of infrastructures and utilities (examining and securing infrastructures in areas such as ICT, transport, energy and services in the financial and administrative domain)
- Intelligent surveillance and border security (technologies, equipment, tools and methods for protecting Europe's border controls such as land and coastal borders)
- Restoring security and safety in case of crisis (technologies and communication, co-ordination in support for civil, humanitarian and rescue tasks)
- Security systems integration, interconnectivity and interoperability (information gathering for civil security, protection of confidentiality and traceability of transactions)
- Security and society (acceptance of security solutions, socio-economic, political and cultural aspects of security, ethics and values, social environment and perceptions of security)
- Security research co-ordination and structuring (co-ordination between European and international security research efforts in the areas of civil, security and defence research)

What's the benefit for industry and SMEs:

Security research will reinforce the competitiveness of the European security industry by stimulating the cooperation of providers and users for civil security solutions. It will also draw the best intellectual and technological skills across Europe through the active involvement of SMEs.



Putting bright ideas to work for Europe!

Ideas

Budget: €7.4 billion

The “Ideas” programme hosts all those activities that are to be implemented by the European Research Council (ERC). The ERC is expected to enjoy a high degree of autonomy in order to develop high-level frontier research at a European level, building on excellence in Europe and raising its profile at the international level.

This programme will enhance the dynamic character, creativity and excellence of European research at frontier knowledge.

‘Ideas’ in FP7

www.ec.europa.eu/research



IDEAS- The European Research Council (ERC)

Budget: €7.4 billion (2007 - 2013)

The "Ideas" programme, implemented through the European Research Council (ERC), will boost Europe's competitiveness by helping to attract and retain the most talented scientists, supporting risk-taking and high-impact research, and promoting world-class scientific research in new, fast emerging fields.

What's the benefit for citizens:

Countries with leading-edge research are best positioned to deliver a better quality of life to their citizens, while maintaining their economic position and advancing their global competitiveness.

During FP7 the Ideas programme will fund EU frontier research. The concept behind Ideas is that first-rate researchers are best placed to identify new opportunities and directions at the frontiers of knowledge. These in turn will feed back into society and find their way to the industries and markets, and translate into the broader social innovations of the future.

What's the benefit for researchers:

The ERC will have a unique position as a pan-European funding organisation designed to support the best science and scholarship across all fields of research through open and direct competition. It is expected to reinforce Europe's dynamic character, making it more attractive to leading scientists from both Europe and third countries, as well as for industrial investment. Two types of the ERC grant will be available, both operating on a "bottom-up" basis without predetermined priorities, across all fields of research:

- The ERC Starting Independent Researcher Grants (ERC Starting Grants).
The objective is to provide support to the independent careers of outstanding researchers. They are either located in or moving to the EU and associated countries, and are at the stage of establishing their first research team or programme, whatever their nationality.
- The ERC Advanced Investigator Grants (ERC Advanced Grants). The objective is to support excellent frontier research projects by leading established researchers across the EU member states and associated countries, whatever their nationality.

What's the benefit for industry and SMEs:

Projects will be funded on the basis of proposals presented by researchers both from the private and public sectors on subjects of their choice and evaluated on the sole criterion of excellence as judged by peer review.

Frontier research is a key driver of wealth and social progress because it offers new opportunities for scientific and technological advancement, and is instrumental in producing new knowledge leading to future applications and markets.



Want a scientific career in Europe?

People
Budget: €4.7 billion

The “People” programme offers individuals the opportunity to follow a career in research. European researchers should be encouraged to stay in Europe whilst at the same time the best researchers in the world should be attracted by European research excellence and infrastructures. Building on the positive experiences with the “Marie Curie Actions”, the “People” programme should encourage individuals to enter the profession of researcher; structure their research training by offering options; and, encourage mobility within the same sector. The mobility of researchers is not only key to the career development of researchers but also vital to the sharing and transfer of knowledge between countries and sectors.

‘People’ in FP7

www.ec.europa.eu/research



PEOPLE: Training and career development of researchers

Budget: €4.7 billion (2007 - 2013)

We need highly trained and qualified researchers in order to improve the well-being of our citizens and increase economic growth.

What's the benefit for citizens:

In order to compete globally we need more people to follow a career in research and to then provide them with the foundations for an open labour market. Therefore, Europe must be transformed into an attractive continent that supports innovation, knowledge creation and encourages researchers to stay.

