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The European Union's Sixth Framework Program for Research and Technological Development (FP6)

by Dylan Brown

The cost of the Sixth Framework will be a record 17.5 billion euro, representing 3.9% of the total European Union budget.

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Europe, traditionally a center for scientific excellence, is today a world leader in scientific discovery. The European Union (EU) supports the European scientific community by funding research programs to promote cooperation both within the Union and with non-member nations. The largest of these initiatives are the Framework Programs, each of which lasts five years and represents billions of dollars.

The Framework Programs and other European-based S&T programs offer potential opportunities for Americans by allowing researchers, institutions and corporations in the United States to collaborate with their counterparts overseas. Beginning in November 2002, the EU will launch its Sixth Framework Program. Priority research areas include: information technology, life sciences, nanotechnology, ecosystems, and aerospace. Additional information about the Framework Program – its objectives, funding, project selection criteria, and participation eligibility – is provided below.

Philippe Busquin, Commissioner for Research

What is the European Framework Program? What are its objectives?

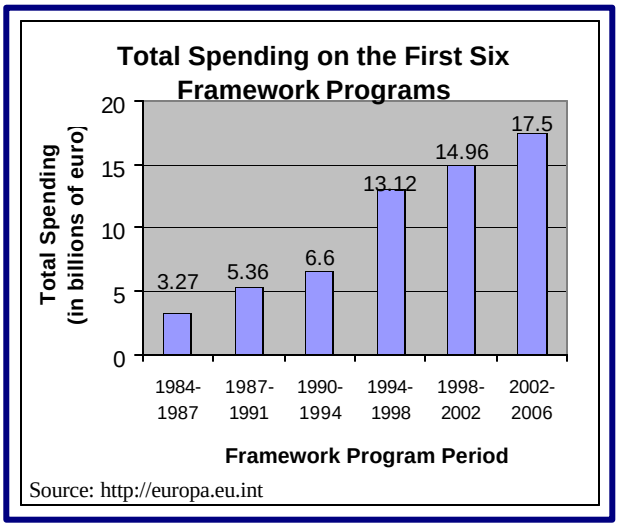
The Framework Program (FP) is the European Union's main instrument for funding research within the European Community. Established to foster cooperation and coordination within Europe's scientific and technology community, the Framework Program aims to pool resources in order to undertake research projects beyond the means of individual national research programs.

The first of the five-year programs was implemented in 1984, and the sixth is set to take effect in November of 2002 and last through 2006. Each FP is approved by both the European Parliament and the Council of Ministers, and is run under the jurisdiction of the European Commission, and in particular, the Directorate-General for Research. The Current Commissioner for research is Philippe Busquin.

The FP is open to any individual, company, university, or research entity based in the European Union or one of the program affiliated countries outside the EU. Yet under certain circumstances, participation by non-EU nationals or entities is possible. (See "Who may participate in the FP?" below.) Framework projects are funded on a shared-cost basis, with the EU paying up to 50% of the costs for research projects. The remainder of the money comes from other sources such as grants and private funding.

While European R&D investment in 2000 was 1.9% of Europe's GDP (compared to 2.7% in the United States), the EU has set a goal for EU-wide R&D investment to move towards 3% by 2010.

Simply put, EU officials look to the FP as providing the same type of catalytic and organizational function for research as the Common Market has done for the European economy.



Source: http://europa.eu.int

What is the 6th Framework? How does it differ from the 5th?

The Sixth Framework Program (FP6), which will last until 2006, aims to enhance a sense of community and cooperation among European research professionals through the creation of knowledge, facility, and funding networks, rather than focusing solely on pure research. While FP5 focused on fostering practical technology applications and commercialization, FP6 seeks to strengthen research networks across Europe by enhancing research facilities' infrastructures and by promoting basic research partnerships between individual scientists, laboratories and research organizations in different countries. Under the Fifth framework, research was targeted towards specific areas (called "Key Actions,") and featured projects that were, for the most part, more limited in scope. In an effort to encourage enduring linkages between European researchers and diverse scientific groups, FP6 will focus on projects that can only be accomplished at the European level. In real terms, this will translate into projects that involve more participants and have a longer duration and larger budget than in the past. Under FP5, research projects received on average 1.6 million euro from the fund. EU officials predict that FP6 projects will receive on average between three-to-five million euro in EC-funding. This means that most projects would fall in the range of five-to-ten million euro when EC and independent contributions are totaled.

