

## **A1 - FSTC – Faculty of Science, Technology and Communication**

- Medicine

# **3<sup>rd</sup> four-year plan of the FSTC**

the Faculty Council proposal

version of July, 2013

Faculty of Science, Technology and Communication

## 1<sup>st</sup> and 2<sup>nd</sup> 4YP

Our four-year plans (4YPs), by definition, have to be tools for the FSTC to continue to develop and fulfil its mission and vision: knowledge creation and publication at the highest international level, high teaching quality to produce valuable graduates and well functioning technology transfer towards the society. The FSTC has experienced a significant growth over the last two 4YPs, as well at the level of the input, i.e. staff and budgets, as at the level of the output, i.e. teaching programmes, graduates, research projects, external grants and publications.

### 1<sup>st</sup> 4YP

During the first 4YP, the FSTC was in charge of three of the seven top priorities: security in IT, systems biology and materials science. At the end of the 1<sup>st</sup> 4YP, the first two had done so well that they formed the basis for two Faculty-independent structures, the two first Interdisciplinary Centres (ICs) of the UL, SnT and LCSB. Materials science developed well over the 1<sup>st</sup> 4YP. The first externally funded chair of the UL and the first Attract fellow of the FNR are members of the research unit in physics and materials science (PhyMS). Lack of space prevented the further development, though. The non-prioritised areas of the Faculty were not less successful and succeeded in recruiting at a high international level and in building up successful research and teaching programmes.

### 2<sup>nd</sup> 4YP

Among the five UL top priorities of the 2<sup>nd</sup> 4YP, none was under the full responsibility of the FSTC. But, since the two ICs remain strongly linked to the Faculty, our main efforts went to the continuous support of the two priorities carried by these centres, security in information systems and systems biomedicine. PhyMS continued its development. Two additional Attract fellows and a professor joined the team. The research efforts became completely focussed on condensed matter physics after the retirement and replacement of another professor. As a new additional initiative at the Faculty level, efforts were put into the further development of the Research Unit in Mathematics (RMath). Topics like algebraic number theory and stochastic modelling that allow intense interaction with other research units were added. This actually set the basis for the computational science initiative of the 3<sup>rd</sup> 4YP (see below). Engineering sciences, through the more strategic replacement of retiring colleagues, and the association with the geophysicists, were also able to achieve more focus. This development positioned the Faculty to become a main partner in the 3<sup>rd</sup> 4YP trans-faculties initiatives on entrepreneurship and sustainable development.

## Cornerstones for the 3<sup>rd</sup> 4YP

This 4YP is going to be governed by some limitations independent of the UL as well as by opportunities offered by such a time of modest growth.

- **Uncertainty of location and timing.** Most likely, the different components of the FSTC will move separately during different time periods to the new campus in Belval. According to current estimations these moves will take place between 2015 and 2018. The timing of the availability of the premises for the different RUs will therefore be a challenge for the 4YP.
- **Budgetary constraints.** The overall budget of the University, as well as the structural budget lines of the FSTC, will not show an evolution comparable to those of the 1<sup>st</sup> and 2<sup>nd</sup> 4YP. Only a limited growth can be expected.
- **Consolidation.** The FSTC has had a rapid growth over the first two 4YPs concerning its research units, its research priorities and its teaching programmes. Consolidation is now needed in order to stabilise the created competences and administration will have to be strengthened.
- **Quality assurance in teaching and research.** Although it is part of the consolidation process, quality assurance will be treated separately, since it will be a major topic of the 3<sup>rd</sup> 4YP. The limited growth of this plan is an excellent opportunity to invest in this aspect.
- **Multidisciplinarity against isolation.** The FSTC is scattered over different campuses and its current links with the ICs and other faculties are hampered by different locations. The separate moves to Belval will increase the tendency towards isolation. The 3<sup>rd</sup> 4YP will have to counteract this process. Programmes linking different RUs,

RUs and ICs, different Faculties or even going beyond the University will not only be encouraged, but built into the 4YP.

- **External Evaluation.** The Panel for External Evaluation in its 2012 analysis made several recommendations. These will be part of the 3<sup>rd</sup> 4YP.
- **Keeping the momentum.** As mentioned above, the FSTC has known a significant growth over the two previous plans. This created a positive culture of development within the Faculty. By allowing a limited and focussed development over the next 4YP, this attitude should be kept alive.

One unique aspect of this plan as compared to the previous ones is that the different Faculties and Centres are proposing to develop priorities across the structures. The goal of simultaneously investing in priorities across the Faculties will allow the University to establish teaching and research programmes with a more comprehensive view, i.e. a mix of the scientific and the human aspects, of any one theme.

In this document, we define and justify a 4YP that supports this vision. Consolidation without losing the momentum will be the leitmotiv of the 3<sup>rd</sup> 4YP of the FSTC. The two previous plans have shown the path for our development. This third one should allow us to increase the quality of what we are doing.

Four groups of priorities (as defined in the main document) will be detailed here:

- I. Central priorities;
- II. Second tiers priorities;
- III. Interdisciplinary centres;
- IV. School of medicine

#### The main topics

According to these levels, the Faculty will focus its efforts on:

- I. Computational sciences
- II. Physics and Materials Science, Entrepreneurship and Innovation and sustainable development
- III. Security in information systems and systems biomedicine
- IV. Biomedical education and medical training

The two top priorities for the FSTC in this selection are:

- Computational sciences
- Physics and Materials Science

In addition to these scientific topics, which will impact our teaching and research activities, the Faculty needs to strengthen its administration with a special emphasis on quality assurance.

#### Computational Sciences

##### Rationale and Context

Computational Sciences is the interdisciplinary combination of mathematical modelling and computer science/computer engineering with specific applications to various scientific domains such as physics, engineering and life sciences. Modern science and engineering, (leading the way for medicine, business, government and even the organisation of individual lives) increasingly depends on the efficient and robust analysis of volatile, uncertain, complex and ambiguous systems on the basis of high-end models, integrated information technologies and advanced computational methods. Therefore, scientific computer programs and application software are developed across disciplines for collecting, generating, and analysing massive amounts of data, typically using purpose-built high performance computers. With the emergence of scalable High Performance Computing (HPC) solutions, of grid and cloud computing, and of inexpensive special-purpose hardware to create 'desktop supercomputers' appropriate for specific tasks, computational sciences are becoming feasible and reasonable for an exploding set of application domains. Experiments and theory are considered as the



first two paradigms for scientific exploration and discovery. Ken Wilson, Nobel Prize awardee in physics, coined computation and simulation as the third paradigm for scientific explorations. A fourth research paradigm which has emerged and which is considered as distinct from simulation, is the analysis huge amounts of readily available data based on mathematical or computer science techniques for system identification. With the help of advanced mathematical modelling and analysis combined with a better understanding on how to process such models with available computing capabilities, not only classical scientific problems are solved much faster, but also challenging problem classes that were beyond access can be addressed. The Computational Sciences approach, by using sophisticated modelling and analysis methods, effectively complements experimentation while reducing the need for resource-intensive, expensive testing and permits examination of impossible or inexpedient virtual situations. Examples range from the prediction of molecular dynamics at the small scale, to climate modelling at the scale of our world, to the formation of galaxies and star clusters.

The central observation is that the close interaction of application-driven scientists, mathematicians and computer scientists is vital for a successful research in all disciplines involved. The combination and interaction of mathematics, applied sciences and computer science should be understood as the key concept of Computational Sciences, providing the interdisciplinary expertise necessary for successful investigation of challenging problems in academia and industry (including physical, cyber-physical and software embedded systems, biological systems, and complex materials).

#### **Stakeholders in Computational Sciences**

The FSTC already has competencies widespread over its research units that are indirectly related to computational sciences, which have been started by the FSTC during the 2<sup>nd</sup> 4YP. However, the harmonisation and mutual assistance of those pursuing this approach has grown sporadically and is still somewhat in its infancy. Within this proposal we intend to promote Computational Sciences at the heart of key research challenges, combining mathematical competences like analysis of complex systems, stochastic and analytic modelling (RMath), with computer science tools and algorithms (CSC), and with industrial application expertise from engineering (RUES), empirical software engineering (CSC) and from empirical disciplines, like condensed matter physics (PhyMS), life sciences (LSRU) and geophysics (RUES). The two ICs, SnT and LCSB, are highly involved in all three components of Computational Sciences. SnT together with the CSC research unit are part of the trend to virtualise computing power (cloud, HPC), communication means and storage capacity (Big Data). Many central key computer science research challenges are directly related to computational sciences: multi-objective optimisation models, search-based and constraint-solving algorithmic, parallelisation, powerful simulation environments, security, empirical software engineering and fault tolerance. Several colleagues from the FLSHASE (social sciences and psychology) and from the FDEF (finance and economics) are interested in this topic and will participate in the initiative. The same applies to several divisions at CRP Henri Tudor, which will be a welcome external collaboration within Luxembourg.

#### **Development opportunity**

In our view the Computational Sciences project has the perfect combination of consolidation and innovation aspects we are looking for at this time of the UL development. The uncertainty of the development of lab space will not hinder its advancement. A number of topics dealt with in the priority on materials science are closely related with the proposed initiative.

Raising awareness of this interdisciplinary field to the FNR and pushing for introduction of Computational Sciences as future research priority being well reflected in the FNR funding instruments is seen as being essential.

Furthermore, High Performance Computing (HPC), one of the foreseen UL investments, will be an integral part of this project. A user group will be created to share experience and best practices. A scientific support team will also be created under the supervision of a professor specialised in one of the above-mentioned research fields related to the extensive use of computing capacity (simulation, optimisation, security). The scientific support team will help involved faculty members to take full advantage of the local HPC facility and will manage the use of external resources (grid, cloud).

To help establishing the necessary interdisciplinary research community involved in Computational Sciences, a virtual coordination structure will be created, in order to facilitate and foster collaborations by establishing a common forum. Moreover, common strategies for

further developments will be devised in this context. FSTC proposes to take the lead in creating this instrument.

#### Required Infrastructure

Complementing expertise. Available UL competences in Computational Sciences have to be consolidated and strengthened by new positions in relevant fields in order to reach high-level and internationally visible expertise in all of the science domains involved. This requires the recruitment of 5 additional professor positions, as well as three scientific support positions, and one FTE for administrative support. These positions will be associated to existing research units and will – within their academic profile – bridge the various inter-related scientific disciplines and ensure sustainable scientific activity inside the Computational Sciences framework simultaneously at the doctoral, post-doctoral, team leader and professor level.

Equipment. For promotion of computational sciences, particularly at the MSc level where the tools of contemporary research are typically introduced as well as within the doctoral schools, a suite of dedicated client computers at each of the involved campuses (CK, CL, Belval) would be very desirable. These class room clients can connect to a specialised education-purpose small-scale CPU/GPU HPC environment to allow students to experiment with parallel computing techniques while remaining isolated from the very expensive machinery used by more experienced researchers. Investments into the general IT infrastructure of the University, including high-bandwidth network interconnect of the campuses and professional backup solutions, are necessary.

#### Contribution to UL study programmes

In the frame of the UL *doctoral programmes*, the virtual structure to be developed will help to initiate and bring forward interdisciplinary PhD projects based on co-supervision. In a medium run, an interdisciplinary doctoral programme in *Scientific Computing* may be offered by the Doctoral School of Computer Science and Computer Engineering. Establishing, in the long run, a specific doctoral school of computational science is not excluded.

Interdisciplinary *summer schools* in the domains associated to Computational Sciences, such as the recently initiated '*Luxembourg Summer School in Computational Engineering Sciences (CES)*', may become an important attractor for early-stage researchers and young investigators at the PhD and PostDoc level and increases the visibility and outreach of research and education activities.

In the frame of the existing *master programmes*, certain tracks or course modules related to Computational Science will be established, if appropriate.

- Open lecture courses for different master programmes will be offered. Based on the experience to be gained within the next few years, it will be decided whether, it makes more sense, to establish a master dedicated to computational science, or, to support the Computational Science tracks in other master programmes.
- For example, after further consolidating and stabilizing the research direction '*Mathematical Modelling*' in the Mathematics Research Unit, the **Master of Mathematics** will be augmented by a 3rd track (beside the existing tracks on general mathematics and financial mathematics) on modelling and simulation.
- Another example could be a future '*Scientific Computing*' profile proposed in the **Master of Computer and Information Science (MICS)**. This profile could profitably share courses with the actually offered '*Adaptive Computing*' profile.
- Within the **Master of Condensed Matter Physics** it would also be very interesting to offer a specialization in computational methods. Condensed matter physicists develop and apply atomistic simulation techniques in soft matter and biophysics, as well as electronic structure computation and quantum chemistry.
- Within the **Master of Integrated Systems Biology (MISB)**, modules could be integrated that facilitate interdisciplinarity and bridges to the other Faculties of the University or to other international projects like ELIXIR.
- The new **Master in Civil Engineering** and **Master in Product Engineering** have high demand in combining programming skills and computational methods knowledge with the solution of academic and industrial problems associated with '*Computational Engineering Sciences*'. Typical domains are '*Computational Mechanics*' of single-field (solid and fluid mechanics) and multi-field problems (thermo-mechanical-electro-chemical) including e.g. multi-scale, smart materials and sustainable energy converter systems, as well as '*Computational Process Engineering*'.

## Physics and Materials Science

The **Physics and Materials Science Research Unit (PhyMS RU)** focuses on Condensed Matter physics. Experimental and theoretical groups join forces to understand and develop materials with new properties. The functionality of any modern technical product depends critically on the **specific properties of the materials used**. Novel materials based on polymers, metals, semiconductors, composites, or nanostructures represent **challenges to basic research** in terms of understanding existing materials and developing new ones. Condensed matter physics is about **explaining and predicting** the relationship between the **atomic and electronic structure and dynamics of materials on the microscopic level** and their **properties** (such as color, elasticity, conductivity, ...) **on the macroscopic scale**. Activities in the RU range from the electronic and spin structure of semiconductors and nano-materials to the thermodynamics of soft matter and composite materials.

The main goals of the RU PhyMS are:

- performing high level fundamental research in physics and materials science;
- applying fundamental research results to technical challenges;
- providing excellent teaching for students in bachelor and master courses in physics;
- building bridges between academic teaching and modern research;
- applying physics teaching and research in other disciplines (e.g., life sciences, engineering, ...).

The unit possesses state-of-the-art equipment for the preparation and characterisation of materials, as well as for high performance computing. Its members publish in high-impact journals and are involved in international networks. They have been highly successful in attracting third party funding on a national and international level. Strong fundamental research in physics and materials science also lays the foundation for a successful teaching programme (the Bachelor has been running for several years now, the Master programme in condensed matter physics will start in autumn 2013). By performing cutting edge research and by a strong commitment to excellence in teaching, the unit will help to attract and educate the smartest brains of Luxembourg, the greater region, and beyond. Studying physics and mathematics can lay the foundation for an academic career in science. Equally (and, indeed, more often) it leads to successful careers in applied research and development, in industry or in government agencies. Furthermore, physicists find jobs in consulting companies, insurances, banks etc., wherever modeling and analytic skills are required.

Within the FNR's CORE programme, "new functional and intelligent materials and surfaces" is one of the five principle thematic domains. Previously, the RU has been highly successful in attracting research funding in this domain and it will certainly continue to place high-level proposals in this topic. The challenges in the national context are numerous: there are many R&D activities on materials and surfaces in the industrial sector focusing on polymers, on composites and multicomposites, on ceramics, on metals and alloys. Academic research on materials with new properties will contribute to the enhancement of the competitiveness of Luxembourg based industries. It will also increase the chance to attract new highly innovative companies to the country, thus playing the role of an enabler for new economic activities. Industrial competitiveness needs innovation in high-added value products, related processes and technologies. The activities of the RU stretch from the fundamental level of basic research, which enables future innovation and technology developments, to the research on materials and processes with a short-term application, which is evident in various industry collaborations of members of the RU.

Research on materials is also an important activity of the CRPs Lippmann and Tudor. The RU PhyMS is in the process of extending the connections to these CRPs. This will be a win-win situation: the CRPs, which are concentrating on rather applied research, could benefit from the fundamental research of the RU, and the RU could further develop some of its experimental activities by making use of the impressive laboratory infrastructure of the CRPs and it could benefit from the CRPs' large experience in material analysis. A first step towards closer collaboration between CRP Lippmann and UR PhyMS has been made by the hiring of Jens Kreisel as the new director of SAM at CRP Lippmann. The university has awarded the title of honorary professor to Dr. Kreisel and two joint research programmes on the Raman spectroscopy of multiferroic materials (collaboration of Prof. Kreisel and Wirtz) and on photo-ferroelectrics (collaboration of Prof. Kreisel and Siebentritt) have been launched. Furthermore, the Laboratories for Photovoltaics and for Energy Materials of the RU make already extensive use of the materials characterisation possibilities at CRP Lippmann. This has been manifested

by the CRP Lippmann being a partner in the FNR funded ACCESSED project running between 2009 and 2011 and it being a third party funded partner in the EU Scaleno project currently running with the Laboratory for Energy Materials (2012-2015). The long-term goal is the building of a common spectroscopy platform where the CRP contributes its expertise on secondary ion-mass spectroscopy, photoelectron spectroscopy and Raman spectroscopy and the RU brings in its expertise in luminescence spectroscopy, Brillouin spectroscopy as well as electro-optical characterization of semiconductors. An ambitious 10-year programme will be worked out between the UL and the CRPs in the coming months. In the context of soft matter composites, Dr. Valerie Toniazio (CRP Tudor) and Prof. Schilling are currently exploring their common ground for future projects. With Physics and Materials Science being a priority of the university, the role of the RU in these collaborations is strengthened.

The research priority in materials science will help to establish the university as a full multi-disciplinary research institution that is competitive on an international level in several areas of science. It will foster the collaboration between the public research institutes in Luxembourg, support industrial activities in novel materials and help to diversify the economy of the country through the creation and transfer of knowledge and modern state-of-the-art technology. The development of the RU has been hampered in the last years by a lack of space. This problem can now be solved, thus enabling the RU to further strengthen its position.

Research and technology transfer in the field of materials science is becoming a national priority within the involved public research institutes: the 2 CRPs Lippmann and Tudor (which are about to join their efforts) and the UL. These combined efforts will bring together more than 300 researchers. For this, beside the open position from the previous plan, additional new positions will be required during the 3<sup>rd</sup> 4YP: two in theoretical condensed-matter physics and two in experimental condensed-matter physics (one of these being the 2<sup>nd</sup> 4YP position that was lost following the budget cuts of 2013). In addition, in the framework of the planned close collaboration with the CRP Lippmann, we suggest the opening of a joint-professor position in experimental surface physics to be financed 20% by the University (teaching) and 80% by the CRP Lippmann (where the candidate's research group will be located). These new research teams will allow the RU to play its role in the consortium as well as to carry the Master programme in condensed matter physics.

In addition, in order to further develop the academic part of the research carried out by the consortium, a doctoral school in condensed matter physics will be created (this will need a 0.5 FTE administrative support).

### Entrepreneurship and Innovation

Promoting entrepreneurship and economic diversification of the Grand Duchy of Luxembourg are priorities of the Government. Heavy investments in key sectors in high-level research, particularly within the University of Luxembourg have been undertaken. Thus, increasing the awareness and skills of students and faculty in the domain of entrepreneurship as well as increasing the interaction between the academic and the private sectors would allow a valorisation of the government's efforts. In order to facilitate these objectives, the FSTC together with the Luxembourg Business Academy (LBA), proposes to create an interdisciplinary initiative that includes: (1) developing teaching modules for technology oriented students, (2) developing an infrastructure to support students and researchers that desire to expand a high-technology idea into a business venture, (3) to develop a 60 creditpoints Master's degree in entrepreneurship and standardisation (life-long learning) and (4) to carry out research combining the fields of entrepreneurship, innovation and engineering science in the domain of product creation.

(1) The first component of the proposal involves the provision of entrepreneurship modules for technology and science-oriented students. At present, the Masters course in Entrepreneurship and Innovation (MEI) is the only university course offering modules in entrepreneurship to master's students. Although successful in offering a one-year course in the area of management, master's students from the engineering and science domains of the UL do not have access to entrepreneurship education. Such an initiative would, beyond the education added-value, foster a fusion and positive inter-relationship between scientific and business students.

For the program to be effective, science and engineering students have to acquire both the necessary skills bringing them into the business world and the vision and the experience of engineers/scientists that have been successful at transforming their high-tech vision into a business.

