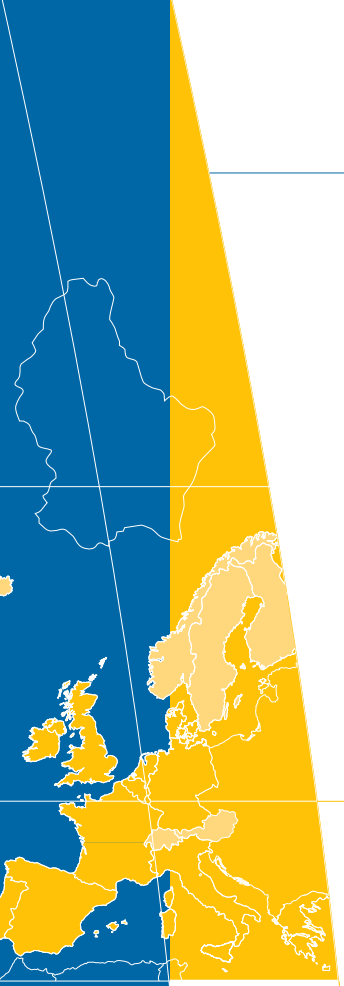
LE GOUVERNEMENT
DU GRAND-DUCHÉ DE LUXEMBOURG
Service Information et Presse



about...

...research

Grand Duchy of Luxembourg

Regime: Constitutional Monarchy

Neighbouring countries: Germany, Belgium, France

Area: 2,586 km^2

Population: 448,300 of which 145,000 are foreigners

Population density: 170 inhabitants/ km^2 (2000)

Unemployment rate: 3.4% (2002)

For the electric light bulb it was Edison. For the theories of relativity it was Einstein. For the vaccine against rabies it was Pasteur... Every major advance by mankind is associated with the name of a man, whether a scholar, researcher or scientist. Henri Tudor invented the lead-acid battery in Rosport, a village in Luxembourg, in 1881. This Luxembourg researcher, who began as an engineer and then became a manufacturer, is still highly regarded in the global electric batteries industry.

Since 1999, for the first time in its history, Luxembourg has had a Minister for Research. Since then, budgets for research and development (R&D) have risen from EUR 11 million in 1999 to around EUR 34 million for 2003 and today, almost 400 people work in public R&D in Luxembourg.

Voluntarist policy

Research, a central pillar of knowledge, is an essential driving force behind economic and social progress. It has also become a key factor in the competitiveness of countries and their economies. Therefore, investment in knowledge and innovation is now unavoidable if lasting and sustainable growth is to be achieved, high-quality jobs created, the environment respected and cures found for supposedly incurable diseases.

Since 7 August 1999, Luxembourg has had, for the first time in its history, a Minister for Research. In its 1999 coalition programme, the Government earmarked additional resources for developing national scientific and technological capacities. Since then, budgets for research and development have risen from EUR 11 million in 1999 to around EUR 34 million for 2003 (0.18% of GDP).

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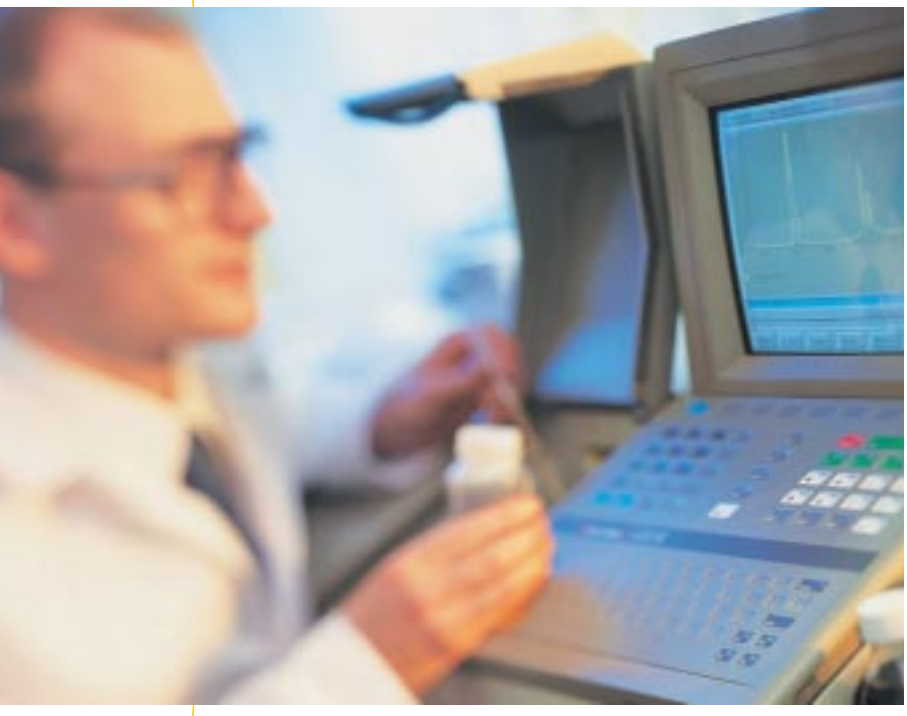
By 2010, this figure will have to rise to 1% to meet the commitments made by EU Member States at the Barcelona European Council in March 2002. In Barcelona, the Heads of State and Government of the 15 set themselves an ambitious target, namely to raise expenditure on research up to 3% of GDP, with two-thirds of the investment coming from the private sector.

