



# annual report 2006

CENTRE DE RECHERCHE PUBLIC  
HENRI TUDOR



[www.tudor.lu](http://www.tudor.lu)



1 > On the occasion of the working visit to Luxembourg of the Foreign Secretary of the Federal Republic of Nigeria, Oluyemi Adeniji, presentation of the Resource Centre for Environmental Technologies (CRTE) projects; in the photograph: Clarkson N. Umbelo, Ambassador of the Federal Republic of Nigeria, in discussion with Jean de la Hamette, Chairman of the CRP Henri Tudor Board of Directors (29 March 2006) | 2 > Dr Claude Wehenkel, CEO of CRP Henri Tudor and Manager of Technoport, and Jean-Marc Boueyerie, Manager of J-Way SA, during the presentation of the Technoport Innovation Network sign (12 January 2006) | 3 > Annual review of the Centre's Fourth Development Plan (18 December 2006) | 4 > Expertise mission for the European BIC Network (EBN) (30 October 2006), from right: Dr Claude Wehenkel, CEO of CRP Henri Tudor and EBN expert, with Serge Letchimy, Mayor of Fort de France, and Christophe Poupart, EBN expert | 5 & 6 > "Open House" day at the Centre (7 April 2006); Minister of the Environment Lucien Lux and representatives of the Resource Centre for Environmental Technologies (CRTE) (photograph 6) | 7 > Presentation of the Annual Report 2005 in the presence of François Biltgen, Minister of Culture, Higher Education and Research (7 April 2006) | 8 & 9 > At the occasion of the signing of a Memorandum of Understanding between CRP Henri Tudor and the Maltese Council of Science and Technology for co-operation as part of the creation of the Euro-Mediterranean Institute for Technology and Innovation (EuroMedITI) in Malta (10 and 11 February 2006), David Spiteri-Gingell, President of the Maltese Council of Science and Technology (photograph 8, 2<sup>nd</sup> from the right) and Karl Schmidt-Reindl, representative of the Fraunhofer Gesellschaft (photograph 8, 1<sup>st</sup> from the right) meet Ministers François Biltgen, Minister of Culture, Higher Education and Research (photograph 8, 1<sup>st</sup> from the left) and Jeannot Krecké, Minister of the Economy and Foreign Trade (photograph 9, 1<sup>st</sup> from the left) | 10 > Signing of a collaboration agreement with Politehnica University of Bucharest (16 June 2006): (from left to right) Dr Claude Wehenkel, CEO of CRP Henri Tudor, Prof. Ecaterina Andronescu, Rector of the Politehnica University of Bucharest, and H.E. the Ambassador of Romania, Vlad Tudor Alexandrescu | 11 > Exchange of opinions between CRP Henri Tudor and the Fédération des Industriels Luxembourgeois (FEDIL) (7 July 2007) | 12 > Signing of a collaboration agreement between the three Public Research Centres and the University of Luxembourg (23 March 2006) (from left to right): Dr Robert Kapp, former Manager of CRP Santé, Dr Rolf Tarrach, Rector of the University of Luxembourg, Dr Claude Wehenkel, CEO of CRP Henri Tudor, and Dr Fernand Reinig, CEO of CRP Gabriel Lippmann | 13 > Signing of a Memorandum of Understanding with the Centre de Estudos e Sistemas Avançados do Recife (CESAR - Brazil - 17 August 2006) (from left to right): Dr Eric Dubois, Joint Director of the Centre for IT Innovation (CITI), Dr Claude Wehenkel, CEO of CRP Henri Tudor, and Sergio Cavalcante, Manager of CESAR | 14 > Presenting the "SuperDrecksKëscht fir d'Betruiber" label to 29JFK (5 October 2006)

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**| 15 >** A third site for CRP Henri Tudor, located at 2A, rue Kalchesbréck in Luxembourg: The Kalchesbréck site brings together the activities of the Resource Centre for Health Care Technologies (CR SANTEC), the "Knowledge Economy and Innovation Management" unit of the Centre for IT Innovation (CITI) and the "Strategy and Management" and "Modelling and Simulation" units of the Laboratory for Industrial Technologies (LTI) **| 16 >** Appointment to the title of "CRP Henri Tudor Scientific Advisor" of Dr André Weidenhaupt, Michel Brachmond, Pr Dr Hans Pfeiff, David Hagen (surrounded here by Dr Claude Wehenkel, CEO of CRP Henri Tudor and by Jean de la Hamette, Chairman of the CRP Henri Tudor Board of Directors) **| 17 >** Official presentation of the "Prix Eschois de l'Innovation" – organised as part of the Esch-sur-Alzette City Centenary (4 December 2006): (1<sup>st</sup> row) Laurent Goffin (CodaSystem, 2<sup>nd</sup> prize business laureate), Lydia Mutsch (Mayor of the City of Esch-sur-Alzette), Yves De Pril (Conostix, 1<sup>st</sup> prize business laureate), Farid Meinkoehn (Cybercultus, 3<sup>rd</sup> prize business laureate), (2<sup>nd</sup> row) Bruno Théret (Arcelor-Mittal), Diego De Biasio (CRP Henri Tudor), Claude Wehenkel (CRP Henri Tudor), Michel Brachmond (Chambre des Métiers), Mario Grotz (Ministry of Economy and Foreign Trade) and Tun Van Rijswijck (Broadcasting Center Europe) **| 18 >** Spiral Evening: excellence of service for the financial sector (22 November 2006) **| 19 >** Presenting test pass and participation certificates to people who participated in training programmes offered as part of the PRECODEM research project "Préparation aux compétences de demain pour les demandeurs d'emploi – ingénieurs et cadres", conducted in collaboration with the Administration de l'Emploi (ADEM) and co-financed by the European Social Fund (ESF) and the Fonds pour l'Emploi (23 November 2006): (1<sup>st</sup> row) Denise Kohnen (ADEM), Jacob Edang, Sophal Samair, Vincent Mayer, François Biltgen (Minister of Culture, Higher Education and Research and Minister of Work and Employment), Alain Ghislain, Linda Szelest and Claude Wehenkel (CRP Henri Tudor), (2<sup>nd</sup> row) Georges Kirsch (ADEM), Vincent Picard, Bernard Florentin, Marc Tavares, Cyril Casset, (3<sup>rd</sup> row) Irene Olory **| 20 & 21 >** At the 2<sup>nd</sup> Luxembourg Conference on the Knowledge Economy from a European Perspective "En route vers Lisbonne", (9 and 10 November 2006); photograph 20 (from left to right): Hans Vijlbrief, President of the Economic Policy Committee's Country Review Working Group, Dr Serge Allegrezza, Director of STATEC, Jeannot Krecké, Minister of Economy and Foreign Trade, Viviane Reding, European Commissioner, Jean de la Hamette, Chairman of the CRP Henri Tudor Board of Directors; photograph 21: (from left to right) François Biltgen, Minister of Culture, Higher Education and Research and Minister of Work and Employment, Dr Claude Wehenkel, CEO of CRP Henri Tudor, and Dr Rolf Tarrach, Rector of the University of Luxembourg **| 22 >** Slovak painters Peter and Pavel Mester (father and son) created, in the Namur-Virton conference room of the Centre's head office a monumental mural piece (15 x 4 m) entitled "Faire place – Give way" (September 2006) **| 23 >** Visit to the Resource Centre for Environmental Technologies (CRTE) by the Environment Commission of the Luxembourg Chamber of Deputies, presided over by Roger Negri **| 24 >** "A healthy mind in a healthy body" **| 25 >** Presenting "Informatique et Innovation" master's degree diplomas to graduation classes 4, 5 and 6 (January 2007) **| 26 >** At 29JFK, Saint Nicholas and the Bogeyman meet the children of collaborators of the Centre (6 December 2006) **| 27 >** Awareness-raising activities at the occasion of the Centenary celebration of the City of Esch-sur-Alzette (28 and 29 September 2006)

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# Table of contents

PAGE 7	“Dear Partner”
PAGE 8	Cartography of CRP Henri Tudor
PAGE 10	Key Figures 2006 of CRP Henri Tudor
PAGE 16	Client Satisfaction
PAGE 18	Zoom on the Departments
page 19	Laboratory for Industrial Technologies and Materials [LTI]
page 24	Centre for IT Innovation [CITI]
page 38	Resource Centre for Environmental Technologies [CRTE]
page 44	Resource Centre for Health Care Technologies [CR SANTEC]
page 46	Resource Centre for Information Technologies in Construction [CRTI-B]
page 48	SITec® - “Lifelong Learning for Technological Innovation”
page 50	Technology Watch Centre [CVT]
page 52	Technoport - High-tech Business Incubator (EC-BIC)
page 59	“Free and Open Source software” Innovation Platform
PAGE 60	Main RDI Projects of CRP Henri Tudor in 2006
PAGE 64	The 265 Contract Partners of CRP Henri Tudor’s Projects in 2006
PAGE 66	Scientific Publications in 2006
PAGE 72	Administration & Finances

## The corporate vision of CRP Henri Tudor is :

- To be at the service of innovation and entrepreneurship and to strengthen the economic and social tissue in the sense of sustainable development,
- To address the needs of companies, institutions and public organisms in the fields of research, technological development and innovation (RDI),
- To be a major operator of RDI, a leader on national and regional level, and a deeply involved actor in European and international co-operation,
- To be an autonomous, dynamic and efficient company of public interest.

## Founded in 1987, CRP Henri Tudor has developed in accordance with three founding principles :

- To be a “SME of public interest”: CRP Henri Tudor is a public institution managed under private legislation,
- To be present in the “Innovation Chain”: Applied research, technological assistance and consulting, publishing and training, awareness, entrepreneurship,
- To be resolutely “Partnership Driven”: The overall partnership is at the very core of the activities of the CRP Henri Tudor.



Claude Wehenkel, CEO, President of the Management Board

Dear Partner,

We are delighted to present you our major achievements of 2006. From the beginning, in 1987, we have been challenged to find an effective way of performing research and innovation activities in a very small country. In that respect, CRP Henri Tudor has reached a high level of quality and maturity. International recognition has been achieved, based on scientific collaboration as well as on increasing interest for the innovation model that has been conceived and implemented step by step in the last twenty years.

« CRP Henri Tudor is by far the largest Public Research Centre in Luxembourg, not only in terms of the number of employees and the size of budget, but also regarding the range of activities, its internal complexity, and its relationships with the outside world. CRP Henri Tudor exhibits the strongest links to the private sector. Moreover, CRP Henri Tudor represents a broad concept of «innovation», which is not restricted to research and development, but also includes standards and thus measurement and testing, training and consulting, aimed at finding the right management approach or organisational set-up. CRP Henri Tudor can thus be considered a rich pool of resources, which provides both (technological) knowledge and required management capacity. » \*

With a staff of 302 (headcount December 2006), a total income of 23.9 million Euro of which 72% are activity based, CRP Henri Tudor has even strengthened its leading position in 2006. In addition, an impressive 8 million Euro amount of contribution in kind has been invested by our private partners in our research projects and other innovation related activities. In the same way, all the key performance indicators, shown in the different parts of this annual report, have increased considerably in 2006.

CRP Henri Tudor's commitment to do the best for you is summarised by the triplet Quality, Transparency and Accountability. Since 2005, the quality system set-up progressively over many years is ISO 9001:2000 certified. This means that client satisfaction, staff motivation and effective process management — the three basic pillars of modern quality systems — are constantly assessed and improved. Transparency and accountability are self-evident obligations for a RTO\*\* partly funded by public money.

In 2006, the third year of our 'Fourth Development Plan 2004-2007', almost all of our objectives have been fulfilled. The presence of the CRP Henri Tudor has been firmly reinforced in the service sector, in construction and in health, as well as in the technological domains of materials, environment, and logistics. Increasing activity levels of continuous high-standard training and normative and technological watch can be added, as well as the start-up support for high-tech enterprises. The 2006 results are excellent. For 2007, new perspectives are opening, following the OECD\* study. Implemented at the end of 2006, the 'Strategy Self-Assessment Report' of the different CRP and of the CEPS substantiates one of the principal recommendations of the OECD experts. The CRP Henri Tudor report, which is available on [www.tudor.lu](http://www.tudor.lu), constitutes the first step towards a pluriannual 'performance contract', which is due to be finalized with the government in 2007, based on mutual obligations for results and means.

After 20 years of continuous progress since its creation, the CRP Henri Tudor will be in the position to head into the future with new ambitions and with an adequate serenity.



Claude Wehenkel  
President and CEO

\* OECD Review of Luxembourg's Innovation Policy, 24<sup>th</sup> May 2006

\*\* Research and Technology Organisation

The **Public Research Centre Henri Tudor** is made up of eight departments:

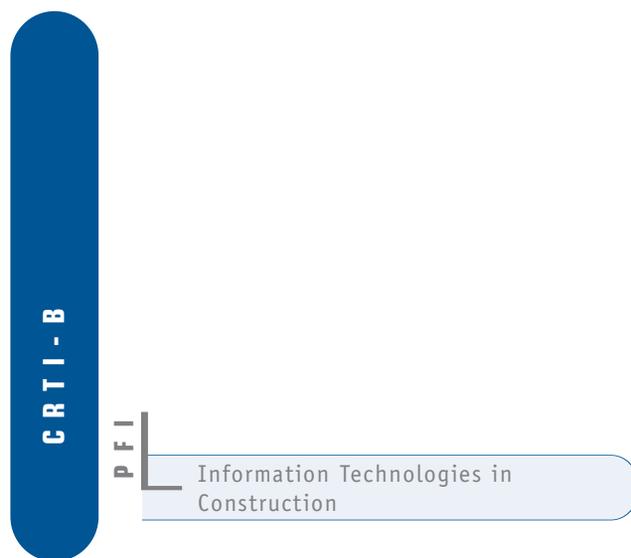
<b>LTI</b>	Laboratory for Industrial Technologies and Materials
<b>CITI</b>	Centre for IT Innovation
<b>CRTE</b>	Resource Centre for Environmental Technologies
<b>CR SANTEC</b>	Resource Centre for Health Care Technologies
<b>CRTI-B</b>	Resource Centre for Information Technologies in Construction
<b>SITec®</b>	SITec® - "Lifelong Learning for Technological Innovation"
<b>CVT</b>	Technology Watch Centre
<b>Technoport®</b>	High-tech business incubator (EC-BIC)

The Centre's departments are made up of:

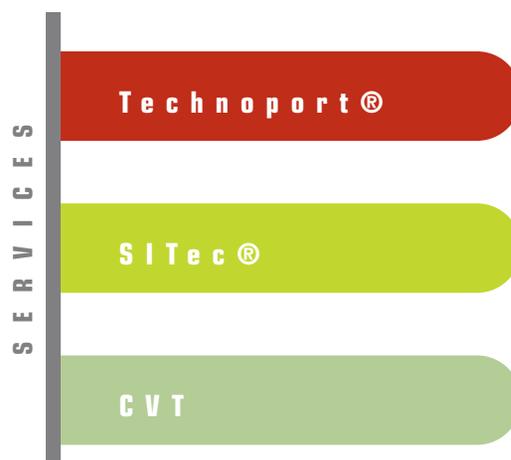
- **Innovation platforms (PFI)**  
who have a common national strategic objective, a large panel of partners and numerous multidisciplinary activities of research and transfer;
- **Scientific and technological units (UST)**  
A pronounced component of specialised research associated with RDI and valorization activities;
- **Innovation service units.**

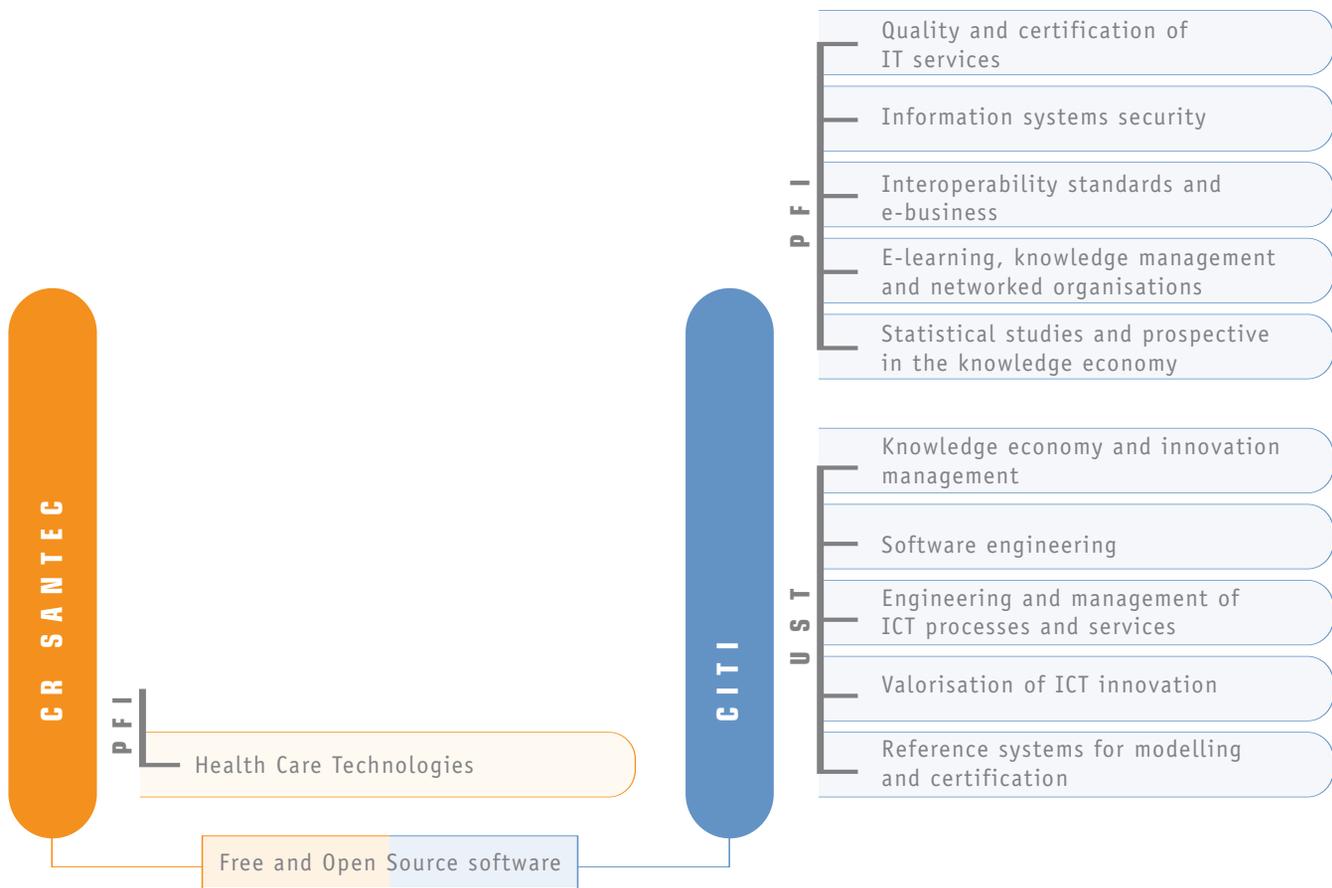
One innovation platform is shared between two departments:

« Free and Open Source software ».

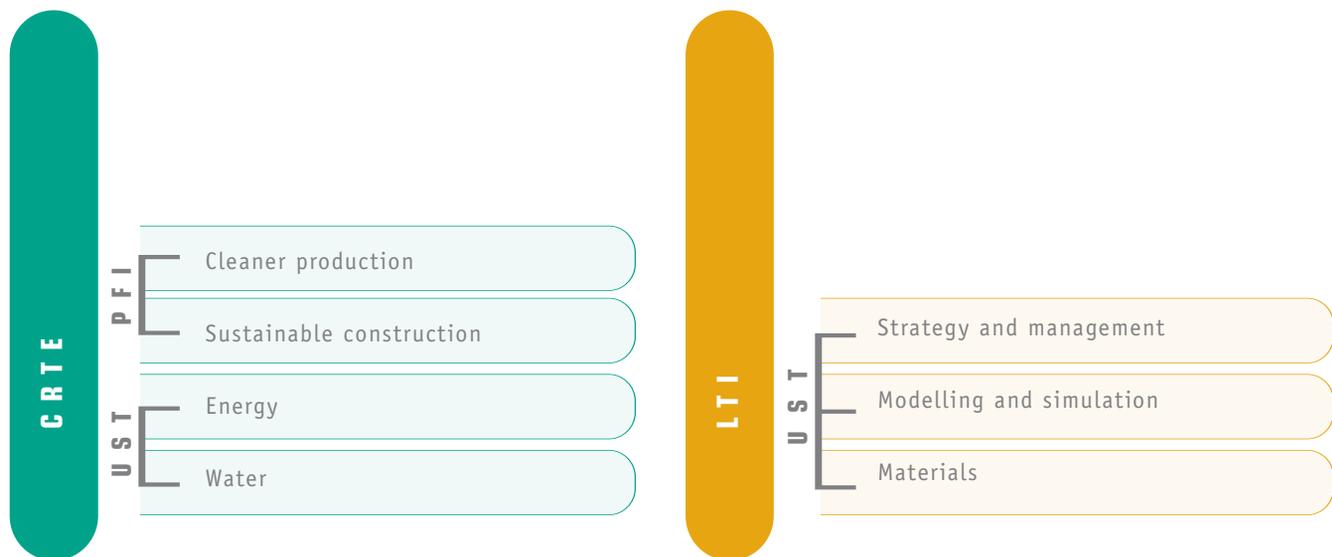


**P U B L I C R E S**





## E A R C H   C E N T R E   H E N R I   T U D O R



**UST** : SCIENTIFIC AND TECHNOLOGICAL UNIT  
**PFI** : INNOVATION PLATFORM

# Key Figures 2006 of CRP Henri Tudor

## Financial Figures

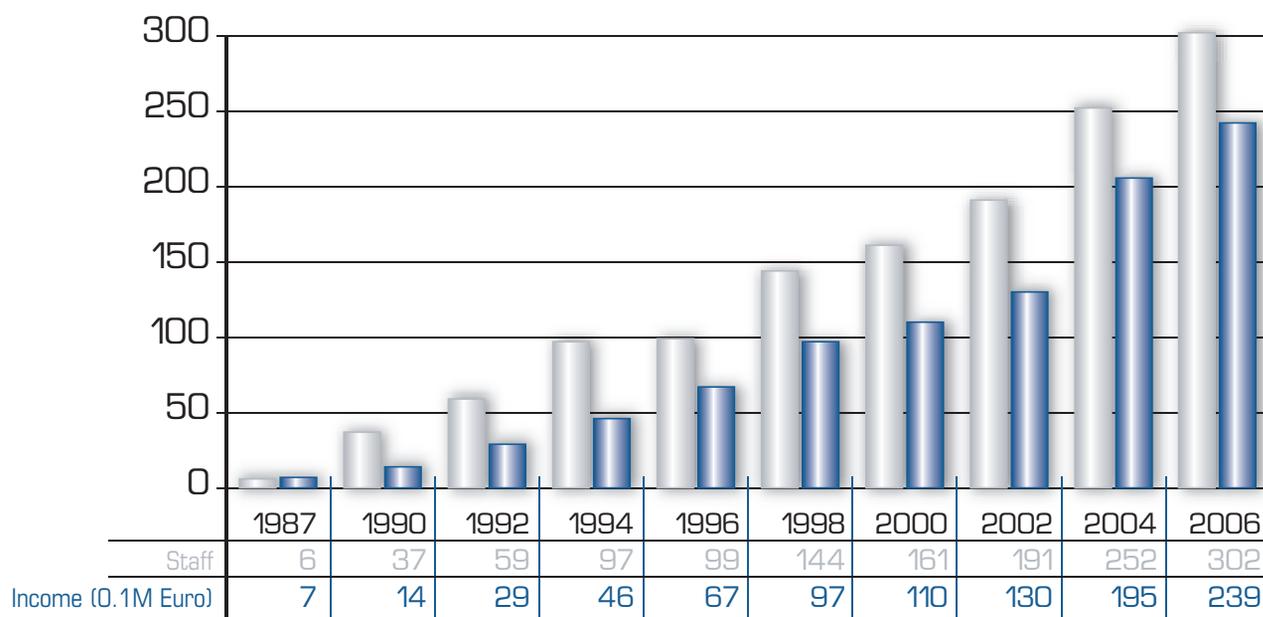
	2006	2005
Income (in Euro):	23,876,562.41	20,679,202.15
<i>of which:</i>		
Grant for mission of public utility	28%	31%
Activity based funding	72%	69%
Budget for 2007 (in Euro):	25,307,000	

## Human resources

	2006	2005
Staff at the end of the year (headcount):	302	265
<i>of which:</i>		
with a PhD:	13%	13%
with a Master:	70%	70%
Graduates, secretaries, technical staff and other:	17%	17%

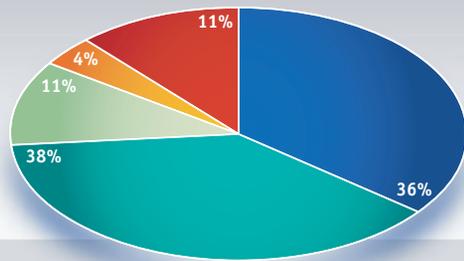
The mobility of researchers and engineers of the Centre contributes in a significant way to the transfer of competences and the spirit of innovation. In 2006, 30 persons found an attractive job mainly in the private sector, bringing the total to 339 since the Centre's creation.

## A Start-up of Public Interest: Staff and Income since 1987



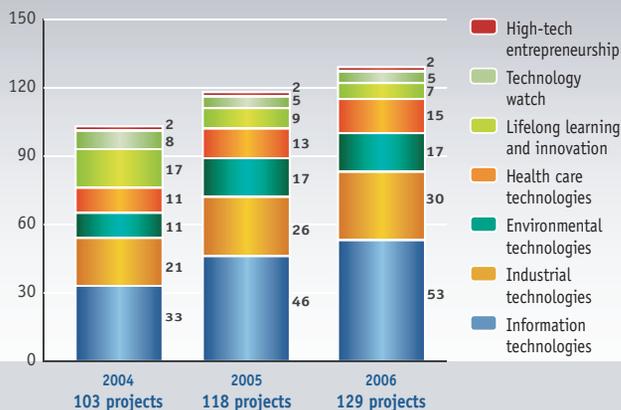
## Research, Development and Innovation Projects in 2006

### CRP Henri Tudor's projects 2006 by type of funding



- Total: 129 projects**
- 36% European programmes
  - 38% Projects co-financed by the Ministry of Research
  - 11% National Research Fund (FNR)
  - 4% Projects co-financed by ministries other than the Ministry of Research
  - 11% Projects entirely financed by the private sector

### CRP Henri Tudor's projects by technology domain



In 2006, CRP Henri Tudor participated in 129 projects (118 in 2005).