Actions: Awareness raising / Equipping students with entrepreneurial skills

- Entrepreneurship modules within Master degrees including cross disciplinary courses/works
- Entrepreneurship programme including the PhD doctoral schools lectures
- Mixing together students in different science areas (business and science)

(2) The University of Luxembourg has many talented students and researchers involved in developing technological solutions. The commercial advancement and valorisation of these solutions is currently underexploited. In addition, students/researchers are not able to fuse their technical advances with business acumen. National and foreign researchers completing their studies at the university represent a huge potential for starting up business, spinning off new companies. Keeping talents in the country is also part of the Luxembourg economical challenge. In order to address the present under-exploitation of these talents, the second component of the proposal involves the development of an infrastructure, an Office of Entrepreneurship, to assist faculty and students to developing their technological ideas into a potential business. The office would be responsible for developing several parallel initiatives summarized in the next actions.

Actions: Research-Entrepreneurship linkage

- Detection of projects with high exploitation potential. Creation of a pool of key projects/competences
- Matchmaking between engineers/scientists and potential business partners/entrepreneurs. Linkage and Mentoring
- Start the accompanying measures of the creation of the start up
- Organisation of events
- Facilitation of public-private research projects (FNR-MECE)

To achieve these first two goals, the FSTC would need one technology officer/coordinator with experience as a technology-entrepreneur as well as a professor position.

(3) Standards and standardisation play an ever-increasing importance in innovation and their strategic use give a decisive competitive advantage in today's industry. Together with the LBA and the ANEC, the FSTC will organise a 60 creditpoints master programme on standardisation and innovation. Typical candidates for this programme are professionals from domains like IT or engineering. The fees should cover the costs of the programme.

(4) The FSTC wants to further strengthen its research potential in the domain of product creation / design as well as the product life combining the fields of entrepreneurship, innovation and engineering science.

## **Sustainable Development**

The largest environmental and societal issues that we face today are global warming, the increasing demand on natural resources (energy, water, biodiversity) versus the growing scarcity of these resources, and the growing socio-economic inequalities, that lead to geopolitical crises. The only way to address these issues properly is to adopt a multidisciplinary approach that combines insights from the natural and social sciences. Sustainable development integrates concern for the limitations of natural systems with the social challenges faced by humanity.

As a theme, sustainable development is already extensively developed within the University.

In 2009, in collaboration with the University of Liege (Arlon), RUES began a Master Professional entitled Master en Développement Durable. The UL originally contributed only one-semester to the 4-Semester programme. Recently, the programme was redefined so that UL contributes 50% of the teaching. The new curricula now allows for the participation of many of the recently hired professors of the RUES. The curriculum is also supported by vital contributions from the members of the FLSHASE. The programme is very popular, drawing 30-45 new students each year. However, the structure of the programme needs further work. The "Cell for Sustainable Development" was established in March, 2009 to serve "as a formal



platform for the establishment of cross-faculty courses and research projects, and ensure their connection to campus management, strategic planning, and to related activities in Luxembourg, the EU and international organisations."

Three new master programmes have also been approved by the CG. These include: the Master Professional in Science and Engineering, Efficacité Energétique et Economique; the Master of Science in Engineering, Sustainable Product Creation; and the Master of Science in Civil Engineering, Megastructure Engineering with Sustainable Resources. In January 2013, the CG approved the creation of a Certificate in Sustainable Development and Social Innovation in FLSHASE. The certificate aims to provide an improved understanding of the complex challenges, choices and trade-offs that people face with regards to sustainable development.

In addition to these initiatives, there are no less than 10 professors in FSTC and several professors in FLSHASE with research focuses in the area of climate change, energy, and sustainability. In the FSTC, the research projects of PhyMS include photo-voltaics, semi-conductors, energy generation, usage, consumption, and waste, batteries, fuel cells, thermodynamic efficiency at maximum power, optimization problems such as minimizing the dissipation or heat generation, optimization of various types of energy transduction. These projects are funded via FNR, NSF, EU FP7, FNR-CORE as well as industry (Bosch and TDK). In CSC, several projects on "Green-IT" focus on energy efficiency in data centres as well as smart grids. The RUES has several projects on modelling and planning transport, traffic theory and management, mobile sensor networks, and managing mobility and travel demands, on electro-mobility, on the combustion and gasification of biomass for producing electricity, on the efficiency of thermal processing of raw materials to produce less CO<sub>2</sub>, on energy efficiency of buildings, on producing energy saving light-weight structures, lean and efficient management. The geophysicists perform research to understand the effects of climate warming, e.g. ice mass change in Greenland and Antarctica, sea level rise, atmospheric water vapour, and the global and regional water cycle and are funded by the FNR, ESA, and the DFG.

Clearly the foundations and much of the expertise required for further developing the theme of Sustainable Development already exist within the separate Faculties at the UL. However, solving many of today's social and environmental issues requires a multidisciplinary approach that is currently missing. Further, a plan to coordinate the growth of the theme between Faculties that would optimize resources at the scale of the University is also lacking.

To address these issues, the goal of the FSTC, in collaboration with FLSHASE, FDEF, and the existing Cell for Sustainable Development, is to firmly establish a sustainable development initiative to insure that 1) resources between Faculties are optimized; 2) the existing programmes have the correct balance of natural science, engineering, economics, social science, and perhaps even international law; and 3) to explore the creation of a cross-Faculty bachelor degree in Sustainable Development.

Toward addressing these goals, the 3 Faculties propose the creation of a committee with representatives from each Faculty. For the first goal, the committee representative of each Faculty will inform the others of the resources available. For the second goal, the committee will work with the course directors of existing teaching programmes to enhance the content so that the interdisciplinary nature of sustainable development is given adequate attention. The realisation of this effort would most likely be through offering optional courses. The third goal, exploring the possibility to create a cross-faculty bachelor degree, is a longer-term project (to start in the 4<sup>th</sup> 4YP). The development of a cross-faculty bachelor programme poses many problems that would need to be addressed by the above-mentioned committee.

To support this initiative, the FSTC request resources at the level of an Assistant Researcher in the next 4YP.

#### **Security in information systems and systems biomedicine**

The lead in these domains is clearly established within the two ICs. But, the FSTC remains tightly linked to these topics, and the colleagues involved will continue their efforts for the further development and strengthening of these research priorities. The scientific content of these two research domains are detailed elsewhere (see documents by the 2 ICs). The FSTC will also continue to provide its help in the recruitment procedures as foreseen by our internal regulations.

One of the topics developed by both ICs and the FSTC is image analysis and 3D image construction (for instance in microscopy or security surveillance). For the FSTC, this topic will involve the RUs in life science, computer science, mathematics and probably engineering sciences and is clearly linked to the priority computational sciences.

As mentioned by the External Evaluation Panel, the 3<sup>rd</sup> 4YP should be used to strengthen the cohesion between the FSTC and the ICs. Common meetings (Faculty Council, RU meetings, interim board, etc.) are already in place and will be extended.

#### **Medical training**

A feasibility study will determine in 2013 whether the request of the government to develop the entire initial training in medicine will be followed. If this is the case, a School of Medicine will be developed. Currently, an ad hoc task force is developing the concept. During the 3<sup>rd</sup> 4YP, only the bachelor programme would be started.

The FSTC will need a strategy to build up such a programme without jeopardising the normal functioning of the Faculty. This School will be a FSTC-attached structure that has a greater autonomy than a normal teaching programme. The Luxembourg School of Finance could be a model. The teaching could start in the middle of the 4YP with a limited number of students (25 students to start). This programme will need intensive planning and the setting up of a regulatory and contractual framework with hospitals and partner universities abroad.

The recruitment of a head, two professors and a secretary will be necessary within this 4YP.

#### **Teaching and Learning**

The offer at the level of the Master in Integrated Systems Biology will be extended by an additional track on molecular biomedicine.

Following the introduction of a curriculum in medicine, the certificates in pharmacy and in medicine will be stopped.

The Faculty will restructure its academic Bachelor programmes.

#### **The FSTC's quality enhancement and assurance plans for teaching, learning and assessment (TLA) and research.**

Following the recommendations from the external evaluation board, there is a clear need of quality enhancement and assurance plans at the level of the Faculty. The FSTC management wants to resolutely address these concerns and actually has already started to work on possible solutions.

In collaboration with expert advisors from Deloitte, strategic objectives for TLA quality assurance in our Faculty is being designed and its related dashboard of quality indicators is being developed. Next steps include internal communication in order to achieve stakeholders (eg. course directors, teachers) commitment and to keep their maintained engagement. By the end of 2013, the TLA plan will be defined and validated. We plan to implement its dashboard of quality indicators as well as the first initiatives to reach the objectives stated in its strategy, in 2014-2015. To reach these aims, the Faculty will hire a full-time collaborator in charge of the management of its quality plan, early 2014 (mentioned below).

The second half (2016-2017) of the next 4YP will be devoted to the design and the early implementation of an equivalent quality enhancement and assurance plan (strategic objectives, dashboard of quality indicators, evaluation of prioritized as well as non-prioritized research disciplines, quality enhancement initiatives, etc.) for research in the Faculty, within its research units and within its interactions with the associated ICs. One of the new research facilitators will help with this mission.

Quality enhancement and assurance goes along with staff development and training (for all staff). Such measures will be organised by the FSTC and will underpin the period 2014-17.

#### Administrative development of the FSTC

A well functioning administration is a prerequisite for the functioning of a Faculty, and will help to facilitate both research and teaching. The administration (organisation and management) has to remain the tool, and not an "end in itself".

During the last 4YP it became clear that the FSTC is lacking administrative support in crucial areas, and that's why additional administrative staff will be required.

1. With regard to the overall quality management (teaching & learning, research, and management), a good basis has been laid with the development of management processes (BPM) and a study carried out with Deloitte in order to establish a dashboard of indicators for teaching and learning. However, to maintain and continue these efforts, one quality manager position is needed (1 FTE).
2. The growing number of students registered, as well as planned new study programmes (Bachelor in medicine; three new Master programmes in Engineering Science, additional tracks in computational sciences, one LLL master programme in Entrepreneurship and Standardisation), will need more staff in our students office. At the moment, the existing programmes are managed by only 4 members of staff. The FSTC needs additional manpower (2 FTE).
3. The recruitment of two research facilitators in 2010 turned out to be a considerable added value for the researchers. A third one (0.5 FTE) has been recruited in 2013. During the 3rd 4YP, the goal is to have one research facilitator per research unit (2.5 FTE). One of these research facilitators will also be in charge of quality assurance in research.
4. External and internal communication needs to be reinforced. As the communication department cannot cover all the needs of our Faculty, one FTE is necessary.
5. International relations are dealt with by the International Office, but we face the same problem as under 4. – the central service cannot cover our needs, and we eventually need one person to help here. It could be envisaged to combine 4. and 5. at the beginning of the 4YP, and to add another position for the 4<sup>th</sup> 4YP.



*FSTC – Annex to the 3<sup>rd</sup> 4-year plan*

**Positions**

Academic staff positions linked to existing and externally funded chair, PEARL, ATTRACT, ERC, etc.

Description	2014	2015	2016	2017	total
Andreas Michels		1			1
Massimiliano Esposito				1	1
Paul Wilmes		1			1
Karsten Hiller			1		1
Stephan Bordas	1				1
Lionel Briand				1	1
<b>Total</b>					<b>6</b>

Non-academic positions linked to these chairs

Description	2014	2015	2016	2017	total
<b>PhD positions</b>					
Andreas Michels		1			1
Massimiliano Esposito				1	1
Paul Wilmes		1			1
Karsten Hiller			1		1
Stephan Bordas	1				1
Lionel Briand				1	1
<b>Total</b>					<b>6</b>
<b>Post-docs (Ass-Ch)</b>					
A. Michels		1			1
M. Esposito				1	1
S. Bordas	1				1
<b>Total</b>					<b>3</b>
<b>Adjoints/collab. de recherche</b>					
S. Bordas	1				1
L. Briand				1.5	1.5
<b>Total</b>					<b>2.5</b>

All other new positions will be financed via the additional 3rd 4YP Faculty budget (see budget). The FSTC 4YP outlines a certain number of positions necessary to fulfil what is proposed in the document. Obviously, not all of these positions will be created via the mentioned budget. Decisions about which positions will eventually be opened, and at what time point, will be taken by the Faculty Council. The proposed research and teaching programmes will have to be amended accordingly.

## Budget

### FSTC 3rd 4YP budget

budget type	sub-structure	2013	2014	2015	2016	2017
Common	Dean's office	166,350	235,937	230 K€	230 K€	230 K€
Teaching	Bachelor programmes	1,066,460	991,054	1,000 K€	1,000 K€	1,000 K€
Teaching	Master programmes	548,500	589,000	600 K€	600 K€	600 K€
Teaching	Doctoral Schools	352,160	233,150	240 K€	240 K€	240 K€
Teaching	other programmes	0	0	10 K€	10 K€	10 K€
Research	RUs & labs	3,464,242	3,548,571	3,550 K€	3,550 K€	3,550 K€
	<b>sub-total 2013 structural budget</b>	<b>5,597,712</b>	<b>5,597,712</b>	<b>5,597,712</b>	<b>5,597,712</b>	<b>5,597,712</b>
Common	additional 3rd 4YP Faculty budget	0	528,000	1,108,000	1,744,000	2,443,000
	<b>sub-total FSTC budget (without priorities)</b>	<b>5,597,712</b>	<b>6,125,712</b>	<b>6,705,712</b>	<b>7,341,712</b>	<b>8,040,712</b>
	<b>FSTC 3rd 4YP Priorities:</b>					
Research	Computational Sciences	0	100,000	100,000	200,000	200,000
Research	Physics Materials Science	0	200,000	400,000	600,000	900,000
Research	Entrepreneurship & Innovation (pour mémoire*)	0	100,000	100,000	200,000	200,000
Research	Sustainable development (pour mémoire*)	0	100,000	100,000	200,000	200,000
Teaching	Medicine (LMS & FSMG)	210,000	510,000	3,210,000	4,210,000	6,210,000
	<b>sub-total FSTC 4YP priorities</b>	<b>210,000</b>	<b>810,000</b>	<b>3,710,000</b>	<b>5,010,000</b>	<b>7,310,000</b>
<b>Total</b>		<b>5,807,712</b>	<b>6,935,712</b>	<b>10,415,712</b>	<b>12,351,712</b>	<b>15,350,712</b>

\* these priorities are mentioned since the FSTC is a partner in these research topics, but the budgets are not taken into account here  
these amounts are only given as indications

## Performance indicators

This should be regarded as a tentative list. The Faculty, in the framework of its recently started quality assurance and enhancement promotion efforts, will further develop the precise list of well-defined performance indicators constituting a real tool to quantify the quality of our research and teaching. However, along the lines of our vision for the forthcoming 4YP<sup>1</sup>, we already decided to update and enhance our previous list in order to more closely join (where possible) the approach and the performance indicators implemented by the "Times Higher Education 100 Under 50" World University Rankings<sup>2</sup>. These universities rankings (powered by Thomson Reuters) are currently the only global university performance tables to judge young world class universities across all of their core missions - teaching, research, knowledge transfer and international outlook.

	Unit	Now <sup>3</sup> (Dec. 2013)	Mid 3 <sup>rd</sup> 4YP (Dec. 2015)	End 3 <sup>rd</sup> 4YP (Dec. 2017)
<b>TEACHING: THE LEARNING ENVIRONMENT</b>				
<b>NEW</b> the staff-to-student ratio (FSTC's total student numbers)	%	N	N + 1%	N + 3%
<b>NEW</b> the ratio of doctoral and master's to bachelor's degrees awarded by the Faculty	%	N	N + 5%	N + 10%
<b>NEW</b> the number of doctorates awarded by the Faculty, scaled against the number of its academic staff	%	N	N + 4%	N + 8%
<b>NEW</b> teaching income scaled against the number of academic staff	€ / person	N	N + 2.5%	N + 5%
the ratio of students finishing their teaching programme who started their 1 <sup>st</sup> year in the FSTC	%	N	N + 5%	N + 10%
the global participation rate at student's satisfactory survey for all the Faculty's teaching programmes	%	N	N + 10%	N + 15%
the ratio of students who answered student's satisfactory survey for the Faculty's teaching programmes who are overall satisfied	%	N	N + 2.5%	N + 5%
the ratio of FSTC's Bachelor students who made their mandatory mobility semester outside the Greater Region	%	N	N + 5%	N + 10%
the mean of ECTS credits gained by FSTC's Bachelor students student during their mobility	integer	N	N + 1	N + 2
<b>RESEARCH: VOLUME</b>				
<b>NEW</b> the number of papers published in indexed academic journals (ex.: Web of Knowledge & DBLP) per academic staff member of the Faculty	integer / person	N	N + 2%	N + 5%
the number of patents	integer	N	N + 5%	N + 10%
the proportion of research-active academic staff	%	N	N + 2%	N + 4%
the number of Attract / Pearl projects	integer	N	N + 2	N + 3
the number of ERC grants	integer	N		N + 1
the number of cross-faculty/cross-disciplinary research projects	integer	N	N + 2%	N + 4%
<b>NEW CITATIONS: RESEARCH INFLUENCE</b>				
the number of times a Faculty's published work is cited by scholars globally, scaled against the number of its academic staff	integer / person	N	N + 4%	N + 8%

<sup>1</sup> "Consolidation without losing the momentum will be the leitmotiv of the 3rd 4YP for the FSTC. The two previous plans have shown the path for our development. This third one should allow us to increase the quality of what we are doing." [same document, p. 3]

<sup>2</sup> "The Times Higher Education 100 Under 50 is a ranking of the top 100 universities under 50 years old. It provides a glimpse into the future, showcasing not those institutions with centuries of history, but the rising stars which show great potential." [ <http://www.timeshighereducation.co.uk/world-university-rankings/2013/one-hundred-under-fifty> ]

<sup>3</sup> The current situation (values of performance indicators) has to be measured before the end of the current 4YP: update of the known values for the already existing indicators, implementation and first measurement for the 10 new indicators.

<b>NEW INTERNATIONAL OUTLOOK: STAFF, STUDENTS AND RESEARCH</b>				
the ratio of international to domestic students	%	N	N + 2%	N + 4%
the ratio of international to domestic staff	%	N	N + 2%	N + 4%
the proportion of the Faculty's total research journal publications that have at least one international co-author	%	N	N + 5%	N + 10%
<b>NEW INDUSTRY INCOME: INNOVATION</b>				
how much research income FSTC earns from industry, scaled against the number of its academic staff	€ / person	N	N + 5%	N + 10%

Next possible enhancement step towards alignment with the "Times Higher Education 100 Under 50" World University Rankings approach, would be to assign relative weight to each individual performance indicator, so that:

- 1) unique mean number for each category could be extracted, according to some computation rule inside the category that takes into account its performance indicators values and units
- 2) final global performance value could be extracted for the Faculty across all of its core missions – teaching, research, knowledge transfer and international outlook – according to the following calibration rule:
  - a. "teaching" worth 30 per cent of the overall ranking score
  - b. "research" worth 30 per cent
  - c. "citations" worth 30 per cent
  - d. "international outlook" worth 7.5 per cent
  - e. "industry income" worth the remaining 2.5 per cent.

## Development of the 'Luxembourg Medical School (LMS)'

Our recent report, commissioned by the Ministry for Higher Education of Luxembourg and accepted by the Board of Governors of the University on June 29, 2013 concludes that the creation of a Luxembourg Medical School (LMS) at top international level is entirely feasible in terms of finance and suitability of existing University as well as Hospital expertise.

### *Our vision is to*

- *provide first-class highly individualized training in medicine as a science and an art of human values, social responsibility and compassion for the future doctors of Luxembourg*
- *contribute to the future health economy of the nation.*

LMS will provide a unique opportunity to

- provide talented young Luxembourg residents with medical education, presently a major problem, and to secure future medical coverage of the nation. Present EU legislation permits 70% of students to be Luxembourg residents.
- boost to an unprecedented extent the development of bio- and health technology, one of the four pillars for the future economic development of Luxembourg identified by the government. Specifically, in the future cross-border health market in Europe, Luxembourg's major hospitals will attract numerous new patients if they excel as teaching hospitals;
- further increase the international standing of the University by optimising the use of existing talent, recruiting new top-level translational scientists and bringing together present institutions ('Centre de Recherche Publique Sante', Universite de la Grande Region etc.). Of note, the vast majority of leading international Universities have a Medical School.