Recent history

The history of public research in Luxembourg is quite recent. Indeed, the Framework Law on research only dates from 9 March 1987, when Luxembourg started walking in the footsteps of the European Union in terms of R&D.

At Community level, the first RDFP (Research and Development Framework Programme) was launched in 1984 with the principal objective of "strengthening the scientific and technological bases of European industry to make it more competitive internationally". Based on the forms and mechanisms of this first Community research framework programme, the Law of 9 March 1987 provided for a significant research plan to be drawn up at national level in Luxembourg. Research in the public sector is carried out in the socio-economic interests of the country and through a close cooperation with the private sector. In particular, it seeks to create skills appropriate to the needs of the Luxembourg economy.



Under this Law, three public research centres *(CRP Gabriel Lippmann, CRP Henri Tudor and CRP Santé)* are responsible for scientific cooperation and technology transfer projects (based on joint research projects) with private companies. These centres have developed their capacities in a small number of areas considered to be of national economic interest.

Public research centres

Set up at the *Centre universitaire de Luxembourg* (University Centre Luxembourg) in 1987, the **CRP Gabriel Lippmann** (Gabriel Lippmann Public Research Centre) focuses on three major areas: innovative materials technology (particularly nanotechnologies and instrument development), sustainable management of natural resources and information society technologies. Research in this centre is carried out in four units:

- the *Laboratoire d'analyse des matériaux* (LAM - Laboratory for the Analysis of Materials) studies materials at atomic level with a view to improving them or developing new innovatory materials, and develops measuring instruments that work on the nanometre scale;
- the *Cellule de recherche en environnement et biotechnologies* (CREBS - Environment and Biotechnologies Research Unit) studies aquatic ecosystems, both from the qualitative and the quantitative point of view, and the use of biothechnologies in plant production;
- the *Cellule de recherche, d'étude et de développement en informatique* (CREDI - IT Research and Development Unit) works on cooperative IT based on the new information and communication technologies, e-commerce and knowledge management;
- the *Laboratoire de droit économique* (LDE - Economic Law Laboratory) focuses on modernising Luxembourg legislation, particularly in terms of incorporating aspects connected to the use of new information and communication technologies.

NanoSIMS at the CRP Gabriel Lippmann

Five specimens in the world

The Laboratory for the Analysis of Materials (LAM), one of the four research units in the CRP Gabriel Lippmann, works at microscopic or atomic level. The laboratory is geared in particular to analysing materials on the atomic scale with a view to improving them or developing innovatory materials.

Within the framework of the NANO research programme (innovative materials and nanotechnology), initiated by the National Research Fund, the CRP Gabriel Lippmann aims to become a European centre specialised in the characterisation of materials on the nanometre scale (one thousand millionth of a metre).

Since December 2001, the laboratory has been equipped with a NanoSIMS, the very latest of this type of spectrometer. This is the fifth instrument of this type in the world; the other four belong to Harvard Medical School, the Curie Institute in Paris, the University of Washington and the Max Planck Institute in Mainz.

Acknowledged as an international leader in this field, the laboratory focuses among other things on enhancing and developing state-of-the-art scientific apparatus. The creation of the Cation Mass Spectrometer as part of a European research programme is one of its major successes in this respect.

The laboratory also carries out analyses for both Luxembourg and foreign companies. Since 1992, a large number of prestigious organisations have used its services (over 100 organisations), including Alcatel, Honeywell, L'Oréal, Solvay, Cerametal, Goodyear, IEE, Pechiney Eurofoil and TDK.