Among these 129 projects, 54% are conducted in direct partnership with companies or groups of companies, 50% in partnership with public administrations and bodies, and 33% with universities or research centres<sup>1</sup>.

Project results are various and numerous. Some are underlined below:

- One patent filed in the field of PVC stabilization
- 6 brands have been registered to allow a better protection and dissemination of project results: 4 in the field of information technologies (TAO - [www.tao.lu](http://www.tao.lu), CASSIS - [www.cassis.lu](http://www.cassis.lu), ANAXAGORA - [www.anaxagora.lu](http://www.anaxagora.lu) and GENERIS) and 2 in the field of health care technologies (PAA, the Personal Allergy Assistant and WikiFood - [www.wikifood.eu](http://www.wikifood.eu))
- 26 state-of-the-art reports were drawn up for partners' need or public dissemination
- 49 prototypes or tools were developed or experimented in co-operation with partners
- Publication of the first "Cahier de l'Innovation" presenting project results and partners' feedback on "Understanding Material Ageing for a Better Control of Sustainability"
- Launch of two national groups:
  - YaJuG ([www.yajug.lu](http://www.yajug.lu)), in co-operation with IT professionals of Luxembourg, to promote, disseminate and share Java related good practices and tools
  - The Luxembourg project management portal, [www.gestiondeprojet.lu](http://www.gestiondeprojet.lu), in co-operation with PMI BELUX Chapter, e-Luxembourg Service, MSD Partner, Optima Consulting, Threon and with the financial support of the National Research Fund (FNR)
- One spin-off left CRP Henri Tudor: Airfield SA is active in RFID applications.

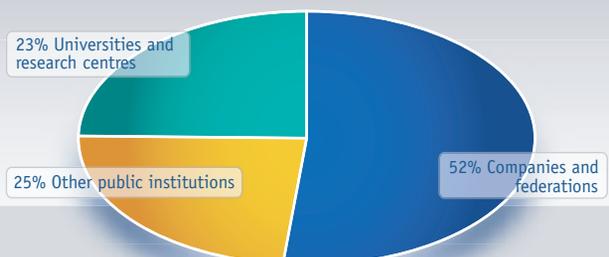
<sup>1</sup> the total is higher than 100% given the same project may involve partners of various types.

## A Strong Public/Private Partnership

In 2006, 265 partners were involved contractually in the Centre's projects. 222 other participated actively within projects on a non-contractual basis. See the overall list on page 60.

### 265 contract partners of CRP Henri Tudor's projects in 2006

#### by type



#### by origin



## European Activities

### 46 European projects undergoing in 2006

36% of CRP Henri Tudor's projects are conducted within the framework of European programmes, in particular FP6, ESA, Eureka ITEA, Leonardo, ERDF Interreg and Objective 2, ESF Objective 3, Life III.

Within the 6<sup>th</sup> European R&D Framework Programme (FP6), CRP Henri Tudor is co-ordinator of one Specific Target Research Project ("CASSEM" in the field of composite and adaptative structure) and has active responsibilities in 3 Networks of Excellence:

- INTEROP, in the field of information technologies interoperability
- CMA, in the field of complex metallic alloys
- GA<sup>2</sup>LEN, in the field of allergy and health care

5 new projects were launched in 2006 within Eureka-ITEA clusters, in the field of mobile technologies and the use of multimedia content.

### The Centre is member of several European networks and committees, in particular:

Member of the European BIC Network (EBN, member of the Board of Directors and mandated as expert to evaluate Business Innovation Centres), European Space Incubator Network (ESINET), Gate2Growth Incubator Forum

Active participation in the European Research Consortium in Informatics and Mathematics (ERCIM, member of the Board of Directors and of 9 working groups)

Several participations in COST (European Cooperation in the field of Scientific and Technical Research) committees, in the field of environment, materials and information technologies

The Centre participated in the expert panel mandated by the European Commission to prepare and standardize the operation of REACH (enRegistrement, Evaluation, Autorisation de substances Chimiques) help desks.

## International Relations

In 2006, CRP Henri Tudor implemented a department for international relations and recruited a "chargée de mission" to meet the needs of the increasing international activities of the Centre.

In this same year, the following activities deserve some particular attention:

- The signature of a Memorandum of Understanding between CRP Henri Tudor and the Malta Council of Science and Technology (MCST) for the creation of an innovation and business platform in Malta oriented towards the Mediterranean countries: EUROMEDITI (Euro-Mediterranean Institute for Technology and Innovation)
- The launch of the collaboration with the « Universitatea Politehnica Bucuresti (UPB) » in the fields of material science (modelling of mechanical behaviour) and nanotechnologies and aiming at the supervision of PhD theses guided by both institutions as well as the submission of joint research projects in the 7<sup>th</sup> Framework Programme of the European Commission
- The signing of a collaboration convention with the Jordan Innovation Centre (Royal Scientific Society)

In 2007, several collaboration conventions are planned to be signed, such as in France with the Centre National de la Recherche Scientifique (CNRS), the Institut National Polytechnique de Lorraine (INPL), the Laboratoire Physique des Matériaux (LPM), the Universidade de Aveiro in Portugal, and the "Centre of Excellence in Information and Communication Technologies (CETIC)" in Belgium. Furthermore, the Centre has opted to become a member of EARTO; the European Organisation of Research and Technology Organisations.

Highlights of the coming year will certainly be the partnership with EUROMEDITI in Malta and the creation of a joined ICT laboratory by CETIC and CITI department.

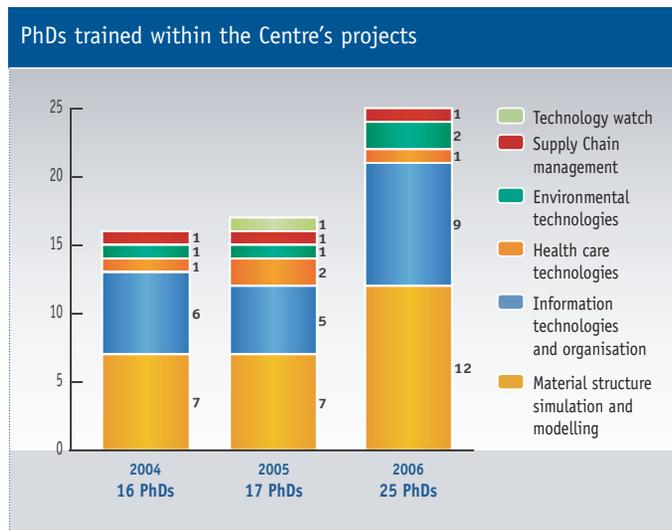


## Scientific and Academic Activities

In 2006, CRP Henri Tudor's researchers published 103 scientific articles in peer-reviewed international journals, conference proceedings or as chapters of books (see list page 66). 7 engineers of the Centre are members of review committees in 8 international journals.

25 PhD students are trained within the Centre, in partnership with foreign universities: 12 in the field of material structure simulation and modelling, 9 in information technologies and organisation, 2 in environmental technologies, 1 in health care technologies, and 1 in Supply Chain management. Three students defended their thesis with success in 2006:

- Dr Matthieu Farcot, BETA, University Louis Pasteur of Strasbourg (F), in the field of dynamics of intellectual property applied to the software industry
- Dr Georges Schutz, University Henri Poincaré of Nancy (F), in the field of artificial neural networks to improve complex industrial processes, mainly characterized by their temporal aspect
- Dr Heng Hu, University of Metz (F), in the field of numerical models for the sandwich sheets.



Engineers of the Centre were members of 5 juries of doctoral thesis at the universities of Namur (B), Bordeaux (F), Metz (F), Nancy I (F) and Nancy II (F).

40 engineers of the Centre gave nearly 1,000 hours of teaching in European universities in 2006. Eight of them provided 143 hours at the University of Luxembourg.

Three international master courses are co-organised with partner universities:

- The Master "Informatique et Innovation" opened its 8<sup>th</sup> session, gathering 40 attendees in the three ongoing sessions, and having 11 students graduated in 2006. It is organized in partnership with the University of Nancy 2 (F) and the Facultés Notre Dame de la Paix of Namur (B)
- The Master "Management et Qualité des Entreprises et Services" 2<sup>nd</sup> session gathered 15 attendees who will graduate in 2007. It is organized in partnership with the Ecole Supérieure de Management of Metz (F), the University of Metz (F), the Facultés Universitaires of Mons (B) and the University of Québec in Trois-Rivières (CDN)
- The first session of the Master "Management de la Sécurité des Systèmes d'Information" was launched in November 2006 with 15 attendees, in partnership with the University of Luxembourg.

Moreover, the Centre hosted in 2006 the Master of Science in Technological Management (MSTM) of the American Embry-Riddle Aeronautical University (ERAU).

## Training and Dissemination Activities

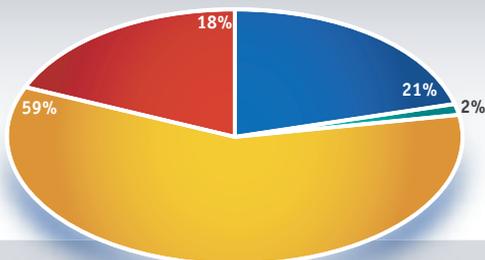
In 2006, CRP Henri Tudor organised 71 qualifying trainings gathering 984 attendees. 9 of these courses were developed using e-learning technologies. Altogether, 145 days of qualifying trainings and 46 days of master courses have been organised.

The Centre organised, in co-operation with local and international partners, 41 conferences, attended by 2,768 people.

The main ones are:

- « *LinuxDays 2006* », 80 attendees, 25<sup>th</sup> – 27<sup>th</sup> January 2006, in co-operation with Lilux, Restena and the University of Luxembourg and with the financial support of the National Research Fund (FNR)
- « *Le Salon des Bonnes Pratiques* », 185 attendees, 22<sup>th</sup> March 2006
- « *The 6<sup>th</sup> International SPICE Conference Software Process Improvement and Capability dEtermination* », 66 attendees, 3<sup>rd</sup> – 5<sup>th</sup> May 2006, in co-operation with the Spice User Group and with the financial support of the National Research Fund (FNR)
- « *ImageJ 2006* », 70 attendees, 18<sup>th</sup> – 19<sup>th</sup> May 2006, with the financial support of the National Research Fund (FNR)
- « *Viellissement et durabilité des matériaux* », 48 attendees, 31<sup>st</sup> May 2006
- « *CAiSE'06, the 18<sup>th</sup> International Conference on Advanced Information Systems* », 315 attendees, 5<sup>th</sup> – 9<sup>th</sup> June 2006, in co-operation with the University of Luxembourg and Universität Duisburg Essen (D), and with the financial support of the National Research Fund (FNR)
- « *La Technologie RFID : Principes, applications et perspectives* », 84 attendees, 12<sup>th</sup> June 2006, in co-operation with the Centre Régional d'Innovation et de Transfert de Technologie en Télécommunication et en Technologies de l'Information (CRITT-TTI), the Chambre de Commerce et d'Industrie de Meurthe et Moselle, the Chambre de Commerce et d'Industrie du Luxembourg Belge (CCILB), and the Fédération des Industriels Luxembourgeois (FEDIL)
- « *GISEH - Gestion et Ingénierie des Systèmes Hospitaliers* », 190 attendees, 14<sup>th</sup>- 16<sup>th</sup> September 2006, in co-operation with CRP Santé, Entente des Hôpitaux Luxembourgeois (EHL), Hôpital du Kirchberg, and with the financial support of the National Research Fund (FNR)
- « *Logistique: Défi et opportunité pour le Luxembourg* », 189 attendees, 26<sup>th</sup> September 2006, in co-operation with the Confédération Luxembourgeoise du Commerce and the Ministry of Economy and Foreign Trade
- « *CASSIS, Retour gagnant des PME : conseils et services* », 81 attendees, 4<sup>th</sup> October 2006, in co-operation with the Chambre de Commerce de Luxembourg, the Chambre des Métiers and Euro Info Centre
- « *Congrès annuel GestionDeProjet.lu* », 95 attendees, 18<sup>th</sup> October 2006
- « *20 ans de brevets au Luxembourg* », 58 attendees, 19<sup>th</sup> October 2006, in co-operation with the European Patent Office, the Service Central de la Statistique et des Etudes Economiques (STATEC) and the Ministry of Economy and Foreign Trade
- « *Les journées du Libre* », 51 attendees, 24<sup>th</sup> – 25<sup>th</sup> October 2006
- « *En route vers Lisbonne - 2<sup>ème</sup> colloque luxembourgeois sur l'Economie de la Connaissance dans une perspective européenne* », 293 attendees, 9<sup>th</sup> – 10<sup>th</sup> November 2006, in co-operation with the Ministry of Economy and Foreign Trade, the Service Central de la Statistique et des Etudes Economiques (STATEC), the Observatoire de la Compétitivité, and with the financial support of the National Research Fund (FNR).

Over 4,600 participants at CRP Henri Tudor's trainings and conferences in 2006



984 Participants to qualifying trainings

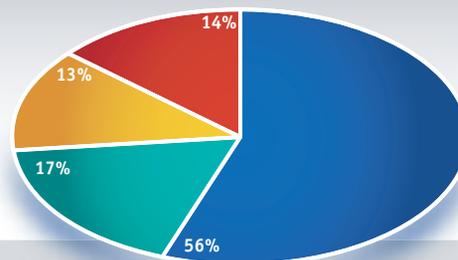
70 Participants to diploma trainings

2,768 Participants to conferences

864 Participants to thematic events

Total: 4,686 participants

260 days of trainings and conferences organised in 2006



145 Days of qualifying trainings

46 Days of diploma trainings

34 Days of conferences

35 Days of thematic events

Total: 260 days

## Standardisation Activities

At national level, the Centre took an active part in the creation of ANSIL (Association de Normalisation pour la Société de l'Information Luxembourg) in co-operation with the Service de l'Energie de l'Etat (SEE), and is member of two of its expert committees:

- CNLSI (Comité de Normalisation Luxembourgeois pour la Sécurité de l'Information)
- CNLQSI (Comité de Normalisation pour la Qualité des Systèmes d'Information)

In 2006, Luxembourg became a member of the ISO JTC 1 (Joint Technical Committee) in the field of information technologies for SC7 (Sub Committee) on "Software & Systems Engineering". The Centre is at the head of the Luxembourg delegation.

The Centre's engineers are involved in ISO SC7, SC27, SC29 and SC36 working groups in the field of multimedia, information technologies, software engineering and e-learning. They also contributed to several normative booklets as member of the AFNOR X620 commission in the field of project management.

## Incubator Activities

Four new companies have been accepted in the high-tech business incubator Technoport (Beat Technologies - www.beat.lu, Villmond - www.villmond.lu, Jilbee - www.jilbee.com, and Airfield - www.airfield-rfid.com). These brought up to 40 the total number of companies accepted within the incubator since it started in 1998. Two more companies joined the already 6 grown out "success stories": Neovalens and Neonline (see detailed incubator status on page 53).

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**TUDORnews** 1<sup>er</sup> semestre (2006 - Juin 2006)

**Table des matières**

<b>Highlights</b>	5
Le premier «Comité national» pour le CRP Henri Tudor	7
Les premiers «conseils experts» pour le Technoport	7
■ Fiche d'identité de l'Etat SA	4
■ Tableaux de bord de l'innovation	4
Scène de l'écologie de l'innovation 2006 du CRP Henri Tudor	8
<b>Calendriers et partenariats</b>	5
Miroir technologique Photo-VISU: Technologie-Réseau	5
Le système ERP en les affaires de la sa globalisation	5
<b>Revue de presse</b>	5
■ ANSTI: «Innovation technologique: contribution des facteurs techniques, technologiques et organisationnels»	6
■ Avenir PME: «Innovation de compétences: Interdisciplinarité pour le commerce électronique alternatif des PME»	6
■ IPR «Testing Intellectual Property»	7
■ EPRS «Innovation Learning» également appliqué à l'industrie: introduction of Intellectual Property Rights to management strategies of enterprises	7
<b>Partenariats</b>	8
La vie et l'œuvre d'Henri Tudor: premier de l'école publique et de l'enseignement au globe	8
<b>En bref</b>	8
EuroRégis 2006	8
<b>Informations générales</b>	8
Prix de l'innovation dans l'industrie	8

**Highlights**

**à noter 2006**

**Certification ISO 9001:2000 pour le CRP Henri Tudor**

Le 6 février, le CRP Henri Tudor a reçu des mains de Gerhard Ewers, directeur d'ISO 9001 (SII) Core) en son nom le Ministère de la Culture, de l'Environnement Supérieur et de la Recherche, François Billen, le directeur ISO 9001:2000 pour la certification, la conduite et le pilotage de projets de recherche, de développement et d'innovation (RD&I). Ce certificat signifie que les organismes externes comme le TÜV Rheinland et BSIUK certifient que le CRP Henri Tudor a mis en place un système de qualité (Quality Management System - QMS) conforme à la norme ISO 9001:2000. Le CRP Henri Tudor est ainsi un des premiers centres de recherche publics européens à recevoir ce certificat de qualité pour l'ensemble de ses activités de recherche et d'innovation.

À droite: François Billen, Directeur d'ISO 9001:2000, et François Billen, Directeur d'ISO 9001:2000, en compagnie de Henri Tudor, Directeur du CRP Henri Tudor, et de l'ensemble de son équipe de recherche et d'innovation.

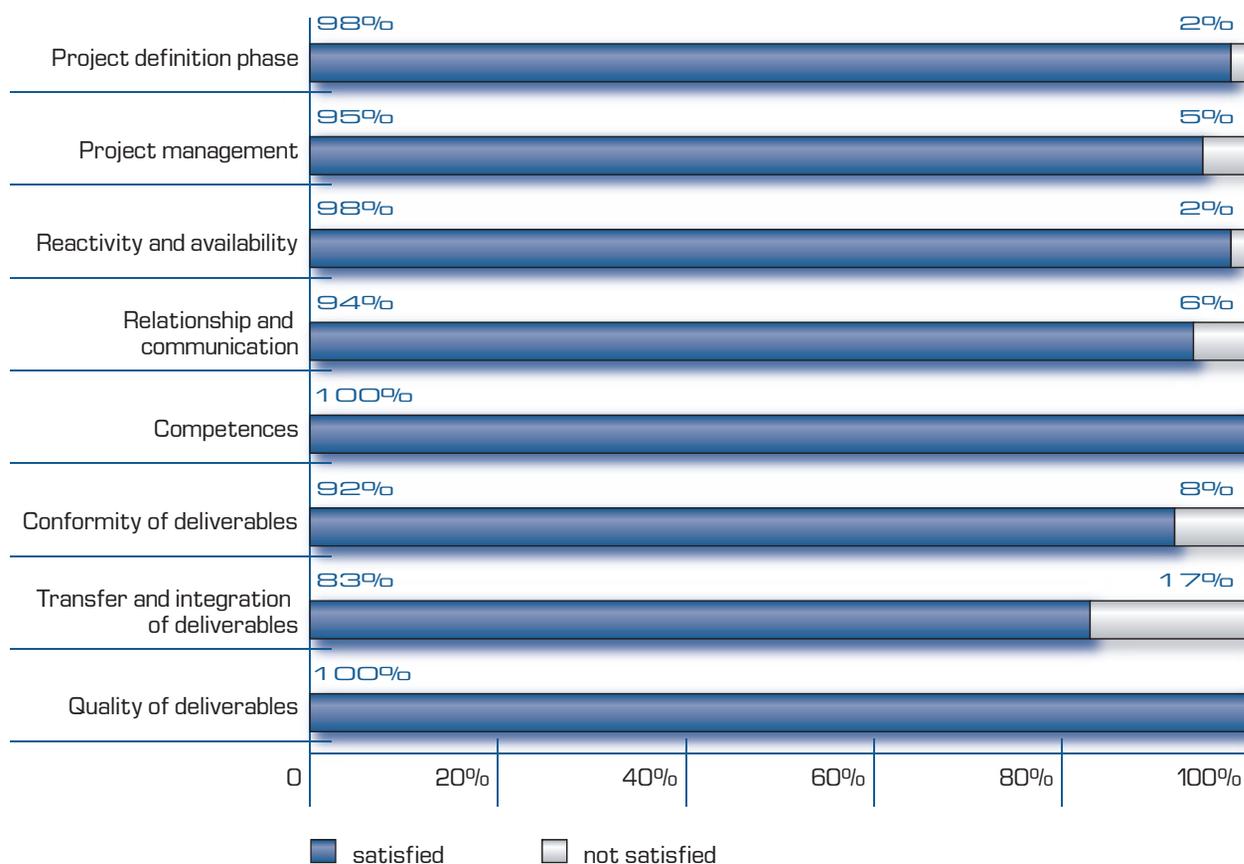
# Client Satisfaction

All activities - projects and services - are subjected to a satisfaction survey among clients and partners.

**Client satisfaction contact:** Cécile Cavalade, phone: +352 42 59 91 - 303, cecile.cavalade@tudor.lu

In the year 2006, external consultants have interviewed 18 project partners of 9 different projects closed in 2005. The following figures show the detail of the high level of satisfaction.

58 other commercial contract partners have answered paper or email surveys and showed a very high level of satisfaction (more than 98% of satisfied partners).



## Partners' and Customers' References

"En rassemblant tous les acteurs du secteur de la construction intéressés par la coopération électronique, le CRP Henri Tudor dans le cadre du CRTI-B participe très concrètement à l'amélioration de la productivité de notre bureau mais également de tous les acteurs du domaine de la construction luxembourgeoise."

Gilbert Ballini,  
Ballini Pitt & Partners, Architectes, Luxembourg

"Within the European funded cross border cooperation program Interreg III A Wallonie-Lorraine-Luxembourg, the Centre de Recherche Public Henri Tudor, as a project leader or a project partner, has acted with professionalism and accuracy."

Marc Kuborn, équipe technique Interreg,  
Ministère de l'Intérieur et de l'Aménagement du Territoire, Luxembourg

"The know-how and core competencies of Centre Henri Tudor have always been an invaluable asset for our company in the development of innovative and state-of-the-art technologies under the ARTES framework of the European Space Agency. Thanks to the contribution of Centre Henri Tudor and its capacity to create synergies with small and medium enterprises (SME's) from the greater region of Luxembourg, it became possible to develop future proven applications in the area of Interactive Digital Television and Internet content delivery via satellite. In that context I would like to mention one of our joint research and development activities, the hybrid solutions based on classical satellite broadcasting in combination with bi-directional internet protocol (IP) communication."

Gerhard Bethscheider,  
Vice President & General Manager, Ground Segment Engineering & Operations Division, SES ASTRA, Luxembourg

"The GRIF project, which had for original goal to model IT related risks, has had an unforeseeable positive evolution through very different cross fields competence transfers representing finance and quality of ICT services. Modeling IT related risks has led to a methodology, genuine tool to measure the quality of the operational risk management within the frameworks of Basel II and prudential banking supervision. The team's ability to grasp the problem from different angles, has allowed the GRIF project to demonstrate the potential of this model, whose multiple facets within the financial sector represent a true innovation."

David Hagen, Head of IT Audit, CSSF Commission de Surveillance du Secteur Financier, Luxembourg

"Je tiens à vous associer à notre réussite (audit de certification) tant vous avez pris une part prépondérante dans la bonne gestion de notre parc métrologique. Vous avez fait preuve d'un engagement sans faille depuis notre décision de travailler ensemble, nous supportant jusqu'à la veille de l'audit afin de compléter les fiches de vie selon nos desiderata.

Pour qualifier votre prestation, j'utiliserais les adjectifs suivants:

- exhaustive (prise en charge du parc, toutes grandeurs confondues)
- rapide (immobilisation très courte du matériel)
- adaptable (création d'un outil collant à NOTRE demande)
- patiente (nos attermolements quant à la prise en compte de certaines catégories d'instruments)
- compétente (connaissance des normes, assurant un support précieux)"

Raphaël Verdun, Quality & EHS Manager,  
Morganite Luxembourg

# Zoom on the Departments



Some of the following activities and projects benefitted from the financial support of the National Research Fund (FNR), the European Regional Development Fund (ERDF) and the European Social Fund (ESF).