We suggest to organize LMS according to the model of a 'Medical School' where much of the clinical teaching is provided by the top medical specialists already existing in Luxembourg; top research-orientated (and therefore expensive) academic staff will be recruited in focus areas, where internationally leading research and economic development goes hand in hand with teaching.


This model has the considerable advantage that expenditure will increase incrementally. To train 50% of the future need of the country, i.e. 50 students per year, and to boost research in bio- and health technology at the same time, we estimate that about € 7 million (including upfront investment) is needed in 2015, increasing to about 36 million/year in 2024. This calculation assumes a 5% annual cost increase.

Operationally, it is key to keep the LMS budget separate from (and calculate it in addition to!) the general University budget in order to prevent conflict. At 5% average increase per year, the LMS budget will always be below 20% of the general University budget (which will reach > 205 million/year assuming an average 5% increase/year).

This relatively moderate sum will deliver a high return on investment, both in terms of providing medical coverage for the nation as well as of future economic development in the bio- and health focus area.

**A2 - FDEF – Faculty of Law, Economics and Finance**

ANNEXES  
Plan Quadriennal 2014 - 2017

 UNIVERSITÉ DU LUXEMBOURG		<b>Four-Year-Plan 2014 – 2017</b>		 Faculté de Droit, d'Économie et de Finance	
Created by / on:		SB/CE/EG/HL / 11-01-2013		<b>Faculty of Law, Economics and Finance</b> <b>Innovation, Augment and Solidify, and Quality Assurance</b>	
Modified by / on :		CE / 08-04-2013 HL / 12-04-2013 SB / 16-04-2013			
Approved, by / on : (if needed)		SB 17-04-2013			
\\atlas\FDEF_Décanat\1) Décanat\60. Plans stratégique & quadriennal\Plan 14-17 - preparation\6. Full final version\Version envoyée au rectorat le 17042013\4 FDEF 2014-2017_SB_2013-04-17.doc					

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## A. MISSION

The Faculty of Law, Economics and Finance (Faculty or FDEF) made significant contributions to the University of Luxembourg's success over the last four years: we achieved many of our performance goals, with results often better than expected. Of course, we still have work to do. In the coming four years, we want to continue to contribute to the betterment of the Luxembourg community through our innovative teaching, research, and knowledge-sharing efforts, and to further strengthen our quality assurance policy, by:

- Enhancing the position of our **Research Priority in Law**, given the grade of **excellent** in the 2013 Evaluation Report,<sup>1</sup> as a **worldwide beacon for legal science**. At the end of the next four years we want this Priority to develop into the "**Luxembourg School of Law**".
- Developing our **Research Priority at the Luxembourg School of Finance**, which has come a long way in just these past four years and was given the grade of **very good** in the 2013 Evaluation Report, into a pillar of excellence and a world class centre of teaching and research in finance.
- Making significant investments in innovative research and teaching activities in **economics and management** to better **meet Luxembourg's societal and economic needs**, especially in **business and management training** and economic and social policy analysis. In cooperation with the Chamber of Commerce, we want to implement the "**Luxembourg Business**".
- Expanding the Faculty's **crucial role in transferring knowledge** to Luxembourg's society and economy, particularly by structuring and strengthening our **lifelong learning offerings**.

To achieve these objectives, we must:

- introduce and implement a more coherent overall **quality assurance system for teaching and learning**, which would include, as appropriate, ensuring that new and existing programmes comply with the **requirements of European Accreditation**;
- **augment and solidify our scientific and administrative staff** to address structural understaffing; and
- offer **better career opportunities** and a **sustainable method of internal promotion** to our academic, scientific, intermediate, and administrative staff.

Thus, over the next four years, we will need a reliable, sustainable, and efficient working environment from both a financial and legal perspective. However, we are well aware that growth at the University faces a number of constraints, particularly when seeking increased staffing and financial resources, such that we must be particularly cognizant of budgetary restrictions in addressing our needs. This is not a bad thing: it allows us to **concentrate on the above mentioned priorities**, taking only those further actions which are both **suitable and appropriate to enrich the quality of our teaching and research while bettering our internal organization**. In this regard, the Faculty is convinced that we must **strive to reshape and reinforce** an appropriate balance between academic, scientific, intermediate, and administrative staff. Such reshaping and reinforcement, which is of paramount importance, is driven by the key data set forth below (compare annexes).

<sup>1</sup> In March 2013, the Committee for the Evaluation of the University of Luxembourg, an independent committee appointed by the Ministry of Higher Education, presented its Second External Evaluation Report of the University of Luxembourg (hereinafter the "2013 Evaluation Report") in which it offered its evaluation of the University as a whole. As part of that 2013 Evaluation Report, it drew specific conclusions regarding the Faculty and its teaching and research efforts. The 2013 Evaluation Report is available at [www.en.uni.lu/university/downloads/official\\_documents](http://www.en.uni.lu/university/downloads/official_documents).



## B. THE RESEARCH PRIORITIES: LAW AND FINANCE

### I. Law

The Evaluation Report, by giving our Research Priority in Law an excellent grade, highlighted this Priority's achievements over the last four years: it succeeded both as an international leader and as a significant contributor to Luxembourg's legal system and society. Its role as an international leader is attributable, to a large extent, to its development of several well-chosen niches that relate to Luxembourg's crucial role in Europe and as a global financial centre. Our Research Priority is characterized by a unique research environment, melding teaching and research efforts from different legal cultures while placing a strong emphasis on the 'Europeanization' and Internationalisation of the law and the impact thereof on Luxembourg. The Faculty wants to provide this Research Priority – a pillar of excellence for the Faculty – the highest possible visibility in the legal community and to nurture its continuing development over the next four years. In that regard, we intend to augment and solidify our team, particularly in the following fields, each of which has an enormous impact at both the national and European levels.

- **Banking and Financial Law:** The axis of research in Business Law requires a comparative approach because Luxembourg, as a financial centre, competes with all the other financial centres on a global basis. The financial crises engendered a number of reforms to existing financial regulation. Our staff will continue to develop concrete solutions to regulatory problems and are carefully analysing the normative, ethical, and empirical context of financial market regulation.
- **European Law:** Our European law axis remains concentrated on an analysis of the emerging European legal framework, which is a composite legal system transecting elements of national, supranational, and international law in the quest for effective judicial protection. In this regard, we intend to pay particular attention to the establishment of an EU Unified Patent Court (UPC)<sup>2</sup>; as the UPC's Court of Appeal is to **be seated in Luxembourg**,<sup>3</sup> **it presents a unique opportunity for the University to enhance our research and educational efforts in the ever-growing areas of European intellectual property and patent protection.**
- **Tax Law:** Our research and teaching efforts in Luxembourgish, European, and international law will continue to rely on the financial support ATOZ, the Luxembourgish tax consulting firm that generously granted the endowment needed to create the ATOZ Chair in European and International Tax Law. As Luxembourg has one of the most extensive double tax treaty programs in Europe (with 64 such treaties in force and more, based on an OECD model, being negotiated all the time), which promote foreign investment in Luxembourg, our Priority's research efforts will continue to focus on (a) the influence that OECD Model Double Taxation Convention on Luxembourgish practice, and (b) the effects of efforts at the European Union level to harmonise in this area on Luxembourg's tax system.
- **Media, Satellite Communication and Intellectual property:** Luxembourg is a media hub for not only traditional media (such as RTL) and communication network providers (such as SES), but also for providers of new information technology services; thus, the legal framework governing these players is of the utmost importance for future development of the industry in Luxembourg. With SES as its partner – it generously provided an endowment to fund the SES

<sup>2</sup> On February 19, 2013, most of the Member States of the EU signed an Agreement on a Unified Patent Court (the UPC Agreement), which agreement will come into force on the later of January 1, 2014 or the date on which 13 Member States (which must include France, Germany and the UK) ratify said agreement.

<sup>3</sup> See the UPC Agreement at Article 9(5).

Chair in Satellite Communications and Media Law – not only will our current research projects continue, but they will be expanded to include an analysis of all aspects related to this field of law, from telecommunications to space law. Moreover, the interdisciplinary approach of several on-going media and data protection law projects concerning internet services, such as cloud computing, will be reflected in a key project called "Communication in the Third Millennium". With research partners from all of the University's Faculties, the SnT, and a number of international university and industry partners, this project will focus on legal, technological, and social aspects of communication: its guiding questions ask if the technological possibilities of modern communication correspond to the capacity of human beings to absorb, qualify, utilize, and protect the information sent and received. Do the constantly-changing character, content, and media for the exchange of an ever-increasing volume of information at ever-faster speeds have the potential to fundamentally change individuals and societies and, therefore, necessitate answers concerning the current or possible economic, cultural, and social impacts, as well as the future regulatory framework, thereof?

- **The Max Planck Institute Luxembourg:** The Research Unit in Law, located in the same building as the Max Planck Institute Luxembourg, will conduct research in close cooperation with the Institute in the fields of European Law, European Private Law (in particular, European Procedural Law), Comparative Law, Public International Law, and Banking and Financial Law.

We will also undertake further efforts to expand our role in shaping and developing (i) Luxembourgish national law in response to national- and European-level issues and initiatives and (ii) the legal profession in Luxembourg. We want to take on increased responsibility for raising the Grand Duchy's visibility as a European centre for quality legal education. In addition, we want to extend our contribution to interdisciplinary research both within and beyond our Faculty. To achieve the foregoing, we foresee the following new programmes and initiatives:

- **A *Master en Droit Luxembourgeois*:** This Master reflects a continuation of the project described in our prior four-year plan that has not yet reached fruition. We now have a realistic chance to offer such a Master, as Luxembourg's Ministry of Justice has expressed its desire to return the *Cours complémentaires en Droit Luxembourgeois* to the Faculty. Thus, the *Master en Droit Luxembourgeois* will form part of a reorganized approach to Luxembourgish legal education created in cooperation with the Ministry of Justice. Moreover, we will be able to address a pressing need to expand our **research in Luxembourgish Law**, research that will be closely linked with this programme.
- With the support of the Ministry of Justice, and with the possible cooperation of the IUIL, the Faculty would like to implement a **training programme for Europe's judiciary**. The programme will be an important part of our Faculty's future lifelong learning initiatives and will rely heavily on existing work that was developed as part of our Research Unit in Law's cooperation with the European Commission in its Copen II programme.
- **New Tracks in Existing Master Programmes:** Within our existing Master in European Law, we would like to establish two special tracks **focussing on (a) media and telecommunication law and (b) Investment Fund law**. In the existing Master in Banking and Finance, the **specialisation on investment funds** will also be further developed as a separate track.

## **II. Finance**

As with the other sections of the Faculty, education and research form the primary activities and focus of the Luxembourg School of Finance (LSF). Its research efforts are embedded in the University's Research Priority in Finance, and have focussed on research in:

- Quantitative Finance
- Risk Management
- Behavioural and Experimental Finance
- Law and Finance.

Our research has been quite prolific, particularly in the area of Risk Management, where the Priority recently broke into a global ranking of "best research centres in Risk Management".

In the light of the important questions raised by the on-going global financial crisis, research within the four previously-mentioned areas has shifted in the direction of financial crises as an overarching research theme. That overarching theme is expected to dominate in the coming four years, suggesting the research in the area of Risk Management will be even more relevant than ever before.

On the education side, our aim has always been to deliver high-quality education programmes which contribute to Luxembourg's economy and particularly to its financial centre. LSF's traditional – and successful – Master of Science in Banking and Finance programme is celebrating its 10th anniversary this year. LSF has recently established two new programmes: its Executive Programme in Wealth Management and its upcoming Master in Wealth Management. These programmes are highly relevant for the Luxembourg financial centre, while also creating attractive and thought-provoking research opportunities. In order to ensure that our teaching is cutting-edge and that education and research cross-pollinate one another, we anticipate establishing a new research programme in the area of Wealth Management. In addition, LSF offers, on a small scale, lifelong learning courses. Both with an eye on our current research specialisation and an eye on our new programme in Wealth Management, it also makes sense to investigate the possibility of offering a short executive course in the area of Risk Management. This investigation will take place in the near future and may result in a concrete new course for Luxembourgish and, perhaps, international Risk Management professionals, to be organised as of next year.

## **III. Law and Finance – Interdisciplinary contexts**

- **The Financial Crisis: An Interdisciplinary Approach between Regulation and Market Analysis:** We intend to undertake a research programme to determine the causes, and to understand the consequences, of the on-going financial crisis. The crisis (or, perhaps, series of crises) has been with us for about five years now and there is no end in sight: its focus has shifted from US subprime lending practices to mortgage-backed securities to complex derivatives trading to banking sector failures to European sovereign debt. We are, indeed, looking at a highly complex set of issues, factors, and problems. Market structures, regulation (or lack thereof), supervision, and market participants' private incentives all interacted and contributed to the problems' development. We will analyse causes, propose potential solutions, and formulate an agenda for action, inspired by **all three FDEF disciplines**. In this regard, economic analysis, wealth management, and corporate governance and regulation – where law, finance and economics intersect – will be critical research areas. FDEF researchers will study whether sudden price drops due to unfavourable credit ratings destabilise markets through coordination failures, and to suggest market-stabilizing regulation. Special attention will also be given to European mechanisms aimed to protect the Euro and to prevent excessive public debt. Our strong links with the international and Luxembourg legal and financial communities will prove of great value in developing this interdisciplinary research programme.

#### **Master in Law and Finance**

- A new **Master in Law and Finance**: An interdisciplinary master, which will bridge the finance and legal disciplines, should find strong support from important external stakeholders in the financial sector. This proposed two-year programme will be offered to target students who already have a qualification in law.

**In order to continue and foster our successful niche policy, we require two additional professors in law and another two professors in finance. In addition, it is of the utmost importance that we strengthen our intermediate academic and administrative staff. Moreover, to achieve our political goal of strengthening our life-long learning initiatives and practical legal education, the Faculty urgently needs additional administrative staff.**

### **C. THE INNOVATION: A LUXEMBOURG BUSINESS SCHOOL**

The Faculty will strive to implement a Luxembourg Business School. The primary objective of the programme is to expand and further **develop the research and education activities of CREA, specifically in the field of Management<sup>4</sup>**, considered by the University as a "field of privileged development". We want to better meet the needs of the Luxembourgish economy. This will be done in partnership with the Chamber of Commerce – all on a basis that unequivocally preserves our Faculty's leadership and academic freedom and is consistent with our quality assurance programmes.

#### **1. Activities in Management**

Building upon the reputation and areas of expertise of the staff within the management group, the intention is to grow a management portfolio of activities around these three research areas:

- Entrepreneurship and Innovation
- Accounting and Audit
- Strategy and International business

Existing education programmes in Management will be expanded to include a full, two-year **Master in Business and Management**. Its objective is twofold: (i) to increase our capacity to attract the best students in the field by offering continuous education programmes in Management, from Bachelor to Master, and -- for those interested in advanced studies-- to Doctoral levels; and (ii) to increase our capacity to meet the needs of the Luxembourgish economy through well-targeted curricula by offering: (a) Master specializations in: Entrepreneurship and Innovation; Audit and Accounting; Corporate Governance; and Strategy and International Business, in addition to (b) entrepreneurship modules for technology and science-oriented students, and (c) lifelong learning opportunities and knowledge-exchange activities.

We already participate in knowledge-exchange activities with the Luxembourg's business community in the entrepreneurship<sup>5</sup> and audit and accounting<sup>6</sup> areas. Similar links and associations with governing bodies, corporations, and research units will be cultivated in the area of Strategy and International Business, making our course offerings more visible to the wider business community and ensuring a closer connection between theory and practice. Strengthening our partnership with the Chamber of

<sup>4</sup> Renaming CREA as *Luxembourg School of Economics and Management* is needed to give to the activities in Management the visibility they deserve.

<sup>5</sup> Shared activities with the Chamber of Commerce, the Business Mentoring programme, BGL BNP Paribas 'Future Lab' Incubator, Technoport, The Impactory and PWC.

<sup>6</sup> Shared activities with CSSF, IRE, Institute of Internal Auditors Luxembourg, European Court of Auditors.

Commerce should further contribute to the expansion of knowledge-exchange activities to our Entrepreneurship programme.

To develop these research and education activities in the field of management ahead of the Luxembourgish community, we require 3 additional professors in Management and another professor for interdisciplinary activities in Finance and Technology Entrepreneurship.

In addition, it is of the utmost importance that we strengthen our intermediate academic and administrative staff. Moreover, to achieve our political goal of strengthen our lifelong learning initiatives and practical business education, the Faculty urgently needs additional administrative staff.

## **II. Activities in Economics**

Another important objective of the *Luxembourg Business School* project is to **reshape the activities of the existing CREA in the field of Economics**. The objective is, again, twofold: (i) to foster cross-faculty interdisciplinary activities, and (ii) to develop economic policy analysis and interactions with economic and social decision-makers. Several initiatives will be undertaken to meet that objective, such as monthly open seminars in economic policy analysis, an annual public conference, and regularly-scheduled non-technical newsletters and other publications. We also want to contribute to the better training of upcoming generations in the analysis and understanding of economic and social policy matters by offering a *Master in Economic Policy*, with the active support of economic institutions in Luxembourg such as STATEC, CEPS, EIB, and IGSS. The *Master in Economic Policy* programme will include an emphasis on sustainable development, thereby tightening the links between the Social Sciences and Finance disciplines), the role of the Luxembourgish economy, and our interdisciplinary European focus. This proposal has been warmly received by Luxembourg's Minister of Economics.

**Together with the Faculty of Sciences, Technology and Communication**, the new School of Economics and Management, apart from the above-mentioned initiatives, will **create an interdisciplinary initiative that will focus on providing entrepreneurship modules for technology and science-oriented students**. The School wants to offer an integrated platform of courses in entrepreneurship intended to help bring **technical knowledge** and innovation gained at or inspired by the University to the marketplace.

To develop these research and education activities in the field of Economics ahead of the Luxembourgish community, we require 2 additional professors in Economics for interdisciplinary activities (within and cross Faculty).

In addition, it is of the utmost important that we strengthen our intermediate academic and administrative staff. Moreover, to achieve our political goal of strengthen our lifelong learning initiatives and practical business education, the Faculty urgently needs additional administrative staff.

## **D. INTERDISCIPLINARY GOALS**

The Evaluation Report urged the University to strive for a more coherent research strategy and to motivate interdisciplinary research projects across Faculty lines. In that regard, the Faculties are expected to find and initiate common projects connecting research activities among them, with the University offering and supporting an environment that allows creativity and communication throughout all of its parts. They will be elaborated in a separate paper presented by all the three Faculties.

During our next four years, the FDEF will continue to contribute to excellence in research with a particular focus on interdisciplinary contexts

The University, as a whole, is entering a new phase of consolidation and quality assurance. **The time for particular head counts in the different Research Units, Faculties, and Research Centres is over;** now is the time to build bridges and cross-over approaches among the Faculties, Research Units, and Research Centres. We want to contribute to such a research strategy in an international and interdisciplinary context; therefore, we want to create synergies within the disciplines of our own Faculty as well as connect our research more closely with other parts of the University. Our **Research Priorities in Law and in Finance** will share their knowledge and experiences with other parts of the University. Moreover, we will **strengthen research in Economics and Management** to meet the demand for interdisciplinary economic and social policy analysis as well as business and management studies.