Established in 1987, the **CRP Henri Tudor** (Henri Tudor Public Research Centre) seeks mainly to promote technological innovation in the private and public sectors. To this end, the centre offers a whole range of services and activities: R&D projects, technology transfer, technical assistance and consultancy, advanced training and qualifications.

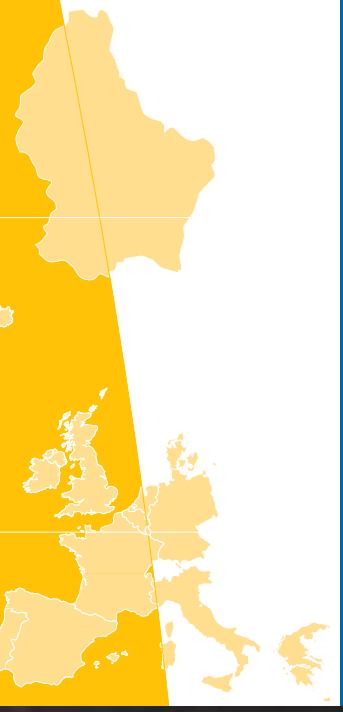
The centre's principal departments are the:

- CITI: *Centre d'innovation par les technologies de l'information* (Information Technology Innovation Centre);
- LTI: *Laboratoire de technologies industrielles et matériaux* (Industrial and Materials Technologies Laboratory);
- CRTE: *Centre de ressources des technologies pour l'environnement* (Environmental Technologies Resource Centre);
- CR SANTEC: *Centre de ressources des technologies pour la santé* (Health Technologies Resource Centre);
- CRTI-B: *Centre de ressources des technologies de l'information pour le bâtiment* (Resource Centre for Information Technologies for the Building Trade);
- GIE *'Formation continue de l'ingénieur et du cadre, SITec'* (Continuing Training for Engineers and Executives Economic Interest Grouping);
- CVT: *Centre de veille technologique et normative* (Technology Watch and Legal Centre);
- *Incubateur d'entreprises de technologies innovantes du Technoport Schlassgoart* (Technoport Schlassgoart Innovative Technologies Business Incubator).

Created in 1988, the **CRP Santé** (Public Research Centre for Health) introduced advanced biomedical research in partnership with the Luxembourg Hospital Centre and the National Health Laboratory, despite the lack of pharmaceutical industries and full university courses in the Grand Duchy.

The centre's primary task is to organise and coordinate national health-based research and foster the transfer of knowledge to the public and private sectors. One of the primary objectives of the *CRP Santé* is to promote the creation of skills in various fields, including virology, immunology, cancer research and cardiology.

CRP Santé: genomic platform at the Laboratory of Molecular Biology, Genetic Analysis and Modelling



Henri Owen Tudor (1859-1928)

Inventor of the lead-acid battery

Henri Owen Tudor was born in Rosport (Luxembourg) in 1859, the year the electric lead-acid accumulator was invented. The man responsible, Gaston Planté, was actually never to go beyond the experimentation stage. With an interest in electrical engineering from a very early age, Henri Tudor was a student when he attended various lectures given by Planté and Faure on electric batteries. During this period, the Luxembourger corresponded regularly with the American Thomas Edison, who invented the first electric light bulb in 1878. In 1881, while still a student, Henri Tudor succeeded in transforming Planté and Faure's experimental model into an industrial product. This first Tudor battery worked for 16 years without interruption. It used power produced by a dynamo which he designed himself and which was connected to the watermill in Rosport. In 1885, the Tudors' chateau in the town was one of the first dwellings in the world to be equipped with a complete hydroelectric installation.

From 1884, Henri Tudor developed the 'power vehicle', a multipurpose mobile battery-motor unit in the form of an electric motor for use on isolated farms and in circuses, mobile cinemas, military camps, etc. He patented his electric accumulator and became the inventor of the lead-acid battery.

With the help of his brother Hubert, he built the first electric lighting station in Echternach in 1886. This station supplied 120 lamps installed in the houses of the village, and the public lighting system. The two Tudor brothers and their cousin Nicolas Schalkenbach then opened a small workshop in Rosport. This marked the beginning of the industrial production of the Tudor battery. In 1890, a total of 1,200 Tudor lead-acid batteries were being used all over the world. What made him a success, however, was also to destroy him. Henri Tudor fell ill, a victim of lead poisoning contracted during his incessant research work. Despite this implacable disease, however, he continued to conduct research and to innovate. A quiet, modest man despite the enormous success of his invention, he died on 31 May 1928.