U.S. Dollar-Euro

The exchange rate between the dollar and the euro varies, but is roughly one-to-one. The exact exchange on Oct. 24, 2002 was one euro equals .97 dollars.

The Sixth Framework is also intended to be simpler and more flexible than previous FPs. Neither partnerships nor project objectives will be set in stone. Instead, both will be allowed to adapt to changing circumstances or technologies. Project leaders will have greater decision-making authority than under earlier Framework Programs. They are able to bring on new investigators throughout the course of the research project and defined project outcomes can be adjusted beyond the initial stage. In addition, the FP6 places an emphasis on increasing mobility within the European Union – both in terms of information and of researchers.

EC? EU? EP? Egads! Who's Who and What's What in Europe Today:

The European Union (EU): The EU came in to being following the Dec. 1991 signing of the Treaty on European Union (TEU), or more commonly known as the Maastricht Treaty. The TEU established the new Union with a three-pillared structure. The central pillar was the European Community, now expanded to include a common internal market and the Economic and Monetary Union, which eventually led to the adoption of the euro as an international currency. The other two pillars of the EU are Common Foreign and Security Policy and Justice and Home Affairs.

The European Community (EC): Officially formed in 1957, the EC united three pre-existing organizations, the European Economic Community, the European Coal and Steel Community, and Euratom. At the time, there were only six member nations – France, Germany, Italy, Belgium, the Netherlands and Luxembourg. The United Kingdom, Ireland and Denmark joined in 1973, with Greece, Spain and Portugal following in the 1980s. The final three members of the EC 15 – Austria, Finland and Sweden – joined in 1995.

The European Commission (EC): As the executive body of the EU, the European Commission is composed of 20 appointees from member nations – one from each of the ten smaller nations and two each from Spain, Italy, Germany, Britain and France. The Commission is in charge of ensuring compliance with EU Treaties and is responsible for the initiation, implementation and supervision of EU legislation.

The Council of Ministers: The Council represents the Member States' governments at the European level. The fifteen governments of the EU have one seat each, which is occupied by the national minister responsible for the issues under discussion. The highest-level meeting of the ministers is the European Council, which is held at least twice a year when Heads of State meet to discuss policy and propose guidelines for Community action.

The European Parliament (EP): Originally no more than a consultative body, the EP has gradually gained in importance as successive EU treaties have given it greater power and responsibility. The EP, comprised of 626 democratically elected members, has had real influence over the EU budget since 1970. Since 1997, the EP has held co-legislative powers with the Council in over 70% of policy areas, and can initiate legislation.

By increasing R&D expenditures, EC officials hope to motivate skilled technical students and professionals to seek careers in European institutions. At present, only 5.1% of the EU's workforce is engaged in research, as opposed to 7.4% in the United States, and 8.9% in Japan.

With regard to targeted research areas, the Sixth Framework represents expanded areas of concentration in the fields of biotechnology, nanotechnology, food safety, development, and space and aeronautics research. Some of the new sub-fields gaining attention under FP6 are genomics, bio-informatics, electronic and mobile commerce, broadband, wireless and satellite communications networks, and micro-technologies.

The Sixth Framework Program also introduces two new "tools" – "Integrated Projects" and "Networks of Excellence." Integrated Projects are large projects or clusters of several smaller projects with the goal that the larger initiative will have enough "critical mass" to lead to a real and lasting influence on Europe's scientific and/or economic communities. These Integrated Projects will have budgets as large as 100 million euro, as opposed to the smaller, independent projects in the range of five-to-ten million euro.

The second new instrument of the Sixth Framework is the development of "Networks of Excellence." In the past, partnerships between nations or institutions have ended at the conclusion of their individual projects. In recent years, this has been seen as one of the failings of the FPs and similar programs. In contrast, the new Framework program encourages the continuation of partnerships so that the connections formed will last beyond the life of the Sixth Framework.

What are the criteria for the approval of Framework projects?

EU-funded research project proposals are evaluated on the following criteria:

1) Projects must benefit from being run at the European Community level, in other words, involving researchers from multiple nations. For instance, acceptable projects would include very large endeavors overlapping national boundaries that require international or intergovernmental cooperation, such as the environment.