**In light of the interdisciplinary and collaborative projects to be undertaken in the next four years, staff recruitment can no longer use a classic discipline-by-discipline approach, or even a simple head count philosophy; rather, recruitment will have to provide an interdisciplinary orientation that combines the different perspectives of our Faculty as well as enable us to build connections to other parts of the University.**

## E. TEACHING

Our philosophy has always been to address the general needs and special niches of Luxembourg, in particular its legal and economic communities, by supporting its financial sector; that philosophy will not change in the coming years. Ideally, we can rely on the continuing support of our external stakeholders when implementing our new teaching programmes or when reorganising existing programmes. **Important progress** has to be made in **Business Education and in economics**. In that regard, and apart from the above-mentioned programs, we will therefore strive for:

- **Reshaped Bachelor Programmes:** We want to enhance our existing Bachelor Programmes by establishing new, innovative, and interactive teaching methods. Simultaneously, we will continue to develop our European and international orientation in order to attract motivated, creative, and critically-minded students from both Luxembourg and abroad. In this context, the Faculty wants to implement the reform of the Bachelor in Law for the academic year 2014/2015 and will propose a new **Bachelor in Economics and Business Law**. Its objective is to offer an oft-requested cross-disciplinary education in law and economics that, if established as a Track in the existing Bachelor in Economics, would not be particularly costly to implement.
- **A new and reshaped Master and Doctoral Programme in Business and Management:** Our MEI has been a clear success; its reputation and support are very high and our graduates are well-received in the community. However, expanding our programme offerings in the area of business and management, and differentiating our programme from its competitors, also corresponds to our research interests and allow us to achieve our goal of creating innovative and distinctive business education opportunities. Our redesigned programme in Business and Management will advance the visibility and recognition of the Luxembourg School of Economics and Management.
- **Master in Economic Policy:** A new Master in Economic Policy is intended to develop an expertise in economic and social policy, with special emphasis on European policy and the needs of small, open economies like Luxembourg. The approach is clearly interdisciplinary and will contribute to building connections between the FDEF, the FLHASE, and economic- and social-policy decision-makers in Luxembourg. This new master should easily find its intended target, contributing to the University's goal of attracting the best students. The unique character of this Master has been acknowledged by several economic institutions in Luxembourg (e.g., STATEC, CEPS/INSTEAD, IGSS, and EIB), each of which has expressed their willingness to actively participate in ensuring its success, and the Minister of Economics has voiced his support for it. Because it builds on existing course offerings, the cost of this new programme remains compatible with our available and projected human resources.

## F. INTERNATIONAL PARTNERSHIPS

Our Faculty has consistently identified the need to develop strategic international relationships with other universities and organizations as an essential component of its mission's success. The Faculty will continue to work diligently to advance and enhance its international partnerships over the next four years.

In May 2010, the Faculty adopted its International Relationship Strategy covering the previous four-year plan, which identified its main objectives and specific policies contributing to the accomplishment of the Faculty's goals. For the years 2014-2017, the Faculty's three main objectives, as set out in that Strategy, remain unchanged:

- Advance FDEF as a leading international actor in areas of expertise,
- Prepare FDEF students and researchers for a global environment, and
- Draw talented faculty members and students to FDEF internationally,

all as more particularly discussed below.

**Advance FDEF as a leading international actor in areas of expertise** - Cultivating its strategic international partnerships will continue to be at the forefront of the Faculty's Strategy. Over the next four years, the Faculty will focus on concluding a limited number of new agreements with a concrete strategic focus. More specifically, plans are underway to cooperate with top universities in Asia, Oceania, and Latin America where the Faculty has no established partnerships (i.e., Singapore, Japan, Australia, Brazil, and either Chile or Argentina). In Europe, its focus will remain establishing links with distinguished institutions in three critical countries (Germany, Italy, and Switzerland), while exploring the possibility of establishing one partner in each of the other EU Member States. Another important group of partnerships that will remain that with a development dimension. The Faculty has made a significant contribution to Mali for several years both in law and in economics. While recent political turmoil has slowed down our activities in Mali, our commitment remains and the teams on both sides are discussing new ways to continue developing the partnership. In addition, the Faculty will work on a few new initiatives (e.g., the Ivory Coast, South Africa, Laos) with the same aim – that is, transferring our Faculty's experience in areas such as enhancement of scientific knowledge among the partners' faculty, sharing suggestions on teaching and research methodologies, and advice on institutional development and capacity building. Finally, the Faculty will continue to nourish existing partnerships, explore possibilities for further engagement, encourage the Faculty community to benefit from our partnerships, and monitor more closely their advancement.

Over the next four years, the Faculty will continue to welcome more visiting scholars and researchers both from international partner universities and beyond. Our goal is to create a clear and well-structured procedure which will make our Faculty an attractive destination for visiting academics and researchers from around the world. Encouraging more international academic visits by our Faculty members remains an equally important objective. Finally, we will emphasise improving administrative procedures linked to our implementation of our International Relationship Strategy.

**Prepare FDEF students and researchers for the global environment** - International mobility of FDEF students and researchers remains an integral part of their preparation for a global environment. Identifying funding opportunities to facilitate FDEF students' and researchers' international mobility will be instrumental in increasing the utilisation of our existing international partnerships. Identifying such funding opportunities will be, of course, closely linked to the Faculty's overall goal of further developing its fundraising activities.

**Attract international talent – both faculty and students – to FDEF internationally** – The Faculty will continue to recruit internationally for highly-qualified faculty members as this strategy has served it very well; it has formed a diverse and international academic team in all disciplines. Attracting more international students for its Master and PhD programmes will remain critical in the years ahead.



## G. ORGANISATIONAL STRUCTURE

We must carefully define the qualitative criteria to further develop our human resources policies. There are certain practical needs that must be addressed to achieve more efficiency within our internal structures. Moreover, it is crucial to prepare the Faculty to play a more active role within Luxembourg's economy and society. We must become more professional when explaining our research and attracting external support for our projects and better at integrating the Faculty into the fabric of Luxembourgish society. Moreover, we will permanently work on the maintenance and improvement of our ISO certification. That can also allow us an exchange of best practices within the University as a whole.

## H. CONCLUSIONS

### Staffing Growth and Budget Distribution

The following budget simulation suggests a maximum growth of six per cent (6%), focusing on certain areas that need further development. Thus, not all budget lines will grow by six per cent; there are some that will grow at a slower pace and others that will remain unchanged. Applying this hypothesis, the amount of additional financial resources the Faculty will need to support and strengthen its research and teaching activities during 2014-2017 will be, in total, 1 254 839 €, which represents an annual **real growth rate of just 2,72 %**. The **difference** between the maximum growth of six per cent and the **anticipated growth of the existing budget** will be **invested in new projects**. Thus, there will be a cumulated four-year total of **1, 624 821 €** available for the Faculty's new projects and programmes, not including the additional support that we might receive from the Chamber of Commerce for activities in the field of Management.

Over the next four years, strengthening the Faculty's support staff for research and teaching will be the centre of our recruiting policy. Within a coordinated qualitative framework, we want to increase the total number of positions within the Faculty by **six per cent (6%), using 15 September 2012 as the baseline**, with the specific number and type of positions set forth below. As a consequence, between 2014 and 2017, we will seek to expand our Faculty by 35. The titles of the positions are derived from a qualitative analysis of our specific needs.



# Annex 1: Budget forecast 2014-2017

Budget 2014-2017		Budget 2013 final (CDG 01,12,2012) :					
		4 520 000					
Code budgétaire	Intitulé	Demande 2013 (09/05/12)	% applied	6% increase on respective previous year			
				2014	2015	2016	2017
F2C-DEC-COM-080000	Commun	250 000	0%	250 000	250 000	250 000	250 000
F2E-DEC-COM-080000	Commun - Formations	125 000	0%	125 000	125 000	125 000	125 000
F2E-EDR-DRO-100000	Ecole doctorale en Droit	60 000	6%	63 600	67 416	71 461	75 749
F2E-EDR-EFI-100000	Ecole doctorale en Economie et Finances	60 000	6%	63 600	67 416	71 461	75 749
F2R-DRO-PRI-10PDRO	Priorité Recherche Droit	30 000	6%	31 800	33 708	35 730	37 874
F2R-LSF-PRI-10PFIN	Priorité Recherche Finance	30 000	6%	31 800	33 708	35 730	37 874
F2E-CAU-DRO-030103	CCDL - Formation Complémentaire en Droit Luxembourg	143 000	0%	143 000	143 000	143 000	143 000
F2E-CAU-GES-040103	Formation Complémentaire des Réviseurs d'Entreprises	90 000	1%	90 900	91 809	92 727	93 654
F2E-IBA-DRO-010105	BA en Droit	275 900	1%	278 659	281 446	284 260	287 103
F2E-IBA-ECO-020105	BA en Sciences Economiques et de Gestion	222 000	1%	224 220	226 462	228 727	231 014
F2E-IBP-GES-010105	BP en Gestion	350 000	1%	353 500	357 035	360 605	364 211
F2E-IMA-DRO-010111	MA en Droit Européen - Tronc Commun (M1)	60 000	1%	60 600	61 206	61 818	62 436
F2E-IMA-DRO-010211	MA en Droit Européen - Filière Droit Européen Général (M2)	11 000	1%	11 110	11 221	11 333	11 447
F2E-IMA-DRO-010311	MA Droit EU Economique - Droit Pénal EU des affaires (M3)	41 750	1%	42 168	42 589	43 015	43 445
F2E-IMA-DRO-010411	MA Droit EU Economique - Contentieux Européen (M2)	51 000	1%	51 510	52 025	52 545	53 071
F2E-IMA-DRO-010511	MA Droit Financier EU et INTAL - Droit Bancaire et Fin. EU	60 500	1%	61 105	61 716	62 333	62 957
F2E-IMA-DRO-010611	MA en Droit Européen - filière Droit Privé Européen	48 300	1%	48 783	49 271	49 764	50 261
F2E-IMA-DRO-010711	MA Droit Financier EU et INTAL - filière EU and INTAL Tax L	85 000	1%	85 850	86 709	87 576	88 451
F2E-IMA-ECO-020111	MA in Economics and Finance (M1)	67 000	1%	67 670	68 347	69 030	69 720
F2E-IMA-GES-010112	Master in Accounting and Audit	171 000	3%	176 130	181 414	186 856	192 462
F2E-IMP-FIN-010105	MP of Science in Banking and Finance - Full time	1 280 000	3%	1 318 400	1 357 952	1 398 691	1 440 651
F2E-IMP-FIN-030107	MP in Entrepreneurship and Innovation	270 000	3%	278 100	286 443	295 036	303 887
F2R-CRE-LAB-10MNGT	Laboratoire Management	59 800	6%	63 388	67 191	71 223	75 496
F2R-DRO-LAB-08CDEFU	CDF-Centre de Droit Européen	114 400	6%	121 264	128 540	136 252	144 427
F2R-DRO-LAB-08LDEFU	LDE-Laboratoire de droit économique	143 000	6%	151 580	160 675	170 315	180 534
F2R-CRE-COM-080000	CREA - Cel. Rech. Eco. Appliquée	173 420	6%	183 825	194 855	206 546	218 939
F2R-LSF-COM-080000	LSF Research in Finance	191 360	6%	202 842	215 012	227 913	241 588
Nouveau code	Communication faculté	10 000	6%	10 600	11 236	11 910	12 625
Nouveau code	Relations internationales faculté	10 000	6%	10 600	11 236	11 910	12 625
Nouveau code	Interdisciplinary research	36 570	6%	38 764	41 090	43 555	46 169
Grand Total		4 520 000		4 640 368	4 765 727	4 896 325	5 032 420 (**)
		Grand Total + 6%		4 791 200	5 078 672	5 383 392	5 706 396 (*)
(*)	Total increase (6%)						
	2 879 660						
(**)	Real growth						
	1 254 839						
(***)	Remaining new projects						
	1 624 821						
Amounts available compared to 2013							
		6% Increase on respective previous year					
Available sums from budget increase :							
Amount available for developments :							
Projects 2014 / 2017 :							
Master Droit Luxembourgeois							
CCDL							
Master in Law & Finance							
Life long learning programme Europe's Judiciary							
Master Track in Economics Policy							
SATCOM becomes a LLM filière							
OPC becomes a LLM filière							
Bachelor in Economics & Business Law							
MAA : AFCEA fees							
Management courses in DSEF							
Management I							
Strategy & IB (2)							
Total projects :							
Remaining :							

**Annex 2 : P4 2014-17 – Recruitment plan FDEF**

Positions		Timing for recruitment *				Budget			
	Nb.	2014	2015	2016	2017	2014	2015	2016	2017
<b>Professeurs *</b>									
Finance (wealth management)	1		1				160680	164 670	168 750
Interdisciplinary - Law	1			1				164 670	168 750
Interdisciplinary - Economics	1		1				160680	164 670	168 750
Interdisciplinary - Finance	1			1				164 670	168 750
Interdisciplinary - Economics (Corporate Governance)	1			1				164 670	168 750
Droit luxembourgeois (éventimnt propriété intellectuelle)	1			1				164 670	168 750
<b>Total Professeurs</b>	<b>6</b>	<b>0</b>	<b>2</b>	<b>4</b>	<b>0</b>	<b>0</b>	<b>321 360</b>	<b>988 020</b>	<b>1 012 500</b>
<b>Pers. scientifique</b>									
Assistants	8	2	2	2	2	85 160	174 440	268 020	366 080
Post-docs	6	2	2	1	1	184 040	377 160	483 100	594 000
Collaborateurs de recherche (CDI)	4	2	2			204 440	418 840	429 160	439 760
<b>Total P. scientifique</b>	<b>18</b>	<b>6</b>	<b>6</b>	<b>3</b>	<b>3</b>	<b>473 640</b>	<b>970 440</b>	<b>1 180 280</b>	<b>1 399 840</b>
<b>Pers. administratif</b>									
Student and programme administrator (BA, MA) **	4	1	2		1	76 800	235 950	241 770	330 280
Student and programme administrator (PhD schools)	1	1				76 800	78 650	80 590	82 570
Mobility coordinator	1	1				76 800	78 650	80 590	82 570
Alumni administrator	1			1		0	0	80 590	82 570
Research secretariat	4	2	1	1		153 600	235 950	322 360	330 280
Research facilitator	2	1		1		76 800	78 650	161 180	165 140
Fundraising expert	1		1			0	109 000	111 725	114 518
Communication specialist	1		1			0	109 000	111 725	114 518
Knowledge-transfer facilitator	1		1			0	109 000	111 725	114 518
Financial controller	1	1				76 800	78 650	80 590	82 570
<b>Total P. administratif</b>	<b>17</b>	<b>7</b>	<b>6</b>	<b>3</b>	<b>1</b>	<b>537 600</b>	<b>1 113 500</b>	<b>1 382 845</b>	<b>1 499 534</b>
<b>Total budget per year</b>						<b>1 011 240</b>	<b>2 405 300</b>	<b>3 551 145</b>	<b>3 911 874</b>
<b>Total plan 14-17</b>									<b>10 879 559</b>
<b>* For profs: timing for recrutement = year after job opening</b>									
<b>** Selon mise en place formations</b>									
<b>Luxembourg Business School</b>									
Positions		Timing for recruitment *				Budget			
	Nb.	2014	2015	2016	2017	2014	2015	2016	2017
<b>Professeurs</b>									
Luxembourg School of Economics and Management	3		1	1	1		160 680	329 340	506 250
Interdisciplinary-Management (technology/science rel	1			1			0	164 670	168 750
<b>Total Professeurs</b>	<b>4</b>	<b>0</b>	<b>1</b>	<b>2</b>	<b>1</b>	<b>0</b>	<b>160 680</b>	<b>494 010</b>	<b>675 000</b>
<b>Pers. Scientifique</b>									
Assistants	4	1	1	2		42580	87220	178680	183040
Post-docs	1	1				92020	94290	96620	99000
<b>Total P. Scientifique</b>	<b>5</b>	<b>2</b>	<b>1</b>	<b>2</b>	<b>0</b>	<b>134600</b>	<b>181510</b>	<b>275300</b>	<b>282040</b>
<b>Total LBA per year</b>						<b>134 600</b>	<b>342 190</b>	<b>769 310</b>	<b>957 040</b>
<b>Total LBA 14-17</b>									<b>2 203 140</b>

## Annex 3: Performance indicators FDEF

### 1 Teaching

N°	Source	Indicateur	Type mesure	2010		2011		2012		2013		Total 2010-2013	Objectif 2013 FDEF	Objectif 2017 FDEF	Objectif 2013 UL
				hiv. 2009/10	été 2010	hiv. 2010/11	été 2011	hiv. 2011/12	été 2012	hiv. 2012/13	été 2013				
1	UL / FDEF	Master : diplômes délivrés*	Nombre	136		206		136				482	700	700	1100
2	UL / FDEF	Master : taux de candidatures retenues par rapport aux demandes déposées	%	42,3	—	35,3	—	33,33	—	33,5	—		33	33	
3	FDEF	Master : internationalité des étudiants (étudiants hors BE, DE, FR, LU)**	%			52,85		55,14		57,01			33	60	
4	FDEF	Master : « Brain gain » - Diplômés étrangers (hors GR) avec 1 <sup>er</sup> emploi au Luxembourg	Nombre										33		
5	FDEF	Master : Proportion des cours en anglais	% Droit européen (1 année)					53		50					
			% Sp. Droit européen général					71		71					
			% Sp. Droit pénal européen des affaires					65		50					
			% Sp. Contentieux européen					67		67					
			% Sp. Droit Privé Européen					71							
			% Sp. Tax Law					50		50					
			% Sp. Droit bancaire et financier européen					25		25					
			% Economics and Finance (Traditional Track)					34		34					
			% Economics and Finance (Research Track)					100		100					
			% Audit & Accounting							100					
6	FDEF	Bachelor : diplômes délivrés*	Nombre	211		229		259				699	600	600	
			%	64	51,80	60,00	44,9	74,3	64,4	76,7	68,2		66	60	70
7	UL / Contrat / FDEF	Bachelor : Mobilité hors Grande Région	%												
8	UL / Contrat / FDEF	Moyenne des ECTS acquis en mobilité	Nombre	23,6	25,3	24,2	26,1	27,1	23,8	N/A	N/A				aucun
9	FDEF	Bachelor : Etudiants externes attirés aux 2 <sup>e</sup> et 3 <sup>e</sup> années	%										60		
10	FDEF	Bachelor : Proportion de cours en anglais	% Droit					14		17					
			% Gestion					10		9					
			% Sc. Economiques-Gestion					29		30					
			% Bachelor (total)	12,4		12,83		15,41		18,6			20	30	
11	FDEF	Bachelor : Ratio étudiants / staff [CA (Pr.+Ass. pr.+Ch.cours) + CI (Ass.+Ass. ch.)]	Nombre (ratio)	16,85		16,29		17,91		16,53			7	7	
12	FDEF	ULL : Nbre d'heures offertes par an	Nombre										60		