The *CRP Santé* has currently eight internationally renowned laboratories which use their skills for the benefit of patients, education and the national economy. In terms of trans-sectorial resources, the centre provides resources in epidemiology, biostatistics and health systems. Its policy has enabled effective and essential cooperation to be promoted with research organisations at both the national and international level.

The three research centres are also host laboratories for PhD students co-supervised with foreign universities.

The three research centres set up by the Law of 9 March 1987 were subsequently joined by **CEPS/INSTEAD** *(Centre d'études de population, de pauvreté et de politiques socio-économiques*/International Networks for Studies in Technology, Environment, Alternatives and Development).

By the Law of 10 November 1989, based on the Law of 9 March 1987, CEPS/INSTEAD became a public establishment. This Law addresses the confidentiality of data processed by CEPS. This centre carries out studies on population, poverty and socio-economic policies by creating and using databases relating to such topics. It also develops analysis, modelling and simulation instruments for socio-economic policies. While the first three public research centres act under the

responsibility of the Ministry of Culture, Higher Education and Research, CEPS/INSTEAD is supervised by the Ministry of State.

The Law of 9 March 1987 provides for the public research centres to be attached to a public body in terms of administration: the University Centre of Luxembourg (CUNLUX) for the *CRP Gabriel Lippmann,* the Institute of Technology (IST) for the *CRP Henri Tudor* and the National Health Laboratory (LNS) for the *CRP Santé*. The Law also guarantees public research centres legal, scientific and financial autonomy.

The public research centres are managed by boards of administration comprising members from the public and private sectors. The centre's resources come from State budget contributions and funds paid by national and international bodies for carrying out R&D projects based on contracts, donations, legacies, and the possible transfer of property rights.

Ministerial department

The *Département Recherche scientifique et Recherche appliquée* (Scientific and Applied Research Department) at the Ministry of Culture, Higher Education and Research carries out the Government R&D policy. The task of this department is to coordinate work linked to the application of the Law of 9 March 1987 on R&D. It examines and gives advice on public research centre proposals for the public co-funding of research projects and draft budgets, and is also responsible for formulating and implementing an overall budget for public R&D.

The department also represents Luxembourg on committees related to R&D in the European Union and the OECD (Organisation for Economic Cooperation and Development), and ensures the participation of the Luxembourg delegation in the EU Council of Ministers responsible for R&D.

Finally, its responsibilities also include the allocation of research training grants and the administrative and financial follow-up of projects. These research training grants are awarded for a maximum of three years and enable researchers to participate in an R&D projects (generally as part of a doctoral or post-doctoral thesis) in a public research centre, public institution or private company in Luxembourg or abroad.

Sixth European framework programme

EUR 17.5 billion for the period 2002-2006

Set up by the European Commission in 1984, the multi-annual framework programmes are the main Community instruments for funding research in Europe.

Launched in 2002, the 6th RDFP (European Research and Development Framework Programme) has a budget of EUR 17.5 billion for the period 2002-2006, enabling transnational research projects presented by companies or research institutions to be co-funded. This involves a large number of lines of research, including biotechnologies, information society technologies, materials, aerospace science, food safety and the environment. The programme seeks to produce a 'European Research Space' (ERS).

The 6th RDFP includes 'new instruments' such as integrated projects and networks of excellence which are intended to reinforce cooperation and coordination in cross-border research. This RDFP is also the first for which enlargement is a real issue, since all EU candidate countries have been able to participate on an equal footing with the 15 Member States.

National Research Fund

The FNR ("Fonds national de Recherche" - National Research Fund) was established by the Law of 31 May 1999, which provides it with legal, administrative and financial autonomy. The creation of the FNR has given fresh impetus to research in Luxembourg.

The primary task of the FNR is to promote R&D in the public sector at national level. Since 2000, several multi-annual research programmes restricted to certain specific areas have been set up. Produced by specialists, selected by the FNR scientific board and the administrative board, they are then examined by independent experts. Only if accepted can they then be formalised and financed by the government. Five research programmes are underway for the period 2001-2007, representing a budget of EUR 37.5 million.