During FP7 a series of EU research funded actions will support the on-going training, research and mobility of highly qualified scientists within Europe and the rest of the world. By meeting the above objectives, we will encourage the proliferation of centres of excellence in the EU and their contribution in new areas of research and technology.

What's the benefit for researchers:

Building on the successful experience of the Marie Curie actions, the “People” programme will improve the human potential in European research and development by covering all stages of a researcher's professional life from initial training to lifelong learning and career development.

The following types of actions are planned during FP7:

- Initial training of researchers will be offered through the Marie Curie Networks which will improve their research skills and help them join established research teams. In parallel, complementary training will enhance their career prospects in both public and private sectors.
- Lifelong training and career development through individual fellowships and co-financing programmes at international, national and regional level. These offer experienced researchers the opportunity to acquire new skills, enhance their mobility and re-integrate them into research.
- An international dimension to be addressed through international outgoing and incoming fellowships aiming to increase research talent outside Europe and fostering mutually beneficial research collaboration with researchers from outside Europe. The activity will also include measures to counterbalance “brain drain” and create networks of European researchers working abroad.
- Specific actions will be implemented to support the creation of a genuine European labour market for researchers, such as the removing of obstacles to mobility and enhancing their career perspectives. Public institutions will be offered incentives to promote the mobility, quality and profile of their researchers, as well as awards in order to improve the public awareness of Marie Curie actions and their objectives.

What's the benefit for industry and SMEs:

The participation of industry and SMEs is foreseen through all Marie Curie actions. Industry involvement will be strongly supported through actions directed at the initial training of researchers. In parallel another action will aim to build long term cooperation between academia, industry and SMEs. The objective is to stimulate mobility between sectors and increase knowledge sharing through joint research partnerships. The recruitment of experienced researchers to the partnership will be reinforced by staff secondments between sectors, and through the organisation of events.



Top facilities for top scientists

Capacities
Budget: €4.2 billion

The “Capacities” programme aims to optimise the use and development of research infrastructures, while enhancing the innovative capacities of SMEs to benefit from research. The programme is designed to support regional research-driven clusters and at the same time unlock the research potential in the EU’s convergence and outermost regions. Support is to be provided for horizontal actions and measures underlining international cooperation. Finally, European society and science should be brought closer under the initiatives of the “Capacities” programme.

“Capacities” will operate in seven broad areas:

- Research infrastructures;
- Research for the benefit of SMEs;
- Regions of knowledge and support for regional research-driven clusters;
- Research potential of Convergence Regions;
- Science in society;
- Support to the coherent development of research policies;
- International co-operation.

‘Capacities’ in FP7

www.ec.europa.eu/research



RESEARCH INFRASTRUCTURES

Budget: €1.8 billion (2007 - 2013)

Research infrastructures play an increasing role in the advancement of knowledge, technology and their exploitation. They need a broad range of expertise to be developed and should be used and exploited by a large community of scientists and industries on a European scale.

What's the benefit for citizens:

A few examples of research infrastructures include radiation sources, data banks in genomics and in social sciences, observatories for environmental sciences, systems of imaging, clean rooms for the development of new materials or nano-electronics, computing and communication based electronic infrastructures, and telescopes. These facilities, resources or services have the ability to bring together people and investment and to contribute to national, regional and European economic development. They are therefore important for research, education and innovation.

What's the benefit for researchers:

Cutting-edge research infrastructures need a broad range of expertise in order to develop. At the same time they have the ability to create rich research environments and attract researchers from different countries, regions and disciplines. Thousands of scientist and students from universities, research institutes or industries from Europe and abroad, benefit from research infrastructures.

Research infrastructures can be seen as strategic Centres of Excellence for research and training as well as facilitators of public-private partnerships in research. The benefit of cross-disciplinary and institutional collaboration lies in the personal interactions of researchers coming from different countries, disciplines and work places. Since activities in these facilities lie at the frontiers of science, they stimulate the interest of young people and motivate them to embrace scientific careers.

What's the benefit for industry and SMEs:

Industry uses research infrastructure facilities in collaboration with researchers. Their construction and maintenance create important supply and demand effects. Such innovation capacities can be seen through the public-private mobility of researchers and the new technologies applied in building world-level research installations or spin-off products and/or start-up companies. Research infrastructures clearly stimulate industrial impacts and play an outstanding role in building the interface between science and industry.

They also have socio-economic impacts, for example where pan-European research infrastructures have their site, often "technology clusters" of associated industry or so-called technology parks can be found. Such strategic centres for transfer of knowledge offer either better possibilities for interdisciplinary research contacts or greater attraction to high-tech firms. As a result, different regions often compete to attract new installations and this can be an opportunity to also increase the public-private interaction in the funding of research activities.