UL : 5ème plan quadriennal de l'Université du Luxembourg 2010-2013

FDEF : plan quadriennal de la FDEF 2010-2013

Contrat : contrat d'Etablissement Pluriannuel entre l'Etat et l'UL 2010-2013

\* Les chiffres résultent des Rapports d'activités UL

\*\* Les chiffres résultent des Cartes d'identité FDEF

## 2 Research

N°	Source	Indicateur	Type mesure	2010	2011	2012	2013	Total 2010-2013	Objectif FDEF 2013	Objectif FDEF 2017	Objectif UL 2013	Objectif Contrat 2013
13	FDEF	Thèses soutenues	Droit Nb. de thèses soutenues*	4	8	8		20				
	FDEF		Économie Nb. de thèses soutenues*	2	0	1		3				
	FDEF		Sciences économiques Nb. de thèses soutenues*	1	0	0		1				
	FDEF		Sciences financières Nb. de thèses soutenues*	1	5	1		7				
	UL / FDEF / Contrat		<b>FDEF Nb. total de thèses soutenues*</b>	<b>8</b>	<b>13</b>	<b>10</b>		<b>31</b>	<b>30</b>	<b>40</b>	<b>190</b>	<b>190</b>
14	FDEF	Taux de réussite en doctorat parmi les assistants et chercheurs en formation doctorales	%						70	70		
15	FDEF	Doctorants par pers. autorisées à diriger des recherches	Nb (moyenne)			1,93			2	2		
16	FDEF	Publications / Citations	Droit Nb. de publications dans des revues scientifiques (refereed journals)	50	48	70		168				
			Économie Nb. de publications dans des revues scientifiques (refereed journals)	18	18,5	13		51,5				
			Finance Nb. de publications dans des revues scientifiques (refereed journals)	9	18,5	15		42,5				
			<b>FDEF Nb. total de publications dans des revues scientifiques (refereed journals)</b>	<b>78</b>	<b>86</b>	<b>98</b>		<b>262</b>	<b>100</b>	<b>260</b>		
			Droit Nb. d'autres publications scientifiques	6	29	34		59				
			Économie Nb. d'autres publications scientifiques	3	20	31		54				
			Finance Nb. d'autres publications scientifiques	14	37	53		104				
			<b>FDEF Nb. d'autres publications scientifiques</b>	<b>23</b>	<b>86</b>	<b>108</b>		<b>217</b>				
			Droit Nb. d'autres publications non scientifiques	5	3	21		29				
			Économie Nb. d'autres publications non scientifiques	4	11	10		25				
			Finance Nb. d'autres publications non scientifiques	5	12	10		27				
			<b>FDEF Nb. total d'autres publications non scientifiques</b>	<b>14</b>	<b>26</b>	<b>41</b>		<b>81</b>				
			Droit Nb. d'ouvrages individuels (authored books)	5	6	3		14				
			Économie Nb. d'ouvrages individuels (authored books)	2	0	0		2				
17	FDEF	Publications	Finance Nb. d'ouvrages individuels (authored books)	0	1	2		3				
			<b>FDEF Nb. total d'ouvrages individuels (authored books)</b>	<b>7</b>	<b>7</b>	<b>5</b>		<b>19</b>				
			Droit Nb. d'ouvrages collectifs (edited books)	11	5	4		20				
			Économie Nb. d'ouvrages collectifs (edited books)	1	0	0		1				
			Finance Nb. d'ouvrages collectifs (edited books)	0	0	0		0				
			<b>FDEF Nb. total d'ouvrages collectifs (edited books)</b>	<b>12</b>	<b>5</b>	<b>4</b>		<b>21</b>				
			<b>FDEF Nb. total d'ouvrages individuels et collectifs (authored books + edited books)</b>	<b>19</b>	<b>12</b>	<b>9</b>		<b>40</b>				90 (UL)
			Droit Nb. de chapitres d'ouvrages (books chapters)	32	28	57		118				
			Économie Nb. de chapitres d'ouvrages (books chapters)	3	3	0		6				
			Finance Nb. de chapitres d'ouvrages (books chapters)	2	1	5		8				
			<b>FDEF Nb. total de chapitres d'ouvrages (books chapters)</b>	<b>37</b>	<b>33</b>	<b>62</b>		<b>132</b>				
			<b>FDEF Nb. total d'ouvrages et de chapitres d'ouvrages</b>	<b>66</b>	<b>45</b>	<b>71</b>		<b>172</b>		260		
			Droit Nb. de publications conférences (refereed conference proceedings)	4	23	26		53				
			Économie Nb. de publications conférences (refereed conference proceedings)	0	0	2		2				
			Finance Nb. de publications conférences (refereed conference proceedings)	3	2	0		5				
18	FDEF	Conférences et colloques internationaux	<b>FDEF Nb. total de publications conférences (refereed conference proceedings)</b>	<b>7</b>	<b>25</b>	<b>28</b>		<b>60</b>				
			Droit Editor of refereed conference proceedings	1	0	2		3				
			Économie Editor of refereed conference proceedings	0	0	0		0				
			Finance Editor of refereed conference proceedings	0	0	1		1				
			<b>FDEF Editor of refereed conference proceedings</b>	<b>1</b>	<b>0</b>	<b>3</b>		<b>4</b>				
			Droit Communications at academic conferences and workshops	80	226	108		414				
			Économie Communications at academic conferences and workshops	28	50	58		136				
			Finance Communications at academic conferences and workshops	45	53	71		169				
			<b>FDEF Communications at academic conferences and workshops</b>	<b>153</b>	<b>329</b>	<b>237</b>		<b>719</b>		800		
19	FDEF	Impact société / transfert de compétences										

UL: 2ème plan quadriennal de l'Université du Luxembourg 2010-2013  
FDEF: plan quadriennal de la FDEF 2010-2013  
Contrat: contrat d'Établissement Pluriannuel entre l'État et l'UL 2010-2011  
\*Les chiffres résultent des Rapports d'activités UL  
\*\* Les chiffres résultent des Cartes d'identité FDEF

### 3 Composition of the Faculty

N°	Source	Indicateur	Type mesure	Catégorie	2010	2011	2012 (au 01-01-2013)	2013	Total 2010-2013	Objectif FDEF 2013	Objectif FDEF 2017	Objectif UL 2013
20	FDEF	Nationalités différentes des enseignants-chercheurs	Nombre	CA	10	15	14			12	12	
				CI	19	21	20			18	18	
				Total	23	28	31			20	20	
21	FDEF	Pays de provenance (poste précédent) des enseignants-chercheurs	Nombre	CA	11	12	12			11	11	
				CI	12	14	14			11	11	
				Total	17	17	16			14	14	
22	UL / FDEF	Proportion de femmes	%	CA	18,92%	20,93%	24%			30%	30%	23%
				CI	42,42%	51,52%	45,45%			50%	50%	
23	FDEF	Proportion des Ass. et AssCh dans l'équipe enseignante (CI/CA+CI)**	%	---	49,62%	44,30%	46,80%			1,5 - 2	50%	
24	FDEF	Taux de réussite des recrutements (postes pourvus/postes à pourvoir) (Pr + AssPr)	%	---	75,00%	62,50%	recrutements en cours			> 80	≥80	
25	FDEF	Nb. de chercheurs visiteurs (déf. cadre : min. 2 semaines, etc.)	Nombre	---	X	6 (CREA)	9			3 / année		
26	FDEF	Participation à des comités de thèse ailleurs (Participation in PhD committees of foreign universities)	Nombre	---	10 (UR droit)	13 (UR droit)				1 pour 3 Pr		
27	FDEF	Participation à des concours de recrutement ailleurs	Nombre	---	X	X	X			1 pour 10 Pr		
28	FDEF	Participation à des comités de rédaction de revues scientifiques (Membership of boards of editors of scientific journals)	Nombre	---	11 (UR droit)	18 (UR droit)				1 pour 10 Pr		
29	FDEF	Administration : implémentation et mise en oeuvre de la norme ISO 9001 (sans forçement certification)	oui/non	---	oui	oui	oui			oui	oui	
	UL	Taux du CA (sauf CC) originaire des trois pays voisins et autres (2011**)	%	3 pays voisins		51,16%	57,14%					
				autres		37,21%	40,82%					18%
	Ajout	Professeurs invités	Nombre		6	9	10					

CA: Prof / Ass, Prof / CC

CI : Ass. / Aa.-Chercheurs

UL: 2eme plan quadriennal de l'Université du Luxembourg 2010-2013

FDEF : plan quadriennal de la FDEF 2010-2013

Contrat : contrat d'Etablissement Pluriannuel entre l'Etat et l'UL 2010-2013

\* Les totaux/pourcentages ont été définis sur la base des chiffres des rapports d'activités

\*\* Les totaux/pourcentages ont été définis sur la base des chiffres des cartes d'identité de la FDEF



#### 4 Funding

N°	Source	Indicateur	Type mesure	2010	2011	2012	2013	Total 2010-2013	Objectif FDEF 2013	Objectif FDEF 2017	Objectif UL 2013	Objectif Contrat 2013
30	UL / FDEF / Contrat	Chaires financées par des tiers*	Nombre	2	3	3	3	3	3	3	6	6
31	FDEF	Bourses AFR, Attract, AVARF, etc.*	Nombre : AFR	8	10	14		32	20			
	FDEF		Nombre : Attract	0	0	0	0	0	2			
	FDEF		Nombre : Axa et autres	0	0	0						
	UL		Nombre : European Research Council	0	0	0	0	0			1	1
	UL		Nombre : PEARL (FNR)	0	0	0	0	0			50% du total des bourses octroyées	Au niveau de l'UL, attribution de 50% des bourses PEARL octroyées par le FNR
32	FDEF	Participations à projets Européens*	Nombre	3	2	1			5			
	UL	Financement tiers de projets, dont UE et industrie*	Budget (€) : EU	901 347	256 450	144 853		1 302 650			23.001,1€	
			Budget (€) : EB	0	300 000	0		300 000				
			Budget (€) : FNR	0	314 480	1 144 622	0	1 459 102				
			Budget (€) : Autres	0	6 555	0	50 500	57 055				
			Budget (€) : Chaires et partenariats	750 000	375 000	300 000		1 425 000				
			Total en €	1 651 347	1 252 485	1 589 475	50 500	4 543 807				
	Ajout	Projets UL*	Budget (€)	1 278 377	397 956	485 391	627 942	2 789 666				

UL: 2eme plan quadriennal de l'Université du Luxembourg 2010-2013

FDEF : plan quadriennal de la FDEF 2010-2013

Contrat : contrat d'Etablissement Pluriannuel entre l'Etat et l'UL 2010-2013

\*(Budgets de) projets pluriannuels indiqués dans l'année de démarrage du projet

**Annex 4 : Important Budget Lines (Essentials)**

	2014	2015	2016	2017	Total
Law	100 000	100 000	400 000	500 000	1 100 000
LSF	100 000	100 000	200 000	200 000	600 000
LBA	100 000	100 000	200 000	200 000	600 000
FDEF Total	594 000	1 200 000	1 900 000	2 700 000	6 394 000
Total	894 000	1 500 000	2 700 000	3 600 000	8 694 000



**A3 - FLSHASE – Faculty of Language and Literature, Humanities, Arts and Education**

ANNEXES  
Plan Quadriennal 2014 - 2017

## FLSHASE: Four-Year Plan 2014-2017

### I. Mission statement

The FLSHASE is built on three pillars: Education, Social Sciences and Humanities. The main mission of the *Faculty of Language and Literature, Humanities, Arts and Education* is to provide new knowledge about society in its social, economic, cultural, political and educational aspects. It pursues three goals: a) excellence in research, b) high quality teaching, c) expertise and services by:

- generating international competitive academic knowledge
- developing new methodologies in research
- helping policy makers by providing know-how based on resilient data and expertise
- offering future graduates, post-graduates and young scholars a successful learning experience.

#### ➤ The Faculty's accomplishments

Considering the development of the Faculty and the recruitments carried out in each Research Unit (RU), several key research areas have been established and have by now acquired strong international visibility and recognition. At the same time, the FLSHASE has remained highly committed to meeting national needs which are especially focused on the traditional core subjects of the Faculty and the specialised knowledge available.

#### ➤ The next four years

The FLSHASE's proposal for the next UL-Research-Priorities for the next four years address two major challenges of contemporary modern societies: their diverse structure (**Multilingualism & Intercultural Studies**) and their limited resources (**Sustainable Development**). Growing globalisation, increasing mobility and migration means that most societies today are characterised by an unprecedented degree of cultural and linguistic diversity. In the European context, **Luxembourg**, as part of the Greater Region, can be considered a very fertile resource and inspiration to develop innovative research related to socio-economic and cultural transition due to its international character.

In the last eight years the Faculty has achieved an outstanding reputation at national and international level with its former University-Priorities **Education** and **Luxembourg Studies** through a successful international recruitment policy as well as a specific promotion of research projects. The number of publications in peer-reviewed journals, the number of PhD students as well as the large amount of external funds both in *Education* and *Luxembourg Studies* speak for themselves; *Luxembourg Studies* will continue to be an important transversal research themes over the next four years and will be linked to the new Priority *Multilingualism & Intercultural Studies*. Education will continue as an own Priority of the Faculty.

At the same time there are challenges that Luxembourg as a small country has to meet as a consequence of the shared European understanding, the financial crises as well as the effects of the fast-paced globalisation process, and in particular sustainable development issues. These concern the national educational and learning system as well as the distributive justice within an increasingly ageing population or questions on spatial and urban development. In the last few years the faculty has developed a high level of expertise in all these fields, which is reflected in the large number of domestic and international research projects and collaborative projects with Ministries.

## II. Research: New prioritised main research programmes

### 1. Sustainable Development

Topics: Processes and Systems of Social Regulation; Social Inequalities (PEARL); Generations, Family and Life Span Development; Socio-Economic Transitions and Corporate Change; Urban and Regional Development; Knowledge Production for Transition to Sustainable Development); Education and Democracy

Disciplines: Educational Sciences, Sociology, Psychology, Geography, Economics, Political Science, History

#### ➤ Overview

Due to extended life expectancy and reduced birth rates Europe will have to face challenges over the next 20 years that are unprecedented in its history. Together with these demographic changes of societies there are economic, cultural and social trends at a globalised level that will challenge the European societies on several dimensions, most notably with respect to sustainability of public finances, prosperity and living standards. In addition, the search for greater sustainable social development also addresses issues such as social cohesion, consumerism, inefficient use of energy, pollution, abuses of human rights and not least the crucial question of the sustainability of democratic modes of governance and democracy itself.

Despite sustainability's integrative approach taking into account the environmental, the economic and the socio-cultural development dimensions, the latter perspective is often overlooked in policy debates. Nevertheless, it is increasingly recognized that cultural and institutional framework conditions play a crucial role for transitions towards sustainability. This requires in-depth analyses of societal and political processes leading to unsustainable or sustainable trajectories.

The Faculty has a track record in international research and established links with national and international stakeholders (e.g. EU, OECD, EIB), as documented by external research funding and participation in consultation committees (e.g. Superior Council for Sustainable Development, Luxembourg). Scientific excellence in this field is demonstrated by numerous peer-reviewed publications and editorial board memberships. Based on the collaboration of the various disciplines in the social sciences and humanities, transdisciplinary approaches to sustainability research will be emphasized and thus lay the foundation for societal debates on the co-evolution of future technologies, ways of living, and modes of governance.

#### ➤ Social Cohesion as a main target of Sustainable Development

The PEARL/FNR fiveyear financed research programme on Comparative Social inequality was set up in 2012 with world-leading scientists Louis Chauvel (sociologist) and -since 2013- Conchita D'Ambrosio (economist). The programme focuses on the analysis of earnings and wealth distribution, dynamics of inequalities, transformations of welfare States (health, retirement, unemployment, social management of exclusion) and their consequences on social stability and sustainability. In social sciences, **sustainable development** and **social sustainability** are key notions for the assessment of nations trajectories and their stability on the long range. The main issue here is to understand how societies can find appropriate collective development when other nations fail to find a harmonious regime of change.

#### ➤ European Governance

The established European Governance programme in FLSHASE addresses the broad challenges of public policy and democratic decision-making in contemporary European societies, while also drawing on wider international perspectives. The longer term sustainability of political, economic and social models is examined, with particular concentrations of expertise in the areas of economic governance and higher education policy. The democratic character of our contemporary societies is also probed, notably through the activities of the Chair

in Parliamentary Studies financed by the national parliament. Contemporary developments are further placed in historical contexts, with the Jean Monnet Chair in History pursuing an ambitious research agenda examining the transformations of European social and economic policy through the post-war period. The underlying ethical dimensions of issues surrounding sustainable development in Europe figure prominently through innovative interdisciplinary work bringing together philosophers and political scientists.

➤ **International Development and Social Cohesion**

International development is moving away from traditional "North-South" paradigms in response to the emergence of new global powers (the so-called BRICS) which also play the role of regional hegemon. The European Union has also fostered regionalisms in other parts of the world through development aid. The analysis of these processes has been institutionalised at the University of Luxembourg through the establishment of the Consortium for Comparative Research on Regional Integration and Social Cohesion (RISC), its books series (PIE), and its international journal *Regions & Cohesion* and newly acquired research projects.

➤ **Health provision as research field within Sustainable Social Development**

The maintenance of good health through prevention and better health care through successful interventions are of crucial importance for today's modern societies. Findings from representative European studies as well as national data clearly show that the incidence of age-related diseases and functional impairments dramatically increases above the age of 75 years and, correlated with this, the number of dependent persons and the need for care. In addition to increasing age, social development and the resulting changes in the social environment constitute challenges requiring the individual to continuously adapt at behavioural, physiological and psychological levels. Difficulties or breakdown in adaptation contribute to ill health, e.g. chronic physical conditions and mental disorders. About 28% of the global burden of disease has been attributed to mental disorders (WHO), mostly due to the chronically disabling nature of depression and other common mental disorders, alcohol-use and substance-use disorders, and psychoses. Such estimates have drawn attention to the importance of mental disorders for public health. These disorders pose a major challenge in terms of individual suffering and economic cost for society. There is an urgent need for better models of prevention and intervention, based on empirical results on the interactions between social change and health across all age groups.

➤ **Sustainable Regional and Urban Development**

Many of the challenges of sustainable development trajectories are narrowly related to the spatial dimension of economic, social, ecological and infrastructural evolutions and their underlying governance patterns. The greening of industries, low carbon transitions and energy policies, cross-border resource management as well as urban planning and local development issues (e.g. housing markets, mobility) are to be addressed from an integrative perspective, strongly relying on contemporary approaches to institutional change, socio-technical co-evolution, policy mobilities and evolutionary models. New imperatives encompassing the vivid and critical debates on the greening of capitalism and potential post-growth regimes require further conceptual, methodological and empirical efforts. Newly acquired research projects e.g. on the governance of spatial development or on the institutional triggers for green building innovations are addressing these issues from a comparative perspective. They are stepping stones for further research activities that will feed into both international scholarly debates as well as into regional policy discourses while seeking narrow exchange with practitioners in Luxembourg, the Greater Region and other case study areas in Europe and beyond.

## 2. Multilingualism & Intercultural Studies

**Topics:** Multilingualism/Intercultural Studies in education (primary and secondary schools and higher education), in the workplace, in law and politics, Border Studies; Migration Studies; Media Studies; Memory Studies; Intercultural Literature

**Disciplines:** Linguistics, Educational Sciences, Sociology, Psychology, Cognitive Neuroscience, Language and Literature; Cultural Studies, History, Geography, Political Science, Gender Studies

### ➤ Overview

Rapid globalisation and cross-border migration mean that most societies today are characterised by an increase in intercultural contact and an associated unprecedented degree of linguistic and cultural diversity. Language skills, including intercultural communicative competence, have become a crucial prerequisite both for social cohesion and for international communication. In the European context, Luxembourg can be considered a laboratory to develop innovative research related to these new social circumstances and challenges, as it represents one of the most illustrative examples of this increased linguistic and cultural diversity.

The goal of the Research Priority Multilingualism & Intercultural Studies is to investigate this new social order, also including historical developments that have led to the current situation. It will focus in particular on linguistic and cultural dimensions, as well as the social, political and educational challenges associated with them.

### ➤ Multilingualism & Intercultural Studies in Luxembourg society and beyond

A crucial task for this research programme will be first and foremost to develop cutting-edge investigations into the realities of diverse, multilingual societies and to examine how multilingualism, intercultural communication and identity construction play out in the great many social sectors where they are relevant. For example, multilingualism and intercultural issues do not necessarily translate in the same way in primary, secondary or higher education. They do not play identical roles in the constituent bodies of European institutions, in international business or in other workplaces. They work differently in the legal domain, the health sector, family contexts, (digital) media and multilingual literature, to name but a few areas of interest. Within these various fields, institutions, groups and individuals have developed different ways of accommodating multilingualism and intercultural contact, with varying degrees of success in terms of efficacy, transparency and social inclusion.

Next to general research of multilingual structures in today's diverse societies, a further task will consist of developing innovative ways to address the management of multilingualism at the level of the Luxembourgish educational system. Through its research, particularly through intervention studies in schools, the research programme will be able to provide evidence-based recommendations concerning the language policies of schools and school-related partners.

A further important task will consist of developing innovative ways to address the management of multilingualism at the level of the University of Luxembourg itself. Through its research, particularly in the field of Multilingualism in Higher Education, the research programme will be able to provide evidenced-based recommendations concerning the language policies of the University. More specifically, the research will support and draw upon the work of the planned Language Centre (which will be located under the aegis of the Rectorate).

The research programme will have a strong link with Luxembourg society. An important objective will be to promote knowledge transfer and communicate findings and outcomes of research beyond the academic realm. It will be possible to offer continuing education and lifelong learning to external bodies at different levels, e.g. developing training opportunities in the field of linguistic and cultural diversity management for international businesses and teacher training. In parallel, the programme will create links and strong international cooperation with partners beyond Europe. The vision would be that the research programme Multilingualism & Inter-



cultural Studies becomes an important European contact point for all those scholars who are interested in European multilingualism and cultural diversity.

## Continued prioritised main research programmes

### Education

Topics:	educational theory; education systems and policy; professionalization of actors in educational domains; educational testing; teaching materials; curriculum; life-long learning
Disciplines:	Educational Sciences, Psychology, Cognitive Neuroscience; Philosophy; Sociology; History; Linguistics

#### ➤ Overview

Luxembourg's education system has some persistent problems that are strongly linked to two factors: the trilingualism (plus English) and the high levels of cultural, social and linguistic diversity amongst its pupils and their families. Research shows that Luxembourg's educational system has difficulty compensating for the strong correlation between socioeconomic status and school success; ability and effort often matter less than social background. Lower than average national PISA scores with regard to mathematics, science and literacy reflect some of these wider issues, as do lower than average ICCS results with regard to democratic citizenship. These are arguably some of the most serious problems facing the country, because the more sustainable solutions to key challenges require a high performing educational system that provides adequate support for all students. The Research Priority *Education* will continue to contribute proactively with her research, her analyses, her policy advice, and especially her training and professionalization of teachers, her innovative development of curricula, her assessment and her advice – all aimed at the ongoing improvement of the education system.