The first four programmes have started in November 2000:

SE-COM: to develop integrated research on the security of electronic trade and the effectiveness of new organisational models and electronic cooperation software;

NANO: to create a European and internationally competitive centre in Luxembourg specialised in the characterisation of materials on the nanometre scale;

EAU: to understand the complex mechanisms of the natural water cycle, assess the means for safeguarding and protecting the quality of resources, and develop the most appropriate innovative control and purification technologies;

BIOSAN: to contribute to the qualitative enhancement of the prevention, detection and treatment of cancer, heart and vascular diseases, and the development of new strategies for the specific modulation of the immune system.

In April 2002, the FNR introduced the *Vivre demain au Luxembourg* programme (**VIVRE** - Living tomorrow in Luxembourg), which defines priority research guidelines in the social, economic and human sciences in order to provide a better understanding of the challenges that the Grand Duchy and its society will have to face in coming decades.

"Vivre demain au Luxembourg"

Preparing the country's future

The National Research Fund has committed EUR 37.5 million to the first five Luxembourg multi-annual programmes for the period 2001-2007. Prior to approval and a 100%-funding, each submitted project is subject to in-depth scientific assessment by independent experts. In 2001, 24 of the 32 submitted projects were finally accepted. In 2002, 15 of the 27 projects put forward were accepted.

Two of the programmes launched in 2000 concern the economy and industry, the other two focus on the environment and health. The fifth, launched in April 2002, fills a gap in the area of social research and humanities. The main theme of *Vivre demain au Luxembourg* is Luxembourg society, its development, current situation and future. Based on exchanges between decision-makers, researchers and the general public, this research programme should enable strategies and options for the future of Luxembourg and its population to be formulated.

The priorities of this multidisciplinary research programme are:

- Population development in Luxembourg (cohesion and social integration, identity and multilingualism);
- Development of human capital;
- The information and communication age and its consequences for society;
- The role of a small country in the Saar-Lor-Lux region, the European Union and a globalised world;
- Spatial organisation;
- Accompanying measures (round tables, conferences, access to data and sources).

With a budget of EUR 12 million spread over five years, this is the most ambitious project ever launched in Luxembourg.

Furthermore, in the beginning of 2003, the FNR launched several new research programmes in addition to the five already underway. The first, entitled *Traitements de surfaces* (**TRASU** - Surface Treatment), seeks to develop new types of treatments to enhance the chemical and physical properties of surfaces (wear, adhesion), while reducing their ecological impact and production costs. It goes without saying that the results of this research are of great interest to Luxembourg industry.

Two other programmes are also likely to attract the attention of the general public. The *Sécurité alimentaire* programme (**SECAL** - Food Safety) covers the traceability of foodstuffs, their chemical and microbiological quality and their impact on human health. The programme known as *Processus de vieillissement* (**PROVIE** - Medical Aspects of Ageing) will enable teams to carry out research into age-related diseases, particularly dementia and other neuro-degenerative syndromes, cerebro-vascular conditions, chronic pain or mental health.

Besides their scientific quality, ensured through a continuous assessment, these programmes are accepted only if they deal with the Luxembourg context and clearly comprise positive socio-economic effects.

Calls for research project proposals are made to Luxembourg public bodies, services and establishments authorised to undertake research activity, while particularly drawing attention to the interregional, European, or international cooperation. Companies, meanwhile, can benefit from a specific incentive scheme for their research work, defined by the Framework Law for industry.

The National Research Fund also plays a significant role in the international scientific cooperation. Indeed, it is a member of the European Science Foundation, EUROHORCS (European Union Research Organisation Heads of Research Councils) and ERCIM (European Research Consortium for Informatics and

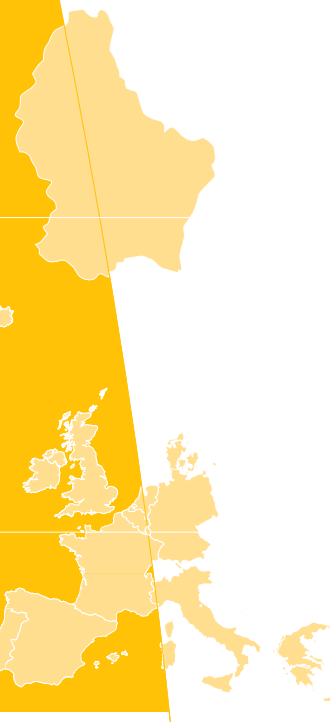
Reinforcing cooperation with ESA

Space at the service of the citizen

Established in 1975, the European Space Agency (ESA) is an intergovernmental organisation devoted to space sciences and applications for exclusively non-military purposes. It is responsible for developing the Ariane satellite launcher in particular and is currently working on the creation of a new European geo-positioning system called Galileo.