SMALL MEDIUM ENTERPRISES (SMEs)

Budget: €1.3 billion (2007 - 2013)

SMEs make up a large part of Europe's economy and industry. The EU's 23 million SMEs account for 99% of all businesses and contribute up to 80% of employment in some industrial sectors, such as textiles.

What's the benefit for citizens:

European SMEs are an essential source of growth, employment, entrepreneurial skills, innovation and economic and social cohesion. It is therefore essential to unlock the potential through research and technological innovation which will help them survive and prosper in the long run. Their closer working relationships with the research community will bring increased value to the European economy, higher growth and more job opportunities.

FP7 proposes actions to increase the participation of SMEs in research and offers them measures that will facilitate their access to research results. Other advantages for SMEs taking part in FP7 will include higher funding rates, a wider choice of funding schemes, the acquisition of new knowledge and increased potential for new products and services.

What's the benefit for researchers:

Under FP7, SMEs can strengthen their overall position through networking and relationship building with international partners, access to research centres of excellence, and development of research and innovation.

Actions will be encouraged across the entire field of science and technology, utilising a bottom-up approach. Two dedicated measures will be implemented:

- (i) **Research for SMEs:** to support small groups of innovative SMEs in solving common or complementary technological problems.
- (ii) **Research for SME associations:** to support SME associations and SME groupings in developing solutions to problems common to large numbers of SMEs in specific sectors.

These two measures primarily address the large community of SMEs with a capacity to innovate but with limited research capabilities. To increase the participation of and benefit for SMEs, the outsourcing character of the measures will be strengthened.

What's the benefit for industry and SMEs:

Throughout FP7, SMEs will actively be encouraged to participate in all research actions, especially those under the Themes of the Cooperation programme. The involvement of SMEs in Joint Technology Initiatives (JTIs) will be encouraged wherever such activity is considered appropriate.

A key feature of FP7 is the proposed simplification of rules and procedures. Envisaged measures will cover the entire funding cycle, including the various elements of funding schemes, administrative and financial rules, procedures, readability and user-friendliness of documents.

The proposed rules for Participation in FP7 specify a funding rate of 75% for research and development activities of SMEs, rather than the 50% currently applicable in FP6. This should make it more attractive for SMEs to participate in the Framework Programme by lowering their financial burden. Furthermore, the current principle of 'collective financial responsibility' is replaced in the proposal of FP7 with a guarantee fund, which would cover the financial risks of defaulting project participants.

REGIONS OF KNOWLEDGE

Budget: €126 million (2007 - 2013)

Regions are increasingly being recognised as important players in the EU's research and development landscape. Local resources are taking an active part in scientific endeavour and innovation in favour of society.

What's the benefit for citizens:

The actions undertaken in this area will enable European regions to strengthen their capacity for investing in and carrying out research activities. While this can be beneficial for regions locally, it is also a way to maximise their potential for a successful involvement in European research projects. A stronger research capacity can also result in the creation of more jobs in the regions.

Research policy and activities at regional level often rely on the development of "clusters" uniting public and private actors. The Pilot Action on "Regions of Knowledge" demonstrated the dynamics of this evolution and the necessity to support and encourage the development of such regional structures.

What's the benefit for researchers:

Encouraging transnational networks of regions and research-driven clusters will help maximise the region's potential, creating a dynamic environment that can attract or retain the best researchers. These clusters will bring together universities, research centres, enterprises and regional authorities, councils or development agencies.

What's the benefit for industry and SMEs:

Industry as a whole and SMEs in particular are essential partners in successful EU research projects. Assisting regions in increasing their capacity for investing in research and development will help improve competitiveness and knowledge absorption capacities.

Synergies will be sought with the Community's regional policy as well as with major national and regional programmes, in particular with regard to convergence and outermost regions.

The Regions of Knowledge activity will encourage cross-border regional co-operation in research, irrespective of whether the regions concerned fall under the convergence or the regional competitiveness objective.

RESEARCH POTENTIAL OF CONVERGENCE REGIONS

Budget: €370 million (2007 - 2013)

Europe needs to exploit its research potential, particularly in the less advanced regions that are remotely situated from the European core of research and industrial development. A strategy of inclusiveness can potentially benefit the social fabric as well as the research community and the industry, locally and at the level of the European Research Area.