<b>Staff as at the end of the year:</b>	54
<b>Key competences:</b>	modelling and piloting of the Supply Chain, reference frameworks and management of organisations, constraint management, company modelling (dual view flow-process), new forms of organisations, project management, computational mechanics, data analysis, physical measurement systems, automation, material trials and characterisation, creation of materials, nonocomposite materials, metrology
<b>Activities:</b>	R&D, doctoral research, expert reports, technological assistance, ongoing post-graduate training, animation of innovation platforms, specialist services: material trials, metrology and calibration
<b>Units:</b>	<ul style="list-style-type: none"> <li>- “Strategy and Management” scientific and technological unit</li> <li>- “Modelling and Simulation” scientific and technological unit</li> <li>- “Materials” scientific and technological unit</li> </ul>
<b>Main partners:</b>	ARCELOR, Guardian Automotive, Netzsch, Ceratizit, Service de l’Energie de l’Etat (SEE - standards committees), Office Luxembourgeois d’Accréditation et de Surveillance (OLAS), Agence de l’Energie SA (AEL), Mouvement Luxembourgeois pour la Qualité (MLQ), Vlaamse Instelling voor Technologisch Onderzoek (VITO), Husky, Imatec, e2v, Amer-sil, Mondo, Guardian (Coating), Gottscholl-Alcuilux SA, Rotarex, Ministère de la Fonction Publique et de la Réforme Administrative, Dupont de Nemours, Eurocomposites, IEPERBAND N.V., Fidet Sàrl, Defontaine SA, Vitha Travaux SA, ERICO, CTI Systems, Luxspace (ESA project), Cegecom, Inlingua, Compass, Hôpital Kirchberg, Ministère de l’Economie et du Commerce Extérieur, Glaverbel, Distriwood
<b>Contact:</b>	Pr Dr Jos Schaefers, Director  phone: +352 42 59 91 – 1, <a href="mailto:jos.schaefers@tudor.lu">jos.schaefers@tudor.lu</a>
<b>For more information:</b>	<a href="http://www.lti.lu">www.lti.lu</a>

*Pr Dr Jos Schaefers*

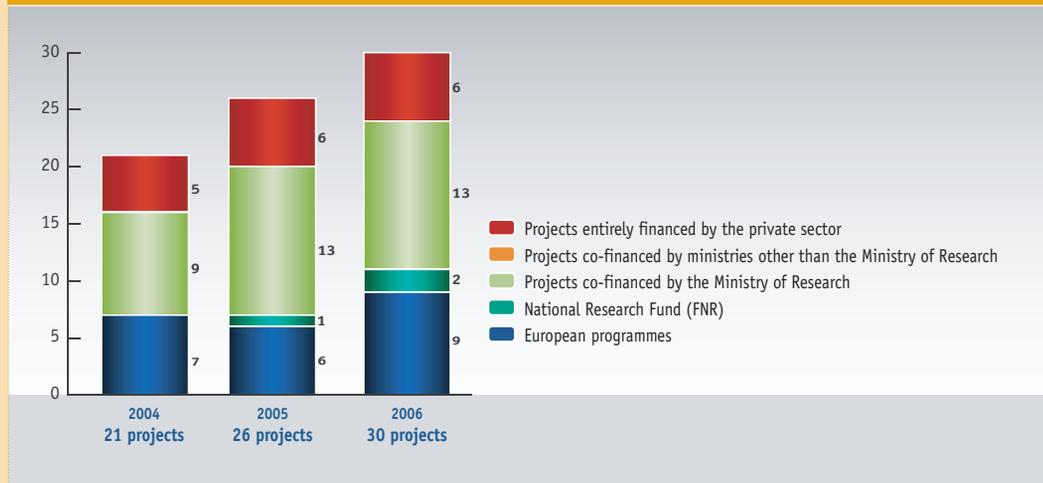


## Key facts 2006 for the department:

- Approximately 20 new clients
- Organisation of three national and international conferences: GISEH 2006 (Gestion et Ingénierie des Systèmes Hospitaliers, from 14 to 16 September 2006; 190 participants), the “Logistique: Défi et opportunité pour le Luxembourg” conference (in partnership with the Confédération Luxembourgeoise du Commerce and the Ministry of Economy and Foreign Trade, 26 September 2006; 189 participants), and the Salon des Bonnes Pratiques 2006 (22 March 2006; 185 participants)
- Two R&D projects to improve national competitiveness: the LPO “Lean Public Organisation – Management et outillage d’un processus d’évaluation et d’amélioration des organisations du secteur public” project, conducted in partnership with the Ministère de la Fonction Publique et de la Réforme Administrative, the Mouvement Luxembourgeois pour la Qualité (MLQ), and the SC-CONSTRUCT “Sustainable and Competitive Construction” project
- Implementation of a first Supply Chain in the sector of construction as part of the SC-CONSTRUCT “Sustainable and competitive construction” project (project in advance of the future FP7 topics)
- Recognition at European level of the expertise in analysis and characterisation of the thermal behaviour of materials (EVITHERM)
- Recognition by the scientific and European community of the intermediate results of the FP6 CASSEM “Composites and Adaptive Structures: Simulation, Experimentation and Modelling” project, managed by the LTI
- One patent filed in the field of PVC stabilisation
- The encouraging results relating to treatment by atmospheric plasma as part of the TRASU “Development of Innovative Surfaces by Means of Optimized Plasma Techniques and Technological Transfer to Industries” project
- A laboratory sought after by PhD students and post-doctorants and visited by renowned professors
- Obtaining of the “Notified Body” qualification for construction materials

## Key figures 2006

### LTI's projects by type of funding



## Transfer and dissemination activities of LTI

Training and teaching	Qualifying training organised: 25 days of training; 156 attendees
	Master "Management et Qualité des Entreprises et Services", organised in partnership with the Ecole Supérieure de Management, the University of Metz (F), the Facultés Universitaires de Mons (B) and the University of Québec in Trois-Rivières (CND), 33 attendees (classes 1 and 2)
	104 hours of teaching in university cursus
Scientific publications	24 scientific peer-reviewed publications published in journals, conference proceedings or as book chapters
PhDs	13 PhDs, 2 theses defended with success in 2006
Participation in committees	2 juries of doctoral theses 7 industrial or scientific committees (evaluation, orientation and normalisation) and 5 conferences committees
Conferences	8 conferences gathering each between 45 and 300 persons, for a total of 59 hours and 655 attendees, including : <ul style="list-style-type: none"> <li>- <b>GISEH - Gestion et Ingénierie des Systèmes Hospitaliers</b> (190 participants) (14 - 16 September 2006), in partnership with CRP Santé, Entente des Hôpitaux Luxembourgeois (EHL), Hôpital du Kirchberg and co-financed by the National Research Fund (FNR)</li> <li>- <b>Logistique: Défi et opportunité pour le Luxembourg</b> (189 participants) (26 September 2006), in partnership with the Confédération Luxembourgeoise du Commerce and the Ministry of Economy and Foreign Trade</li> <li>- <b>Le Salon des Bonnes Pratiques</b> (185 participants) (22 March 2006)</li> <li>- <b>Veillissement et durabilité des matériaux</b> (48 participants) (31 May 2006)</li> </ul>
Events	5 seminars or work group sessions for a total of 8.5 days and 154 attendees 4 scientific seminars of half-a-day with visiting professors

### KEY FACTS FOR EACH UNIT

#### UST ▶ "Strategy and Management" Scientific and Technological Unit

*The unit's aim is to develop and maintain skills in order to improve business productivity and competitiveness through business organisation and management system performance as well as Supply Chain synchronisation.*

#### Key facts 2006:

- Several new R&D projects on competitiveness: the LPO "Lean Public Organisation" project in collaboration with the Ministère de la Fonction Publique et de la Réforme Administrative and the Mouvement Luxembourgeois pour la Qualité (MLQ), the SC-CONSTRUCT "Sustainable and Competitive Construction" project, the IMPEE "Innovative Multi-Product Engineering Environment" project, whose results are impressive since diagnoses in businesses (of a duration of 5 to 7 days, three closed diagnoses, three in progress) have already enabled production lead times to be reduced by 30 to 50% and an ongoing reduction of 40 to 70%
- Creation of client relation management (CRM) methodological skills and first use with Inlingua and Concept Factory. ROI analysis of marketing campaigns and client relations has resulted in an increased turnover of 10%
- As part of the HOSPIMOD "Génération d'un modèle d'organisation des systèmes hospitaliers" project, an important advance in measuring systems for hospitals was achieved
- Organisation of three international and national conferences: GISEH 2006 (Gestion et Ingénierie des Systèmes Hospitaliers, from 14 to 16 September 2006; 190 participants), the "Logistique: Défi et opportunité pour le Luxembourg" conference (in partnership with the Confédération Luxembourgeoise du Commerce and the Ministry of Economy and Foreign Trade, 26 September 2006; 189 participants), the Salon des Bonnes Pratiques 2006 (22 March 2006; 185 participants)
- With regard to training, the end of the 2<sup>nd</sup> Master's degree class in "Management et Qualité des Entreprises et Services", organised in partnership with the Ecole Supérieure de Management (ESM) and the University of Metz, as well as the Facultés Universitaires de Mons and the University of Québec in Trois-Rivières. The launch of the third class is planned for March 2007 ("Logistique et Qualité")
- Several scientific publications and supervision of a doctoral thesis on adopting management tools in small and medium enterprises

#### Contact:

Magalie Briquet, Unit Manager, magalie.briquet@tudor.lu

*The unit's aim is to make available to businesses a data analysis and digital mechanics skills centre in order to help them improve their products and processes.*

**Key facts 2006:**

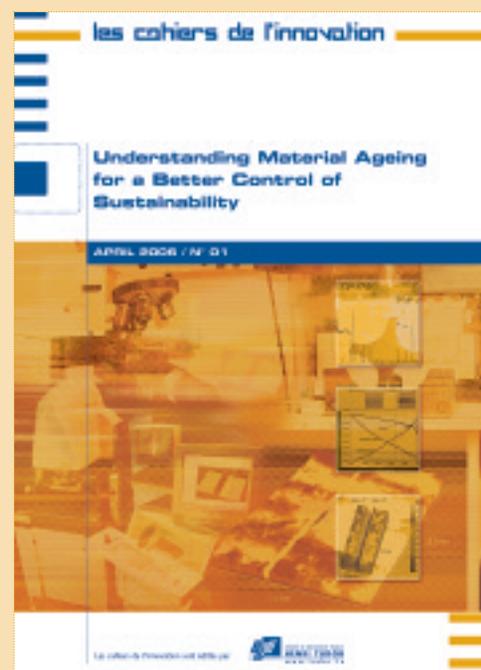
- Approval by the European Commission of the mid-term review for the FP6 CASSEM "Composites and Adaptive Structures: Simulation, Experimentation and Modelling" project, co-ordinated by the LTI, invitation to the India-EU workshop on "Computational Material Science" in Bangalore/India from 19 to 22 February 2006 and organisation of the DEMEASS conference "1<sup>st</sup> International Symposium on Design Modelling and Experiments on Adaptive Structures and Smart Material" in Bardonecchia (Turin, from 10 to 12 July 2006)
- Launch of the VEIANEN "Viscous Effects Investigated by Applied Numerics and Experimental Nanoindentation" project, lasting 30 months and co-financed by the National Research Fund (FNR)
- Launch of the DURAMEM "Durabilité et fiabilité d'une nouvelle gamme de membranes pour vanne par simulation numérique" collaboration, in partnership with CEODEUX-Ultra Pure Equipment Technology SA
- Welcoming of various foreign researchers: Prof. L. Azrar (University of Tanger), Prof. S. Ahzi (Université Louis Pasteur Strasbourg), Prof. A. Benjeddou (Institut Supérieur de Mécanique de Paris), Dr H. Naceur (Université Technologique de Compiègne) and Dr S. Gupta (Indian Institute of Technology, Kanpur). Five public seminars were given by professors Ahzi, Benjeddou and Hamid Guermatani of Georgia Tech (United States)
- Signature of a collaboration agreement with the University of Bucharest in June 2006. Prof. N. Constantin's scientific visit to the unit in 2004 was the reason behind this rapprochement
- Defence of two theses co-supervised by the unit: that of Dr Georges Schutz (Université Henri Poincaré de Nancy, on the subject: "L'apport de réseaux de neurones artificiels pour améliorer le contrôle de processus industriels complexes, caractérisés en particulier par leur aspect temporel") and that of Dr Heng Hu (in collaboration with the University of Metz, under the supervision of Prof. Michel Potier-Ferry and Dr Salim Bellouettar, subject: "Modèles numériques pour les tôles sandwich")
- Co-supervision of two new theses: Muhammad Ali Siddiqui (University of Strasbourg, subject: "Electromagnetic Forming of Sheetmetals") and Weichao Guo (University of Liège, subject: "Investigation of the Effect of Indenter Tip Geometry on the Identification of Material Parameters")
- Publication of six articles in international journals, four other articles accepted and six more submitted. The team contributed to international conferences with 14 articles.

**Contact:**

Serge Gillé, Unit Manager, [serge.gille@tudor.lu](mailto:serge.gille@tudor.lu)

Cahier de l'Innovation "Understanding Material Ageing for a Better Control of Sustainability" available upon request from

**[publications@tudor.lu](mailto:publications@tudor.lu)**



*The aim of the "Materials" Technological and Scientific Unit is to develop and maintain a materials test and inspection centre (materials clinic) in order to improve business productivity and competitiveness by improving products and processes.*

#### Key facts 2006:

- Since 2006, the unit has represented Luxembourg in COST (European Cooperation in the field of Scientific and Technical Research) commission
- Recognition at European level of characterisation and analysis expertise in the thermal behaviour of materials (EVITHERM)
- Organisation of two workshops: "Ageing of Materials" (31 May 2006; 48 participants) and "Association Technique de la Sidérurgie" (24 November 2006; 40 participants)
- Launch of two new projects, co-financed by the Ministry of Culture, Higher Education and Research, the QSE "Démarche Qualité Sécurité Environnement" project and the THERMOMECA "Développement d'un pôle de compétences en essais thermomécaniques" project
- The ICIMAT "Innovation dans la caractérisation intégrée des matériaux" project, conducted in co-operation with Mondo, Amer-Sil, Guardian, IMAtec, Du Pont de Nemours and Circuit Foil, produced its first outstanding results
- Publication of the first Cahier de l'Innovation (thematic publication), entitled "Understanding Material Ageing for a Better Control of Sustainability", available upon request from publications@tudor.lu
- Submission, within the scope of a request for proposals, by ESA (European Space Agency), of a joint project with Luxspace, the Centre Spatial de Liège, the Ecole des Mines, Dupont de Nemours, Kayser-Threde and CRP Gabriel Lippmann
- One patent filed in the field of PVC stabilisation
- Several new clients: Ieperband N.V. (B), Fidet Sàrl (L), Defontaine SA (F), Vitha Travaux SA (B), Erico (NL), CTI Systems (L), IMAtec (L), Mondo (L), Luxspace
- More than 3,500 samples tested
- Accreditation by the Office Luxembourgeois d'Accréditation et de Surveillance (OLAS) for electrical, dimensional and thermal metrology (characterisation of climatic chambers) (ISO CEI 17025)
- As part of the TRASU "Development of Innovative Surfaces by Means of Optimized Plasma Techniques and Technological Transfer to Industries" project, interesting results were produced with regard to innovative layer coating for anti-corrosion treatment
- Launch of three new European projects (ERDF Objective 2): MATINSITU "Vers une approche comportementale des matériaux en phase dynamique", VALMAT "Vers un pôle de compétences en valorisation des matériaux" and MOSE "Vers un pôle de compétences de modification sélective de matériaux"
- Supervision of three doctoral theses
- Seven scientific publications
- Obtaining of the "Notified Body" qualification for construction materials

#### Contact:

David Ruch, Unit Manager, david.ruch@tudor.lu

**Staff as at the end of the year:**

114

**Key competences:**

innovation by Information and Communications Technologies (ICT) in private and public organisations as well as in the society, Business/IT alignment through enterprise and information systems modelling, foresight methodology, measurements of the impacts of ICT-based innovations, organisational and change management, ICT innovation lifecycle, ICT support to business value and organisation of knowledge, IT/trade alignment, assessment and improvement of processes, new IT governance management models, new forms of services management, operational risk management, conceptual modelling and ontologies, certification of IT products and services, quality reference systems, security reference systems, requirements engineering, business technology consultancy, project management, portfolio management, software procurement, mobile and distributed software architectures, software architecture and components, interoperability of information systems

**Activities:**

doctoral research, collective R&D, bilateral R&D, assessment and diagnostics, foresight and preliminary studies and pre-projects, technological and methodological assistance, innovation projects, ongoing training and expert advice, post-graduate diploma training, management of innovation platforms, professional meetings, conferences, professional and scientific publications, networking and clustering activities, working groups, spin-off projects

**Units: (as in 2006)**Innovation platforms :

- "Quality and certification of IT services"
- "Information systems security"
- "Interoperability standards and e-business"
- "E-learning, knowledge management and networked organisations"
- "Statistical studies and prospective in the knowledge economy"

Scientific and technological units :

- "Knowledge economy and innovation management"
- "Software engineering"
- "Innovation project management"
- "Management of organisations and IT services"
- "Reference systems for modelling and certification"

The CITI supplies all the competences mobilized by the CRP Henri Tudor in the innovation platform "Information Technologies in Construction".

The CITI also participates in the shared innovation platform "Free and Open Source software".

**Strategic partners:**

Members of the innovation platforms advisory committees: Service Central de la Statistique et des Etudes Economiques (STATEC), Commission de Surveillance du Secteur Financier (CSSF), Chambre des Métiers, Chambre de Commerce du Luxembourg, Chambre des Employés Privés (CEP-L), Association des Professionnels de la Société de l'Information (APSI), Service E-Luxembourg (SEL), Centre Informatique de l'Etat (CIE), Office Luxembourgeois d'Accréditation et de Surveillance (OLAS), Fédération des Industriels Luxembourgeois (FEDIL), University of Luxembourg, Ministry of Economy and Foreign Trade, Institut National d'Administration Publique (INAP), Club de la Sécurité des Systèmes d'Information au Luxembourg (CLUSSIL), Mouvement Luxembourgeois de la Qualité, National Research Fund (FNR), Centre de Recherche Public Gabriel Lippmann (CRP GL), Centre de Technologie de l'Education (CTE), Luxinnovation, Association de Normalisation pour la Société de l'Information Luxembourg (ANSIL), Computer Security Research and Response Team (CSRRT), Commission Nationale pour la Protection des Données (CNPD), Luxembourg chapter of IT Service Management Forum (itSMF Luxembourg), Ministère de l'Education Nationale et de la Formation Professionnelle, Ernst&Young, Fortis, Arcelor, Labset of the University of Liège, Java User Group Luxembourg (YaJuG), SPIRAL and CASSIS networks

Strategic partners of the scientific and technological units : Université Paul Verlaine de Metz, Ecole Doctorale IAEM-Lorraine, Université Nancy 2, Université Louis Pasteur de Strasbourg, BETA, Facultés Universitaires Notre Dame de la Paix de Namur (FUNDP), Université Catholique de Louvain, Université de Liège, Australian Council for Educational Research (ACER - Melbourne, Australia), Centre Scientifique et Technique de la Construction (CSTB - Paris and Sophia-Antipolis), Centre de Recherche Architecture et Ingénierie (CRAI) de l'Ecole Nationale Supérieure d'Architecture de Nancy, Université de Bordeaux I (LAPS/UB1), Université de Grenoble I (IMAG), Laboratoire d'Informatique de Nantes Atlantique (LINA), Centre d'Excellence en Technologies de l'Information et de la Communication (CETIC), Université Henri Poincaré de Nancy, Ecole des Mines de St Etienne, Irish Software Engineering Research Centre (LERO), Laboratoire Lorrain de Recherche en Informatique et ses Applications (LORIA), Deutsches Forschungszentrum für Künstliche Intelligenz (DFKI), Deutsches Institut für Internationale Pädagogische Forschung (DIPF)

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 Jean-Pol Michel, Director, [jean-pol.michel@tudor.lu](mailto:jean-pol.michel@tudor.lu)  
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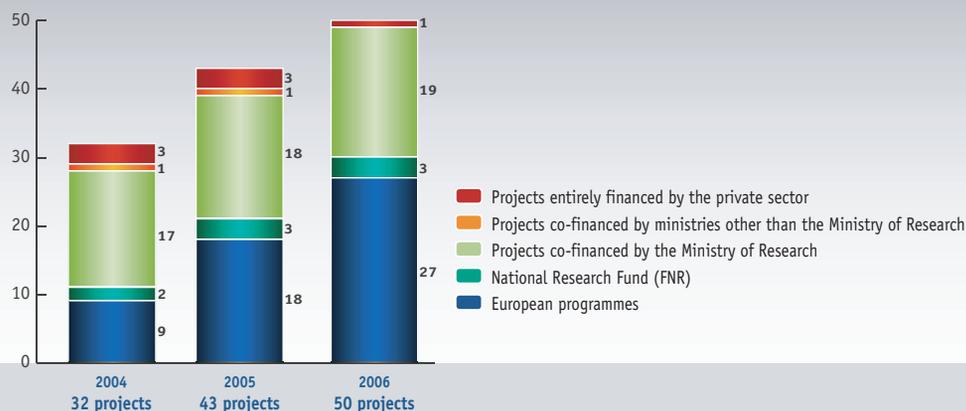
[www.citi.tudor.lu](http://www.citi.tudor.lu)



*Pr Dr Eric Dubois, Jean-Pol Michel*

## Key figures 2006

### CITI's projects by type of funding



## Key facts 2006 for the department:

- Significant increase in key indicators. In 2006, CITI staff reached 114 collaborators (+20%), 60 publications were accepted with scientific review (+60%), and nine doctoral theses (in collaboration with foreign universities) are underway (+80%). Finally, CITI introduced a trademark registration policy in order to protect and market its methodological products. Four brands, which resulted from research, have been registered in this way (TAO – [www.tao.lu](http://www.tao.lu), Cassis – [www.cassis.lu](http://www.cassis.lu), AnaXagora – [www.anaxagora.lu](http://www.anaxagora.lu), and Generis).
- Qualitative leap for strategic partnership. With 18 months of experience, innovation platform advisory committee coordination is becoming mature enough to form concrete partnerships to strategically direct the CITI.
- Significant penetration into two key sectors – banking services and mobile and interactive multimedia services. 2006 saw an exceptional involvement of participants in these two sectors. CITI has about ten project partners in each sector.
- Participation in four projects in the 6th European framework research programme. Three of the projects relate to CITI e-learning and knowledge management activities; one project relates to interoperability issues.
- Organisation, in collaboration with SITec®, of three international conferences: SPICE 2006, on the topic of process assessment and improvement (from 3 to 5 May 2006; 66 participants), CAiSE'06, on the topic of engineering information systems (from 5 to 9 June 2006; 315 participants) and “En route vers Lisbonne 2006”, the 2<sup>nd</sup> Luxembourg conference on the knowledge economy from a European perspective (from 9 to 10 November 2006; 293 participants). These conferences allowed CITI to consolidate its international standing for SPICE 2006 (on process quality approaches), CAiSE'06 (on service safety, trust and interoperability) and “En route vers Lisbonne” (on innovation and competitiveness).
- Participation in six international standardisation initiatives. In terms of international standardisation, CITI is committed to the areas of quality and IT security, e-learning and multimedia systems, electronic transactions and IT consultancy.
- Consolidated institutional partnership with the Ministry of Economy and Foreign Trade. Privileged and structured partnerships have been consolidated between the CITI and the Ministry of Economy and Foreign Trade on themes of common interest, namely IT security, standards for information services corporations and the relationship between innovation and competitiveness.
- Launch of the first public/private integrated projects in the ESA and EUREKA programmes. In these projects, R&D investment from private and public parties is discussed a priori with the two ministries involved, and allows impact to be optimised both for the private enterprise and for the public interest.
- Development of the offer of innovation services for networks. These services were offered to the following networks: SPIRAL (réseau des professionnels de l'IT), CASSIS, CLUSSIL (Club de la Sécurité des Systèmes d'Information), ITSMF (IT Service Management Forum), YaJuG, ANSIL (Association de Normalisation pour la Société de l'Information Luxembourg).
- National benchmark in “Project Management”. The national conference (18 October 2006; approximately 100 visitors) and the benchmark website [www.gestiondeprojet.lu](http://www.gestiondeprojet.lu) are the results of a rich international partnership with PMI, Hermes, AFITEP and a national partnership with Service e-Luxembourg and the SPIRAL network ([www.spiral.lu](http://www.spiral.lu)).



Please visit our website [www.GestionDeProjet.lu](http://www.GestionDeProjet.lu)

## Transfer and dissemination activities of CITI

Training and teaching	Qualifying training organised: 108 days of training; 329 attendees
	Master "Informatique et Innovation", organised in partnership with the University of Nancy 2 (F) and the Facultés Notre Dame de la Paix de Namur (B) - 40 attendees to the 3 ongoing sessions; 11 graduate students in 2006
	Master "Management de la Sécurité des Systèmes d'information", launched in partnership with the University of Luxembourg - 15 attendees to the 1 <sup>st</sup> session
	621 hours of training in university courses
Scientific publications	60 scientific peer-reviewed publications published in journals, conference proceedings or as book chapters
PhDs	9 ongoing PhDs, one successfully defended in 2006
Participation in committees	4 review boards of international journals 3 juries of doctoral theses 44 participations in industrial or scientific committees (evaluation, orientation and normalisation) and 34 in conferences committees
Conferences	30 conferences gathering each between 50 and 300 persons, for a total of 168 hours and 1,906 attendees, including: <ul style="list-style-type: none"> <li>- <b>CAiSE'06, the 18<sup>th</sup> International Conference on Advanced Information Systems (315 participants)</b> (5 - 9 June 2006), in partnership with the University of Luxembourg, Universität Duisburg Essen and co-financed by the National Research Fund (FNR)</li> <li>- <b>En route vers Lisbonne - 2<sup>ème</sup> colloque luxembourgeois sur l'Economie de la Connaissance dans une perspective européenne</b> (293 participants) (9 - 10 November 2006), in partnership with the Ministry of Economy and Foreign Trade, STATEC, the Observatoire de la Compétitivité, and co-financed by the National Research Fund (FNR)</li> <li>- <b>The 6<sup>th</sup> International SPICE Conference, Software Process Improvement and Capability Determination</b> (66 participants) (3 - 5 May 2006), in partnership with the Spice User Group and co-financed by the National Research Fund (FNR)</li> <li>- <b>Congrès annuel "GestionDeProjet.Lu"</b>, (103 participants) (18 October 2006)</li> <li>- <b>La Technologie RFID : Principes, applications et perspectives</b> (84 participants) (12 June 2006) in partnership with the Centre Régional d'Innovation et de Transfert de Technologie en Télécommunication et en Technologies de l'Information (CRITT-TTI), Chambre de Commerce et d'Industrie de Meurthe et Moselle, Chambre de Commerce et d'Industrie du Luxembourg Belge (CCILB), Fédération des Industriels Luxembourgeois (FEDIL)</li> <li>- <b>CASSIS, Retour gagnant des PME : conseils et services</b> (81 participants) (4 October 2006), in partnership with the Chambre de Commerce de Luxembourg, Chambre des Métiers and Euro Info Centre</li> </ul>
Events	31 work group sessions for a total of 343 hours and 285 attendees 9 meetings of the external "Comité d'Accompagnement" of the Innovation Platform "Information systems security", "Quality and certification of IT services" and "E-learning, knowledge management and networked organisations"

## KEY FACTS ABOUT EACH UNIT IN 2006

The CITI is organised in five scientific and technological units, with the principal task of contributing to innovation platforms. As a direct consequence of this organisation, the contributions made by scientific and technological units are documented in the descriptions of the innovation platforms. At scientific and technology unit level, only those activities which are documented are associated with their mission of guaranteeing international scientific visibility in their respective disciplines.