The European Space Agency has an annual budget of almost EUR 3 billion. Even though it is not a member of this organisation, Luxembourg contributes some EUR 2.5 million under a cooperation agreement that allows Luxembourg companies and research organisations to participate in the ARTES Programme for Advanced Research in Telecommunications Systems. ESA functions according to the 'fair return' principle, since it guarantees Member States that 90% of their contributions to the Agency's budget are redirected to the country of origin in the form of industrial and research contracts.

The experience of Luxembourg's participation in the ARTES programme, the opportunity to extend such cooperation to other Agency programmes and the strategic importance of space in general, documented by the European Commission's Green Paper on European space policy, represents further support for strengthening relations with ESA. In this respect, the Government of Luxembourg is assessing whether the time is right to join the European Space Agency. In the not too distant future, the Grand Duchy may therefore become the 16th member of ESA, which would provide Luxembourg companies and research institutions with new opportunities for partnerships.



Mathematics).
Given its complexity and cost, R&D tends to go beyond nationalities and places. Exchanges promoted by the National Research Fund through the "Mobility" programme enable Luxembourg to host foreign researchers and to send Luxembourg researchers abroad. The selection for a European research framework programme means gaining recognition and a label of quality, since the selection procedure is rigorous (one project out of five to seven is accepted in Brussels). It also means opening doors for possible cooperative partnerships with foreign research institutions. One specific FNR measure enables public research organisations to receive support for the preparation of European projects, provided they get through the scientific and technological assessment. Consequently, Luxembourg is gradually becoming an attractive partner.

In order to bring science closer to society, the FNR also promotes scientific awareness by all possible means (newspapers, magazines, scientific broadcasts on radio and television, awareness-raising events for young people, open days, co-organisation of the Science Festival, etc.).

Private research
R&D incentive scheme

Private research is the responsibility of the Ministry of Economy, which has an instrument for this purpose: the Framework Law on economic development and diversification of 27 July 1993, the so-called Framework Law on Industry. Article 6 of this Law, the R&D incentive scheme (amended by the Law of 21 February 1997), focuses specifically on research and development.

The R&D incentive scheme is aimed at companies and research centres that have a major influence on economic development, notably by means of significant R&D activities, such as pre-competitive development, industrial research or basic research activities. The granted financial aid may range from 25% to 75% of the investment or operations.

Since the establishment of the R&D incentive scheme, the Ministry of Economy has encouraged some 225 private-sector R&D projects, which as a whole amount to an overall investment of EUR 542.72 million. Public financial aid amounted to EUR 115.81 million in direct grants. Funding in 2002 reached a record level of EUR 20.74 million for 15 projects or programmes. The work of the Ministry of Economy is supplemented by loans for innovation granted by the National Credit and Investment Society. Since 1983, a total of 140 projects representing EUR 354.61 million in investment in R&D have been granted loans for innovation for a total amount of EUR 77.96 million.

The major lines of research and development remain within the principal areas of industrial competence: processing of metals, plastics, synthetic materials and subcontracting in the automobile sector.

Forced to adapt and innovate in order to remain competitive, Luxembourg companies are placing great emphasis on research.

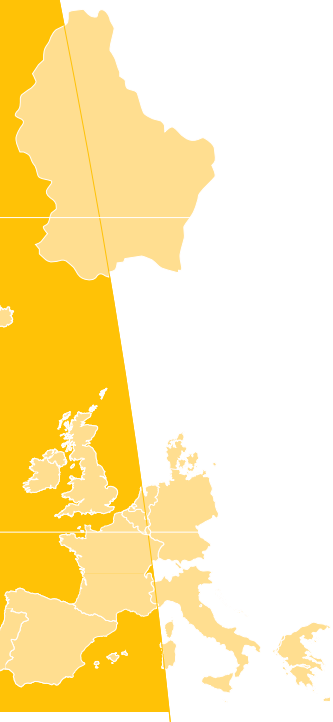
The Ministry of Economy is also supported by Luxinnovation. Created in 1984, the National Agency for the Promotion of Innovation and Research became in November 1998 an Economic Interest Grouping, thus bringing together the Ministry of Economy, the Ministry of Culture, Higher Education and Research, the FEDIL (Luxembourg Manufacturers' Federation), the Chamber of Trade and the Chamber of Handicrafts.