#### ➤ Restructuring the domains of Education within the Faculty

Due to the proposals given by the *Second External Evaluation Report* of the UL the Faculty will restructure the field of Educational Sciences to enhance the external visibility, to enable synergy-effects between the research-areas and to improve the quality of the study-programmes. This particularly requires targeted appointments, the introduction and consolidation of international academic programs at Master and PhD levels, innovative curricula to facilitate professionalization of teachers and of teacher education, and systematic analyses of on-going education reforms (e.g., National Education Reports) represent key University contributions to support excellence and equity in education in Luxembourg.

#### ➤ Luxembourg Centre for Educational Testing (LUCET)

We propose the creation of a Luxembourg Centre for Educational Testing (LUCET) implementing a national school monitoring, conducting international large-scale studies, creating internationally usable tests in key areas, such as transversal skills and language skills as well as developing internationally usable standardised tests for a language-independent diagnosis of specific learning difficulties.

### III. Teaching

#### ➤ Study Programmes

The Faculty has 4 Bachelor programmes and 13 Masters. It needs to consolidate and reformat certain programmes to ensure that it offers attractive and state of the art educational programmes. Over the next four years we propose to **consolidate** the **Bachelor en Cultures Européennes**. It should be extended to a full three year major in English studies, similar to the other four majors. Not only will such a programme be attractive to the local market, it will enhance incoming student mobility, thus raising the Faculty's international profile for BA students and also contribute to reducing the current student mobility imbalance.

We propose to redefine and restructure three Master programmes:

- the **Master in Psychology** into two streams/tracks:
  - a) Evaluation and Assessment
  - b) Psychological Intervention (in relation to Health provision as research field within Sustainable Social Development)
- the **Master in Learning and Communication in Multilingual and Multicultural Contexts** (to be renamed) into two streams/tracks:
  - a) Learning and Communication (in relation to the research programme Multilingualism)
  - b) Intercultural Studies and Competences (in relation to the research programme Multilingualism & Intercultural Studies )
- the **Master en Langues, Cultures et Médias – Lëtzebuurger Studien** (to be renamed) into three streams/tracks:
  - a) Lëtzebuurger Studien (as main subject – to be combined with Media Studies)
  - b) Études Romanes: Langues, Culture et Médias (as main subject – to be combined with Media Studies)
  - c) Deutsche Sprache und Literatur (as main subject – to be combined with Media Studies)

Another important task to consider is to establish and support the new training programme of the four-year plan 2010-2013: **Master in Psychotherapy** (starting date: September 2013); **Master in Social and Educational Sciences** (submission to CG of March 2013); **Master in Secondary Education**; **Master in Social Policy Analysis** (bi- or trinationnal programme with KU Leuven and a German University, could be developed out of the IMPALA-programme – to be discussed; submission to CG 2014); the **Master in Architecture** (approved by CG of March 2011) should be established in 2014.

#### ➤ Doctoral Schools

The Doctoral School in Educational Sciences will have the chance to develop over the next four years and thus endow a cornerstone of the FLSHASE's research excellence. **Two other Doctoral Schools need to be established:** one linked to the RU IPSE and the other to the RU INSIDE. They aim to provide training to PhD candidates in the INSIDE and IPSE RUs by promoting multidisciplinary perspectives on issues related to cultural, economic and social change, organisations, institutions and policies, social interaction and individual well-being, and cognitive processes.

#### ➤ Continuing Education

New Certificates (Formation Continue) will be designed and developed, so to react on national and international market demands, e.g. Certificate in Inclusive Education, Certificat en langue, culture et société italiennes.



### ➤ Quality Management

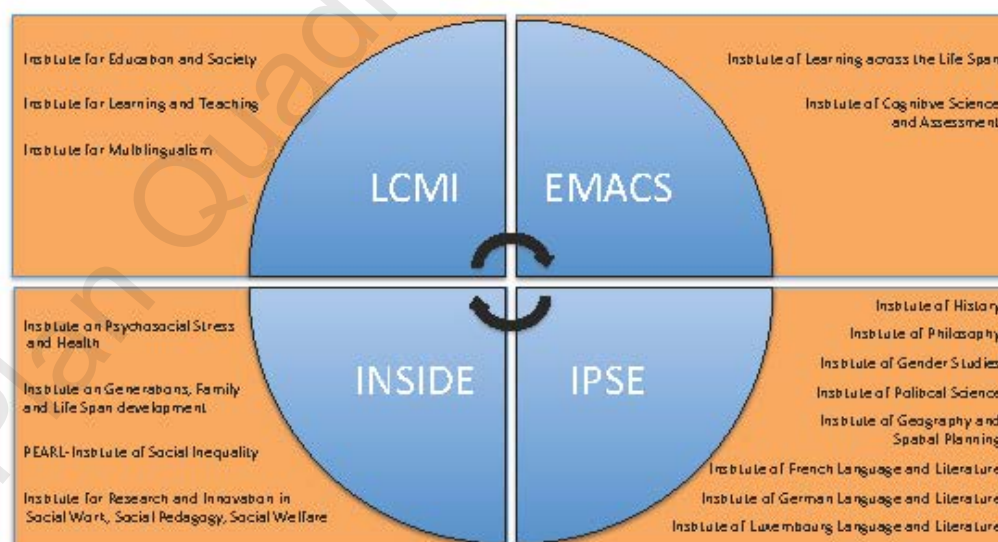
A quality committee on faculty level will be established to implement a quality management strategy. The **Teaching and Learning Quality Assurance Committee (TLQAC)** is chaired by the Dean's office (supported by a quality manager), meets regularly during the academic year, and has representation from across the faculty. The TLQAC has important roles in developing, approving, monitoring and reviewing academic policies and guidelines. They will write a guide/handbook of Quality Assurance for the Faculty. To sustain the quality development mainly the following elements will be considered and worked on:

- Admission procedure will be defined systematically and optimised for undergraduate and graduate
- Improvement of course and training programme (e.g. learning outcomes)
- Define and systemise student support (e.g. tutoring)
- Strengthen teacher support
- Improvement of the course evaluation

## IV. Faculty Organisation and Management

### ➤ Organisation and structures

For the next four-year plan, the Faculty has decided to maintain a Faculty structure which encompasses the RUs and study programmes in order to: a) implement a programme of (re)structuring; b) ensure a balance between the research and education functions, while ensuring links between the two; c) enhance the visibility of the disciplinary research by strengthen the nature of the institutes; d) respect in particular the multi- and inter-disciplinary nature of courses that draw on the resources of several RUs. In the 2014-2017 four-year plan the disciplines and research groups of the Research Units will be designated homogeneously as »Institutes«. These Institutes will be reinforced by assigning them a direct budget responsibility.



### ➤ Changes

Within the four-year plan 2014-2017, a thorough reflection on structural change will be conducted, particularly with regards to: a) the establishment of two new doctoral schools; b) the opportunity to create graduate schools bringing together advanced master's students, PhD candidates and PostDocs; c) the implementation of a competence and transfer centre complementing the Research Units and linked to the Dean's office with the role to handle applied studies and contract research.

### ➤ Recruitment policy

The considerable efforts and quality assurance processes set up for the recruitment of international academic staff (enseignants-chercheurs) in order to develop critical mass in the FLSHASE's key research areas will be maintained to the highest standards: a) new positions of academic staff / enseignants-chercheurs will be allocated to the main research programmes b) profiles of academic staff retiring will be filled by the Faculty; they will be re-defined by the Faculty according to the teaching and research needs.

### ➤ Quality management

Following the example set by the FDEF in implementing ISO 9001 to its administrative processes, the FLSHASE has started working with the existing resources of the Dean's office first to become familiar with ISO 9001 and to define the scope. Implementation has started and the process should be finalised during the next four-year plan with the necessary professional administrative support.

## V. Implementation of aims

### ➤ Structural measures

The interdisciplinary approach to research will be strengthened through the co-operation of several researchers within the two priorities of the Faculty. At the same time greater visibility will be given to more disciplinary research fields due to the implementation of the institutes.

### ➤ Resources – recruitment

The timing of the recruitments is presented in the table on the next page.

**Academic staff / enseignants-chercheurs** (6 new positions):

- 3 Professors linked to the programme Sustainable Development
- 3 Professors linked to the programme Multilingualism & Intercultural Studies

**Intermediate academic staff, scientific staff, technical staff** (31 new positions)

Principles:

a) Each full professor should have one or two structural posts for research	➤ 1adjoint de recherché + 1 PhD
b) 2013 appointment to be finalised: Chaire de la Ville Esch-sur-Alzette	➤ 1 PhD
c) New professors 2014 – 2017: 6	➤ 6 adjoints de recherche + 6 PhD
d) Based on performance criteria: associate prof. would get one structural post for research (PhD) and full prof. an adjoint de recherche	➤ 5 PhD + 5 adjoints de recherche
e) each research priority should get 3 Post Docs	➤ 6 Post Docs
f) quality assurance in teaching: student admissions	➤ 1 adjoint de recherche

Total: 13 PhD - 6 Post Docs - 13 adjoints de recherche

**Administrative staff (12 new positions)**

**Administrative staff to enhance teaching quality:**

- a quality manager teaching & learning (2014)
- an expert on admission procedures (2014)
- two administrative programme coordinators for Master programmes (2015, 2015)
- two study secretaries (MA) (2014, 2016)

**Administrative staff to enhance research quality:**

- a research projects coordinator (Dean's office) (2014)
- two project managers for the research programmes (2014)
- a secretary (for the 2 Doctoral Schools) (2015)

**Administrative staff to enhance reputation/ visibility:**

- an international relations officer (2015)
- a secretary (Dean's office) (2015)
- a web content writer & administrator (2016)

Resources - Recruitment					
	2014	2015	2016	2017	total
<b>7.2.1 Academic staff (6 new positions)</b>					
Professor linked to the priority sustainable development		X			1
Professor linked to the priority sustainable development			X		1
Professor linked to the priority sustainable development				X	1
Professor linked to the priority multilingualism/interculturality		X			1
Professor linked to the priority multilingualism/interculturality			X		1
Professor linked to the priority multilingualism/interculturality				X	1
subtotal					6
<b>7.2.2 Intermediate academic staff, scientific staff, technical staff (32)</b>					
PHD student	X	X	X	X	4
PHD student	X	X	X	X	4
PHD student	X	X	X	X	4
PHD student		X			1
PHD student					
PHD student					
subtotal					13
Post doc	X	X	X		3
Post doc	X	X	X		3
subtotal					6
Adjoint de recherche	X	X	X	X	4
Adjoint de recherche	X	X	X	X	4
Adjoint de recherche	X	X	X	X	4
Adjoint de recherche (Admission Procedures Expert)	X				1
subtotal					13
<b>7.2.3 Administrative staff (12)</b>					
<i>Teaching</i>					
Quality Manager	X				1
Admin Master Programme Coordinator		X			1
Admin Master Programme Coordinator		X			1
MA Study Secretary	X		X		2
subtotal					5
<i>Research</i>					
Research Programmes Project Manager	X				1
Research Programmes Project Manager	X				1
Research Programmes Project Manager	X				1
Doctoral School Secretary		X			1
subtotal					4
<i>Dean's office</i>					
International Relations Officer		X			1
Secretary to the Deans Office		X			1
Administrative aid for web content			X		1
subtotal					3
<b>TOTAL</b>	<b>14</b>	<b>16</b>	<b>12</b>	<b>8</b>	<b>50</b>

## ➤ Budget

### Principles:

- The budget increase 2014-2017 will be allocated to the two new research priorities, the LUCET, the new Doctoral-Schools and especially to the structural development of the Faculty.
- Budget for the Institutes within the RU is calculated according to the weightings attributed per Faculty members.
- The Head of the RU will have a "common" budget of the total budget of the research groups of the RU.

FLSHASE Budget for the Four Year Plan 2014-2017					
Budget nach Vorgabe Annexe A (30 juillet)		New Four Year Plan			
	2013	2014	2015	2016	2017
Fonctionnement général	591.045	600.000	680.000	750.000	800.000
Formations (incl. nouvelles formations)	2.521.181	2.322.739	2.416.163	2.435.232	2.640.686
Recherche dont:	1.600.113	2.459.600	2.852.176	3.649.107	4.150.653
Priority Multilingualism/interculturality		100.000	100.000	200.000	200.000
Priority Sustainability		100.000	100.000	200.000	200.000
Structural Development		600.000	900.000	1.700.000	2.100.000
UR globale (Institutes & commune)		1.209.600	1.282.176	1.359.107	1.440.653
Institutes:		1.080.000	1.144.800	1.213.488	1.286.297
budget comm. UR:		129.600	137.376	145.619	154.356
Technical equipment UR		150.000	170.000	190.000	210.000
BELVAL		300.000	300.000		
subtotal général + formations + recherche	4.712.339	5.382.339	5.948.339	6.834.339	7.591.339
Doctoral schools	90.000	214.000	300.000	330.000	360.000
EDS:	90.000	94.000	100.000	110.000	120.000
IPSE:		60.000	100.000	110.000	120.000
Social Sciences:		60.000	100.000	110.000	120.000
LUCET		300.000	300.000	350.000	350.000
Education		100.000	100.000	150.000	150.000
subtotal Doctoral schools + LUCET + Education	90.000	614.000	700.000	830.000	860.000
Budget global	4.802.339	5.996.339	6.648.339	7.664.339	8.451.339

	Gesamtwachstum 2014-2017				
Reales Wachstum	594.000	1.246.000	1.962.000	2.749.000	6.551.000
LUCET / Education	400.000	400.000	500.000	500.000	1.800.000
Priority Sustain.	100.000	100.000	200.000	200.000	600.000
Priority Multi / Intercult	100.000	100.000	200.000	200.000	600.000
Subtotal	1.194.000	1.846.000	2.862.000	3.649.000	9.551.000



## Annexes:

### 1. Performance indicators

The FLSHASE will develop quality criteria for research evaluation in the field of humanities and social sciences. A variety of approaches and suggestions already exist on an international level, which will be included in this discussion to develop the kind of quality standards and performance indicators that correspond to the specific research logic of the Faculty.

The performance indicators should include research results and outputs as well as an engagement in teaching and on administrative level.

1	Scientific books published (peer-reviewed)	75
2	Scientific Articles and book chapters (peer-reviewed)	200
3	Number of PhD thesis successfully defended	75
4	Number of PhD candidates having successfully completed a Doctoral School programme (all ECTS acquired)	50
5	New Chairs awarded	1
6	Number of new excellence cluster awards (e.g. ATTRACT / PEARL (FNR), ERC)	1
7	Percentage of newly hired academic staff coming from neighbouring countries	30 %
8	Percentage of newly hired academic staff coming from abroad (not neighbouring countries)	30 %
9	Number of programmes certified as bi/trilingual	6
10	Annual Percentage increase of Master and PhD students	3 %
11	Percentage of new students coming from neighbouring countries	30 %
12	Percentage of new students coming from abroad (not neighbouring countries)	20 %
13	Graduate success rates Bachelor (in relation to students enrolled in 3 <sup>rd</sup> semester)	85 %
14	Graduate success rates Master	85 %
15	Graduate success rates PHD	70 %
16	BA students on mobility abroad (not neighbouring Universities)	75 %
17	PHD students on mobility abroad (not neighbouring Universities)	30 %
18	Average number of ECTS acquired by incoming mobility students	25 ECTS
19	Ratio incoming/outgoing students	1 :3
20	Academic staff on mobility abroad (not neighbouring Universities)	30

**A4 - SnT – Interdisciplinary Centre for Security, Reliability and Trust**

ANNEXES  
Plan Quadriennal 2014 - 2017



## **Interdisciplinary Centre for Security, Reliability and Trust University of Luxembourg**

### **Priorities for 4-year Plan 2014 – 2017**

20 August, 2013

#### **1 Introduction**

This document outlines the priorities for SnT for the period 2014-2017. This plan is to be adopted by the University Governing Board as part of the University four year plan (2014–2017). The priorities presented in this document have been approved by the SnT Advisory Board on 4 July, 2013; the detailed budget will be decided at the next meeting.

The overall aim of SnT is to become an internationally leading research and innovations centre that together with partners is capable of establishing Luxembourg as a European centre of excellence for secure, reliable, and trustworthy ICT systems and services. SnT attempts to achieve excellence by targeting research that creates high impact – well beyond the academic community. SnT has undergone a rapid development since its launch in 2009 creating a Partnership Program with 19 members, launching some 20 EU/ESA projects, protecting and licensing IPR, and creating a dynamic research environment with 200 people, please see Appendix for performance indicators 2009-2012. The centre set ambitious, long term goals in the Strategic Plan 2009 and has laid a solid foundation for continued development towards these targets. SnT has not reached a steady state in its operations. The centre continues to grow responding to demands for research collaborations from industrial and governmental partners and increasing its participation in European projects. The main priorities for the next phase of development are:

##### **1. Partnership Program**

Strengthen the impact oriented SnT research program focussing on long-term partnerships.  
Create critical mass centred on SnT's larger, interdisciplinary Strategic Research  
Collaborations with partners.

##### **2. European Presence**

Establish Luxembourg as a strong and respected European research partner in Security, Reliability and Trust. Establish research excellence as indicated by publications, citations and recognition thereby increasing our competitiveness in the European programs (H2020, ESA).

##### **3. Knowledge Transfer**

Develop the technology transfer capabilities of SnT by introducing more structured instruments facilitating exploitation of research results (seed fund, proof-of-concept, training, support).

##### **4. Interdisciplinary Research Environment**

Establish appropriate facilities creating a meeting place that fosters interdisciplinary research and supporting the next phase of expansion and development.

Below, we outline these priorities and summarize them with an accompanying human resource and budget plan for 2014-2017.

## 2 Partnership Program

The partnership program ensures high relevance of SnT research and efficient knowledge transfer of outcomes and results. The long-term partnership agreements implemented through joint research projects allow us to tackle scientifically challenging problems of importance for partners and often of general importance as well for society at large. SnT's research agenda is formed around a number of Strategic Research Collaborations (SRC) that provide application area focus targeting high impact research of relevance for Luxembourg. By acquiring research projects that are closely linked to the SRCs and funded by third parties (EU programs, ESA, FNR, etc.), SnT builds a critical mass in these areas generating high quality and high impact research output and results with exploitation potential.

The following SRCs are under development with the support of the listed partners:

1. Satellite Systems, SES,itrust
2. Vehicular Networks, EPT
3. Automotive Software and Sensor Systems, IEE, Delphi, Cubelux
4. Smart City – Urban Sensing, Ville de Luxembourg
5. Secure and Resilient Infrastructures, CETREL, Telindus, Reddog, CTIE
6. Reliable and Secure Smart Grid Infrastructures, CREOS

For the 4-year plan, a primary mission for SnT is the continued development of the partnership program and SRCs. As pointed out in the external evaluation report, this requires a balance between high-risk/long-term research and more goal oriented, demand driven research. The promising outcomes and results from the high-risk research are refined by tackling precisely defined, relevant problems and investigate solutions that are applicable and scalable in actual industrial/societal contexts. Also, long-term research is influenced by the insights gained in demand driven research and technology transfer activities. As recommended in the evaluation report, increased investment in long-term high-risk research is essential for SnT to maintain competitiveness and be an attractive research partner.

Partnered projects are demand driven but are co-funded by the university to allow research going beyond the specific context of our partner, ensure a wider scientific relevance, and public dissemination of results. Partner contributions to SnT amount to over 2 MEUR in 2013, thereby also requiring significant SnT resources.

## 3 European Presence

Excellence in research and innovations is manifested by being an attractive research partner internationally. The European research programs are often highly competitive and provide an excellent benchmark for the Centre. This is perhaps more important for this university compared to research institutions in larger countries. SnT's impact oriented research and our strategic areas are very well aligned to the visions for Horizon 2020 (H2020) and the European Space Agency (ESA). Successful acquisition of European funded projects aligned with SnT's objectives allows the Centre to create critical mass in the domains of the SRCs.

In 2012, SnT had an exceptional development in participation in European projects as is illustrated by a 6-fold increase, albeit from a modest level, in funding from European programs. There is large potential for SnT to continue this positive development since not all research groups are yet active in these projects. Also, there is a strong emphasis on innovations in H2020 which matches well the SnT partnership collaborations. SnT will continue to prioritize international projects providing professional support, structured project acquisition, and research resources. A sustainable and successful evolution of SnT's portfolio of European and partnered projects requires a larger number of permanent scientist positions allowing highly experienced key researchers to be retained.