### UST ▶ “Knowledge Economy and Innovation Management” Scientific and Technological Unit

*The unit's aim is to provide suitable skills for innovation platforms and to develop new skills in the following areas: anticipation and measurement of the impact of ICT-based innovation, strategic management of innovation via ICT and enterprise modelling, organisational and change management, and IT support for knowledge organisation and status.*

#### Key facts 2006:

- Completion of a user guide for rolling out an anticipation skills approach and an anticipation approach for ten leading professions: IT quality auditor, business process analyst, IT project manager, IT advisor in small and medium enterprises, quality manager, e-learning module online coach, knowledge co-ordinator, e-learning certified consultant, knowledge manager, logistics manager
- Design of training programmes relating to the anticipation skills approach and transfer to five Walloon partners
- Ongoing design of a methodology to assist with investment decisions in the field of IT innovation
- Data analysis on the following topics: ICT and innovation, productivity and entrepreneurship; in collaboration with the Service central de la Statistique et des Etudes économiques (STATEC) and the Observatoire de la Compétitivité
- In partnership with CASSIS network consultants, development of the “Strategic management of innovation by ICT and business modelling” topic for better business orientation through the management of economic values created by the rollout of new technology
- Design of an e-learning training programme “Efficient B2B Transaction Design”
- Circulation and transfer of a guide aimed at innovation networks co-ordinators
- Trial of tools to assess the relevance and maturity of a knowledge management approach
- Provision of training on an organisational change management method, essential for introducing ICT into public administrations
- Integration of aspects relating to change management into the coaching method on project management for ICT projects in small and medium enterprises
- Development of a new course on change management and innovation, as part of the “Informatique et Innovation” Master’s degree, co-organised by the Facultés Notre Dame de la Paix of Namur, the University of Nancy 2 and CRP Henri Tudor
- Development, in collaboration with Service e-Luxembourg, of a management chart approach aimed at measuring the suitability of a system of reference for managing ICT projects in public administrations, experimentation and scientific publication
- Follow-up of two new doctoral theses on networks organisations performance and the successful defence by Dr Matthieu Farcot of a doctoral thesis in the area of intellectual property dynamics applied to the software sector

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*The unit's aim is to provide suitable skills for innovation platforms and to develop new skills in the following areas: information systems interoperability, software architectures based on the reuse of components, software product quality, mobile and distributed software technologies.*

**Key facts 2006:**

- Launch of two new research topics: software product quality (in collaboration with CETIC – Centre des techniques de l'information et de la communication) and new software architectures
- Design and provision of a training programme on Web Services for the Administration de l'Emploi (ADEM)
- Design of a training programme dedicated to SOA architectures
- Active participation in the "European Technological Platform NESSI" on software services
- Courses taught at the universities of Metz, Nancy and Luxembourg
- Publication of scientific articles, in particular about the architecture of prototypes or products such as TAO, Anaxagora and Efficient
- Setting up of a framework concerning compliance with security standards, assessed by appointed persons in a telecommunication infrastructure
- Launch of projects aimed at using mobile systems such as car GPD or GSM to convey useful information to the user according to his/her profile and the context in which he/she develops (context aware services): the CARLINK "Wireless Traffic Service Platform or Linking Cars" (ITEA project) and MobileTTE "Mobile Technologies for Tourism Expansion" (ERDF) projects, carried out particularly in collaboration with the Office National du Tourisme, GAL, the Syndicat Intercommunal de Gestion Informatique (SIGI), Société Européenne des Satellites (SES), Radio Télévision Luxembourg (RTL), the Automobile Club Luxembourg (ACL), Synergium, Mobisoft (Finland), and the Technical Research Centre of Finland (VTT)

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**Results of the project GRIF**

Global risk management in financial institutions

The GRIF "Global Risk Management in Financial Institutions" project of a duration of three and a half years, and a budget of about Euro 250,000, realised in partnership with the Commission de Surveillance du Secteur Financier (CSSF), has by far reached its intention of creating, on the one hand, a new approach to operational risk management based on the principles of business excellence and quality, and on the other hand, being an active partner in the adoption of this new approach.

The implementation of risk management and the principles of business excellence and quality allows not only savings by rationalising procedures of the financial institutions, but also allows a better control of the operational assurance of the creation of value in the development of new products and financial services. The methodological tools developed in this project provide an important amount of support for one of the advantages of Luxembourg's financial institutions for investors: to guarantee excellent quality of services in the professions which account for its good reputation, and at the same time improving its potential for innovation.

On the long run, an important impact on the development of financial institutions is expected in Luxembourg, when the project INNOFINANCE would have soon obtained international recognition.

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UST ▶ "Reference Systems for Modelling and Certification" Scientific and Technological Unit

*The unit's aim is to provide suitable skills for innovation platforms and to develop new skills in the following areas: conceptual modelling, IT knowledge, IT certification*

**Key facts 2006:**

- Reorganisation of unit topics on cognitive interfaces and knowledge engineering, including aspects of knowledge modelling, man-machine communication and knowledge representation, and processing and operation of knowledge models
- Successful completion of the first ESA Sat-n-Surf project "Développement de services innovants en matière d'exploitation de contenu Internet" in the area of filtering web content transmitted by satellite, in partnership with the Laboratoire lorrain de Recherche en Informatique et ses Applications (LORIA)
- Launch of the European FP6-IP PALETTE "Pedagogically Sustained Adaptive Learning Through the Exploitation of Tacit and Explicit Knowledge" project involving a set of high level European partners in the field of knowledge management, learning in communities of practice and the Semantic Web
- Completion, as part of the TA02 project "Testing assisté par ordinateur : plate-forme libre de nouvelle génération en environnement ouvert", conducted in collaboration with the University of Luxembourg, of an optimised version of the Generis ontology distributed management platform and its use in numerous projects
- Development of an international partnership in the field of computer-aided testing
- Development of a method to align the business processes of several partners and their strategies in collaboration with Swedish and Dutch partners within the scope of the European network of excellence INTEROP "Interoperability Research for Networked Enterprises Application and Software". Development of a comprehensive model and a support tool prototype
- Launch of a collaboration with the Facultés Universitaires Notre-Dame de la Paix of Namur (FUNDP) to develop a generic modelling tool that includes adaptive interfaces and supports model transformation
- Participation in the steering committee for the International Conference on Information Systems Engineering CAiSE'06 in Luxembourg (from 5 to 9 June 2006; 315 participants)
- Participation in international conference committee reviews (CAiSE'06 - International Conference on Advanced Information Systems Engineering, DisWeb - International Workshop Data Integration and the Semantic Web, ISWC - International Semantic Web Conference, I-ESA - Interoperability for Enterprise Software and Applications Conference)
- Participation in some twenty peer-reviewed scientific publications

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UST ▶ "Management of Organisations and IT Services" Scientific and Technological Unit

*The unit's aim is to provide suitable skills for innovation platforms and to develop new skills in the following areas: IT – business alignment, IT practice efficiency and process assessment, new forms of IT organisation, service management, operational risk management, quality reference systems, security management reference systems, and requirement engineering.*

**Key facts 2006:**

- Organisation of the international conference on Software Process Improvement and Capability Determination, SPICE 2006 (from 3 to 5 May 2006; 66 international experts)

- Creation and promotion of the Association de Normalisation pour la Société de l'Information Luxembourg (ANSIL), with the expert committee CNLSI (Comité de Normalisation Luxembourgeois pour la Sécurité de l'Information) and CNLQSI (Comité de Normalisation Luxembourgeois pour la Qualité des Systèmes d'Information)
- The Luxembourg delegation's first participation at the ISO JTC1 SC7 plenary session in Bangkok (May 2006), with participation in the following task forces: WG10 (ISO/IEC 15504 Process Assessment), WG24 (Software Lifecycle for Very Small Enterprises) and WG25 (ISO 20000 – IT Service Management)
- Organisation, in Luxembourg, of the international interim meeting of the WG24, registration for the new Study Group on ICT Governance and significant advances towards the ISO 27001 standard
- Active participation in the Club EB IOS
- Participation in the development and provision of the first Master courses on "Management de la Sécurité des Systèmes d'Information", co-organised by the University of Luxembourg and CRP Henri Tudor
- Participation in EuroSec, SPICE 2006, EuroSPI2006 programme committees

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**UST ▶ "Innovation Project Management" Scientific and Technological Unit**

*The unit's aim is to provide suitable skills for innovation platforms and to develop new skills in the following areas: innovation project management, project management guidance, risk management methodologies, assessment and improvement of processes linked to project management.*

**Key facts 2006:**

- Launch of the [www.gestiondeprojet.lu](http://www.gestiondeprojet.lu) portal (number of hits since its launch on 12 June 2006: 17,728), in partnership with PMI Chapter BELUX (Luxembourg section), Service e-Luxembourg, MSD Partners, Optima Consulting, Threon and the National Research Fund (FNR) and as part of the TOOLINNOVE "Systèmes et outils de gestion de projet – méthode QUALINNOVE" project
- Co-organisation of the GestionDeProject.lu 2006 conference bringing together approximately 100 people on the topic of project management in Luxembourg (18 October 2006)
- Conducting the first ever national survey on project management in Luxembourg
- Completion of the CASSIS AMO label design, granted to consultants applying the AMO software selection method developed by CRP Henri Tudor. In 2007, 30 consultants were awarded the label
- Creation of several services to improve project management in the financial sector, in particular for DEXIA BIL, CACEIS, FINALISE
- Creation of PRM-PAM on different reference systems in project management: PRINCE2, PMBOK, ISO 12207
- Rollout of QUAPITAL "Qualité des projets d'implémentation des technologies de l'information et de la communication dans l'administration luxembourgeoise" in the Luxembourg public administrations, based on a rollout plan, and participation in the HERMES task force for methodological developments
- As a member of the AFNOR X620 standardisation commission, contribution to the creation of the following standardisation documents: FD X50-137 (April 2006) – Cost Management, FD X50-138 (April 2006) – Deadline Management

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*The innovation platform's aim is to develop the quality services market in IT consultancy and to promote the quality of business information systems, particularly in small and medium enterprises and public administrations.*

**Key facts 2006:**

- Flagship activity in project management, particularly with the co-organisation of the GestionDeProjet.lu yearly conference (18 October 2006; 100 participants), the launch of the GestionDeProjet.lu portal, performance of a national survey on project management in Luxembourg, recognised expertise in the private sector and public administrations (QUAPITAL rollout)
- Positioning in the financial sector: fallout from the GRIF project "Gestion des risques IT dans le secteur financier – nouvelles approches méthodologiques", set-up of the INNOFinance project "Service Modelling and Assessment for Services Innovation within the Financial Sector" and extension of the partnership into the financial field (cf. European Investment Fund - EIF, DEXIA, CACEIS, etc.)
- International recognition of the AIDA models: use abroad (Portugal, Finland, Germany, India, Australia) and positioning in ISO (SC7/WG25)
- Organisation of the SPICE 2006 international conference "6<sup>th</sup> International Conference Software Process Improvement" (from 3 to 5 May 2006; 66 participants)
- "Take-off" of CASSIS ([www.cassis.lu](http://www.cassis.lu)). The total turnover of consultants and service firms is estimated at EUR 500,000, more than 65 client small and medium enterprises
- Active contribution to the "Informatique et Innovation" Master's degree

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**Results of the project SPINOV**

IT processes and skills development: a successful association

SPINOV « Software Process Improvement and Innovation » project aimed at developing skills in the field of requirements engineering and quality of IT processes and to transfer to the professionals.

The success of the project can be measured on the important number of professionals having participated in the different organised workgroups and thematic events. The skills developed within this project had an important international visibility as demonstrated by the numerous scientific publications and the co-organisation of the conferences RE 2002 in Essen and SPICE 2006 in Luxembourg. SPINOV allowed CITI to actively participate in the international standardisation groups and to launch, on the initiative of CRP Henri Tudor and in co-operation with the Service de l'Energie de l'Etat (SEE), first the Luxembourg ISO subcommittee related to software and systems engineering - SC7 Luxembourg and then the Association de Normalisation pour la Société de l'Information au Luxembourg (ANSIL).

The project has been conducted in partnership with the Facultés Universitaires Notre-Dame de la Paix of Namur. They conducted parallel researches related to the assessment and improvement of software quality and to the certifying of software practices and products.

For each subject – requirements engineering and quality of IT processes –, watch reports, supporting tools, guides, methods, recommendations, etc. were produced. In total, more than 100 documents are available on the website of the department: [www.citi.tudor.lu](http://www.citi.tudor.lu)

Remarkable results of the project are the knowledge base on specifications and the methodological toolboxes dedicated to requirements engineering and to the improvement and assessment of IT processes.

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*The innovation platform's aim is to improve businesses' information system security, particularly that of small and medium enterprises, citizens and the public sector, and to develop the skills and the services market able to meet this requirement.*

#### Key facts 2006:

- Contribution to the design and launch of the Information Systems Security Management Master's degree, in collaboration with the University of Luxembourg
- Development for the "Recherche en sécurité des systèmes d'information et de la communication" project R2SIC, conducted in partnership with the Ministry of Economy and Foreign Trade, of a security e-learning method for citizens, communes and SME's
- As part of the SIM "Secure Identity Management" project, development of a Secure Identity Management prototype to demonstrate IHM (Man-machine interface) concepts
- Research on IT vulnerabilities and threats in small and medium enterprises, in partnership with the Ministry of Economy and Foreign Trade (CASES)
- Definition of an integrated approach to prepare for ISO/IEC 27001 certification
- As part of the European project Secure PME "Développement d'un pôle de compétences en sécurité des systèmes d'information, dédié aux PME situées dans la zone Objectif 2", development of a tool to diagnose security maturity in line with ISO/IEC 17799, taking into account the business context of the company and a generic method to assess the security of information networks and systems used by the company
- Significant involvement of strategic key players from the field of security in the platform's advisory committee (four meetings in 2006)
- Presentation of the feasibility study results on setting up an IT threat monitoring centre in Luxembourg
- Central and active involvement in ISO/JTC1/SC27 via the medium of the presidency, methodological organisation and the development of the Comité de Normalisation Luxembourgeois pour la Sécurité de l'Information (CNLSI)
- Contribution to the creation of the Association de Normalisation pour la Société de l'Information Luxembourg (ANSIL)
- Active participation in the Club de la Sécurité des Systèmes d'Information (CLUSSIL)
- Participation in the review committee for the "Hack.lu" 2006 conference (Luxembourg) and the "Eurosec" 2007 trade show (Paris)
- Definition of several European projects in the field of IT security
- Publication of several peer-reviewed articles in journals and in the technical press
- Organisation of two workshops as part of the SPIRAL IT professionals' network: "Presentation of ANSIL" (23 May 2006; approximately 50 participants) and "Presentation of the Study on Social Representation of Hackers" (26 September 2006; approximately 50 participants)
- Several speeches at conferences including "En route vers Lisbonne 2006 : 2<sup>ème</sup> Colloque luxembourgeois sur l'Economie de la Connaissance dans une perspective européenne" (9 and 10 November 2006; 293 participants) and "La semaine de la Qualité 2006" (November 2006)

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*The platform's aim is to roll out new models and tools to promote business information system development in terms of flexibility, performance and adaptation to the future and current needs of trade. This platform also aims to support technical and organisational changes linked to the emergence of new services made possible by the innovative application of ICT.*

#### Key facts 2006:

- Launch of the YaJuG ([www.yajug.lu](http://www.yajug.lu)) network in Luxembourg, in partnership with several Luxembourg-based IT professionals and aimed at promoting, disseminating and sharing methods, applications and best practice relating to the Java platform
- Design and putting online of an e-learning training on modelling, validation and rollout of B2B transactions as part of the e-FFICIENT "E-Business Framework for an Efficient Capture and Implementation of End-to-end Transactions" project, conducted in partnership with the University of Luxembourg and co-financed by the National Research Fund (FNR)
- Launch, in collaboration with the Office National du Tourisme, the GAL, the Syndicat Intercommunal de Gestion Informatique (SIGI), SES and P&T Consulting, of the MobileTTE "Mobile Technologies for Tourism Expansion" project concerning the use of mobile technologies for disseminating geolocated tourist information in Luxembourg. The project is co-financed by the European Union
- Launch, in collaboration with the Automobile Club du Luxembourg, Synergium and several European partners - Mobisoft and the Technical Research Centre of Finland (VTT), of an ITEA project for the dissemination of contextualised information for vehicles: the CARLINK "Wireless Traffic Service Platform or Linking Cars" project
- Launch of a project on the automatic adaptation of multimedia flows according to the dissemination mode (CANTATA "Content Analysis and Networked Technologies for Advanced Testing of Adaptive Applications" project), in partnership with Codasystem and several European industrialists such as Barco and Phillips
- Active participation in the workshops of the INTEROP European network of excellence "Interoperability Research for Networked Enterprises Application and Software"
- Putting online of an electronic collaboration platform relating to the requirements of various European and Latin American business operators as part of the LINK ALL "Local Communities Insertion Network" project, conducted in partnership, particularly with Cybercultus and Egnatia Epirus (Greece)
- As part of the FNR e-FFICIENT "E-Business Framework for an Efficient Capture and Implementation of End-to-end Transactions" project, conducted in partnership with the University of Luxembourg, provision of a service for SWIFT to define new financial standards via a B2B transaction modelling workshop
- Organisation of a workshop on dematerialisation of flows in the public administration sector on 27 March 2006; bringing together over 60 participants
- Organisation of a workshop dedicated to Business/IT alignment, as part of the CAISE'06 conference (18<sup>th</sup> International Conference on Advanced Information Systems; from 5 to 9 June 2006; 315 participants)

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## Results of the project AFFLUX

Towards electronic administrative records

In the mid 1990s, as part of the LIFE European projects conducted by CRP Henri Tudor with the Ministry of Environment, the Centre developed a computer application to facilitate the management of "Conserving Nature" (CN) cases. This innovative application comprised a management system and the first workflow to be put in place in a Luxembourg public administration.

In view of the emergence of commercial systems, on the one hand, and the need to maintain the application, on the other hand, the AFFLUX project "Architecture avancée pour la gestion des flux de dossiers" was defined with the Ministry of Environment to develop a new version of the CN software and to choose an IT company to ensure its development and maintenance. The Centre participated in research, determining the solution and assisting with project management (choice of supplier and implementation of the solution).

Thanks to the AFFLUX project, new software that involves more participants and functions than the original, and which is based on electronic document and flow techniques is now used at the Ministry of Environment. The NSI Company, selected following the call for tenders, developed the software and is now responsible for its maintenance.

For Centre Henri Tudor, and more particularly the CITI Department, the project also allows research to be continued into developing administrative workflows towards electronic documentation. AFFLUX has contributed to the development of skills in the area of electronic documentation and interoperability of computer science architectures. Capitalising the project management assistance aspect of the project allowed the outline of the GERAMO project "Gestion de la relation clients/fournisseurs dans les projets TIC" to be identified.

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## Results of the project PARRAIN

E-business accessible to all

With the aim of reducing the isolation of company managers and facilitating their integration into collaborative networks, the PARRAIN project "Parrainage transfrontalier", co-financed by the European Union and conducted in partnership with la Chambre de Commerce et d'Industrie du Luxembourg Belge (CCILB), the Centre Régional d'Innovation et de Transfert de Technologie en Télécommunication et en Technologies de l'Information (CRITT-TTI) and the Chambre de Commerce et d'Industrie de Moselle, offered, until June 2006, transborder small and medium enterprises and small and medium manufacturing companies (Wallonia - Lorraine - Luxembourg) assistance in two sensitive areas: management and e-business. The ten or so business networks created as part of the project have allowed some very positive conclusions to be drawn.

The advantages of large enterprises sponsoring small and medium enterprises and manufacturing companies are many and varied: the supporting of managers in improving the profitability of their business, exchanging experience and expertise with regard to computerisation and integration of e-business relationships, creation of entrepreneur networks, implementation of continuing education processes, etc.

The PARRAIN project, which ended at the end of June 2006, in three and a half years largely reached the objectives that the transborder partners of the project had set. *"All in all, we have succeeded in reaching and raising the awareness of 350 businesses"*, explains Christophe Feltus. *"We have also set up ten or so entrepreneur networks in many areas such as e-business, management, RFID (radio frequency identification) technology, etc. In addition, we have noticed that the fallout from our actions has been very positive. The best evidence of this is that the networks developed are still operating and the tools acquired, generously made available to business managers of la Grande Région, are still being used regularly. Finally, the synergies created between CRP Henri Tudor and the Walloon and Lorraine Chambres de Commerce et d'Industrie will have been very profitable!"*

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source: InterregActions, November 2006, N°8



## Results of the project LINK ALL

A local-communities insertion network for Latin America

The LINK ALL “Local-communities Insertion NetworK para America Latina” project is a European project of the @LIS programme for co-operation between Latin America and Europe to create innovative communication and new information technology applications. The project was aimed at encouraging dissemination of communication and information technologies in order to further the development and promotion of certain activities in Latin American communities, mainly in three areas: culture, agricultural and ecological tourism and handicrafts.

More specifically, the LinkAll project’s objectives were to:

- give the communities the opportunity to access the communication and information society via a set of services and functionalities that are particularly adapted to small and medium enterprises, organisations and key participants in these three sectors;
- promote and strengthen the local economy by taking into account the specific identity aspect of the cultural and human resources of each community involved;
- facilitate the integration of target communities into a global market by developing a trans-national network of co-operation between Europe and Latin America; and,
- offer access to a set of best practices and encourage collaboration in order to create synergies between the target sectors.

In order to ensure that its objectives were realised, a consortium of 18 participants was set up combining both economic and innovation participants through IT solutions.

This project produced various achievements at the level of determining and implementing an electronic collaboration platform between the various European and Latin American business participants involved. This platform ensures the following functionalities:

- a virtual exchange area for the various parties involved (discussion forums, knowledge management and document sharing) and
- an electronic commerce area integrating e-commerce IT modules relating to managing e-business secure transactions as well as micropayment services based on adaptations of recommended standards.

Furthermore, business development and intelligence research has been conducted within the scope of IT security, particularly with regard to risk management in the context of assessing security solutions.

Additionally, CITI ensured the overall definition of the technical architecture of the project as well as technical coordination of its achievement.

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## PFI ▶ “Statistical Studies and Prospective in the Knowledge Economy” Innovation Platform

*The platform’s aim is to develop a set of prospective analytical services and to use them to observe, investigate and analyse the impact factors of technologies on innovation in Luxembourg, in order to anticipate new economic and social risks and opportunities.*

### Key facts 2006:

- Organisation, in collaboration with the Service central de la Statistique et des Etudes économiques (STATEC) and the Observatoire de la Compétitivité, and sponsored by the Ministry of Economy and Foreign Trade, of the second Luxembourg conference on the knowledge economy from a European perspective, called “En route vers Lisbonne” (315 participants)
- As part of the COMPETIC “Compétitivité et dynamique d’innovation par les TIC” project and in collaboration with STATEC and the Observatoire de la Compétitivité, production of several analytical reports on the total productivity of factors in Luxembourg, entrepreneurship and innovation in Luxembourg
- Participation in several workshops of international organisations (OCDE, Eurostat, European Commission, etc.)
- Trial with tools to assess the relevance and maturity of a knowledge management approach, as part of the AVC “Agora virtuelle de la connaissance” project
- As part of the GEANCOTIC “Gestion anticipative des compétences liées à l’innovation et aux Technologies de l’Information et de la Communication” project, rollout of the skills anticipation approach for 10 leading IT professions (IT quality auditor, business process analyst, IT project manager, IT small and medium enterprise consultant, quality manager, e-learning module online coach, knowledge co-ordinator, certified e-learning consultant, knowledge manager, logistics manager)

- Creation of training on the skills anticipation approach and transfer to five Walloon partners, as part of the ABILITIC "Mise en place d'un dispositif interrégional d'anticipation des compétences liées à l'innovation et les TIC dans les métiers" project, conducted in collaboration with the Institut Wallon de l'Etude, de la Prospective et de la Statistique, Forem and skills centres in the Walloon region
- Trial of a methodology to assist with investment decisions in the field of IT innovation: "Téléphonie NFC à Luxembourg" feasibility study (as part of the DOTIC "Mise en place d'une dynamique d'innovation par les TIC" project)
- Research on co-operation and innovation regional potential and on opportunities in the field of interactive digital services

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**PFI ▶ "E-learning, Knowledge Management and Networked Organisations" Innovation Platform**

*The platform's aim is to encourage use of e-learning, knowledge management (KM) and co-operation practices in businesses, the public sector and networks.*

**Key facts 2006:**

- Participation in two FP6 projects on the use of interactive television in e-learning (STREP ELU "Enhanced Learning Unlimited") and on the development of a range of support tools for communities of practice (PALETTE "Pedagogically Sustained Adaptive Learning Through The Exploitation of Tacit and Explicit Knowledge")
- Participation of the Luxembourg delegation in task forces 3 and 5 of ISO JTC1 SC36 and participation in the development of standard ISO19796 concerning "Information technology in learning, education and training"
- Within the scope of monitoring Luxembourg schools, definition of a roadmap concerning the TAO product (Testing Assisté par Ordinateur - www.tao.lu) in co-operation with the University of Luxembourg in order to determine platform dissemination and operating methods
- Registration of trademarks relating to tools designed and developed in the platform: AnaXagora (www.anaxagora.lu), TAO (www.tao.lu), and Generis
- Design, creation of and trial of nine e-learning multi-media courses
- Organisation and trial of the skills assessment method as part of a training course in partnership with the Administration de l'Emploi (ADEM)
- Implementation, as part of the R2SIC "Recherche en sécurité des systèmes d'information et de la communication" project, of an e-learning tool with the CASES unit of the Ministry of Economy and Foreign Trade
- Trial of KM and e-learning diagnoses (profiles, diagnoses, KM process maturity assessment) with several Luxembourg organisations and businesses
- As part of the FORM-IT "Conception de filière de formations IT" project and in partnership with the Centre training department, SITec® "Lifelong learning for Technological Innovation", setting up of and trial of training courses to improve training practice (methodologies and tools)
- Creation of an e-learning community of practice within CRP Henri Tudor
- Several publications and participations at international conferences (eLearn2006, TICE2006, Online Educa, PAKM2006, etc.)
- Organisation of themed events on e-learning and knowledge management (workshops, breakfasts, professional and university training, etc.)