In 2002, Luxinnovation established contacts with some 150 companies and project carriers of which 30 were within the context of the implementation of an R&D project under Article 6 of the Framework Law on Industry. 15 projects benefited from sustained assistance with a view to obtaining financial aid from the State. Luxinnovation also encourages companies to co-operate in matters of R&D with the creation of technological "cluster" projects. Two clusters have been created:

› the "SurfMat" cluster, in the field of materials and the treatment and covering of surfaces;
› the "InfoCom" cluster, in the field of information and communication technology.

Within the context of the government's eLuxembourg initiative, the Luxembourg government entrusted Luxinnovation with the task of implementing the "Luxembourg Portal for Innovation and Research" and an "Innovation Observatory". This portal, which went online in July 2003, allowed an increase of the international visibility of Luxembourg technological activities, with access, via the same entry portal, to varied information with an added value concerning the fields of R&D (both public and private), innovation and the creation of technology companies in Luxembourg.

Regarding private research in Luxembourg, reference will be made to Goodyear in particular, since it is not possible to cite all the companies that carry out R&D. This American company has one of its three research centres in Colmar-Berg (the other two are in the United States and Japan). The Goodyear Technical Center Luxembourg has an annual research budget ranging from EUR 100 to EUR 120 million. Almost 900 staff (50% of whom are full-time researchers) work in the centre.



University of Luxembourg

On 3 December 2002, the Minister for Culture, Higher Education and Research presented the bill on the creation of the University of Luxembourg to the Chamber of Deputies. Focusing on the quality of education and research, this public institution will comprise three faculties:

- the Faculty of Sciences, Technology and Communication;
- the Faculty of Law, Economics and Finance;
- the Faculty of Arts and Human and Education Sciences.

The Luxembourg School of Finance project, inaugurated in October 2002, may eventually form the hub of the Finance Department of the future University of Luxembourg. An interdisciplinary approach, a symbiosis between education and research and international cooperation are the founding principles of this University, which is scheduled to receive between 4,000 and 5,000 students within seven years. This institution will develop and enhance basic, applied and technological research. Accordingly, it will benefit from the intervention of the National Research Fund, and its cooperation with the public research centres will be regulated by means of contracts. This may attract Luxembourg researchers who currently teach abroad.

The creation of a "City of Sciences, Research and Innovation", another large-scale project, is an integral part of the re-industrialisation of industrial wasteland in Belval-Ouest. Grouping the University, the four public research centres, the IST and the *Centre virtuel de la connaissance sur l'Europe* (Virtual Resource Centre for Knowledge about Europe) together in an area covering some hundreds of thousands of square metres will make it possible to locate a mass of researchers and students on one single campus. This situation will favour exchanges and cooperation while providing a pool of skills for gaining essential international recognition.

Although it has a relatively recent history, Luxembourg public research has nevertheless a promising future.

Virtual Resource Centre for Knowledge about Europe

Custodian of the European memory

Discussions on the Maastricht Treaty highlighted the extent to which European construction is often poorly understood and little-known. In 1998, the Government of Luxembourg and the European Commission decided to provide the necessary resources for carrying out the European Navigator project (ENA). Based on the latest information and communication technologies, ENA provides students and teachers, as well as researchers, journalists and the general public, with a stock of information on the historical and institutional development of the European Community from 1945 to the present day.

The Law of 7 August 2002 went further by creating Virtual Resource Centre for Knowledge about Europe (of which ENA is the leading service), a public institution housed in the Château de Sanem with a team of 25 people. The centre is gradually becoming the custodian of the European memory by focusing on the development of Euro-pean and international cooperation networks while, at the same time, enhancing a historical and cultural heritage that has been difficult to access as yet.

Public research involves …

› **An annual public budget**
EUR 34 million (0.20% of GDP) in 2003

› **Researchers**
equivalent to 400 full-time personnel

› **Research, study and documentation centres**
CRP Gabriel Lippmann
CRP Henri Tudor
CRP Santé
CEPS/INSTEAD
Virtual Resource Centre for Knowledge about Europe

› **Higher education institutes**
CUNLUX (University Centre Luxembourg)
IST (Institute of Technology)

› **Active organisations**
ISERP (Higher Institute for Teacher Training and Education Research)
CHL (Luxembourg Hospital Centre)
LNS (National Health Laboratory)

› **Law of 9 March 1987**
The aim of this Law is to organise research and technological development in the public sector and ensure the transfer of technology and scientific and technical cooperation between companies and the public sector (Memorial A 1987, p. 164).