The long-term research activity at SnT builds on faculty positions (professors and/or chief scientists). As recommended in the evaluation report, SnT plans to strengthen its activities by defining and appointing faculty positions together with the faculties, see HR plan. Areas where there is large

potential for establishing partnerships and collaboration with existing research include: Data Protection and Privacy Law, Human Machine Interaction, Dependable Systems, Image Analysis and Sensor Fusion, and Multimedia Processing. When appropriate, SnT intends to use the ATTRACT and PEARL instruments to pro-actively recruit top scientists for these positions.

#### **4 Knowledge Transfer**

The creation of SnT and partnership collaborations should be seen in the context of the government's strategy to raise the competitiveness of Luxembourg and diversify the country's economy. Through public private partnerships, SnT aims at increasing private research and development investments in the region creating a growth of this sector. The Centre achieves this through three main actions;

1. Research and innovations in partnered projects increasing competitiveness through novel solutions, products and services.
2. Attracting knowledge intensive business and R&D activities to Luxembourg through research partnerships.
3. Fostering the production of innovative ideas and encouraging entrepreneurship allowing exploitation through new ventures.

The Centre will establish a knowledge transfer system that complements the university support system. This allows support functions tailored to and implemented close to the research activities increasing effectiveness. The following measures will be taken.

1. Training for researchers in IPR, entrepreneurship, etc.
2. Identify suitable project results – develop instruments (proof-of-concept projects), and laboratory infrastructures for this purpose.
3. Validate results – check market potential and business viability with use of competent external advisors linked to our *Innovation Network*.
4. Assist in building business case for licensing, joint venture, and start-ups.
5. Establish a seed fund (20% SnT and 80% private investment) dedicated to fund early stages of ICT start-ups from university and partner research.

This endeavour requires significant commitment and resources from actors outside the university.

#### **5 Interdisciplinary Research Environment**

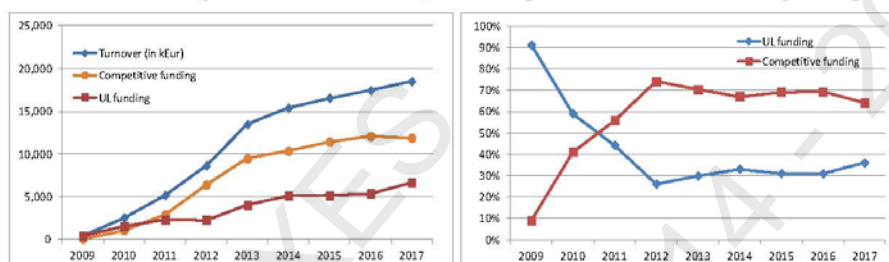
Interdisciplinary research is fostered by a dynamic environment and meeting place, bringing scientist together and stimulating interaction. SnT is fragmented over several campuses and office buildings. A meeting place for interdisciplinary research does not yet exist. SnT may have to vacate the current facilities in the Weicker building when other activities require the offices. Laboratory facilities are currently inadequate.

As identified in the external evaluation report, the long-term development of SnT is jeopardized without adequate facilities. SnT does not have a dedicated infrastructure budget line in the 4-year budget that would allow SnT to respond and adapt facilities to the requirements. Estimated at 1.7M€ in 2014 to 2.1M€ in 2017, these amounts will have to be covered by the central budget from the Infrastructures and Logistics department at the University. Acquiring an office building should be explored. This is a natural development in the coming 4-years and is not uncommon practise for similar research centres internationally. The current reserves may be used to provide a down payment.

#### **6 Human Resource and Budget Plan**

Long-term research is funded by the university and to some extent, the FNR. The demand driven research is co-funded by partners, EU and ESA. As an academic institution targeting the highest quality research, significant university base funding for long-term investment is essential. SnT has been highly successful in acquiring competitive funding increasing the level since 2009. In 2013, the ratio of competitive funding will be larger than 70%. The university funding has become depleted and the current trend of decreasing base funding in relation to competitive funding is not sustainable, see Figure 1 in Appendix B. The evaluation report also raises the issue of creating a balance between long-term and mid-term research. To address this, an increase in base funding is proposed for the next 4-

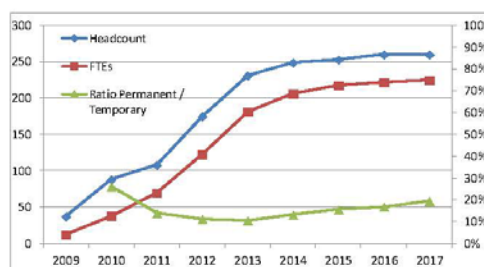
year period as illustrated in the figure below showing income 2009-2013 and forecasts based on the 4-year plan 2014-2017. The university contribution to SnT operational budget is based 2014 agreed-upon budget (4,000 k€). From this basis, SnT budget increases 250k€ in 2016 and 750 k€ in 2017. The development of the knowledge transfer priority is included in this frame. In addition to this direct funding, the University supports SnT with a structural HR budget and from 2017 on, a budget to take over some commitments from the expiring PEARL grant. Competitive funding forecasts are moderate and result in an average annual increase of 4%, with a drop in 2017 when the PEARL grant expires.



Long-term, the university base funding must exceed the competitive research funding. To achieve this goal (even partially) by the end of the 4-year period requires a significant investment by the university. The table below describes the corresponding HR plan.

Personnel (full time equivalents)	2013	2014	2015	2016	2017
Faculty members	8,70	9,70	10,70	11,40	12,50
Visiting researcher (including travel and housing expenses)	0,94	1,00	1,00	1,50	1,50
Research fellows	0,45	0,49	0,53	0,57	0,62
Research associates	67,45	67,34	66,18	65,35	62,52
Research scientists & Permanent	7,75	11,50	15,38	17,00	19,50
PhD candidates	77,63	94,01	100,46	101,74	101,91
Managers & staff	10,02	13,50	15,50	15,50	17,50
Technical support	4,51	4,71	4,00	5,00	5,00
Interns & MS Students	4,01	4,00	4,00	4,00	4,00
<b>Total (full time equivalents)</b>	<b>181,46</b>	<b>206,24</b>	<b>217,74</b>	<b>222,06</b>	<b>225,05</b>

The 4-year plan will allow SnT to increase the ratio of researchers on permanent versus time-limited contracts to create continuity in its strategic areas. The figure below is based on Figure 1 in Appendix B showing different researcher positions.



From the planned personnel occupation, university contribution and competitive funding forecasts, the budget for the period 2014-2017, including the recruitment of research scientists and development of technology transfer activities, is displayed below:

Expenses in kEUR	P4 2014-2017			
	2014	2015	2016	2017
Personnel	11,428	12,251	12,896	13,684
Subcontracting (3%)	493	518	537	561
IT and lab equipment (6%)	701	765	826	889
Travel and missions (13%)	1,486	1,593	1,676	1,779
Material and other (5%)	286	306	322	342
Technology Transfer				
In-kind	987	1,087	1,147	1,197
Overhead from UL	33	43	48	53
Infrastructures	0	0	0	0
<b>Total Expenses</b>	<b>15,413</b>	<b>16,562</b>	<b>17,452</b>	<b>18,503</b>
<b>Income in kEUR</b>				
<b>University of Luxembourg (made of)</b>	<b>5,214</b>	<b>5,164</b>	<b>5,378</b>	<b>6,634</b>
Operational contribution	3,750	3,575	3,725	4,000
University of Luxembourg, technology transfer	250	350	450	600
University of Luxembourg, structural HR on SnT budget	0	75	75	150
<i>University of Luxembourg contribution to SnT</i>	<i>4,000</i>	<i>4,000</i>	<i>4,250</i>	<i>4,750</i>
University of Luxembourg, structural HR budget	1,000	1,000	1,000	1,000
University of Luxembourg, PEARL V&V Lab support	0	0	0	750
University of Luxembourg, inflation/index	90	127	128	134
University of Luxembourg, internal projects	124	37	0	0
<i>University of Luxembourg, budget in relation to SnT</i>	<i>1,214</i>	<i>1,164</i>	<i>1,128</i>	<i>1,884</i>
<b>Competitive funding (made of)</b>	<b>9,216</b>	<b>10,307</b>	<b>10,927</b>	<b>10,677</b>
Partnerships	1,852	2,243	2,363	2,463
EU / ESA	1,316	1,716	1,916	2,116
FNR	6,048	6,348	6,648	6,098
Contract & other	0	0	0	0
<i>External funding (% of total income, excl. in-kind)</i>	<i>64%</i>	<i>67%</i>	<i>67%</i>	<i>62%</i>
In-kind	987	1,087	1,147	1,197
<b>Total Income</b>	<b>15,417</b>	<b>16,558</b>	<b>17,452</b>	<b>18,508</b>
<b>Result</b>	<b>4</b>	<b>-4</b>	<b>-0</b>	<b>5</b>

SnT targets an annual operating budget of 600 k€ for technology transfer activity by the end of the 4-year period. This new activity, per the budgetary constraints set by the university management, will be funded in the overall budget frame imposed on SnT. SnT is willing to invest 1.000.000 € from its reserves (see unspent university base funding built since 2009 in table below) towards a seed fund as described above.

	2009	2010	2011	2012	2013 *
Unspent UL contribution to-date	436	955	1,682	3,051	3,051

\* Full utilization of UL contribution is budgeted in 2013

According to the governance structure of SnT, the advisory board can make reallocations in the budget within the total budget frame.



## Appendix A – Key Performance Indicators

The indicators presented below are set in the SnT strategic plan as approved by the SnT Advisory Board. They are divided into primary and secondary indicators.

Primary Indicators	2009	2010	2011	2012
Number of members in the partnership program	3	6	13	17
Level of external/competitive funding	9%	33%	55%	72%
Partner funding (in kEUR)	24	222	1,033	1,351
EU and ESA funding (in kEUR)	-	13	207	1,194
FNR funding (in kEUR)	11	485	1,550	3,592
Number of research projects *	16	43	69	82
Number of Partnered projects	9	17	21	23
Number of EU and ESA projects	2	7	15	18
Number FNR projects (excluding accompanying measures)	6	25	42	53
Number of Industrial PhD candidates	3	8	13	27
Number of permanent researchers participating from other research units (other than CSC)	2	3	6	6

### Secondary Indicators

Headcount				
Category	2009	2010	2011	2012
Faculty	12	14	14	17
Research Scientists & Permanent Researchers	-	2	2	6
Research Associates	6	25	30	55
PhD Candidates	9	24	33	56
Technical support	-	-	2	5
Staff	2	7	8	11
Visiting Researchers	2	9	5	6
Interns & Students	4	7	14	19
Total	35	88	108	175

Publications	2009	2010	2011	2012
Publications in refereed journals	15	23	34	42
Publications in refereed conference proceedings	24	59	80	153
Books chapters	3	1	8	5

Books	0	1	4	2
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	2009	2010	2011	2012
PhDs Awarded	-	3	1	5

Patents and Licensing	SnT	Licensing	Status
LASF – Localisation Assurance Security Framework	67%	itrust	Filed at Patent Office
Electrical inverter and method of operation	100%	none	Filed at Patent Office
FoLaConIT - Formal Language Conversion with Initialised Translations	100%	SES	Filed at Patent Office
3D Time-of-flight Camera System and Position/Orientation Calibration Method Therefor	0%	IEE S.A.	Completed
POS-CAM – Depth Enhancement by Fusion for Active Sensing	50%	IEE S.A.	Filed at Patent Office
Verfahren und Vorrichtung zur Anpassung der in ein Netz Einspeisten Elektrischen Leistung	100%	CREOS	Under preparation

#### Awards and Recognition

SnT researchers have received 13 Best Paper Awards and some 6 international individual scientific awards/recognition since 2009 as reported in our Annual Reports.

## Appendix B – Financial Figures 2009-2013

Below, the table displays source of consumed research funding since 2009 and the ratio of competitive research funding.

		2009	2010	2011	2012	2013 *
University	UL contribution	91%	59%	44%	26%	30%
Competitive	Partners	6%	21%	20%	16%	17%
	EU/ESA	0%	1%	4%	14%	9%
	FNR	3%	19%	30%	42%	40%
	Other	0%	0%	0%	1%	2%
	UL Internal projects	0%	0%	1%	2%	2%
	Total	9%	41%	56%	74%	70%

\* UL rises to 30% as only approved external funding is included

Figure 1: Consumed research funding since 2009.

Below, the table displays the ratio of permanent versus non-permanent researchers since 2009. The current trend of decreasing ratio of permanent researchers must be broken in the next 4-year period.

The below table, under the following assumptions:

- This table includes faculty members engaged in SnT but employed and paid by the Faculties
- Structural positions attached to a faculty member and assigned to SnT (adjoint de recherche, assistant-chercheur, assistant) are also included in this table, though they do not contribute to the salary costs of the Centre
- Salary costs were computed from the yearly standard costs as provided by the university
- FTEs may vary from one to another depending on the revenues available and the extension/term of the positions (5 years maximum)
- SnT has access to the unspent university base funding built since 2009, as displayed below:



	2009	2010	2011	2012	2013 *
Unspent UL contribution to-date	436	955	1,682	3,051	3,051

\* Full utilization of UL contribution is budgeted in 2013

Figure 2: Unspent university base funding since 2009.

		2009	2010	2011	2012	2013
Permanent	Faculty	5.00	6.00	6.00	6.48	8.70
	Research scientists & Permanent	0.00	1.00	1.00	3.83	6.75
	Total	5.00	7.00	7.00	10.31	15.45
Temporary	Research associates	1.63	14.15	27.35	45.26	67.92
	PhD candidates	0.25	11.82	22.39	46.40	77.42
	Research fellows & Visiting researchers	0.00	0.93	1.26	1.47	1.39
	Total	1.88	26.90	51.00	93.13	146.73
Ratio Permanent / Temporary		2.67	0.26	0.14	0.11	0.11

Figure 1: Ratio of Permanent versus non-permanent researchers since 2009.

SnT has a long-term target of 20-25% permanent versus non-permanent researchers depending on the mix of research collaborations.

**A5 - LCSB – Luxembourg Centre for Systems Biomedicine**

ANNEXES  
Plan Quadriennal 2014 - 2017

## LCSB Second 4 Year Plan (2014 – 2017)

### 1. Introduction

The Luxembourg Centre for Systems Biomedicine (LCSB) was created in 2009 as an interdisciplinary research centre of the University. The first years were dedicated to establish a functional and competitive research centre with an efficient organisation and administration. A strategic focus on Parkinson's Disease (PD) was chosen.

Since its establishment, there are **about 100 people** working in LCSB, **11 research groups** were established. Another 3 research groups are expected until the end of 2013.

Up to now, LCSB produced **84 publications** and filed **8 patents**. Over **15 Mio Euro** of competitive grant money were secured, including 5.5 Mio Euro from European or international programmes.

After the first phase of "Building up", the motto of the next 4 years will be "**Reaching Out**": Based on the achievements of the first phase, LCSB will expand the scope of its activities, thus reaching out both scientifically as well as locally in Luxembourg. Leading themes are the **transfer from basic research towards actual applications** for patients, the building of additional bridges across disciplines to **connect to other faculties and centres in the university** and to **link to industry**, creating spin-offs and valorise the research results. Ultimately, LCSB wants to give Luxembourg a return for its investment.

During the second phase, LCSB will extend its interdisciplinary research activities, further build up a competitive infrastructure for biomedicine, and continue its growth to a **staff size of about 180** to strengthen its position as an internationally leading Centre for Systems Biomedicine.

## 2. Research Approaches

### The first phase (LCSB 2010 – 2013)

#### → BUILDING UP A CENTRE FOR SYSTEMS BIOMEDICINE

The LCSB was established as an interdisciplinary research centre for systems biomedicine. The strategic research approaches for the implementation were created around the following pillars:

#### RESEARCH FOCUS

- A Focus on Parkinson's disease (PD)

#### RESEARCH CONCEPT

- Multi-disciplinarity: integrating theoretical-computational, experimental and clinical expertise.
- Multi-scale modeling: addressing *in silico*-, *in vitro*-, and *in vivo*-models, as well as patients and whole families across scales to unravel PD.
- Mathematical and computational models to understand human diseases

#### RESEARCH INFRASTRUCTURE

- Excellent and strategically relevant infrastructure (such as metabolomics) as a key attractor for becoming and remaining competitive on an international level.
- A Bioinformatics Core facility to meet the demands of the "Data Tsunami", the multitude and variability of data, in modern biomedical research.

### The next four years (LCSB 2014 – 2017)

#### → REACHING OUT

During its second term, LCSB aims to progress from the build-up-phase. Reaching a critical mass, consolidation, further development and new opportunities along the chosen paths of LCSB's research programme will give the direction for the next years.

#### Disease focus of LCSB

##### → From PD to understanding neurodegeneration in general

Research at LCSB will move from understanding molecular and cellular networks of PD to a wider understanding of similarities in the underlying mechanisms between PD and other neurodegenerative diseases, i.e. Alzheimer's Disease, but also other chronic diseases, such as diabetes or cancer.

### **Scope of research**

#### **→ From fundamental research to medicine**

So far LCSB has focused mostly on fundamental research of PD. During the next phase the knowledge gained about the underlying mechanisms will be translated into applications. A particular emphasis will be on the identification of early markers of the disease and the discovery of relevant targets for future PD drugs. A comprehensive screening platform for identifying potential substances or relevant targets for treatment is currently under preparation.

### **Extension of research subjects**

#### **→ From genetics to gene-environment interactions**

LCSB will elucidate the function of genes and their interaction with the environment in the development of the disease, focusing on the role of toxins on neurodegeneration and the influence of the microbiome on the host using a molecular systems ecology approach. Both approaches are of interest to gain novel insights on preventive measures and life style adaptation regimens to combat PD, neurodegenerative diseases and other chronic diseases.

#### **→ Develop a spatial approach to systems biology**

LCSB will engage in high-content imaging, microfluidics and single cell omics-analyses to profile individual cells and understand their role in health and disease. In addition, the development of computational and statistical methods to integrate and interpret the multitude and the heterogeneity of data obtained will be pursued. The approaches to handling, integrating and interpreting big data will be core for not only LCSB but also the entire university and can serve as a connector in UL.

### **Venture out to new shores**

#### **→ From pathways and networks to complex systems**

Human diseases are nowadays perceived as perturbations of complex, integrated genetic, molecular and cellular systems. LCSB will therefore engage in complex systems analysis, deriving mathematical models from non-linear dynamics, statistical physics and information theory to be able to make predictions for diseases on a systems level.

#### **→ Beyond the boundaries of biomedical research**

LCSB aims to cross the boundaries of its core research in biomedicine to apply its multi-disciplinary research approaches and systems modelling solutions in collaborations outside the life sciences such as in the area of social and financial systems. In this regard, numerous applications in other disciplines such as novel design in engineering or prediction models of behaviour in social sciences can be envisaged, offering opportunities for collaboration with other UL research units.

### 3. LCSB is Reaching Out

#### Reaching out to the patients

##### → HAVING AN IMPACT ON MEDICINE

Based on its research on the mechanisms of the diseases, LCSB will engage in the identification of **early diagnostic markers** of neurological disorders, the stratification of these diseases into molecular pathology and mechanisms based subtypes and the **identification and validation of potential drug targets** for a better treatment.

To pursue this strategy, LCSB will extend its strategic infrastructure to meet the needs of medical translational research. Most important here are ***in vivo* models** (e.g. mouse, zebrafish and yeast), an iPS (induced pluripotent stem cell) laboratory and a competitive high content and high throughput molecular imaging platform. Another factor for successful development of applications for patients is the close interaction with clinical partners. Currently 3 clinicians are actively contributing to the LCSB's research portfolio. To further extent the contribution of clinicians and to strengthen the focus on patient benefits, the LCSB will develop a programme to provide attractive research and career opportunities for **clinical scientists** that work in both research and healthcare provision. In addition, LCSB will build a systematic **network of clinical partners** to meet the requirements of a patient-oriented research.