**Contact:**

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A common structure of the Ministry of Environment and CRP Henri Tudor

<b>Staff as at the end of the year:</b>	25
<b>Key competences:</b>	eco technologies, energy technologies, best available techniques (BAT), process engineering, environmental process modelling, sustainable management of material flows, life cycle assessment, environmental risk assessment
<b>Activities:</b>	R&D, state of the art reports, advice on environmental strategy, support, training and advice in the field of environmental technologies, animation of environmental networks, chemical risk assessment, doctoral research
<b>Units:</b>	<ul style="list-style-type: none"> <li>- "Cleaner production" innovation platform</li> <li>- "Sustainable construction" innovation platform</li> <li>- "Energy" scientific and technological unit</li> <li>- "Water" scientific and technological unit</li> </ul>
<b>Strategic partners:</b>	Ministère de l'Environnement, Ministère de l'Intérieur et de l'Aménagement du Territoire, Ministère de l'Economie et du Commerce extérieur, Administration de l'Environnement, Administration de la Gestion de l'Eau, Chambre des Métiers, Fédération des Artisans, Chambre de Commerce du Luxembourg, Fédération des Industriels Luxembourgeois (FEDIL), Ordre des Architectes et des Ingénieurs-conseils (OAI), Agence de l'Energie (AEL), University of Luxembourg, CRP Gabriel Lipman
<b>Contacts:</b>	<p>Joëlle Welfring, Manager, joelle.welfring@tudor.lu</p> <p>Dr Paul Schosseler, Manager, paul.schosseler@tudor.lu</p> <p>phone: +352 42 59 91 – 600</p>
<b>For more information:</b>	<a href="http://www.crte.lu">www.crte.lu</a>



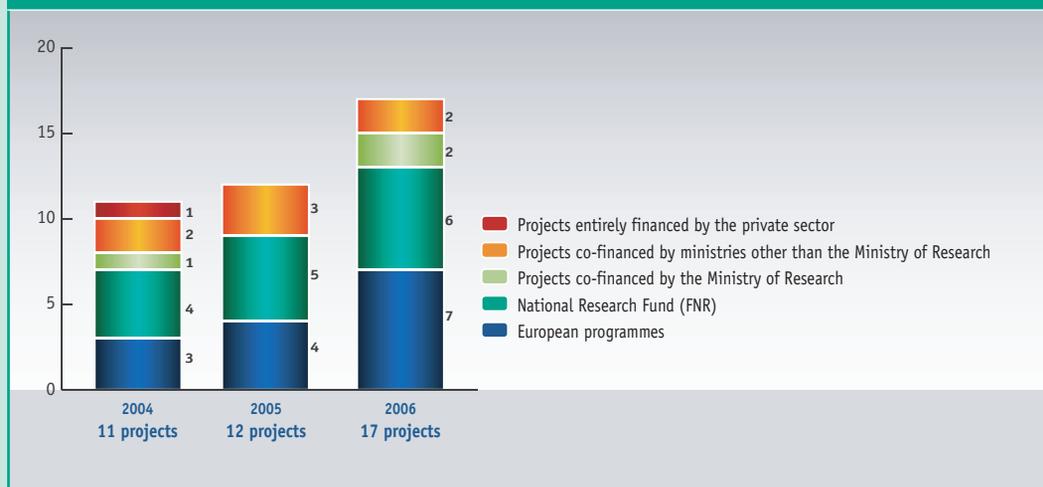
*Joëlle Welfring, Dr Paul Schosseler*

## Key facts 2006 for the department:

- In 2006, the CRTE team was strengthened by the "Energy" technological and scientific unit, co-ordinated by Frank Minette. In this way, the unit's instrumentation, control and automation skills add to those of the existing team and have allowed the CRTE to develop its renewable energy (solar power, biomass, etc.) and energy efficiency activities (e.g., consulting small and medium sized enterprises and manufacturing companies).
- The CRTE participated in the European Commission think tank to prepare and harmonise the implementation of REACH (Registration, Evaluation, Authorisation and Restriction of Chemicals) helpdesks across Europe. These national technical support services were set up as a result of obligations stipulated in new European regulations and are aimed at informing companies that import or use chemical substances about their responsibilities, as defined by REACH.
- With regard to training and transfer activities, the "Protection et techniques de l'environnement" course was undertaken in 15 modules at the University of Luxembourg, in the General Mechanics section, Department of Mechanics (4th year) and Department of Civil Engineering.
- In order to keep its partners informed about its activities and interesting events/publications in the area of the environment, the CRTE has launched the "EcoTechnology News" newsletter, published every two months in German and French. Some 800 copies are sent to interested partners, mainly in an electronic format. (To subscribe, please visit [www.tudor.lu/subscription](http://www.tudor.lu/subscription))
- The presence at Oekofoire (from 15 to 17 September 2006) at a stand shared with the Ordre des Architectes et des Ingénieurs-conseils (OAI) and at a public exhibition with workshops for students within the scope of the Esch-sur-Alzette City Centenary celebration, entitled "Schaffen a Wunnen", allowed the CRTE's activities to be presented and to make stakeholders aware of options to reduce environmental impacts during building design and use phases.

## Key figures 2006

CRTE's projects by type of funding



## Transfer and dissemination activities of CRTE

Training and teaching	Qualifying training courses organised: 6 days of training; 451 attendees, including: the 4 <sup>th</sup> session of the training cycle "Constructions et Energies", in partnership with the Ordre des Architectes et des Ingénieurs-conseils (OAI), the University of Luxembourg, the Agence de l'Energie SA and OekoZenter
	Teaching of 36 hours at universities
Scientific publications	9 scientific peer-reviewed publications published in journals or conference proceedings
PhDs	2 PhDs
Participation in committees	7 review boards of international journals 1 scientific committee
Events	9 professional seminars, for a total of 5 days and 300 attendees 3 company site visits organised with 28 participants Participation to the Centenary of the City of Esch-sur-Alzette, Oekofoire 2006 and "Foire de l'Etudiant"

PFI ▶ “Cleaner Production” Innovation Platform

*The “Cleaner Production” Innovation Platform’s aim is to reduce the environmental impacts of community, SMEs, commercial facilities, industrial activities and municipal installations by taking a proactive and integrated approach to sustainably managing material flow (renewable and non-renewable natural resources, emissions to the air, water and ground, co-products and waste) and energies (electricity, heat, cold, renewable, alternative and non-renewable).*

**Key facts 2006:**

- Launch of activities linked to the EcoSB “New and Environmentally Friendly OSB Panels” project (Life III European programme - Environment), co-ordinated by Kronospan Luxembourg SA, aimed at environmentally assessing a wood fibre panel manufacturing process based on the life cycle analysis methodology
- Launch of activities linked to the TRASU “Development of Innovative Surfaces by Means of Optimized Plasma Techniques and Technological Transfer to Industries” project, co-financed by the National Research Fund (FNR). The project is co-ordinated by the LTI and conducted in collaboration with Arcelor Dudelange, CRP Gabriel Lippmann and the Vlaamse Instelling voor Technologisch Onderzoek (VITO – the Flemish Institute for Technological Research): review of the environmental risk assessment linked to chromium VI alternatives and review of the European and national regulatory framework for replacing hexavalent chromium, used for passivating metals by thermochemical atmospheric plasma techniques
- Completion of the RIFE “Réseau transfrontalier d’information et de formation à la gestion de l’environnement” project, co-financed as part of the Interreg IIIA European programme and conducted in partnership with the Chambre de Commerce du Luxembourg, the University of Liège (ULg), the Chambre de Commerce et d’Industrie du Luxembourg Belge (CCILB), the Agence de l’Environnement et de la Maîtrise de l’Energie (ADEME), the Chambre Régionale de Commerce et d’Industrie Lorraine (CRCIL), the Chambre de Commerce et d’Industrie de Meurthe-et-Moselle, de Meuse et de Moselle. As part of this project, 24 events were organised for small and medium sized enterprises, 7 of which were held in 2006, involving 282 companies in the Wallonia-Lorraine-Luxembourg region
- Compiling the training manual and organising training programmes for plumbers/refrigerating engineers on inspecting leaks from refrigeration systems. These activities were organised in collaboration with the Administration de l’Environnement, the Chambre des Métiers and the SuperDrecksKëscht® fir Betriber
- Training activities, including:
  - Lectures on “L’environnement et le développement durable” as part of the Master’s degree in “Management et Qualité des Entreprises et Services”, organised by LTI, in partnership with the Ecole Supérieure de Management (ESM) and the University of Metz, as well as the Facultés Universitaires de Mons and the University of Québec in Trois-Rivières
  - Lectures on “Les outils d’évaluation environnementale de produits et procédés” at the Institut National des Sciences Appliquées (INSA) in Toulouse (5<sup>th</sup> year in the “Environment and Process Engineering Department”)
  - Courses: “La législation pour la protection atmosphérique” at the Institut de Formation of the Chambre de Commerce du Luxembourg

**Contact:**

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**Results of the project RIFE**

Interregional Information Network for Environmental Management

The RIFE “Réseau transfrontalier d’information et de formation à la gestion de l’environnement” project, which carried out within the scope of the European INTERREG III-A WLL programme (January 2004-March 2006) of interregional co-operation between Wallonia, Lorraine and Luxembourg, brought together nine partners: CRP Henri Tudor and the Chambre de Commerce du Grand-Duché de Luxembourg for Luxembourg, the University of Liège (ULg) and the Chambre de Commerce et d’Industrie du Luxembourg Belge (CCILB) for Wallonia, the Agence de l’Environnement et de la Maîtrise de l’Energie (ADEME), the Chambre Régionale de Commerce et d’Industrie de Lorraine (CRCIL) and the Chambres de Commerce et d’Industrie of Moselle, Meuse, et Meurthe and Moselle for Lorraine. Its objective was to strengthen the competitive position of small and medium enterprises by offering them the necessary information and training to be able to anticipate important European environmental challenges. In a context in which small and medium sized enterprises have to meet increasingly strict environmental requirements, this essentially meant:

- making available information resources for managing the environment, specifically by creating an Internet portal;
- making environmental management training more readily available to small and medium sized enterprises;
- creating an interregional network for exchanging and transferring skills (seminars, business clusters).

In order to achieve this objective, RIFE pooled the skills and experience of each region, creating real added value by developing innovative interregional measures that could not have been achieved at the regional level.

In 2004, the partners of the project defined an action programme based on an analysis of environmental requirements and on the results of a survey conducted on 160 businesses in the interregional area that aimed to identify business requirements and find out their interest in the topics selected.

From March 2005 to March 2006, this action programme was implemented and used with trainings and information days, bringing together contributions from experts, experiences from businesses, interregional exchanges and visits from companies. These information and training events were organised in all three countries on innovative topics such as ecodesign, environmental communication, the rational use of energy and new regulations on chemical substances – REACH (Registration, Evaluation, Authorization and Restriction of Chemicals). In total, 13 information and training sessions, six visits from innovative businesses and a Pollutec trade show visit were organised.

As a result of these measures, two interregional business clusters were created: an “Environmental Communication” cluster (16 businesses) and a “Brewer” cluster (11 breweries).

Environmental audits were also offered to businesses. In this way, seven audits were implemented in Lorraine businesses via the Chambre Régionale de Commerce et d'Industrie de Lorraine: “Energy Pre-audits” in four cheese dairies, “Bilan Carbone®,” in two small and medium enterprises and an “Energy Audit” in a small/medium enterprise in the plastics sector.

Furthermore, in order to raise awareness amongst businesses with regard to rational use of energy, a calendar (year 2006) was designed and issued to 2,400 businesses in the interregional area.

Finally, the [www.rife-wll.net](http://www.rife-wll.net) Internet portal was put online in April 2005. This portal (averaging 1,000 visits a month) offers a selection of useful information for businesses in the interregional area that are already committed to environmental measures or wish to invest in environmental measures, featuring:

- news, tools, guides and interesting links on the following topics: environmental management, rational use of energy, ecodesign, sustainable purchasing and corporate social responsibility;
- section devoted to the environment in the interregional area, which provides information on regulation and financial support in the different areas;
- collection of talks presented at training and information sessions organised from March 2005 to March 2006;
- events in the interregional area filed of environmental management.

The RIFE project also allowed a real interregional network to be created that is still going strong today. This success has encouraged partners of the RIFE project to develop a new project as part of the “European territorial cooperation” Objective 3 programme for the new 2007-2013 programming period.

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## PFI ▶ “Sustainable Construction” Innovation Platform

*The aim of the “Sustainable Construction” innovation platform is to contribute, with its skills and expertise, to the development of sustainable construction in Luxembourg, which incorporates environmental protection, national planning and development, sustainable urbanistic concepts, spatial and urban planning, and the production and use of construction materials that are environmentally friendly and ensure a rational use of energy.*

### Key facts 2006:

- Electronic publication ([www.crtib.lu/leitfaden](http://www.crtib.lu/leitfaden)) and presentation to the press of the “Leitfaden für nachhaltiges Bauen und Renovieren” guide, aimed at promoting sustainable construction and intended for architects and consulting engineers. The guide was developed in collaboration with a task force with representatives from the Centre de Ressources des Technologies de l'Information pour le Bâtiment (CRTI-B), the Chambre des Métiers, the Chambre de Commerce, the Fédération des Industriels Luxembourgeois (FEDIL), the Administration de l'Environnement, the Ordre des Architectes et des Ingénieurs-conseils (OAI), the Fondation OekoZenter, the Administration des Bâtiments Publics, the Ministère du Logement and the City of Luxembourg (co-financed by FEDIL and CRTI-B)
- Organisation and provision of some of the modules for the fourth “Constructions et Energies” training course in the area of rational use of energy and water in the construction sector in collaboration with the Ordre des Architectes et des Ingénieurs-conseils (OAI), the University of Luxembourg, the Agence de l'Energie SA, OekoZenter and CRP Henri Tudor training department, SITec® “Lifelong Learning for Technological Innovation”

### Contacts:

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## UST ▶ "Energy" Scientific and Technological Unit

*The aim of the "Energy" Technological and Scientific Unit is to provide competences in the field renewable energy (biomass, photovoltaics, solar heat, etc.), non-renewable energy and the rational use of energy to Luxembourg's stakeholders.*

### Key facts 2006:

- As part of the ANIA "Analyses et gestions des impacts environnementaux et de la consommation énergétique d'installations frigorifiques dans le secteur agro-alimentaire" project, conducted in collaboration with the Environmental Agency, the CACTUS group and Sarca - Linde, the finalization and analysis of the data of the measuring campaign showed very interesting results leading to recommendations on energy-saving options and to the assessment of the environmental impacts linked to energy consumption and refrigerant leaks of cooling plants in the Luxembourg supermarket sector
- Installation of the reference test field and of meteorological sensors with the development of data acquisition as part of the ERDF Objective 2 PV-LAB "PhotoVoltaic Laboratory" project and presentation of a testing method during the "21st European Photovoltaic Solar Energy Conference and Exhibition – EU PVSEC" in Dresden (September 2006)"
- As part of the European (ERDF Objective 2) RELIES "Réseau Luxembourgeois pour l'Information sur l'Energie Solaire" project, the Internet portal [www.solarinfo.lu](http://www.solarinfo.lu) was extended and set online. The portal was officially introduced at Oekofoire 2006 (from 15 to 17 September 2006)
- Information and Consulting, drawing on the unit's various skills, was provided in 2006 to small and medium sized enterprises and public actors on new possibilities concerning energy production and saving

### Contact:

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## UST ▶ "Water" Scientific and Technological Unit

*The aim of the "Water" Technological and Scientific Unit is to improve knowledge and management of water treatment concepts and processes, as well as knowledge and management of pollutant fluxes and risks linked to various chemical substances in the water cycle.*

### Key facts 2006:

- Completion of the FNR CONCEPT "Nouveaux concepts et technologies innovantes pour une gestion durable du cycle de l'eau urbain" project, the inauguration of a pilot project in Schifflange, the organisation of a conference on rain water management in the urban environment and finalisation of an ecological assessment comparing different waste water management scenarios for an administrative building
- Completion, in 2006, of the FNR LITFLUID "Application des outils de modélisation/simulation et d'analyse des flux à la technologie des lits fluidisés" project in which a measurement campaign was conducted on the complete waste water treatment prototype and the publication of the OD mathematical model for biofilm processes by means of two scientific articles in Biochemical Engineering Journal. The model was presented and discussed at an international conference in 2006 and will be integrated into the GPS-X software, one of the most commonly used software programmes worldwide for modelling waste water treatment processes
- Launch of the FNR INEAU "Integration of Scientific Knowledge on Water Resources in Luxembourg with a View to the Formulation of a Sustainable Water Management Policy" project, conducted in collaboration with CRP Gabriel Lippmann and the University of Luxembourg and aimed at integrating knowledge on the water cycle in Luxembourg, with result stemming in particular, from the FNR EAU "Gestion durable des ressources hydriques" programme. The project contributes to setting up a GIS (Geographic Information Systems) platform within the CRTE with the application of spatial data management and analysis tools (e.g., GRASS GIS, R)
- Launch of follow-up projects within the scope of the collaboration agreement with the Ministry of the Interior and Spatial Planning, including the creation of best practice guidelines on managing rainwater in urban environments and managing water in the wine production processes of the Moselle area in Luxembourg, in close collaboration with task forces made up of experts in the field. These projects also include the organisation of awareness-raising measures and the implementation of pilot projects.

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## Results of the project **CONCEPT**

### Sustainable management of the urban water cycle

To comply with European legislation concerning wastewater collection and treatment, important financial investments are necessary in Luxembourg until the year 2015. Currently sanitation issues are tackled with the common praxis of building large sewer systems and new centralized treatment plants and continually upgrading and expanding existing infrastructure. This policy not only incurs important costs but also has significant environmental impacts for Luxembourg as the small receiving water bodies are especially vulnerable to point emissions from wastewater treatment facilities. In addition, saving drinking water is becoming an issue of growing concern as reservoirs are under pressure both with respect to quality (chemical pollution) and quantity, due to a strong demographic growth and a diminished recharge over the last years. EU water policy will also have important social impacts (i.e. the polluter pays-principle), which have found very little attention in water management in Luxembourg so far. Alternative sanitation concepts or ecological sanitation (ECOSAN) were until now widely ignored by public planning authorities, architects or engineers in Luxembourg. Decentralized sanitation systems with source control of pollutants and reduced water consumption (e.g. vacuum sanitation technology, waterless urinals or separation toilets) are, however, implemented throughout Europe and certain aspects of their environmental benefits, economic viability and social acceptability have been investigated.

The CONCEPT “New concepts and innovative technologies for a sustainable management of the urban water cycle” project, co-financed by the National Research Fund (FNR), aimed at promoting a sustainable urban water management in Luxembourg, by adopting the following working scheme:

- Technology watch and collection of information at national and international level through the review of scientific literature, databases and Internet searches, as well as through interviews with key stakeholders of water management in Luxembourg and surveys amongst end-users (general public).
- Analysis of sustainable sanitation alternatives taking into account the socio-economic context in Luxembourg, with focus, however, on the environmental impacts of both conventional and alternative sanitation concepts. Elaboration of decision support documents for potential pilot projects, based on the results of the technology watch and multi-criteria analysis.
- Implication into construction projects in order to realise pilot installations of ecological sanitation concepts, in close collaboration with municipalities and private investors, architects and planning engineers as well as plumbers.
- Broad dissemination of background knowledge and project results to all the stakeholders of the water management and construction sector (public authorities, architects and engineers, plumbers, end-users), using a wide variety of information and communication channels, such as participation in fairs and exhibitions, organisation of conferences and tailor-made workshops, realisation of Internet pages, publications of the Newsletter “EcoSanLux”, professional guidelines and other documentation.

The CONCEPT project has demonstrated the applicability of ecological sanitation concepts in Luxembourg and provided important incentives to water managers for rethinking the common practices and tackling the water related problems in the urban context in Luxembourg with innovative approaches. By developing competences amongst all stakeholders, including the research community, and providing the appropriate tools and solutions adapted to the needs of the stakeholders, the project has made a substantial contribution to a more sustainable water policy in Luxembourg.

The CONCEPT project has provided important results and new insights at three levels:

1. A modular approach for technology watch has been developed and applied, allowing for the collecting, analysis and dissemination of a great wealth of information on ECOSAN, stemming from a large variety of sources and working disciplines. The tool has already been applied with success for other research and decision support projects, also in industry.
2. Studies based on multi-criteria analysis and life cycle assessment methodologies have provided important insights into the sustainability of innovative water management practices in the urban context. Socio-economic aspects have been addressed through interviews with key stakeholders and broad surveys amongst end-users. These results have been widely disseminated to the stakeholders of the water sector and have already found their entrance into water policy in Luxembourg, e.g. through the elaboration of a guideline on sustainable rainwater management in collaboration with the Water Agency.
3. Through the implication in construction projects, a number of pilot installations for sustainable water management have been implemented and the applicability of these concepts in Luxembourg demonstrated.

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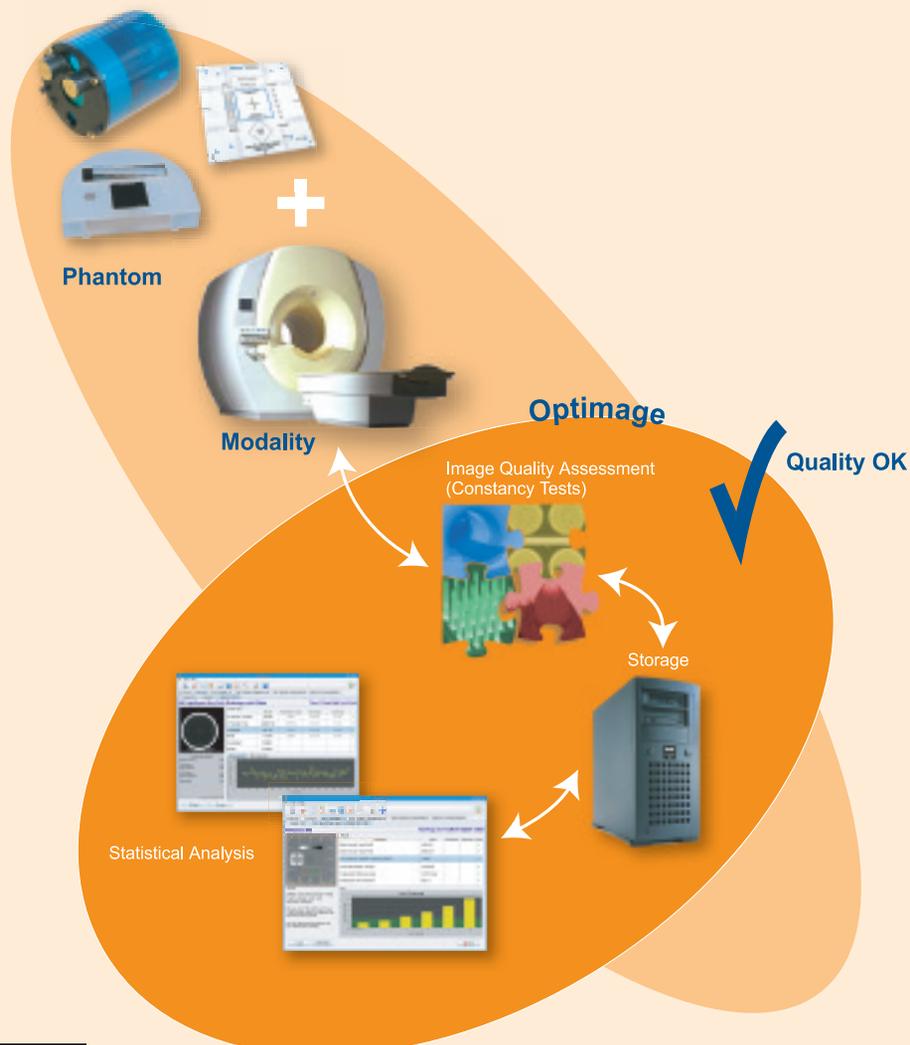
<b>Staff as at the end of the year:</b>	22
<b>Number of RDI projects:</b>	15
<b>Key competences:</b>	<ul style="list-style-type: none"> <li>- Advanced IT for health care (hospital and medical systems, departmental applications, electronic health care record (administrative, medical and care sections), clinical expert and decision-support systems, security of systems and of data, medical databases)</li> <li>- Communication (networks, Intranet, Extranet, telemedicine and home care, mobile and wireless computing, interfacing and communication between applications)</li> <li>- Clinical engineering (medical equipment, logistics and organisation, quality assurance, coding systems, clinical pathways)</li> <li>- Public health (market studies, requirements studies, cost-benefit analyses, analyses of the advantages and disadvantages for society as well as analyses of the utility and efficiency of new systems and/or new methods)</li> <li>- Medical and bio-medical image processing</li> </ul>
<b>Activities:</b>	<p>R&amp;D, doctoral research, technological assistance and consulting, university and ongoing post-graduate training, awareness and dissemination, incubation of RDI activities, documentation and information centre, technological, scientific and regulatory watch</p> <p>The CR SANTEC also participates with the CITI in the “Free and Open Source software” innovation platform.</p>
<b>Strategic partners:</b>	Luxembourg hospitals and doctors, Ministère de la Santé, Ministère de la Sécurité Sociale, Direction de la Santé, sickness funds
<b>Contact:</b>	<p>Pierre Plumer, Director</p> <p>phone: +352 42 59 91 – 250, pierre.plumer@tudor.lu</p>
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Pierre Plumer

## Key facts 2006:

- A key aspect of 2006 was the launch of the GECAMed "Gestion de cabinets médicaux" project. GECAMed is an open-source practice management software package for general practitioners. (In the future, the software will be able to be extended to various specialities.) This is a promising project because it ensures a consistent approach to care owing to its ability to communicate securely.
- The OPTIMAGE "Optimal Image Quality" research project, aimed at the quality control of medical images, provoked international interest in 2006. Collaboration with several renowned specialist university hospitals and the SENTINEL European network, allowed a unique software solution to be created to automatically assess medical image quality consistency (Rx, CT, IRM, Mammogram).
- The transfer of the HealthNet "Réseau informatique fermé et sécurisé pour tous les professionnels de la santé" project was completed in 2006 and resulted in the creation of a Groupement d'Intérêt Economique (GIE), composed of the Ministry of Health, the Entente des Hôpitaux Luxembourgeois (EHL), the Union des Caisses de Maladie (UCM) and the Association des Médecins et Médecins Dentistes (AMMD). It is aimed at managing, promoting and developing, in collaboration with CR SANTEC, the use of HealthNet.
- As part of the MENSSANA "Mobile Expert & Networking System for the Systematical Analysis of Nutrition Allergies" project, CR SANTEC became a "collaborating centre" in the Ga<sup>2</sup>len "Global Allergy and Asthma European Network" network of excellence. This same project allowed WikiFood ([www.wikifood.eu](http://www.wikifood.eu)) to be launched as a highlight at the ÄDA (Ärztverband Deutscher Allergologen) conference.
- As it was last year, CR SANTEC was present at MEDICA in Düsseldorf (from 15 to 18 November 2006) with a stand and with the organisation of a series of scientific conferences.