2) Objectives must reflect the interests and concerns of the citizens of the European Community. This includes such aims as the reduction of unemployment, protecting the environment, health and safety research, and other such projects.

3) Research must contribute to the economic well-being and development of member nations by aiding in the spread of information and technology and by assisting European Community businesses.

Each project proposal is reviewed by a panel of independent experts – five on average – who evaluate the quality and relevance of the proposal. These experts then create a "short list" of those projects they deem appropriate to receive funds under the Framework criteria.

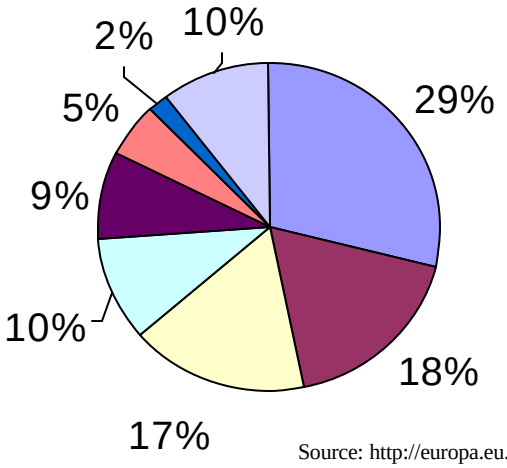
What is the Sixth Framework Program's budget?

The total budget for FP6 is 17.5 billion euro (about 17 billion dollars). Of this, 16.27 billion euro go to European Community projects, and 1.23 billion euro to Euratom (see below.) FP6's total budget is seventeen percent higher than for FP5 (which totaled 15 billion euro), though the increase is only 8.8% when adjusted for inflation. The FP6 budget represents 3.9% of the total budget of the European Union (approximately ninety-two billion euro per year between 2000 and 2006), and equals 5.4% of all non-military research spending in Europe as a whole. Under the Fifth Framework in 1998, half of all funding went to universities and research institutions, while large industry received 18% and small and medium-sized enterprises 16%. A similar allocation of funding is expected under the Sixth Framework, although the Sixth Framework's emphasis on basic research may result in a slight shift away from large industry.

Of the total 16.27 billion euro going towards non-

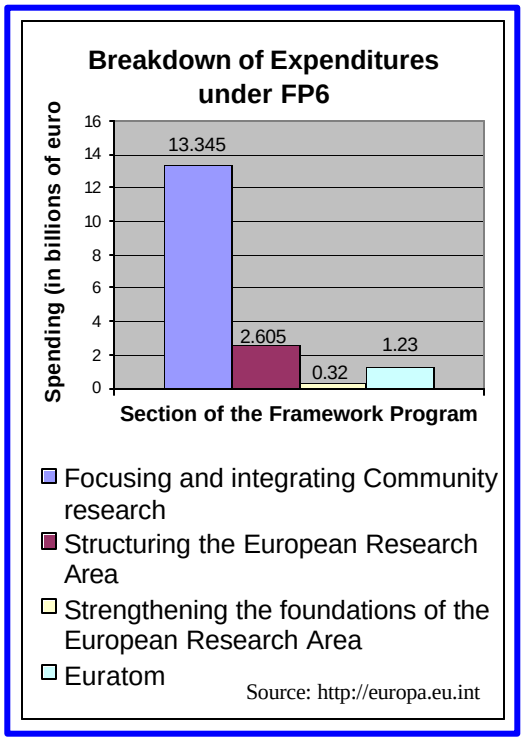
FP6 Funding Research Priorities (2002-2006)

- Information Society Technologies - 3.625 billion (29%)
- Life Sciences, Genomics and Biotechnology - 2.255 billion (18%)
- Sustainable Development, Global Change and Ecosystems - 2.12 billion (17%)
- Nanotechnology, multi-functional materials and new productive processes and devices - 1.3 billion (10%)
- Space and Aeronautics - 1.075 billion (9%)
- Food Quality and Safety - .685 billion (5%)
- Citizens and Governance in Europe's Scientific and Knowledge Communities - .225 billion (2%)
- Specific activities, including emerging technologies, SME-focus, and international projects - 1.3 billion (10%)



Source: http://europa.eu.int

Euratom projects, 13.345 billion will be dispersed to "Focusing and Integrating Community research," i.e. the individual research projects. Of the remaining sum, 2.605 billion euro go towards "Structuring the European Research Area" and 320 million euro for "Strengthening the Foundations of the European Research Area."