What's the benefit for citizens:

Taking advantage of the knowledge and experience existing in other regions of Europe, this action seeks to upgrade research potential where needed by providing support in the form of investment, staff, networking or advice.

The effort is directed at researchers and institutions of these regions in the public or private sector.

What's the benefit for researchers:

The research community in the convergence and outermost regions will be supported as follows:

- Transnational two-way exchanges of research staff between selected organisations in the convergence regions, and one or more partner organisations; support to selected centres of existing or emerging excellence for the recruitment of incoming experienced researchers from other European countries.
- Acquisition and development of research equipment and the development of a material environment enabling the exploitation of the intellectual potential to be found in the selected centres of existing or emerging excellence in the convergence regions.
- Organisation of workshops and conferences to facilitate knowledge transfer; promotional activities as well as initiatives aiming at disseminating and transferring research results in other countries and international markets.
- "Evaluation facilities" through which any research centre in the convergence regions can obtain an international independent expert evaluation of the level of their overall research quality and infrastructures.

What's the benefit for industry and SMEs:

To fully realise the European Research Area in the enlarged Union, all regions must take part and must be supported if necessary. This strategy directly benefits SMEs and industrial organisations in the convergence regions.

Strong synergies will be sought with the Community regional policy. Actions under this heading will identify needs and opportunities for reinforcing the research capacities of emerging and existing centres of excellence in convergence regions which may be met by Structural and Cohesion funds.

Synergies will also be sought with the Competitiveness and Innovation programme in order to promote the regional commercialisation of research and development in collaboration with industry.

SCIENCE IN SOCIETY

Budget: €280 million (2007 - 2013)

'Science in Society' aims to bridge the gap between science professionals and those without a formal science education and to promote a taste for scientific culture in the public at large. Some of the initiatives, therefore, are aimed at triggering the curiosity of young people for science and at reinforcing science education at all levels.

What's the benefit for citizens:

While science and technology has an increasing influence on our daily lives, it may appear to be removed from the daily concerns of a large part of the public and of policy makers. Contentious issues relating to emerging technologies should be addressed by society on the basis of well-informed debate leading to sound choices and decisions. Therefore, another key issue is the encouragement of societal dialogue on research policy; stimulating civil society organisations to become more involved in research; debating and promoting shared values, equal opportunities and societal dialogue.

What's the benefit for researchers:

The initiative undertaken in the field of 'Science in Society' will provide support to issues such as strengthening and improving the European science system. This includes "self regulation" and the development of a policy on the role of universities. The role of research based in universities and their engagement in the challenges of globalisation will be strengthened.

The continuation and further expansion of gender research is foreseen, including the integration of the gender dimension in all areas of research.

Special attention will go to improving communication between the scientific world and the wider audience of policy-makers, the media and the general public. This would partly be achieved by helping scientists and media professionals to work closer together.

Further efforts will be made to set landmarks for an ethically sound research endeavour in the light of fundamental rights. Initiatives will be undertaken to improve governance of the European research and innovation system.

What's the benefit for industry and SMEs:

By stimulating young people to take on science studies, industry's personnel needs might be better supported in the longer term. The progress of women in scientific careers will be promoted, along with the better use of their professional and scientific talents.

Ethical frameworks for research activities together with an open-debate culture on research and its place in society, will be reinforced in order to enhance the trust of citizens in industrial research activities.

SUPPORT TO THE COHERENT DEVELOPMENT OF RESEARCH POLICIES

Budget: €70 million (2007-2013)

Europe needs to improve the coherence of research policies at the regional, national and European level and increase its potential in the production and use of knowledge in order to become more competitive and provide solutions to some of the challenges it faces today.

What's the benefit for citizens:

Public investment in research will become more cost effective through better monitoring and coordination of research policy across Europe. It is envisaged that better collaboration between policy makers across national, regional and European levels will lead to identification of good practices and better policy development. This would improve the conditions for conducting research and ultimately improve Europe's potential in creating jobs and growth. It will also provide a better assessment of the impact of public expenditure in research on leveraging private investment and on competitiveness.

What's the benefit for researchers:

Actions are mainly targeting policy makers but will ultimately improve conditions for conducting research. One specific action will further develop the European strategy for human resources and mobility in research through a number of regional, national and Community policy initiatives such as funding of programmes, legislation, recommendations and guidelines. The common objective of these initiatives is to stimulate researchers to stay in Europe and attract the best brains from all over the world.