A joint structure of the Chambre des Métiers and CRP Henri Tudor

**Staff as at the end of the year:**

The CRTI-B employs no specific staff. The secretary is taken in charge by the Chambre des Métiers. Normalisation work is done by panels of professionals and projects are carried out by partners including the departments of the CRP Henri Tudor

**Number of RDI projects:**

1

**Key competences:**

- Strategic direction of innovation by Information and Communication Technologies (ICT) in the construction sector
- Anticipation of the impact of ICT on the construction trades
- New modes of co-ordination and collaboration in the construction sector
- Standards of electronic exchanges in the construction sector
- Interoperability of information systems
- Assistance in the implementation and management of the innovation project in the construction sector
- Standardisation of contractual and technical clauses

**Strategic partners:**

Ministère des Travaux Publics (MTP), Administration des Bâtiments Publics (ABP), Administration des Ponts et Chaussées, Ordre des Architectes et des Ingénieurs-conseils (OAI), Chambre des Métiers, Fédération des Industriels Luxembourgeois (FEDIL), Fédération des Artisans

**Contacts:**

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Laurent Grein, Vice-Chairman of the CRTI-B, [laurent.grein@tudor.lu](mailto:laurent.grein@tudor.lu)  
phone: +352 42 59 91 - 1

**For more information:**

[www.crtib.lu](http://www.crtib.lu)



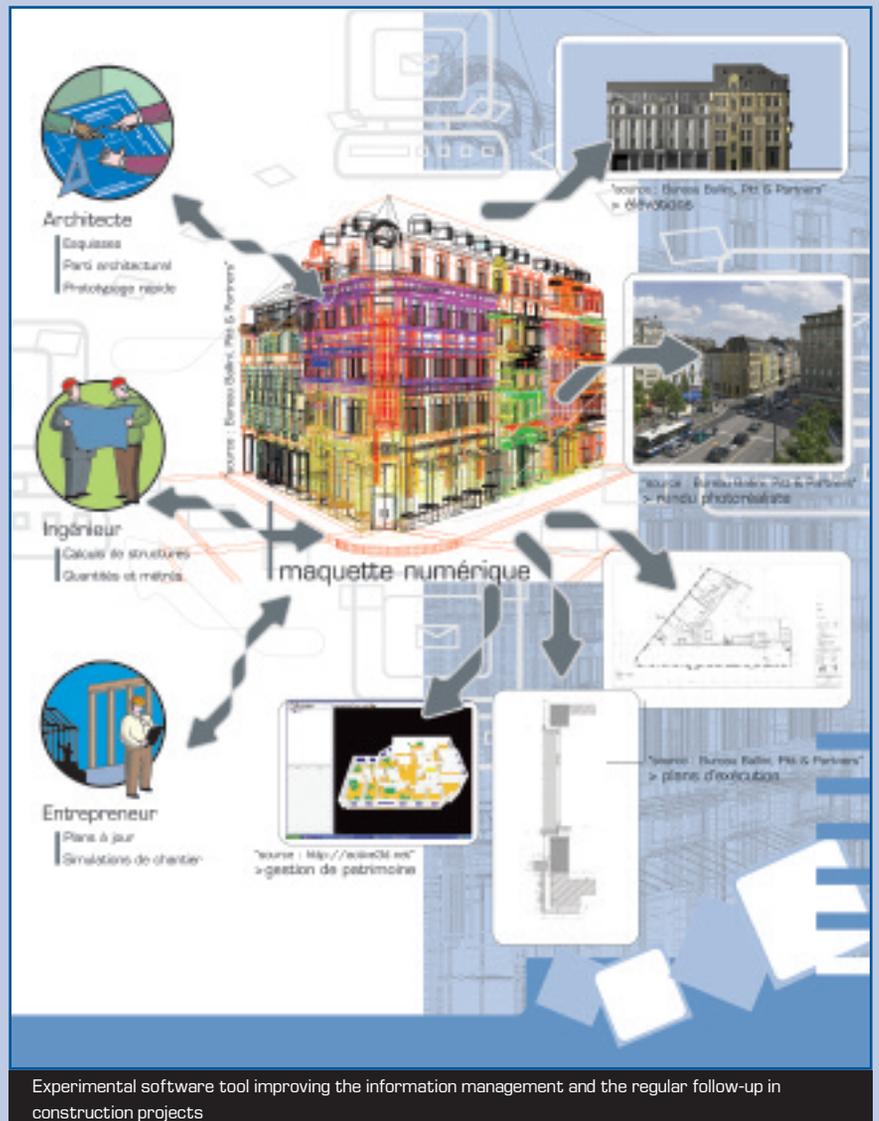
*Michel Brachmond*



*Laurent Grein*

**Key facts 2006:**

- Completion and experimentation, as part of six actual construction projects, of prototype software, to improve information management and project follow-up
- Organisation of a workshop for professionals in the sector, on the topic of three-dimensional building modelling, highlighting the real and tangible contributions made by technological solutions currently available
- Design of an e-learning programme on the IFC standard concerning electronic documentation of construction objects within the context of a model
- Participation in three international workshops of the "European Construction Technology Platform (ECTP)" to define the research perspectives within the scope of roadmaps for the 7th framework programme
- Presentation and operational implementation of the new XML Luxembourg standard for the electronic exchange of contract documents in the construction sector
- Review of some clauses with a view to adapting them in line with technological developments



Experimental software tool improving the information management and the regular follow-up in construction projects

<b>Staff as at the end of the year:</b>	9
<b>Number of RDI projects:</b>	7
<b>Activities:</b>	<ul style="list-style-type: none"> <li>- Post-graduate continuous vocational training:               <ul style="list-style-type: none"> <li>· at academic level, in co-operation with the University of Luxembourg and/or other European and American universities</li> <li>· at qualifying level, in-class and/or distant learning (inter-company courses, specializing cycles, custom tailored training courses)</li> <li>· specific skilling programmes for the unemployed</li> </ul> </li> <li>- Dissemination activities (conferences, workshops, workgroups)</li> </ul>
<b>Strategic partners :</b>	University of Luxembourg, Chambre de Commerce, Chambre des Employés Privés, Chambre des Métiers, Institut National de l'Administration Publique (INAP), Ordre des Architectes et des Ingénieurs-conseils (OAI), Association Luxembourgeoise des Ingénieurs (ALII), Institut National pour le développement de la Formation Professionnelle Continue (INFPC), Ministère de l'Education Nationale et de la Formation Professionnelle, Ministère de la Recherche, de l'Enseignement Supérieur et de la Culture, Ministère du Travail et de l'Emploi
<b>Contact :</b>	<p>Bernard Lambeaux, Manager</p> <p>phone: +352 42 59 91 – 1, <a href="mailto:bernard.lambeaux@tudor.lu">bernard.lambeaux@tudor.lu</a></p>
<b>For more information:</b>	<a href="http://www.sitec.lu">www.sitec.lu</a>



*Bernard Lambeaux*

**Key facts 2006:**

Overall, 2006 was characterised by a rise in all continuing education activity indicators for CRP Henri Tudor: 1,803 hours of training and conferences carried out (+24%) and 3,822 participants involved (+59%).

With regard to qualifying continuing education activities:

- Development of a partnership with several professional associations and organisations, which have entrusted SITec®, over the past year, with the design and organisation of training programmes dedicated specifically to their members (Ordre des Architectes et des Ingénieurs-conseils, Association du Personnel des Stations d'Épuration du Luxembourg, Centre de Formation Professionnelle Continue Dr Robert Widong, Institut National d'Administration Publique, Groupement Luxembourgeois de l'Aéronautique et de l'Espace)
- Creation of two new qualification programmes, including two innovations with regard to training development: the design of a training programme based on skill reference systems specifically tailored to the requirements of the Luxembourg market and the use of computer-aided testing (TAO) allowing certificates of achievement to be issued
- Development of seven new e-learning training programmes. E-learning offers greater accessibility in time and place and allows content, pace and the duration of training to be customised, as well as the opportunity for interactive exchanges, sharing of experience and accumulation of knowledge.

With regard to continuing education activities leading to a qualification:

- Launch of the first Master's degree class in "Management de la Sécurité des Systèmes d'Information", in collaboration with the University of Luxembourg. This first class has 15 participants coming from various fields of activity in Luxembourg (financial, service providers, public administrations, telecommunications)
- Launch of the 8<sup>th</sup> Master's degree class in "Informatique et Innovation". To date, 118 students have undertaken this Master's degree, the results of a partnership model with the University of Nancy 2 and the Facultés Universitaires of Namur
- Consolidation of the partnership for the 3<sup>rd</sup> Master's degree class in "Management et Qualité des Entreprises et Services", organised in partnership with the Ecole Supérieure de Management (ESM) and the University of Metz, as well as the Facultés Universitaires de Mons and the University of Québec in Trois-Rivières. The second class for this Master's degree finished in 2006.

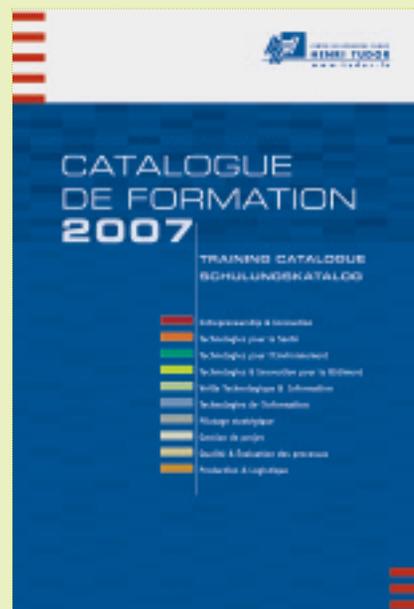
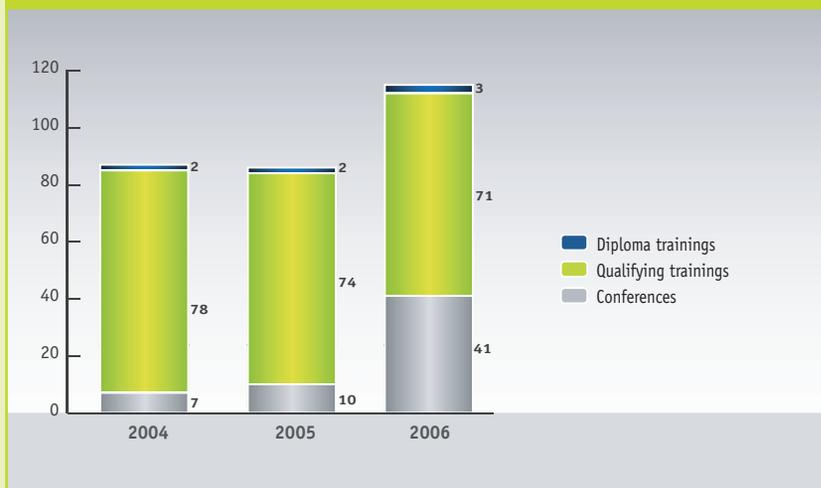
With regard to scientific and professional dissemination activities, SITec® was able, in 2006, to develop and showcase its skill in organising international events. Four international events were organised in 2006:

- CAiSE's 18<sup>th</sup> international conference on the subject of information system engineering (involving 315 scientists and nearly 30 nationalities, five days, over 50 papers, ten workshops, seven tutorials and three plenary sessions, from 5 to 9 June 2006)
- The international conference on assessment and improvement of processes SPICE 2006 (approximately 60 international experts, from 3 to 5 May 2006)
- The GISEH conference on hospital system engineering and management (190 European participants, 72 papers, from 14 to 16 September 2006)
- And finally, the conference "En route vers Lisbonne - 2<sup>ème</sup> colloque luxembourgeois sur l'économie de la connaissance dans une perspective européenne" (from 9 to 10 November 2006) brought together 300 key players in the area of innovation in Luxembourg.

Finally, with nearly 2,800 attendees from businesses and organisations in Luxembourg, the conferences demonstrated, once again, the capacity of the Centre's departments and activities to attract a large number of participants.

## Key figures 2006

Evolution of the number of trainings and conferences since 2004



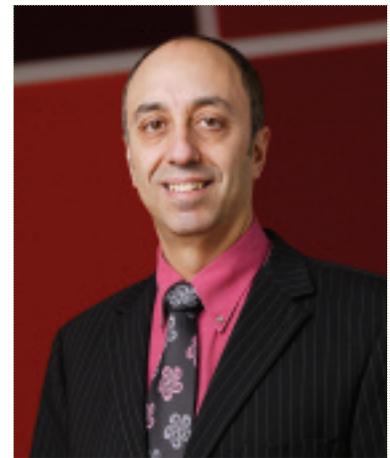
Download the training catalogue 2007 on [www.sitec.lu](http://www.sitec.lu)

## Trainings and events organised by CRP Henri Tudor in 2006

Activity	Number of organised activities	Cumulated hourly volume	Cumulated number of participants
Conferences	41	275 hours	2,768
Professional meetings and working groups	52	278 hours	864
Inter-company trainings	43	618 hours	727
Tailor-made trainings	26	305 hours	237
Qualification programmes	2	240 hours	20
Diploma courses/Masters	3	366 hours	70

## A joint structure of the Ministry of Economy and Foreign Trade and CRP Henri Tudor

<b>Staff as at the end of the year:</b>	7
<b>Number of RDI projects:</b>	5
<b>Key competences:</b>	scientific and technology watch, competitive intelligence, scientific and technical documentation, information research, information analysis (bibliometry, text-mining), dissemination of information, standardisation, standard and regulation watch, intellectual property
<b>Activities:</b>	specialised services (scientific and technology watch services, competitive intelligence services, standard and regulation watch services), organisational assistance (implementation of a competitive intelligence or technology watch organisation), doctoral research, joint R&D, consulting, continuous post-graduate training
<b>Strategic partners:</b>	Ministry of Economy and Foreign Trade - Intellectual Property Department, Office Luxembourgeois d'Accréditation et de Surveillance (OLAS), European Patent Office (EPO), World Intellectual Property Organisation (WIPO)
<b>Contact:</b>	Dr Serge Quazzotti, Manager,  phone: +352 42 59 91 – 1, serge.quazzotti@tudor.lu
<b>For more information:</b>	www.veille.lu, www.brevet.lu, www.vnorm.lu



Dr Serge Quazzotti

**Key facts 2006:**

- The CVT provided 185 services.
- A new service aimed at assessing the impact of standard ISO 9001/2000 on a business was developed and tested in a small to medium sized enterprise.
- An e-learning training platform on the topic of scientific information research on the Internet was developed and is now available to CRP Henri Tudor researchers.
- Market research on business intelligence training was carried out and resulted in a new conference and training offer being defined on these topics in the 2007 training catalogue of SITec® "Lifelong Learning for Technological Innovation".
- The first bibliometric study on patents filed by businesses localised in Luxembourg, characterising the special features of the Luxembourg economy with regard to patents, was presented at the closing conference (October 2006) of the HAITI "Etude sur les habitudes en matière d'information technique et de protection des inventions des PME/PMI du Luxembourg" project. A copy of the study is available upon request.
- An exhibition to familiarise the public with the topic of intellectual property was designed. The "Le tour de l'innovation à vélo" exhibition, organised as part of the Esch-sur-Alzette city centenary celebration (from 1 to 4 July 2006) and co-financed by the National Research Fund, attracted 160 visitors.
- In 2006, CVT collaborators were the authors of nine publications and papers in trade journals and conferences.
- In addition, the CVT participated in eight professional networks, including, amongst others, a transnational task force that defines strategies and programmes to introduce the subject of standardisation into educational curriculae in Europe as well as a European think tank conducting a benchmarking study on measures to promote intellectual property in small and medium enterprises in Europe. The CVT represents Luxembourg in the European network of intellectual property institutions (www.innovaccess.eu), set up to reinforce cooperation in Europe for promoting intellectual property.

## CVT's service activities in 2006

Watch services offered by CVT	Number of requests satisfied
Technology and competitive watch services	48
Standards and regulations watch services	99
Other services	38
<b>Total</b>	<b>185</b>

### Results of the project HAITI Patents in Luxembourg companies

The HAITI project "Étude sur les habitudes en matière d'information technique et de protection des inventions des PME/PMI du Grand-Duché du Luxembourg", launched in 2003 in partnership with the European Patents Office, the Ministry of Economy and Foreign Trade (Intellectual Property Directorate) and STATEC, has allowed to produce a set of patent indicators specifically aimed at characterising the knowledge protected by patents in Luxembourg, the involved innovation actors as well the use made of IP-protection tools in Luxembourg.

This study is based on the resurgence of a survey concerning invention protection and business information practices (the first was carried out in 1996 in collaboration with CEPS/INSTEAD) and a bibliometric study of patents filed by businesses in the Luxembourg area.

A comparison of the results of the HAITI survey with those of 1996, as well as the analysis of patents filed by businesses, has allowed the perspective of the Luxembourg situation to be reviewed and has provided a basis for reflection with regard to promoting patents and intellectual property.

The main results produced from the HAITI project were:

- The organisation of a conference entitled "20 ans de brevets au Luxembourg – 20 years of patents in Luxembourg", which brought together 68 participants and contributors on 19 October 2006;
- A publication entitled "20 ans de brevets au Luxembourg", which presents all of the results of this project; and,
- A basis for reflection on an intellectual property and patent promotion policy for public authorities.

Moreover, the following publications were also issued during this project:

- A publication on the HAITI survey results, disseminated via the Internet
- A publication on the comparison of the 1996 survey results with those of the HAITI survey, disseminated via the Internet
- A publication on the bibliometric indicators applied commensurate with technological and scientific innovation, disseminated via the Internet
- A publication entitled "Etude bibliométrique des brevets luxembourgeois pour la mesure de la création et de la diffusion des connaissances technologiques – Bibliometric study of Luxembourg patents for measuring the creation and dissemination of technological knowledge", presented at the "En route vers Lisbonne" conference on 9 and 10 November 2006.

Contact: [xavier.delecroix@tudor.lu](mailto:xavier.delecroix@tudor.lu)

<b>Staff as at the end of the year:</b>	4.25
<b>Number of RDI projects:</b>	2
<b>Activities:</b>	<ul style="list-style-type: none"><li>- Management and development of an incubator for innovative technology-based companies</li><li>- Awareness, coaching and training for the creation of innovative technology-based companies (idea development and business plan)</li><li>- Assistance, coaching and training in business development strategy for innovative companies (business development plan, marketing communication and sales strategy, branding)</li><li>- Recommendations to promote and foster innovative technology-based entrepreneurship in Luxembourg</li></ul>
<b>Senior Partners of the Technoport:</b>	City of Esch-sur-Alzette, Broadcasting Center Europe (BCE) – an RTL Group Company, ARBED – ARCELOR Group
<b>Public and institutional partners:</b>	Technoport is a member of the European BIC Network (EBN) and the European Space Incubator Network (ESINET), an associate member of the Gate2Growth Incubator Forum and an affiliated member of the International Association of Science Parks (IASP)
<b>Contact:</b>	Diego De Biasio, Manager  phone: +352 42 59 91 - 1, <a href="mailto:diego.debiasio@tudor.lu">diego.debiasio@tudor.lu</a>
<b>For more information:</b>	<a href="http://www.technoport.lu">www.technoport.lu</a>



Diego De Biasio

## Key facts 2006:

With regard to internal development, 60 new contacts were made during the year with the final acceptance of four new businesses in the incubator. This brings the number of businesses accepted by the Board of Directors since the Technoport's creation in June 1998 to 40. The businesses that joined the incubator in 2006 are:

- Beat Technologies ([www.beat.lu](http://www.beat.lu))
- Villmond ([www.villmond.lu](http://www.villmond.lu))
- Jilbee ([www.jilbee.com](http://www.jilbee.com))
- Airfield ([www.airfield-rfid.com](http://www.airfield-rfid.com))

Two businesses joined the existing list of six "success stories". These were NeoValens in the field of IT security and Neonline with its two Internet sites - [lesfrontaliers.lu](http://lesfrontaliers.lu) and [diegrenzgaenger.lu](http://diegrenzgaenger.lu). It should be noted, however, that almost all of the businesses were able to announce important developments in 2006. (see insert page 54)

In terms of development of new services for entrepreneurs, 2006 saw the implementation of the new marketing and sales support structure for network businesses. This structure, which aims to offer tailor-made services to entrepreneurs to increase their commercial impact, was developed at the end of 2005 and tested on two pilot projects during the first half year of 2006.

**Pilot project 1: Conostix** – Development and implementation of a marketing and sales action plan for its new product/service “Secure-PME”

*“This project allowed us to draw very important conclusions from a commercial point of view. The methodological approach, combined with the flexibility and quality of the coaching aspect, was very important and useful.” (Yves de Pril, CEO Conostix)*

**Pilot project 2: Mocom** – Development of a commercial action plan

*“This project really helped me with the strategy and creation of a plan following a consistent approach. It also made me aware of other strategic aspects by offering interesting alternatives.” (Frank Diederich, CEO Mocom)*

Two other businesses are currently using the service: the first one studying a new market opportunity and the second one combining a niche market identification with a marketing/sales action plan and a price analysis.

Finally, in 2006, Technoport had the opportunity to organise, for the first time, the “Prix Eschois de l’Innovation – Edition du Centenaire” with the City of Esch-sur-Alzette. This prize was launched as part of the partnership that has linked the Technoport and the City of Esch-sur-Alzette since 2002, the year when the City of Esch-sur-Alzette decided to actively support the creation and development of innovative businesses by becoming a Technoport “Senior Partner”. This prize aims to reward businesses in the area that have shown, over the past two years, a particularly inventive spirit in developing and marketing a new technological service or product. (see insert page 56)

In terms of international recognition, 2006 was again very rewarding, with the appointment of Claude Wehenkel to the EBN Executive Board. Two members of the Technoport team were also selected by EBN as experts in assessing foreign BIC (Business and Innovation Centres) within EC-BIC labelling process. Four missions were carried out in this context during the second half of 2006.

In terms of exchanging best practices in managing the incubator, Technoport staff had the opportunity to speak at various international events (Italy, Sweden, France) and to welcome foreign delegations (from Jordan, USA and Czech Republic) for work or immersion sessions.

## Incubator status as of 31<sup>st</sup> Decembre 2006

Office space	<b>1,600 m<sup>2</sup></b>
Occupation rate	<b>80%</b>
New contacts 2006	<b>61</b>
New companies accepted in 2006	<b>4</b>
Number of files accepted by the Board of Directors since 1998	<b>40</b>
Member companies of the Technoport Innovation Network	<b>23</b>
	<i>On-site</i> <b>15</b>
	<i>Success stories</i> <b>8</b>
Average tenancy period	<b>3.6 years</b>
Planned exits in 2007	<b>2</b>
Cumulated turnover (90% of responses)	<b>+20.5 M Euro</b>
Number of persons employed in the Technoport Innovation Network	<b>190</b>
New jobs created in 2006	<b>51</b>
University internship positions in 2006	<b>19</b>
PhD theses in 2006	<b>5</b>
Inter-companies collaborations	<b>19</b>
Collaborations with the CRP Henri Tudor (R&D projects or others)	<b>17</b>

**January – March:**

- **J-Way** launches J-Publisher II and announces ETNIC as major new client
- **Jamendo** invited by the French minister Nicolas Sarkozy at a round table about music on Internet
- **SecureWave** eclipses 1 million licenses and closes distribution partnership with Intertech Ireland
- **CodaSystem** announces the signature of a partnership with Microsoft in the framework of their IDEES (Initiative pour le Développement Economique des Editeurs de logiciels et des Start-up) program
- **Conostix** launches its new Secure-PME service the development of which was co financed by the Ministry of the Economy and Foreign Trade
- **magic moving pixel** announces the official launch of its new ISiWare product line

**April – June:**

- Desktop Standard announces acquisition of **NeoValens** (see insert page 57)
- **SapiensTech** collaborates with Miami University (US)
- **SecureWave** reaches 1,5 million seats, moves to new premises and announces several new partners within the hardware vendor partnership program
- **Jamendo** continues exponential grow, gets increased international press coverage and participates in several investment forums in Europe and the United-States
- **CodaSystem** awarded at the Trophée de l'innovation 2006 of Syntec and France Télécom in the New Usage category. The company announces also its participation in CANTATA, a European EUREKA-ITEA project, in collaboration with the CRP Henri Tudor

**July – September:**

- **OneTree Technologies** achieves promising results in business modelling for financial trading in the OTC market
- **LuxScan Technologies** participates at the IWF 2006 Challengers Award contest in Atlanta (US)
- **Beat Technologies** joins the incubator with its solutions for local aware proximity marketing
- **Conostix** announces strategic partnership with Econocom Luxembourg
- **SecureWave** announce first-ever solution for application and device control
- First successful steps on international grounds for **Mocom**
- **Jamendo** launches German version of its platform
- **Villmond** accepted in the incubator with its new solutions in ECI (Enterprise Content Integration)
- **CodaSystem** supplies 130 shops of the Ludendo Group in France
- **SapiensTech** announces the launch of Jambaz, a new structure focussed on the online financial community in the United-States

**October – December:**

- Chaux de Cornern takes minority equity in **Epuramat**, which officially presents the first functional mobile purification plant based on its proprietary new technology
- **SapiensTech** launches MiFID compliant service
- **Jilbee** joins Technoport with its solution to enhance the student's learning experiences
- **Mocom** signs up with "Luxembourg 2007"
- **OneTree Technologies** announces its participation into the CAM4HOME European EUREKA-ITEA project in close collaboration with the CRP Henri Tudor
- **Airfield**, spin-off from the CRP Henri Tudor, positions itself as a new player in RFID
- **CodaSystem** closes a 2 M Euro second round financing to boost growth
- **Securewave's** Sanctuary receives Common Criteria Evaluation Assurance Level 2 Certification
- **Cybercultus** announces the public release of the Link-All platform ([www.link-all.org](http://www.link-all.org))
- **Jamendo** reaches the 2000 album threshold (300% growth rate compared to 2005) (see insert page 58)



## Grown out "success stories"

## Companies hosted at Technoport (in alphabetical order)

		 Who. What. When. Where.		
		 open your ears		
				 THE INNOVATION AUTHORITY

## THE WINNERS OF THE "PRIX ESCHOIS DE L'INNOVATION"- CENTENARY EDITION

The three winners have been selected by a jury made up by Michel Brachmond (Chambre des Métiers and president of the jury), Mario Grotz (Ministry of Economy and Foreign Trade) and Tun Van Rijswijck (Broadcasting Center Europe).