What is Euratom?

Euratom (the European Atomic Energy Community) is the second main component of the Framework Programs and focuses on research and training in the field of nuclear energy. Under FP6, its budget is 1.23 billion euro or seven percent of the total Sixth Framework Program budget. Specifically, Euratom's mandate is to find viable uses for both fusion and fission power and to study the effects of radiation.

Who may participate in the Framework Program? Is it only for EU countries?

The member countries of the Framework are: EU nations; the four states of the European Free Trade Association – Iceland, Norway, Liechtenstein and Switzerland; the countries currently applying for EU membership: Cyprus, Bulgaria, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia, Slovenia and Malta; and Israel.

Furthermore, the following countries are expected to sign a Science and Technology Agreement with the United States, Argentina, Australia, Canada, China, Russia and South Africa.

The EU Nations:
Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, the Netherlands, Portugal, Spain, Sweden, and the United Kingdom

Limited partnerships exist between the European Union and the nations of the NIS (Newly Independent States: Armenia, Azerbaijan, Belarus, Georgia, Moldova, Russia, Ukraine,) and between the EU and the Mediterranean Partnership countries (Algeria, Cyprus, Egypt, Israel, Jordan, Lebanon, Malta, Morocco, the Palestine Authority, Syria, Tunisia and Turkey).

Any individual or institution from these countries is eligible participate in Framework research, though generally it is only the member states and accession countries that can be legal recipients of EU research grants. Scientists from other countries will be able to receive aid only when it is decided by the European Commission that their participation is essential for the achievement of the project's objectives. Also, future calls for proposals issued by the EU will detail the conditions for participation of non-EU countries, which are likely to differ with each call.

Can American companies and researchers participate?

Yes, on the basis of the EU-U.S Agreement for Scientific and Technological Cooperation, legal entities of the United States will be eligible to participate in EU-funded projects.

EU Framework Program and IPR

Intellectual property rights (IPR) for FP projects are defined on a case-by-case basis via an agreement concluded between the partners of each individual project. Unless otherwise specified, knowledge is owned by the contractor(s) who carry out the work to produce that knowledge. The EU provides a model contract for research collaboration that includes IPR provisions and parties receiving funds are obliged to adhere to the contracts provisions. The model contract can be found at http://www.cordis.lu/fp5/management/provisions/r-modcost-3b.htm#Part%20B.

Under the guidelines of the program, the exploitation of results produced in cooperation with unfunded partners (such as Americans) must be carried out in accordance with the "best interests of the European Union and with respect to all international agreements."

What is the European Research Area (ERA)? How is it different from the Framework Programs?

The European Research Area is a network of collaborating research institutions within the European Union. The ERA, first adopted by the European Commission in January of 2000, is described by its advocates as the research and development equivalent of the Common Market for goods and services. Commissioner Busquin, who has political authority over the EC's Directorate-General for Research, stated that the main aim of the ERA is "…to contribute to the creation of better overall framework conditions for research in Europe." The European Research Area is envisioned as an environment where ideas, scientists and new technologies flow freely, leading to an integrated, and thus accelerated, technological progress throughout Europe.

The Framework Programs are the centerpieces of the European Research Area initiative. They allow the European Commission to shape the ERA by directing research through the funding of specific Framework projects. It is for this reason that the Sixth Framework puts its emphasis as much on building the scientific infrastructure of Europe as on funding individual projects.

The major objectives of the ERA, as listed by CORDIS (the EU's Community Research and Development Information Service) include:

-Forging a unified approach to the funding of research institutions across the continent.

-Building closer relationships between Europe's various research organizations to facilitate scientific and technological cooperation.

-Better use of instruments and resources in order to encourage investment in all research projects.

-Establishing a common system of technical and scientific reference.

-Promoting increased mobility of resources, particularly human resources.

-Bridging the gap between Eastern and Western Europe in order to unify their scientific communities.

-Making Europe more attractive to researchers around the globe (including native Europeans who have left to work elsewhere.)

-Promoting shared social and ethical values in all scientific and technological matters.

What other European research programs exist?

Besides the Framework Programs, other leading European based R&D programs include:

• **Eureka:** Like the FPs, Eureka provides funding for a broad range of research proposals. Eureka is aimed at market-oriented, commercially viable innovations, whereas the Frameworks concentrate on pre-competitive technologies and processes. Eureka was established in 1985 and is currently composed of thirty-four member nations.