The following activities will be supported during FP7:

- Monitoring, analysis and impact assessment of public research policies and industrial strategies. The development of indicators will provide information and evidence in the design, implementation and evaluation in the trans-national coordination of policies.
- Strengthening, on a voluntary basis, the coordination of research policies in a twofold manner: first, through actions supporting the implementation of the open method of co-ordination (OMC) and second, through bottom-up trans-national cooperation initiatives undertaken at national or regional level on issues of common interest.

What's the benefit for industry and SMEs:

Increasing investment in research and development to reach 3% of the GDP in the EU by 2010, out of which 2/3 should come from private sources and improving its effectiveness, is a top priority of the Lisbon strategy for growth and jobs.

Therefore, it is essential to strengthen public support for research and its leverage effect on investment by private actors. In addition the identification of the most suitable measures to encourage research and development investment in SMEs, particularly those with a high growth potential, will contribute towards a higher investment in research.

INTERNATIONAL COOPERATION

Budget: €185 million (2007 - 2013)

More than 100 countries from all over the world are involved in EU Research Programmes. These activities will continue within the "Cooperation" programme of FP7, which covers the international cooperation actions in the 10 thematic areas and across themes. They will be implemented in coordination with the "Cooperation", "People" and "Capacities" programmes of FP7.

What's the benefit for citizens:

International research and development will contribute to the production of global public goods and help to close the gap between different countries in the world. There is already a significant body of scientific knowledge in the world improving the lives of those who live in developing countries as well as those of European citizens. Where possible, the Framework Programme will also contribute to meeting the Millennium Development Goals by 2010.

What's the benefit for researchers:

The enhanced participation of researchers and research institutions from third world countries applying the appropriate restrictions for security issues in order to respect the confidentiality aspects within the thematic areas. They will be strongly encouraged to seize this opportunity - be it through collaborative research or through fellowships.

Specific cooperation actions in each thematic area dedicated to third world countries in cases of mutual interest; to cooperate on the particular topics selected based on their scientific and technological levels and needs. These actions are closely associated with either the bilateral cooperation agreements, or multilateral dialogues between the EU and these countries or groups of countries and will serve as privileged tools for implementing the cooperation between the EU and these countries. In particular, such actions are:

- Actions aiming to reinforce the research capacities of candidate countries and neighbourhood countries;
- Cooperative activities targeting developing and emerging countries focusing on their particular needs in various fields such as health, agriculture, fisheries and environment, and implemented in financial conditions adapted to their capacities.

What's the benefit for industry and SMEs:

International cooperation under FP7 will further integrate the EU into the worldwide community and thus help advance research and technology in those countries that are building their own knowledge capacity. These will, on one hand lead to enriching European research with the pool of knowledge generated around the world, while enhancing, on the other hand, the science and technology awareness and competence of societies and companies in developing countries.



Securing tomorrow's energy needs

Euratom
Budget: €2.7 billion

The European Atomic Energy Community (Euratom) adopts a separate Framework Programme for nuclear research and training activities. The initial five-year period can be extended to full seven years from 2007 to 2013.

Euratom in FP7

www.ec.europa.eu/research



EURATOM

Budget: €2.7 billion (2007 - 2011)

The framework programme for nuclear research and training activities will comprise Community research, technological development, international cooperation, dissemination of technical information and exploitation activities as well as training.

Two specific programmes are planned:

- **Fusion energy research**, with the objective of developing the technology for a safe, sustainable, environmentally responsible and economically viable energy source. Activities will include the realisation of ITER (as an international research infrastructure), research & development of the ITER operation, the technology activities in preparation of DEMO, preparation of an international Fusion Materials Irradiation Facility (IFMIF).

Research and development activities for a longer term are also planned, as well as human resources, education and training initiatives.

Nuclear fission and radiation protection with the objective of enhancing in particular the safety performance, resource efficiency and cost-effectiveness of nuclear fission and other uses of radiation in industry and medicine. Activities will include:

- Management of radioactive waste
 - Reactor systems
 - Radiation protection
 - Infrastructures
 - Human resources, mobility and training
- The second programme will cover the Activities of the **Joint Research Centre (JRC)** in the field of nuclear energy, including:
 - Nuclear Waste Management and Environmental Impact
 - Nuclear Safety
 - Nuclear Security

Budget (for the period 2007-2011)

Fusion energy research*	€1947 m
Nuclear Fission and radiation protection	€287 m
Nuclear Activities of the Joint Research Centre	€517 m

**Within the amount foreseen for fusion energy research, at least €900 million will be reserved to activities other than the construction of the fusion energy source ITER.*

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