### **The first prize (EURO 10,000) goes to the company Conostix for its project "Secure-PME"**

"Secure-PME" aims at offering to SMEs, independent professionals and citizens an efficient and affordable service for a permanent management and follow-up of their IT security.

For more information: [www.conostix.com](http://www.conostix.com)

### **The second prize (EURO 6,000) goes to the company Codasystem for its project "Codamobile"**

"Codamobile" is the first software capturing and certifying digital pictures. The pictures are geo-localized (via satellite), time and date stamped, tattooed and signed by the authors. The technology works on latest-generation cameraphones (smartphones), PDA phone or regular laptop PC with additional digital camera.

For more information: [www.codasystem.com](http://www.codasystem.com)

### **The third prize (EURO 4,000) goes to the company Cybercultus for its project "Immersive TV"**

The project "Immersive TV" combines advanced immersion and interactivity solutions developed by Cybercultus and is able to provide the customer with highly intuitive and user-friendly content applications.

For more information: [www.cybercultus.com](http://www.cybercultus.com)

**Official presentation of the "Prix Eschois de l'Innovation" – organised as part of the Esch-sur-Alzette City Centenary (4 December 2006):** (1<sup>st</sup> row) Laurent Goffin (CodaSystem, 2<sup>nd</sup> prize business laureate), Lydia Mutsch (Mayor of the City of Esch-sur-Alzette), Yves De Pril (Conostix, 1<sup>st</sup> prize business laureate), Farid Meinkoehn (Cybercultus, 3<sup>rd</sup> prize business laureate), (2<sup>nd</sup> row) Bruno Théret (Arcelor-Mittal), Diego De Biasio (CRP Henri Tudor), Claude Wehenkel (CRP Henri Tudor), Michel Brachmond (Chambre des Métiers), Mario Grotz (Ministry of Economy and Foreign Trade) and Tun Van Rijswijck (Broadcasting Center Europe)





## From NeoValens, success story at Technoport, to BeyondTrust, new venture at I3P (Turin, Italy)

*Accepted in April 2004*

*Exit in October 2006*

*NeoValens SA was incorporated in October 2003 and started trading during the first quarter of 2004 after having finalised its first solution during the pre-commercial programme at Technoport. The company mission was to develop proof-of-concept innovative solutions for the OEM market by adding a new dimension to the Windows security model. After more or less two years of activities DesktopStandard® Corporation announced the acquisition of NeoValens at the Microsoft Management Summit in San Diego, California on April 26<sup>th</sup> 2006. DesktopStandard objective was to assimilate the Luxemburg company's expertise in Windows kernel mode security solutions to expand its market-leading PolicyMaker™ family of Group Policy Extensions. NeoValens Founder and CEO, Marco Peretti, joined DesktopStandard as the Director of Security Solutions, bringing over 15 years of experience to the company's engineering team. Peretti formerly founded SecureWave, and led the development of their successful security solutions. He later started NeoValens to capitalize on growing industry recognition that least privilege end-users are essential to the success of any desktop security strategy. He has worked closely with DesktopStandard over the past two years to bring to market and then perfect his innovative concepts regarding the implementation and management of least privilege in an enterprise environment.*

*According to DesktopStandard CTO Eric Voskuil, "Windows Vista provides excellent security improvements for the home user and greater protection for local administrators, yet in terms of creating a least privilege environment, it has much less to offer the enterprise desktop administrator. NeoValens and DesktopStandard have pioneered this space with PolicyMaker Application Security, which has been available for over a year and supports all platforms from Windows 2000 and up. This solution has been highly successful in the corporate enterprise and has withstood tough scrutiny. We have therefore decided to acquire NeoValens and the associated patent-pending technology relating to dynamic per-process privilege management. We have had an excellent relationship with NeoValens and are excited to have Marco join our technology team."*

*Some members of DesktopStandard Corporation created BeyondTrust™ Corporation just a few months later. Marco Peretti joined as CTO and they decided to locate part of the new venture in Italy, and more precisely in Turin. Technoport had developed some links with I3P, the Innovative Enterprise Incubator of the Politecnico di Torino. Both incubators got to know each other thanks to their membership within the Gate2Growth Incubator Forum Network. BeyondTrust is nowadays hosted at I3P in Turin and all actors appreciated the efficiency of this relationship.*

*For further information visit [www.beyondtrust.com](http://www.beyondtrust.com) and [www.i3p.it](http://www.i3p.it).*

## Jamendo – Open your ears !

Date of entry at Technoport:	December 2004
Product / core application:	<a href="http://www.jamendo.com">www.jamendo.com</a>
Geographic coverage:	Worldwide

PeerMajor, company that joined the incubator late 2004, proposes with jamendo a new model for artists to promote, publish, and be paid for their music. On jamendo, the artists distribute their music under Creative Commons licenses. In a nutshell, they allow you to download, remix and share their music freely. It's a "Some rights reserved" agreement, perfectly suited for the new century. These new rules allow jamendo to use the powerful new means of digital distribution like Peer-to-Peer networks such as BitTorrent or eMule to legally distribute albums at near-zero cost. jamendo users can discover and share albums, but also review them or start a discussion on the forums. Albums are democratically rated based on the visitors' reviews. If they fancy an artist they can support him by making a donation.

jamendo is the only platform that joins together :

- A legal framework protecting the artists (thanks to the Creative Commons licenses).
- Free, simple and quick access to the music, for everyone.
- The use of the latest Peer-to-Peer technologies
- The possibility of making direct donations to the artists.
- An adaptive music recommendation system based on iRATE to help listeners discover new artists based on their tastes and on other criteria such as their location

**Last accomplishments:** jamendo has more than 3,000 artists out of which some distinguish themselves by their musical quality or their community participation. Some success stories have already shown up. Lonah counts an impressive number of downloads and has recently concluded a contract with a production company, Four Step, with which the agreements remain in the same ethics as on jamendo, but with the commercial sight. David TMX, Mortadhell, Both and Echo Lali (all from the same artist!), Try^ad (US), or Drunksouls, Thierry Blanchard, Jérémy Dewinter, Greg Beaumont, Ehma, Silence (...and many others) know an increasing success within the jamendo community with increasing downloads and sold-out concerts.

Contact: PEERMAJOR, 66, rue de Luxembourg, L-4221 Esch-sur-Alzette,  
phone. : +352 26 53 10 08; fax: +352 26 53 10 09, [www.jamendo.com](http://www.jamendo.com), [contact@jamendo.com](mailto:contact@jamendo.com)



# “Free and Open Source Software” Innovation Platform

<b>Staff as at the end of the year:</b>	The innovation platform employs no specific staff. Activities and projects are carried out by two departments of CRP Henri Tudor: Resource Centre for Health Care Technologies (CR SANTEC) and Centre IT Innovation (CITI)
<b>Number of RDI projects:</b>	2
<b>Key competences:</b>	Free and Open Source Software (FOSS), intellectual property, FOSS networking, FOSS business models
<b>Activities:</b>	Realisation of surveys in the field of FOSS, RDI projects, technology watch, training in the field of FOSS, clustering of FOSS initiatives in Luxembourg, participation at international conferences and exhibitions, sensitization of decision makers in industry and politics, organization of conferences, seminars, round tables & think tanks, accomplishment of road shows in domains of FOSS, professional and scientific publications
<b>Strategic partners:</b>	Association des Professionnels de la Société de l'Information (APSI), Centre d'Excellence en Technologies de l'Information et de la Communication (CETIC), Club de la Sécurité des Systèmes d'Information Luxembourg (CLUSSIL), Centre de Technologie de l'Education (CTE), Fachhochschule Trier, GNU/Linux User Group Luxembourg (LiLux), ASC, Audaxis, Broadcasting Center Europe - an RTL group company, Cetrel, Conostix, CONSEN (EEIG) Euro-Group, Fujitsu Siemens Computers, HP Luxembourg, IBM, Intech, Neofacto, Open Source Development Lab (OSDL), Oracle, Plan-Net, Pragma Consult, Sun Microsystems, Telindus
<b>Contact:</b>	Ortwin Donak, Co-ordinator of the innovation platform, ortwin.donak@tudor.lu, www.libre.tudor.lu

## Key facts 2006:

- Organisation of the 3 days event LinuxDays including workshops, presentations and fair (25 – 27 January 2006)
- Participation at the fair “Salon des Bonnes Pratiques”, (22 March 2006; 185 participants)
- Organisation of the 3 days event “ImageJ User and Developer Conference” including workshops and presentations (18 – 19 May 2006; 70 participants)
- Organisation of the 2 days event Journée du Libre targeted at small and medium enterprises (SME) (24 – 25 October 2006; 51 participants)
- Participation at the Centenary of the City of Esch-sur-Alzette with different presentations and information targeted to the general public (21 – 22 October 2006)
- Organisation of the one day event “ObjectWeb Conference” together with platform partners in November 2006 targeted to decision makers and technical leaders
- Creation of a market survey about Open Source Enterprise Application Integration systems
- Active participation in the R&D project SIM “Secure Identity Management” of CITI
- Creation of a detailed strategy for 2007-2011 for the innovation platform
- Accomplishment of the first phase of the project FreeGate “A Open Source System Integration Solution for Small and Medium Enterprises – Requirements Specification and Marketing Strategy” on integration of solutions for SMEs
- Coaching of two theses in the field of Free and Open Source Software
- Coaching of a practice semester of a university professor from the Fachhochschule Trier
- Preparation of an e-learning course on OpenOffice using the e-learning platform Anaxagora (www.anaxagora.lu)
- Publication about volunteer computing and desktop grid computing by means of Free and Open Source Software

# Main RDI Projects of CRP Henri Tudor in 2006

## LABORATORY FOR INDUSTRIAL TECHNOLOGIES AND MATERIALS (LTI)

### UST ▶ **“Strategy and Management” Scientific and Technological Unit**

- SC-CONSTRUCT « Sustainable and Competitive Construction », lahcene.harbouche@tudor.lu
- CRM “Création de compétences en CRM”, laurent.bravetti@tudor.lu
- EXIND2 “Conception de formations en management”, laurent.bravetti@tudor.lu
- HOSPIMOD “Génération d’un modèle d’organisation des systèmes hospitaliers”, magalie.briquet@tudor.lu
- IMPEE “Innovative Multi-Product Engineering Environment”, magalie.briquet@tudor.lu
- LPO “Lean Public Organisation - Management et outillage d’un processus d’évaluation et d’amélioration des organisations du secteur public”, remi.fabbri@tudor.lu
- Quality Pass “Passeport pour la qualité pour les très petites et petites entreprises”, remi.fabbri@tudor.lu
- REBAMO “Méthode d’aide à l’ingénierie ou ré-ingénierie des entreprises par la modélisation”, david.evaristo@tudor.lu

### UST ▶ **“Modelling and Simulation” Scientific and Technological Unit**

- CASSEM “Composites and Adaptive Structures : Simulation, Experimentation and Modelling”, salim.belouettar@tudor.lu
- CONCURRENT MODELLING “Concurrent Modelling Tool Development”, serge.gille@tudor.lu
- EMBOUTISSAGE “Emboutissage de pièces de précision en tôlerie fine par simulation numérique”, salim.belouettar@tudor.lu
- VEIANEN “Viscous Effects Investigated by Applied Numerics and Experimental Nanoindentation”, gaston.rauchs@tudor.lu

### UST ▶ **“Materials” Scientific and Technological Unit**

- ICIMAT “Innovation dans la caractérisation intégrée des matériaux”, claude.becker@tudor.lu
- MATINSITU “Vers une approche comportementale des matériaux en phase dynamique”, david.ruch@tudor.lu
- METROLOGIE “Création d’un laboratoire national d’étalonnage accrédité”, david.ruch@tudor.lu
- MOSE “Vers un pôle de compétences de modification sélective de matériaux”, david.ruch@tudor.lu
- QSE “Démarche Qualité Sécurité Environnement - Système de management intégré”, corinne.gouy@tudor.lu
- SYNTHÈSE “Synthèse de nanocomposites”, claude.becker@tudor.lu
- THERA “Création d’un laboratoire de caractérisation thermique et de vieillissement accéléré”, claude.becker@tudor.lu
- THERMOMECA “Développement d’un pôle de compétences en essais thermomécaniques”, olivier.buchheit@tudor.lu
- TRASU “Development of Innovative Surfaces by Means of Optimized Plasma Techniques and Technological Transfer to Industries”, julien.bardon@tudor.lu
- VALMAT “Vers un pôle de compétences en valorisation des matériaux”, david.ruch@tudor.lu
- VIEILLISSEMENT “Plate-forme Vieillissement des Matériaux”, claude.becker@tudor.lu

## CENTRE FOR IT INNOVATION (CITI)

- Networking “Développement de services d’innovation ciblant les membres du réseau SPIRAL et encadrement des réseaux professionnels liés aux PFI du CITI”, delphine.giltay@tudor.lu

### PFI ▶ **“Quality and Certification of IT Services” Innovation Platform**

- AIDA “Approche intégrée d’amélioration - Assessment and Improvement Integrated Approach”, alain.renault@tudor.lu
- CASSIS\_NET “Mobilisation d’un réseau pour l’innovation par les TIC dans les PME”, corinne.loesel@tudor.lu
- EQN “European Innovation and Quality Network”, corinne.loesel@tudor.lu
- 3ème Cycle P7 “3ème Cycle Informatique et Innovation”, alain.renault@tudor.lu

- GERAMO "Gestion des relations clients/fournisseurs dans les projets TIC", marc.krystkowiak@tudor.lu
- GRIF "Gestion des risques IT dans les secteur financier – nouvelles approches méthodologiques", andre.rifaut@tudor.lu
- SPICE4A "Support à l'amélioration des processus d'accréditation", thibaud.latour@tudor.lu
- SPINOV "Software Process Improvement and Innovation", valerie.betry@tudor.lu
- TOOLINNOVE "Systèmes et outils de gestion de projet - méthode QUALINNOVE", laurent.vergnol@tudor.lu

#### **PFI ▶ "Information Systems Security" Innovation Platform**

- BUGYO "Building Security Assurance in Open Telecommunications", djamel.khadraoui@tudor.lu
- LIASIT "Programme de formation/recherche doctorale en technologies de l'information", bruno.cornette@tudor.lu
- LUSI "Luxembourg Safer Internet", christophe.feltus@tudor.lu
- MSSI-P1 "3ème cycle de management en sécurité des systèmes d'information", noelle.peltier@tudor.lu
- R2SIC "Recherche en sécurité des systèmes d'information et de la communication", frederic.girard@tudor.lu
- RED "Reaction After Detection", djamel.khadraoui@tudor.lu
- RISK-DESANA "An Incremental Decision Support System for IT and Operational Risk Analysis within Evolving Organisations and IT System", andre.rifaut@tudor.lu
- SECURE PME "Développement d'un pôle de compétences en sécurité des systèmes d'information, dédié aux PME situées dans la zone Objectif II", noelle.peltier@tudor.lu
- SIM "Secure Identity Management", frederic.girard@tudor.lu

#### **PFI ▶ "Interoperability Standards and E-business" Innovation Platform**

- AFFLUX "Architecture avancée pour la gestion des flux de dossiers", marc.krystkowiak@tudor.lu
- CANTATA "Content Analysis and Networked Technologies for Advanced Testing of Adaptive Applications", patrick.blandin@tudor.lu
- CARLINK "Wireless Traffic Service Platform or Linking Cars", djamel.khadraoui@tudor.lu
- e-EFFICIENT "E-Business Framework for an Efficient Capture and Implementation of End-to-end Transactions", sophie.ramel@tudor.lu
- eTransMod "Electronic Transactions Modelling", sophie.ramel@tudor.lu
- INTEROP "Interoperability Research for Networked Enterprises Application and Software", pierre.brimont@tudor.lu
- LINK ALL "Local-communities Insertion Network", djamel.khadraoui@tudor.lu
- Mobile TTE "Mobile Technologies for Tourism Expansion", pierre.brimont@tudor.lu
- PARRAIN "Parrainage Transfrontalier", christophe.feltus@tudor.lu

#### **PFI ▶ "E-learning, Knowledge Management and Networked Organisations" Innovation Platform**

- AVC "Agora virtuelle de la connaissance", brice.bucciarelli@tudor.lu
- CMA-NoE "European Network of Excellence on Complex Metallic Alloys - Volet Knowledge Management", nadia.lomboray@tudor.lu
- DEMOISEL "Dispositif de e-learning accompagnant une modernisation organisationnelle et informatique au sein de l'Etat luxembourgeois", sandrine.reiter@tudor.lu
- ELU "Enhanced Learning Unlimited", damien.mathevon@tudor.lu
- FORM-IT "Conception de filière de formations IT", delphine.giltay@tudor.lu
- Pilot KM "Expérimentation d'un dispositif KM dans le cadre de la conduite de projets d'innovation", brice.bucciarelli@tudor.lu
- PALETTE "Pedagogically Sustained Adaptive Learning Through the Exploitation of Tacit and Explicit Knowledge", stephane.jacquemart@tudor.lu
- PRECODEM "Préparation aux compétences de demain pour les demandeurs d'emploi - ingénieurs et cadres", sandrine.reiter@tudor.lu
- SATnSURF "Développement de services innovants en matière d'exploitation de contenu Internet", thibaud.latour@tudor.lu
- TA02 "Testing assisté par ordinateur: plate-forme libre de nouvelle génération en environnement ouvert, distribué et multilingue", thibaud.latour@tudor.lu
- TINIS "Technological Innovation Network in the Field of Information Systems", nadia.lomboray@tudor.lu

- TRANS-e-FORM "Transition vers la e-formation", stephane.jacquemart@tudor.lu
- V3 "Versatile, Vocational and Educational Training Vehicle", herve.rizzi@tudor.lu
- Web Training Game "Elaboration d'un jeu d'entreprise en ligne pour la téléformation au e-business et au web-marketing", luc.vandenabeele@tudor.lu

#### **PFI ▶ "Statistical Studies and Prospective in the Knowledge Economy" Innovation Platform**

- ABILITIC "Mise en place d'un dispositif interrégional d'anticipation des compétences liées à l'innovation et les TIC dans les métiers", linda.szelest@tudor.lu
- COMPETIC "Compétitivité et dynamique d'innovation par les TIC", anne-laure.mention@tudor.lu
- DOTIC "Mise en place d'une méthodologie opérationnelle de détection précoce des opportunités dans le domaine de l'innovation par les Technologies de l'Information et de la Communication (TIC)", pascale.barbolosi@tudor.lu
- GEANCOTIC "Gestion anticipative des compétences liées à l'innovation et aux Technologies de l'Information et de la Communication (TIC)", pascale.barbolosi@tudor.lu
- IMSATV "Immersive Satellite Television", patrick.blandin@tudor.lu
- INVESTIC "Innovation et investissement TIC", damien.hanser@tudor.lu
- PASSEPARTOUT "Personnalisation de contenus interactifs", yannick.naudet@tudor.lu
- TASMANIA "Two-way Satellite Secure Media Delivery Monitoring", patrick.blandin@tudor.lu

## **RESOURCE CENTRE FOR ENVIRONMENTAL TECHNOLOGIES (CRTE)**

#### **PFI ▶ "Cleaner Production" Innovation Platform**

- AGID "Analyse et gestion intégrées et durables des flux de matières et d'énergie en entreprise", bianca.schmitt@tudor.lu
- RIFE "Réseau transfrontalier d'information et de formation à la gestion de l'environnement", caroline.fedrigio@tudor.lu
- VALORBOUES "Quelles solutions au devenir des boues d'épuration dans la zone transfrontalière ?", caroline.fedrigio@tudor.lu

#### **UST ▶ "Water" Scientific and Technological Unit**

- ALZETTE "Flux de matières dans le bassin versant de l'Alzette : impacts de micro/macro-polluants et de nutriments sur la qualité des ressources hydriques", tom.galle@tudor.lu
- CHEMRISK "The Development of a Drinking Water Contamination Risk Assessment and Management Strategy in Luxembourg - An Interdisciplinary Approach", tom.galle@tudor.lu
- CONCEPT "Nouveaux concepts et technologies innovantes pour une gestion durable du cycle de l'eau urbain", torben.lohmann@tudor.lu, paul.schosseler@tudor.lu
- INEAU "Integration of scientific knowledge on water resources in Luxembourg with a view to the formulation of a sustainable water management policy", ulrich.leopold@tudor.lu
- LITFLUID "Application des outils de modélisation/simulation et d'analyse des flux à la technologie des lits fluidisés", mario.plattes@tudor.lu
- OPTISTEP "Optimisation de procédés de traitement des eaux usées par des outils de modélisation/simulation", mario.plattes@tudor.lu
- RESEAU "Modélisation du réseau d'assainissement des localités regroupées autour du lac de la Haute-Sûre", emmanuel.henry@tudor.lu

#### **UST ▶ "Energy" Scientific and Technological Unit**

- ANIA "Analyses et gestions des impacts environnementaux et de la consommation énergétique d'installations frigorifiques dans le secteur agro-alimentaire", alexandre.bertrand@tudor.lu
- LUXCYCLE "Dry Monofermentation of Energy Crops", enrico.benetto@tudor.lu
- PV-LAB "PhotoVoltaic Laboratory" frank.minette@tudor.lu
- RELIES "Réseau luxembourgeois pour l'information sur l'énergie solaire", frank.minette@tudor.lu
- RUBIN "Regionale Strategie zur nachhaltigen Umsetzung der Biomasse-Nutzung", bianca.schmitt@tudor.lu

## RESOURCE CENTRE FOR HEALTH CARE TECHNOLOGIES (CR SANTEC)

- BIOINFO "Création d'une nouvelle compétence en bio informatique et d'une plate-forme technologique d'analyse génique à grande échelle (puces à DNA), se fondant sur une application en oncologie", andreas.jahnen@tudor.lu
- CARA "Carnet radiologique électronique", malika.bendaoud@tudor.lu
- FACTRAD "Facturation des radiologues", lysiane.cuny@tudor.lu
- FACTURATION GENERIQUE "Facturation générique de médecins spécialistes au Luxembourg", david.baldacchino@tudor.lu
- GECAMed1 "Logiciel de gestion de cabinets médicaux", david.baldacchino@tudor.lu
- HEALTHNET "Réseau informatique fermé et sécurisé pour tous les professionnels de la santé", lysiane.cuny@tudor.lu
- IMAGERIE MEDICALE "Expérimentation de l'extension des concepts RIS-PACS vers une gestion intégrée de l'imagerie médicale", lysiane.cuny@tudor.lu
- ISIS "Inventaire des systèmes informatiques de santé", lysiane.cuny@tudor.lu
- LUHF "Luxembourg Heart Failure Project", norbert.roesch@tudor.lu
- MAMMO 4 "Informatisation du programme de dépistage mammographique", malika.bendaoud@tudor.lu
- MENSANA "Mobile Expert and Networking System for Systematical Analysis of Nutrition-based Allergies", norbert.roesch@tudor.lu
- OPTIMAGE "Quality Control for Optimal Medical Images", andreas.jahnen@tudor.lu
- RESIST "Vers une plate-forme sécurisée pour le développement de solutions de soins à domicile", david.baldacchino@tudor.lu

## RESOURCE CENTRE FOR INFORMATION TECHNOLOGIES IN CONSTRUCTION (CRTI-B)

- BUILD-IT "Faire évoluer le secteur de la construction vers les technologies de l'information", fabrice.absil@tudor.lu

## SITEC® "LIFELONG LEARNING FOR TECHNOLOGICAL INNOVATION"

- 2ème cycle SSI "Master en Management de la Sécurité des Systèmes d'Information", bernard.lambeaux@tudor.lu
- 3ème cycle II "Diplôme d'Etudes Supérieures Spécialisées Informatique & Innovation", alain.renault@tudor.lu
- CALIFORM "Intégration de la qualité dans le processus de conception et de production des formations du Centre", sandra.grunewald@tudor.lu
- DULOG "Mise en œuvre d'un Diplôme Universitaire en logistique", lahcene.harbouche@tudor.lu
- MSTM Session 1 "Accompagnement d'un Master in Science and Technical Management"; romain.gaasch@tudor.lu

## TECHNOLOGY AND STANDARDS WATCH CENTRE (CVT)

- HAITI "Etude sur les habitudes en matière d'information technique et de protection des inventions des PME/PMI du Luxembourg", serge.quazzotti@tudor.lu
- LIIP "Linking Innovation and Industrial Property", serge.quazzotti@tudor.lu

## TECHNOPORT

- DETECT-IT 2 "A dedicated network of incubators detecting new FP7 opportunities for SME", catherine.delevoye@tudor.lu
- MST-STR "Mobility of students in start-ups and research", diego.debiasio@tudor.lu

## "FREE AND OPEN SOURCE SOFTWARE" INNOVATION PLATFORM

- FREEGATE "An Open Source System Integration Solution for Small and Medium Enterprises - Requirement Specification and Marketing Strategy", ortwin.donak@tudor.lu
- FreeSpread "Sensitization Towards and the Utilization of FOSS in Luxembourg's Companies and Organizations", ortwin.donak@tudor.lu

# The 265 Contract Partners of CRP Henri Tudor's Projects in 2006

(in alphabetical order)