• **COST (European CO-operation in the field of Scientific and Technical research):** Founded in 1971, COST is an intergovernmental framework, facilitating coordination of nationally funded research. Forty-three nations participate, thirty-three of them full members, including most of the EU and Eastern and Central Europe. Institutions from non-COST countries are allowed to participate, including those from the United States. In 2001, six U.S. based institutions collaborated in COST projects.

COST research projects are called Actions, and generally last four years. To receive funding, they must include at least five participants from member states. COST's annual funding exceeds 1.5 billion euro. In 2000, COST funded two hundred projects, involving nearly 30,000 scientists.

• **IRCs (Innovation Relay Centers):** Fifty-four of these centers currently exist in the European Union, Norway, Iceland and Israel, with ten more in Central and Eastern Europe. Their role is to help European companies by spreading new technologies throughout the continent and by importing technological innovations into Europe from abroad. Additionally, the IRCs are involved in the exploitation of research produced by the FPs and other programs.

• **JRC (Joint Research Center):** The JRC is a group of eight research institutions located in five European countries run directly by the European Commission with most of its funding from the Framework budget. Whereas Framework projects are only funded by the EC and are then run independently, JRC projects are carried out by researchers working on behalf of the EC itself. Over the last few years, the Commission has generally chosen JRC projects that further the goal of creating the European Research Area. All research is done in close collaboration with the governments of the member states, advancing the goal of coordination across national lines. The four main research areas are: 1) food and chemical safety; 2) the environment; 3) information technology; and, 4) nuclear safety and security.

Important dates and events in the unveiling of FP6:

Nov. 4-6, 2002: **IST 2002**: Partnerships for the Future, in Copenhagen, Denmark.
An S&T event organized by the European Commission and the Danish Ministry of Sciences, Technology and Innovation aimed at stimulating Community and national research projects and reinforcing the concept of the European Research Area

Nov. 11-13: **European Research 2002: The European Research Area and the Framework Program,** in Brussels, Belgium.
The European Commission will hold a major conference to mark the launch of the EU's Sixth Framework Program for research and development. Sessions will be held to provide guidance on participation in FP6, along with symposia, workshops and project presentations for the media and the general audience to present the aims and results of research projects carried out under past EU research programs or projects.

Nov. 25-26: **Warsaw Conference: Launching the EU's Sixth Framework Program**, in Warsaw, Poland.
EU Research Commissioner Philippe Busquin will attend an informational event promoting the Sixth Framework Program. There will also be a discussion of the role of Central and Eastern Europe in the Fifth Framework program and in the European Research Area.

Nov. 26: **Finland's FP6 Seminar,** in Helsinki, Finland.
The Finnish secretariat for EU research and development will hold a seminar on the role of the Sixth Framework Program in the realization of the European Research Area. Speakers at the event will include DG Research Director-General Achilleas Mitsos and representatives from various DG directorates.

Nov. 28: **UK FP6 Launch Event**, in London, England.
The aim of the event is to introduce those from academia, industry, research institutes and government involved in research in agriculture, fisheries, food, forestry, environment and rural affairs to the opportunities offered by the new Framework Program.

Feb. 3-4, 2003: Seminar entitled "**The Sixth Framework Program - a chance for Germany and Europe**," in Hanover, Germany. Hosted by the German Ministry for Education and Research.

Useful links:

http://europa.eu.int/comm/research/fp6/index_en.html - The EU's website about the Sixth Framework.
http://www.cordis.lu/en/home.html - CORDIS: Community Research and Development Information Service.
http://www.eureka.be - The Eureka homepage.
http://europa.eu.int/comm/secretariat_general/sgc/aides/thema/recherche_en.htm - Other EU grant programs for research.
http://www.ipr-helpdesk.org/index.htm - The Intellectual Property Rights Helpdesk.
http://www.cordis.lu/fp5/management/provisions/r-modcost-3b.htm#Part%20B - The European Commission's Model Contract for Research and Development.
http://europa.eu.int/ - The European Union Online.
http://www.eurunion.org - The European Union in the United States.
http://www.buyusa.gov/europeanunion/ - U.S. Commercial Service at the U.S. Mission EU homepage.
http://www.useu.be/ - U.S. Mission to the EU homepage.