› **Grand Ducal Regulation of 26 April 1987**
It lays down the forms of submission, selection and execution of research and development projects for the public sector (Memorial A 1987).

› **Grand Ducal Regulation of 31 July 1987**
It created a public research centre at the University Centre Luxembourg
(Memorial A 1987, p. 1602).

› **Grand Ducal Regulation of 31 July 1987**
It created a public research centre at the Institute for Technology (Memorial A 1987, p.1606).

› **Grand Ducal Regulation of 18 April 1988**
It created a public research centre within the National Health Laboratory
(Memorial A 1988, p. 446 ; Memorial A 1988, p. 532).

› **Law of 10 November 1989**
It created a Centre for Population, Poverty and Socio-Economic Policy Research
(Memorial A 1989, p. 1329).

› **Ministerial Regulation of 15 May 1990**
It established the hourly rates applicable for over-time and third-party work within the framework of R&D activities (Memorial A 1990, p. 407).

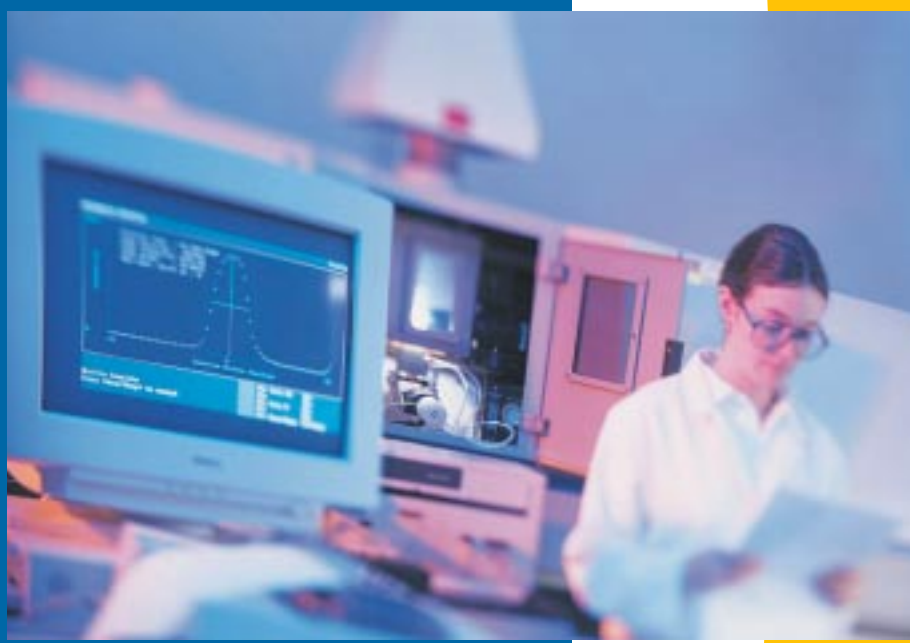
› **Grand Ducal Regulation of 17 April 1998**
It focuses on the assignment of civil servants or State personnel to public research centres covered by the Law of 9 March 1987
(Memorial A 1998, p. 496).

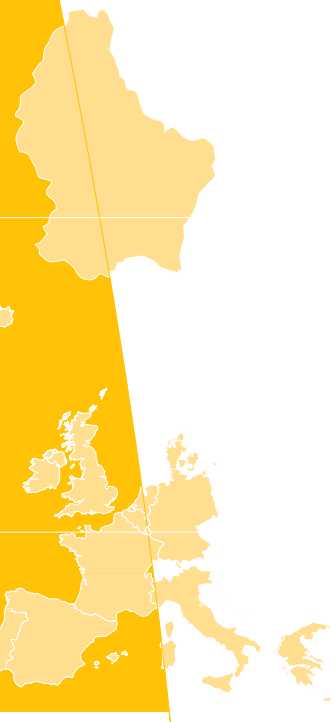
› **Law of 31 May 1999**
It set up the National Research Fund in the public sector (Memorial A 1999, p. 1825).

› **Grand Ducal Regulation of 27 July 2000**
It established the responsibilities of the National Research Fund scientific board
(Memorial A 2000, p. 2226).

› **Grand Ducal Regulation of 27 July 2000**
It established the forms of the criteria applied for selecting and carrying out research activities that receive support from the National Research Fund
(Memorial A 2000, p. 2226).

› **Grand Ducal Regulation of 8 August 2000**
It relates to the assignment of civil servants or State personnel to the National Research Fund
(Memorial A 2000, p. 2228).





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