ADELIOR (B) | Administration de la Gestion de l'Eau (AGE) (L) | Administration de l'Emploi (ADEM) (L) | Administration de l'Environnement (L) | Administration des Bâtiments Publics (ABP) (L) | Administration des Ponts et Chaussées (L) | Agence de l'Energie SA (AEL) (L) | AGFA (B) | AGH University of Science and Technology (PL) | Airfield SA (L) | Alcyonix (F) | Alpes Qualité (F) | AMER-SIL (L) | Aptosite SARL (L) | ARBED - Groupe ARCELOR (L) | ARCELOR Profil Luxembourg SA (L) | ARES Rodange (L) | ARES Schifflange (L) | ASC SA (L) | Association de Services Luxembourgeois Sàrl (L) | Association des Professionnels de la Société de l'Information (APSI) (L) | Association Luxembourgeoise des Ingénieurs Industriels (ALII) (L) | Astra Zeneca (B) | Audaxis (L) | Auvergne Qualité (F) | Beat Technologies (L) | BOC Information Systems GmbH (A) | Broadcasting Center Europe (BCE) (L) | CELLON (L) | Center for Futurism Education - Ben Gurion University (ISRAEL) | Centre d'Excellence en Technologies de l'Information et de la Communication (CETIC) (B) | Centre de Formation Professionnelle Continue (CFPC) - Dr Robert Vidong (L) | Centre de Langues Luxembourg (CCL) (L) | Centre de Mesure Lorrain (F) | Centre de Promotion de la Recherche, du Développement et de la Valorisation des Technologies en Hainaut (CERDT) (B) | Centre de Recherche en Architecture et Ingénierie (F) | Centre de Traduction des Organes de l'Union Européenne, Centre for the Study of Education and Training (CSET) of the University of Lancaster (UK) | Centre Hospitalier Emile Mayrisch (CHEM) (L) | Centre National d'Expertise et de Développement (CNED) - Biomatériaux de Nancy (F) | Centre Régional d'Innovation et de Transfert de Technologie en Télécommunication et en Technologies de l'Information (CRITT-TTI) (F) | Centre Scientifique et Technique du Bâtiment (CSTB) (F) | Ceratizit (L) | Ceratizit Bienne (CH) | Cetrel (L) | Chambre de Commerce de Luxembourg (L) | Chambre de Commerce et d'Industrie de Meurthe et Moselle (F) | Chambre de Commerce et d'Industrie du Luxembourg Belge (CCILB) (B) | Chambre des Métiers (L) | Chambre Française du Commerce et de l'Industrie (L) | Cimmedia Limited (UK) | Cimos Association (D) | Circuit Foil (L) | Clinique Privée du Dr Bohler (L) | Clinique Sainte Marie (L) | Club de la Sécurité des Systèmes d'Information (CLUSSIL) (L) | CodaSystem (L) | Commune de Schifflange (L) | COMPUTAS AS (NO) | Computer Technology Institute (CTI) (Greece) | Concept Factory (L) | Conostix (L) | CONSEN (EEIG) Euro-Group (E) | Constructing Excellence (UK) | CRP Gabriel Lippmann (L) | CRP Santé (L) | CTI Telematics Center (Greece) | Cybercultus (L) | Czech Technical University (Czech Republic) | Czech Television (Czech Republic) | Danshir (Israel) | Danube (A) | DELTA (DK) | Dimension Data (L) | Distriwood (L) | Division de la Radioprotection (L) | E2V (F) | Ecole des Mines de Nancy - Laboratoire de Science et Génie des Surfaces (LSGS) (F) | Ecole Polytechnique Fédérale de Lausanne (EPFL) (CH) | Electronic for the Information Society (ELIOS) of the Electronical and Biophysical Engineering Department of the University of Genoa (DIBE) (I) | ELTH SA (L) | EM Lyon Business School (F) | Embry-Riddle Aeronautical University (ERAU) (USA) | EMMERCE EEIG (S) | Umweltberodung Lëtzebuerg ASBL (EBL) (L) | Epuramat (L) | Estelis (F) | European Aeronautic Defense and Space - Centre Commun de Recherche (EADS-CCR) (F) | European Research Consortium in Informatics and Mathematics (ERCIM) (F) | European Space Agency (ESA) | Ewald Giebel (L) | Fachhochschule Krems (FH Krems) (D) | Fachhochschule Trier (D) | Faculté universitaire d'informatique Brno (MUNI) (Czech Republic) | Facultés Universitaires Notre-Dame de la Paix (FUNDP) (B) | Fédération des Artisans (L) | Fédération des Industriels Luxembourgeois (FEDIL) (L) | Finnish Software Measurement Association (FISMA) (FIN) | Flowing Content (L) | FOREM (B) | Forum Network (L) | Foxmet SA (L) | France Qualité (F) | Galvalange (L) | Garage Martin Biver (L) | Groupe d'Analyse et de Théorie Economique (GATE) Lyon (F) | Georges Theis (L) | GIE HEALTHNET (L) | GIUNTI Interactive Lab S.r.l. (I) | Glaverbel (B) | Groupe CACTUS (L) | GRUPPO FORMULA SPA (I) | Guardian Automotive Europe (L) | Gummi-Roller (L) | haulogy.net (B) | Haute Ecole "Groupe ICHÉC-ISC St Louis" (ISFSC) (B), HESE Umwelt (D), HITEC SA (L), Hôpital Kirchberg (L) | HP Luxembourg (L) | Husky Injection Molding Systems SA (L) | IBM (USA) | IGLux Sàrl (L) | IGW Ingenieurgesellschaft Witzenhausen Fricke & Turk GmbH (D) | IMATECH (L) | Imprimerie Centrale (L) | INFFOLOR (F), Infopole (B) | Informatics and Telematics Institute | Centre for Research and Technology Hellas (CERTH) (Greece) | Inlingua (L) | Institut de Formation Sectoriel du Bâtiment SA (IFSB) (L) | Institut für Umweltinformatik (IFU) (D) | Institut National de Recherche en Informatique et en Automatique (INRIA) (F) | Institut National des Sciences Appliquées (INSA) de Toulouse (F) | Institut Supérieur de Mécanique de Paris (F) | Institut wallon de Formation en Alternance (IFAPME) (B) | Institution of Electrical Engineers (IEE) (L) | Instituto Superior Técnico do Lisboa (P) | Intech (L) | International Software Consulting Network (ISCN) (A) | Jilbee (L) | Jozef Stefan Institute (Slovenia) | Kronospan Luxembourg SA (L) | Royal Institute of Technology (KTH) (S) | Laboratoire de Physique des Matériaux (F) | Laboratoire de Spectrométrie de Masse et de Chimie Laser (LSMCL) (F) | Laboratoire lorrain de Recherche en Informatique et ses Applications (LORIA) (F) | Laboratoire National de l'Eau de de l'Environnement (L) | Laboratoire National de Santé (L) | Librairie Ernster (L) | LiLux (L) | LTM (F) | Lux-Airport (L) | Luxembourg Senior Consultants (LSC) (L) | MindOnSite (CH) | Ministère de la Fonction Publique et de la Réforme Administrative (L) | Ministère de la Santé (L) | Ministère de l'Economie et du Commerce extérieur (L) | Ministère de l'Education Nationale, de la Formation Professionnelle et des Sports (MENFPS) (L) | Ministère de l'Environnement (L) | Ministère des Travaux Publics (L) | Mission régionale pour l'emploi en Luxembourg (MIRELUX) (B) | Mocom (L) | Mondo (L) | Morgan AM&T (L) | Mouvement Luxembourgeois pour la Qualité (MLQ) (L) | MSD Partners (B) | MTA-Staki : Institute of the Hungarian Academy of Sciences (Ungary) | MTA-ITF (Ungary) | Neofacto (L) | Neonline (L) | Neovalens (L) | NETGIS (D) | NISAI (UK) | Noemi Concept (L) | Novelis (L) | Observatoire Régional de l'Emploi, de la Formation et des Qualifications (OREFQ) (F) | Office Européen des Brevets (OEB) | Office Freylinger (L) | Office Luxembourgeois d'Accréditation et de Surveillance (OLAS) (L) | One Tree Technologies (L) | Op der Lann (L) | Open Field SA (L) |

Open Source Development Lab (OSDL) (USA) | Optima Consulting (L) | ORACLE (L) | Ordre des Architectes et des Ingénieurs-conseils (OAI) (L) | Ort France (F) | Ostrava Science & Technology Park (République Tchèque) (Czech Republic) | Paul Wurth SA (L) | PeerMajor (L) | Pfizer (B) | Plan-Net (L) | PLASTINNOV (F) | Plovdiv University (Bulgaria) | PragmaConsult (L) | ProfilArbed (L) | Pronovem (L), Pro-Sud (L) | RAVAL EUROPE SA (L) | Reval Consulting, Riga Technical University (Latvia) | Sapiens Tech (L) | Schroeder & Associés (L) | Selfa Valves & Fittings SA (L) | Service Central de la Statistique et des Etudes Economiques (STATEC) (L) | Service e-Luxembourg (L) | SES (L) | Société du Train Universel de Longwy (STUL) (F) | Society for Worldwide Interbank Financial Telecommunication (SWIFT) (B) | Stadtwerke Trier (SWT) (D) | State Institute of Information Technology (Lithuania) | Stiftelsen for Industriell log Teknisk Forskning ved NTH (SINTEF) (NO) | Sun Microsystems Luxembourg (L) | Syndicat des Eaux du Barrage d'Esch-sur-Sûre (SEBES) (L) | Syndicat Intercommunal à Vocation Ecologique (SIVEC) (L) | Syndicat Intercommunal de Dépollution des Eaux résiduaire du Nord (SIDEN) (L) | Syndicat intercommunal pour la gestion des déchets (SIDECE) (L) | Syndicat Intercommunal pour l'Assainissement du Bassin de la Chier (SIACH) (L) | Synergioms SA (L) | Tarkett Sommer (L) | TDK (L) | Technical University of Turin (I) | Technifutur (B) | Technische Universität Berlin (D) | Techno.bel (B) | Technofutur TIC (B) | Technological Management Contract Centre BV a company of Technische Universität Eindhoven (NL) | Tecnet (IRL) | Telindus (L) | Threon (L) | Tilburg University (NL) | Train Laminé Marchand (TLM) (L) | TrefilARBED Bissen (L) | Tyssen group (F) | UNINOVA (P) | Union des Caisses de Maladie (UCM) (L) | Universidad Politecnica de Valencia (E) | Universität Bremen - Zentrum für Multimedia in der Lehre (ZMML) (D) | Universität Duisburg-Essen (D) | Université d'Athènes (Greece) | Université de Bordeaux 1 (F) | Université de Katowice (Pologne) (PL) | Université de Liège (B) | Université de Luton (UK) | Université de Metz (F) | Université de Nancy 1 (F) | Université de Nancy 2 (F) | Université de Tlemcen (Algeria) | Université de Trèves (D) | Université du Luxembourg (L) | Université Libre de Bruxelles (ULB) (B) | University of Bergen (NO) | University of Fribourg (UNIFR) (CH) | University of Geneva (CH) | University of Hradec Kralove (Czech Republic) | University of Kent (UK) | University of Lausanne (CH) | University of Ljubljana (Slovenia) | University of Oldenburg (D) | Ville d'Esch-sur-Alzette (L) | Villmond (L) | Vlaamse Instelling voor Technologisch Onderzoek (VITO) (NL) | Woelfel Beratende Ingenieure (D) | 12345kjt (L)

# Scientific Publications 2006

## LABORATORY FOR INDUSTRIAL TECHNOLOGIES AND MATERIALS (LTI)

Actes de la 3<sup>ème</sup> Conférence francophone de Gestion et Ingénierie des Systèmes Hospitaliers GISEH, Luxembourg, ISBN 2-919941-03-8

Abbadì A., Azari Z., Belouettar S., Gilgert J., Pluvinage G., "Static and Fatigue, Characterization of Sandwich Panels" in *Materials Science Forum*, 518, 1<sup>st</sup> November 2006, ISBN 0255-5476

Azaouzi M., Delameziere A., Naceur H., Sibaud D., Batoz J.-L., Belouettar S., "A numerically based approach for the blank design of thin precision metallic parts obtained by stamping" in *Proceedings of The 9<sup>th</sup> International Conference on Material Forming – ESAFORM 2006*, Glasgow, 26<sup>th</sup> – 28<sup>th</sup> April 2006

Benjeddou A., Belouettar S., "On the evaluation and application of piezoelectric adaptive structures modal properties", in *Innovation in Computational Structures Technology*, November 2006

Makradi A., Cox C.L., Ahzi S., Belouettar S., "Post Draw Processing of Polymeric Fibers: Multiscale Micromechanical Model for Solid Polymers under Finite Deformation and Strain Induced Crystallisation" in *Journal of Applied Polymer Science*, Vol. 10

Becker C., Ruch D., "In situ laser remelted thermal barrier coatings: thermo physical properties " in *Surface and coatings*, 2000, 1<sup>st</sup> November 2006

Rauchs G., "Optimization-based material parameter identification in indentation testing for finite strain elasto-plasticity" in *ZAMM Z. Angew. Math. Mech.*, 86, No. 7, 18<sup>th</sup> March 2006, pp. 539 - 562

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## TECHNOLOGY AND STANDARDS WATCH CENTRE (CVT)

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# Administration & Finances



## Board of Directors

Jean de la Hamette, Chairman, engineer

Lucien Schummer, Member of the Executive Committee, Vice-president of Cargolux Airlines International SA

Claude Wehenkel, Member of the Executive Committee, CEO of the CRP Henri Tudor

Georges Bourscheid, Managing Director of GUARDIAN LUXGUARD I SA & GUARDIAN LUXCOATING SA

Pascal Bouvry, Professor at the Faculty of Sciences, Technology and Communication of the University of Luxembourg

Pierre Decker, Commissaire du Gouvernement, Conseiller de Gouvernement 1ère classe, Ministry of Culture, Higher Education and Research

Jean-Marie Haensel, Senior Budget Advisor

Pierre Hirtt, Founding Partner and CTO of HITEC Luxembourg SA

Patrick Nickels, Conseiller de Direction 1ère classe, Ministry of the Economy and Foreign Trade

Jean Tagliaferri, Professeur attaché, Ministry of Culture, Higher Education and Research

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Pr Dr Eric Dubois, Vice-president, Information and Communication Technologies

Etienne D'hoedt, Vice-president, Administration, finances, R&D project monitoring

Jean-Pol Michel, Vice-president, Information and Communication Technologies

Pierre Plumer, Vice-president, Medical and clinical technologies and engineering

Pr Dr Jos Schaefers, Vice-president, Industrial technologies

Joëlle Welfring/Dr Paul Schosseler, Environmental Technologies

## Scientific Advisors

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Michel Brachmond

David Hagen

Pr Dr Hans Pfeiff

Dr André Weidenhaupt

## Administration

Cécile Cavalade, Customer relations, project evaluation

Etienne D'hoedt, Management audit, finances

Monia Di Pillo, External and internal communication

Monika Grünwald, Secretarial Support

Hugues Henriot, IT Support

Nicole Isaac, International Affairs

Martin Mus, Co-ordination and management

Robert Schambourg, Technical support, accountancy

Sylvie Weyland, Human resources



## Certifying of accounts

The financial and analytical accountancy has been carried out in the Centre. The accounts have been audited by Mr Marc Müller, auditor, and approved in his Accountant's report of 7<sup>th</sup> March 2007. The Board of Directors has approved the accounts and the balance sheet 2006 on 12<sup>th</sup> March 2007.

## Profit and loss account for the year ended 31<sup>st</sup> December 2006

(in Euro)

	2006	2005
<b>Costs</b>		
Charges on operating costs	1 949 328.17	1 771 391.91
Other charges	3 328 717.78	2 582 623.19
Staff expenses	14 508 501.25	13 222 054.46
Value adjustment on equity tax and in respect of tangible and intangible assets	538 784.51	669 918.24
Value adjustment on current assets	957 276.47	443 512.76
Other operating costs	1 778 299.16	1 528 052.05
Value adjustment on financial fixed and current assets	0.00	0.00
Interests payable and similar charges	10 761.74	36 561.57
Exceptional expenses	292 660.26	205 801.69
Result of the financial year (income surplus)	512 233.07	219 286.28
<b>Total</b>	<b>23 876 562.41</b>	<b>20 679 202.15</b>

## Income

Net turnover	12 376 021.02	9 636 942.94
Grant for mission of public utility	7 590 179.51	7 264 252.86
Income on projects and independent structures	1 038 098.32	1 111 722.78
Other income from operations	2 544 864.88	2 294 175.91
Products of participation	40 667.11	0.00
Other interests and similar income	14 248.02	6 699.99
Exceptional income	272 483.55	365 407.67
<b>Total</b>	<b>23 876 562.41</b>	<b>20 679 202.15</b>



# Addresses & Access

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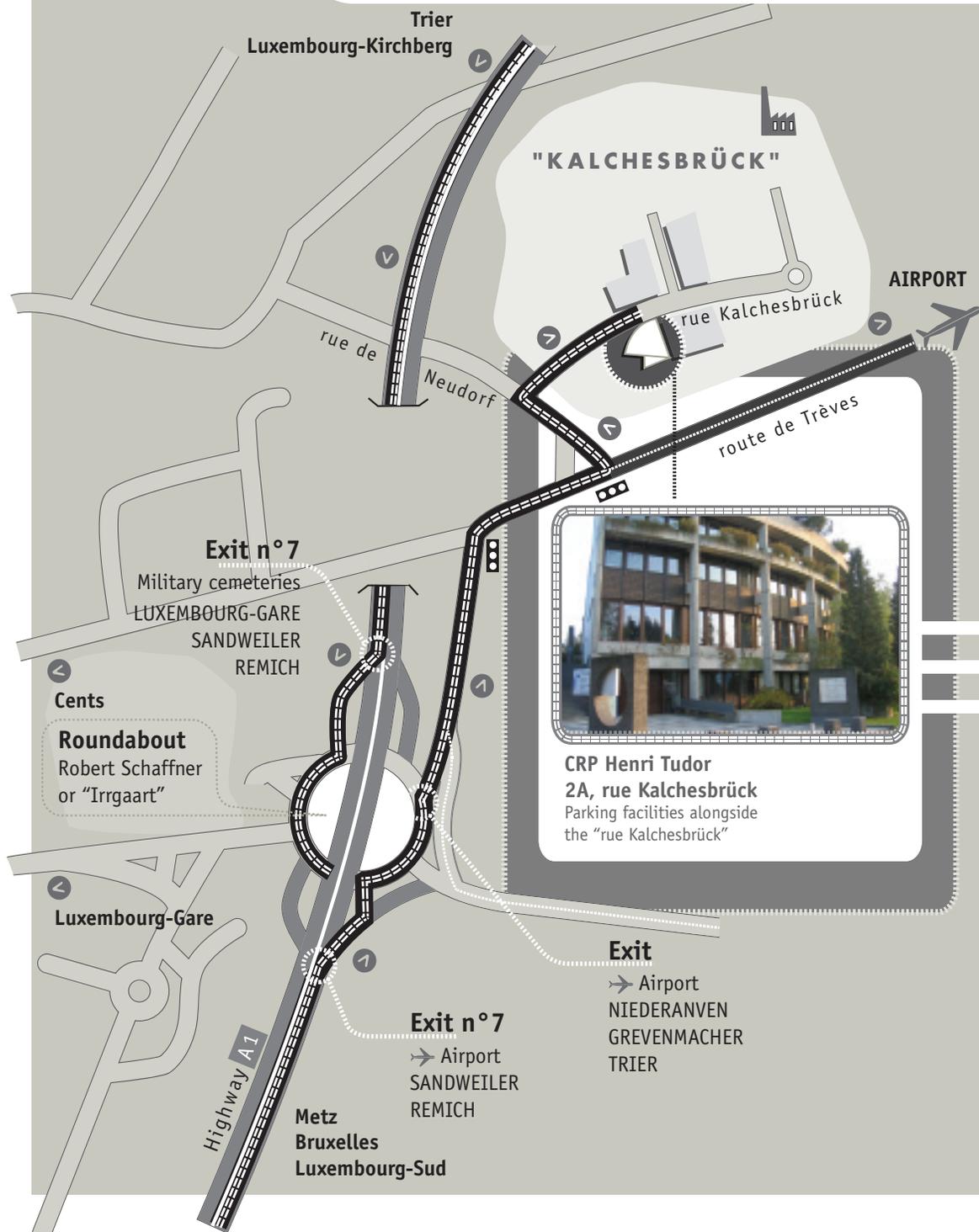
LUXEMBOURG-KALCHESBRÜCK

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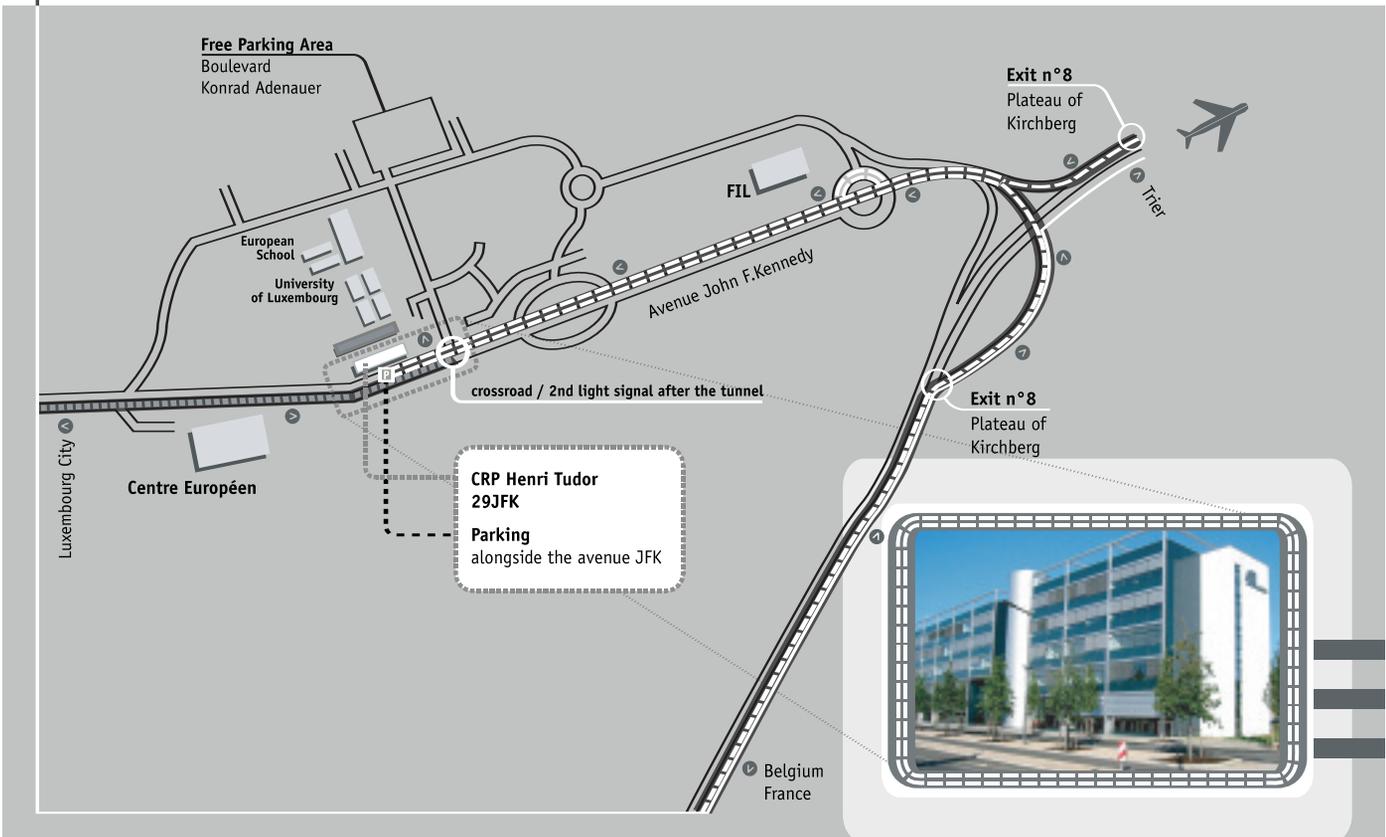
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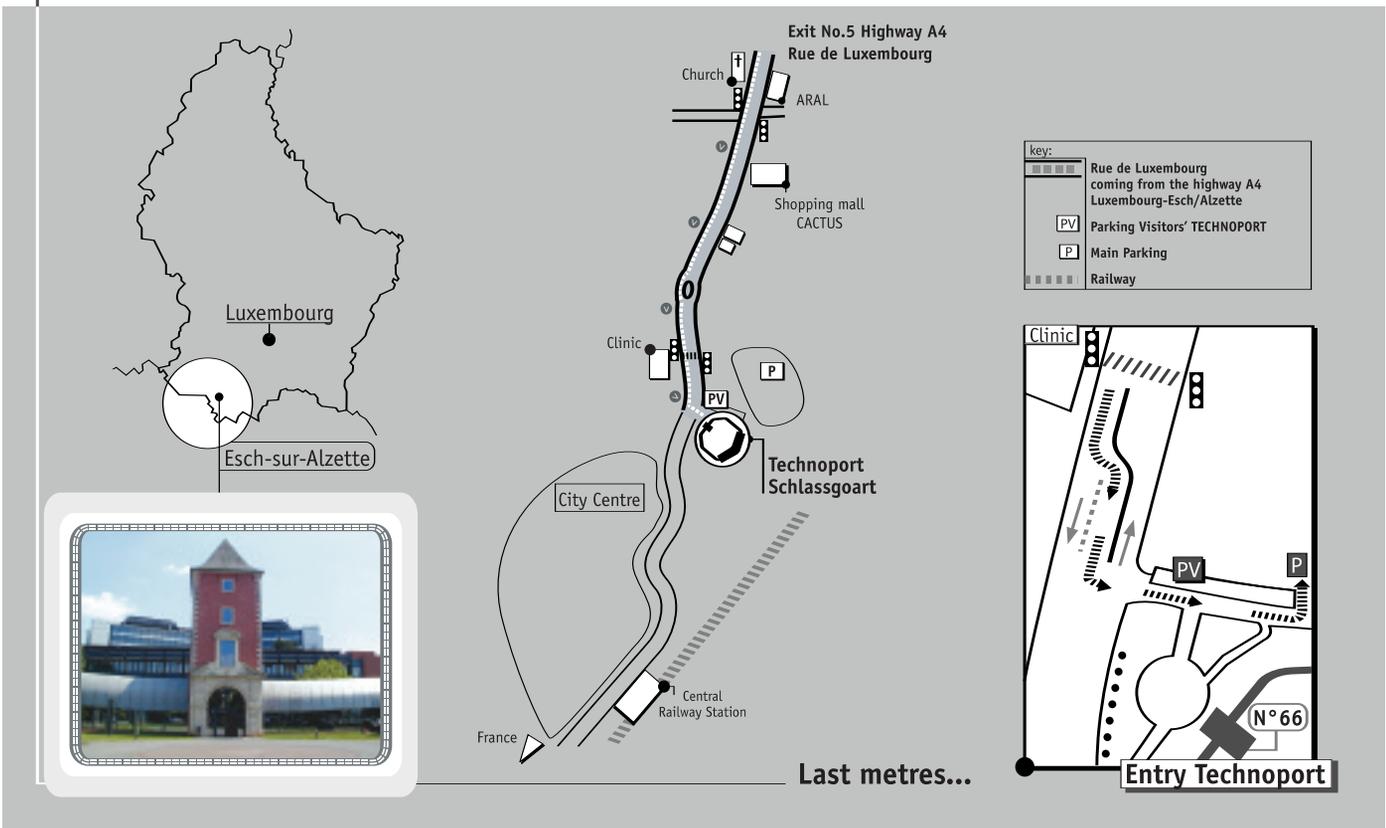
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