#### Reaching out to other disciplines

##### → FULFILLING THE ROLE AS AN INTERDISCIPLINARY CENTRE

LCSB seeks a closer integration with the FSTC. Sharing building and infrastructure with the LSRU is an important step. LCSB wants to further extend its engagement in teaching and offer a systematic concept for systems biomedicine PhD and master courses. In addition, LCSB will support the plans for the creation of a Medical School and will contribute to the development of a competitive research-oriented curriculum, thus offering the medical school the unique advantage of teaching a systems approach to medicine.

Common research projects and shared personnel and professorships as already implemented with LSRU could be extended to other research units such as Computer Science, Mathematics, Physics and Material Sciences. In addition, LCSB intends to build bridges to the SnT and other faculties by common research projects in overlapping fields such as handling, integrating and interpreting of big data such as in imaging or by applying tools developed in LCSB, such as complex systems analysis, to scientific questions in other domains as investigated by FLHASE or FDEF.



### **Reaching out to the research community**

#### **→ PLACING LUXEMBOURG ON THE MAP OF RESEARCH**

LCSB strives for a multi-lateral cooperation network with high profile investigators, focused on projects around LCSB's major research foci. This will strengthen LCSB's research and improve its international standing in the community.

Another important aim is to become a local driver of biomedical research. LCSB intends to establish a competitive research programme on neurodegeneration in Luxembourg and also to serve as a systems biomedicine hub for other disease research in the Personalised Medicine Consortium (PMC). In addition, LCSB aims to join forces in strategic areas of the PMC partners: a Parkinson's patient cohort will be built up and feed into the plans for a national cohort and an iPSC cell collection will be established together with IBBL. Similarly LCSB will engage in developing a research concept that integrates in addition different disciplines and institutions from the neighbouring countries. The overall goal is to build critical mass for biomedical research in the Greater Region.

### **Reaching out to industry**

#### **→ STRENGTHEN LUXEMBOURG'S ECONOMY**

LCSB will actively pursue interactions with industrial partners. Driving forces are strategic collaborations and an effective transfer from basic research into applications. Where LCSB's discoveries have the potential for creating a business around them, LCSB will encourage the spin-off of companies. An active technology transfer concept will ensure the valorisation of LCSB's research that has already led to several patents and industrial collaborations. This will include also the raising of awareness for intellectual property and technology transfer amongst the researchers through trainings and an active scouting for discoveries with a high potential for commercial development.

### **Reaching out to society**

#### **→ ENGAGING WITH THE PUBLIC**

Developing bridges between academic research and the public is an important prerequisite to secure the long-term acceptance and support of society. LCSB wants to interest the public for its research. Envisaged tools are adequate information material, an Art & Science programme, public lectures and a school lab allowing hands on experience for high school students. In addition, patients and their relatives will be encouraged to take part in research, not as research subjects but by becoming active partners.

LCSB will also set up an active fundraising programme to handle donations and provide information, encouragement and value to its supporters.



## A. Management of LCSB

→ “The goal of management is to remove obstacles.”

### A.1 Human Resource Management

The management of LCSB will be further developed to adapt to the increased size and strategic goals of the centre. This will require the engagement of more senior staff in both the administrative and scientific sector, additional levels of responsibilities and the further development of a professionally managed organisation.

With human resources being one of the most valuable assets of LCSB, career development and long term career perspectives will be an important aspect. Instruments such as the possibility of offering tenure track opportunities as well as professorship positions in the course of negotiations to gain or retain excellent researchers will become more important. The LCSB is interested in pursuing the option of “Distinguished Senior Professorships”.

LCSB also sees the need to offer career paths outside the traditional research career, such as in the management area. LCSB will jointly with the University explore the development of new career paths.

### A.2 Quality Management and Quality Assurance

During its first years, the LCSB has already started to introduce a culture of quality in parallel with the establishment of the main components of the Centre. During the second term, this approach will be expanded and systematically applied to all major aspects of LCSB. The keys to quality in LCSB are documentation, key performance indicators and regular reviews.

To improve research quality, the LCSB will establish a Scientific Advisory Board to obtain feedback on LCSB’s research directions. In addition, a systematic review of all individual research groups will be implemented that will have direct impact on the future of the group in terms of resources.

Also the support services will be evaluated during the upcoming 4-year-period to further improve the quality of organisation and administration of LCSB.

### A.3 Risk Management

Risk management provides a systematic approach to identify, analyse, respond and monitor uncertain events that could end in a negative (risks) or positive (opportunities) impact to the Centre. Considering the fast growth of the LCSB, risk management is an important managerial tool to assess and act on the Centre’s risk and opportunity areas during the new developments and current operation. Regular risk and opportunity analyses will be an integral part of LCSB’s management.

## B. Human Resources and Budget Plan

### B.1 Plans for recruitment between 2014 and 2017

Having built up a solid foundation of 14 groups during the first 4 years of LCSB, in the second phase, new groups will be mostly built around externally funded fellowships (**ATTRACT, PEARL, ERC**), professorships that serve as **bridging positions** within the university or **internal promotion** following a structured review process. This will result in a growth to about **16 – 20 groups** in total.

It is expected that due to fellowships and internal developments, about 5 – 6 professorship titles need to be foreseen where the costs are covered by LCSB and/or external funds.

### B.2 Total staff

The list below estimates the total personnel development of LCSB over the next 4 year phase, including faculty positions associated with LCSB. There may be shifts between faculty positions and Senior Research Scientists / Chief Scientists, depending on the teaching commitments of senior staff. Depending on focus of the research groups, there may also be fluctuations between the number of research associates versus the number of PhD and/or technical staff.

Each group is managed by a Principal Investigator of some seniority (e.g. professor, ATTRACT fellow, senior research scientist, senior research associate), while for each platform a research scientist (or equivalent) and a technician is estimated.

Planned Personnel	2013	2014	2015	2016	2017
Chief Scientist / professorships	5	8	9	10	11
(Senior) research scientist	6	6	8	8	9
(Senior / junior) research associate	58	61	62	63	64
PhD candidate	31	35	38	40	42
Support / technical	22	25	28	28	29
Support /administration & management	18	20	24	26	27
<b>Total (FTE)</b>	<b>140</b>	<b>155</b>	<b>169</b>	<b>175</b>	<b>182</b>

### B.3 LCSB Budget

The budget of LCSB follows the resources for human capital which covers almost 50% of the budget. The next important expense category are operating costs.

Investments for equipment and platforms follow the need for data production and validation models as outlined before; however, also the need to upgrade and/or replace existing equipment was considered. For servicing, 10% of the costs of purchase are assumed from the second year after the investment.

Rental costs up to 5 Mio. € are foreseen to bridge until the Campus Belval of UL provides the necessary infrastructure. It is assumed that running costs (electricity, heating, cleaning etc.) are covered by SIL.

Separately budgeted are commitments of LCSB by Knowledge Transfer contracts for collaborations with international partners started between 2011 and 2013. Also separately listed is the amount foreseen for external funding. It is assumed that about 30% of the annual budget will be built from external funds.

Planned Expenses in Mio €	2014	2015	2016	2017	Total
Personnel	5.6	6.7	7.8	8.3	28.4
Operating costs	2.7	3.8	4.1	4.3	14.9
Investments	2.0	2.0	2.0	2.5	8.5
Service contracts	0.5	0.7	0.9	1.1	3.2
<b>Total</b>	<b>10.8</b>	<b>13.2</b>	<b>14.8</b>	<b>16.2</b>	<b>55.0</b>
Rental (LSRU+LCSB)	0.5	1.5	1.5	1.5	5.0
<b>Total incl. rent</b>	<b>11.3</b>	<b>14.7</b>	<b>16.3</b>	<b>17.7</b>	<b>60.0</b>

Other Expenses in Mio €	2014	2015	2016	2017	Total
Contractual commitments from Knowledge Transfer	3.4	2.3	0.9	0.6	7.2
Externally funded projects	4.0	4.3	4.4	4.7	17.4

### B.4 Additional infrastructure costs

The renting of an additional building to move together LCSB and LSRU will require a budget for fitting the building and equipping it as a lab (first equipment). Establishing an initial mouse facility will require further funds.

Infrastructure costs in Mio €	2014	2015	2016	2017
Fitting and basic equipment				
Technoconsult Building (Belval)	7.5 Mio €	7.5 Mio €	0 Mio €	0 Mio €
Mouse Facility in House of Biomedicine	0 Mio €	0 Mio €	2 Mio €	2 Mio €

## C. Key Performance Indicators

Publications	2014	2015	2016	2017
Impact factor greater 10	7	7	8	8
Impact factor between 5 and 10	19	22	25	27
Total number, Impact Factor greater 2	68	73	78	83
Valorisation	2014	2015	2016	2017
Patents	6	6	6	6
Spin-Offs	1	1	1	1
Clinical Trials	0	0	0	1

Infrastructure Targets	Goal
Availability of new building	2014
Establishment of mouse facility for disease models functional validation	Availability of space for 8000 mice by 2014
Establishment of fully functional zebrafish facility	Availability of 25.000 zebrafish by 2016
Secure resilience of increasing experimental data sets from LCSB research	1 additional petabyte by 2014
	2 additional petabyte by 2016

Outreach Targets within UL	Goal
Laboratory for Master courses	Established by 2015
Common publications with LSRU or other UL units	2 / year
Research projects outside LSRU	3 projects
Outreach Targets (other)	Goal
Common publications with regional partners	2 / year
Number of clinical cooperation groups	At least 3 by 2016
Industrial partnerships	4 by 2017
International symposia	1 / year
School lab for high school students	Established by 2015

Management Targets	Goal
Implementation of senior management organisation	2014
Establishment of senior scientific position as deputy director, ideally PEARL position	2015
Establishment of Scientific Advisory Board (SAB)	2014
Completion of a quality management system that takes as references the ISO9001:2008	2015
Succession concept for Director	2017



## D. Reference to Evaluation

In 2012 LCSB was evaluated as one of the priorities of UL. LCSB has taken up the recommendations in the following way.

### Human Research Management (HRM) Recommendations

**HRM** - *Strengthen the centre management on the administrative and scientific levels through the recruitment of senior staff. Develop strategies for staff development and management backup plans for the next years. Look into differences between contracts, raise efforts to bring in female PI's and make sure enough lab technicians are hired. Keep searching, together with the University, for flexible approaches to the recruitment of highly qualified personnel.*

The success of LCSB depends vitally on the quality of its recruited personnel and an efficient management of the Centre. Organisational development based on experienced staff together with the establishment of deputy positions on both the scientific and the administrative level and

career development schemes have been implemented in the next 4 Year Plan. Together with the UL management, LCSB strives to build up good hiring and career possibilities. The growth to a critical mass of about 180 people will allow the establishment of shared responsibilities and thus regular back-up positions.

### Facilities Recommendations

**FACILITIES** - *Find practical solutions for the problems with material facilities (lack of appropriate space, geographical spread between buildings, mouse house, computing and storage capacity) and investigate any possible solution to remedy this situation in the near future. Deal with the obstacles with regard to accessing scientific articles and financial management and bookkeeping systems.*

The problem of material facilities has been addressed without delay by UL and LCSB and could already be partly solved. Access to appropriate space offering a communicative environment and architecture is foreseen for the end of 2014. There will still be some geographical spread

between the new and the current LCSB building because it was decided to give priority to increasing the collaboration with the LSRU by sharing the same facilities. The costs for the rent and the equipping of the building are projected in the LCSB 4 Year Plan for both LCSB and LSRU.

The fastest solution to have an initial mouse facility at least on a smaller scale is to implement this into the current LCSB building. The corresponding funds are foreseen in the budget of the Plan.

To achieve a final solution for integrating LSRU and LCSB in a coherent facility, the costs of additional access either in the Maison de la Vie or other suitable space are also projected in the plan.

Computational science will become a central theme and a common denominator across all faculties and Interdisciplinary Centres. The improvement of scientific and administrative computing infrastructure will be developed together with the responsible units in the University.

### Data Sets Recommendations

**DATA SETS** - *Gear up the production of suitable specific comprehensive data sets for modelling.*

The new 4 Year Plan fully implements the recommendation of the reviewers for increased efforts in data generation. While during the first phase the emphasis was on building up computational expertise, the second phase foresees the establishment of several new platforms for data generation such as yeast, zebrafish, iPS, and mouse models. To keep up with the additional models available, technology infrastructure for data production (e.g. metabolomics, imaging) will be increased. The corresponding needs for investments and personnel have been considered in the budget.

### Collaborations Recommendations

**COLLABORATIONS** - *Develop the collaboration with 'internal' partners such as SnT, LSRU or CSC. Attention should be given to assuring that collaborations with external partners stay aligned to the specific research orientations of the LC.*

Linking of LCSB's research with other units in UL has been made a major action line for the next phase ("Fulfilling role as an interdisciplinary centre"). Sustainability of the joint research activities can be created through common personnel as well as shared use of buildings and instruments with LSRU. Corresponding targets such as common infrastructure, projects and publications have been projected.



## **A6 - CA – Central Administration**

- Departments
- Offices
- Cells

#### **P4 "2014-2017"**

##### **Administration and Organization**

#### **I. General aspects, guiding principles and objectives for "all" reflections and decisions regarding the administration and organization**

The P4 "2014-2017" has to consider at least 3 general aspects that should guide the administration:

- a. The Belval move requires all workforce and it may interfere with many objectives as infrastructural settings may not be in place.
- b. Nevertheless it has to be avoided that Belval becomes an overwhelming matter or an excuse for a non-development. Thus starting many new projects simultaneously is not advisable. Consolidation and optimization on procedures quality should be a priority. The University of Luxembourg is no longer a medium sized "small" university, but has become a small "big" university (see 2<sup>nd</sup> ext. Eval. Report p.2) and therefore some cases should no longer be treated individually, as procedures must be progressively standardized, even if it would be of the cost of some privileges.
- c. The integration of a new ERP-system is a further challenge. Hence, a good financial control is crucial for the future development of the UL.

Administration did not grow as fast as the institution (see p.11). Unarguably, this situation needs adjustment in a reasonable way to avoid a shift from understaffing to overstaffing:

On one side hiring new personnel will be needed, nonetheless it could be on the other side (at least partly) accompanied by outsourcing measures, technical solutions, process reengineering or standardization; and by increasing student contracts. Before hiring personnel it is necessary to evaluate the administrations different units needs and to make a strategic plan to define the profile of staff to be hired<sup>1</sup>. The challenge is to hire quality and not only quantity.

The different elements of administration must be linked in a stronger way: improved communication and adjustment between the players is the key to achieve some synergy effects.

#### **II. Conclusions for the departments, offices and cells**

Considering these general aspects, the guiding principles and of course the non-negligible daily business, the outlook for the different units is as follows:

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<sup>1</sup> After 10 years UL: an appropriate evaluation of the whole administration – quality assurance (!) – seems to be obvious. So this should be part of the next 4 years plan. But we should respect a certain number of external constraints, such as the implementation of ERP. So it's recommended to start with SIU, BUL and SIL, a department like SFC will be evaluated after implementation of the ERP system (2016/17) and a department like SEVE when it is well installed in Belval.

SC<sup>2</sup>: The SC must strengthen internal communication: SC should link its activities with the communication units in the faculties and centers to share different tasks. Moreover, SC is advised to implement internships to increase its resources. The need of an event manager for the different events at UL is logical but other units such as "International Office" or "Culture" articulate the same need: there is an opportunity for synergy. Nevertheless an increase of resources is appropriate<sup>3</sup>.

SFC: Of course the main issue is the successful (choice and) implementation of a new ERP system. But the SFC has as well to deal with a mass phenomenon: a growing number of invoices in general due to increasing external funding. There is a need for transparency regarding the big cost positions at the university. And last but not least: as SFC is responsible for many (financial) processes, SFC should try to optimize them.

SRH: As all departments SRH has to focus on some core activities. The UL will have less fluctuation of employees, due to the financial situation, the next years. Thus, SRH may use this more quiet period and turn it into an opportunity to improve quality of the recruitment processes, to increase leadership quality of the staff, to prepare new career paths for the employees and to evaluate the feasibility of a pension plan for the UL.

SIU: SIU will have an important role in the future development of the UL: Belval move, ERP and a broader support of users are the keywords. This demands certainly a new structure of SIU and its resources. Therefore it is crucial to have an assessment of (user-) expectation to find out how to meet these requirements.

BUL: BUL ought to increase the breath of its services (opening hours), which of course needs resources. There are different approaches to realize the requirements: (1) close cooperation with other libraries (national library/MPI/libraries from other stakeholders in Belval), (2) close cooperation with faculties and centers concerning the acquisition of media, (3) contribution of external users and the introduction of fees for the use of extra services for internal users. UL should use special (internal) funding's such as "quality" or "research" to contribute to the BUL's budget. The budget for the BUL depends very much on the new building and the tasks of a library in 2017. Hence the distribution of the resources has to be decided step by step. As it is recommended by the "validation of the BUL in 2012" a special evaluation process for the future tasks, size and role should be implemented.

<sup>2</sup> This order follows the one from footnote 17.

<sup>3</sup> For the concrete distribution of the positions over the four years see the corresponding table beneath the whole paragraph.

SIL: The main challenge for the SIL in the near future is of course the Belval move. SIL must be aware that after the move life in the "Cité des Sciences" starts, and that means a strong coordination with other stakeholders of the Cité is needed, in particular with Fonds Belval regarding the distribution of tasks and the need to control and minimize the operating costs of the new buildings. It is absolutely necessary for SIL to focus on its core business. An evaluation in order to clarify how to face these main objectives could prove very useful.

SR: For the SR the issue of the relationship between central administration and the local components is very important. Furthermore grant administration and advice in this field is a key task of this department. A new activity should be technology transfer and related topics. There might be a potential for synergies between SR, Legal affairs and LCSB.

SEVE: The SEVE will face many different challenges besides its traditional tasks: if the number of students will still continue to increase, one has to decide if UL will limit the student accommodation or if the students contribution to the cost of accommodation should increase. Furthermore the SEVE should continue its efforts to promote student's participation within the UL and even activities or services for students ("Students for students"). A very crucial point for a successful establishment at Belval will be the supply of economical quality food. In this context the SEVE should analyze the opportunity of a (semi-) private agency supplying food and housing space for students (cp.: "Studentenwerk").

#### Offices<sup>4</sup>:

There is no urgent need to create new departments. A Belval office is being created, aiming to improve the communication with the Fonds Belval on the one hand and to coordinate the main activities for the Belval move (IT, facility, mobility, change management and internal communication, fittings) and budget control respectively liquidity management on the other hand. Legal affairs have to be reorganized and reinforced, as the UL needs more diverse and specialized legal advice; a legal adviser at the UL must as well support the board of governors (and certainly the CU in its legally foreseen role). International Office ought to satisfy the demands from incoming students, to coordinate the different activities of all the UL components in this field and to be a think tank for a coherent strategy in international relationship.

Finally, it is foreseen to build up a quality office which is quite in line with the philosophy of this 4year plan: in a phase of consolidation

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<sup>4</sup> See p. 13

and lesser growth than in the former 4 year plan, the UL needs a structure reflecting future development and aiming to support the implementation of new trends for governance or management. At the very beginning this office could integrate existing staff (HR, statistics, contrôle de gestion,...) too.

#### Different Cells <sup>5</sup>:

There are some important challenges. Controlling operating costs (in particular in Belval) is a success factor: linking SD competences and SIL tasks could strengthen facility management resources and reduce costs. SC's, IO's and the cultural cell's common need for an event manager could be another internal connecting factor. Furthermore, a pool of secretaries could alternatively satisfy these cells' need for general administrative support. Gender initiatives like the welcome packages for female staff can be connected with HR activities.

#### (Internal) Audit:

The (internal) Audit at the UL has to be reinforced to fulfill the third main objective of the administration: quality and procedures. The audit should advice how to implement efficient procedures and regularly review them. The experience has revealed several general risks for the UL (e.g. research projects); consequently internal audit has to analyze those risks and provide advice.

#### Concrete distribution of positions within the Central Administration:

Component	2014-17	2014	2015	2016	2017
SC	2	1	1	/	/
SFC	6	3	2	1	/
SRH	4	1	1	1	1
SIU	4	2	1	1	/
BUL	6	1,5	1,5	1	2
SIL	10	4,5	1,5	3	1
SR	3	/	1	1	1
SEVE <sup>6</sup>	5	3	1	1	/
Offices	3	1	1	/	1
Cells	2	1	/	1	/
<b>Total</b>	<b>45</b>	<b>18</b>	<b>11</b>	<b>10</b>	<b>6</b>

There is a stronger provision of personal within the first two years of the P4 in order to raise the staff level within Central Administration.

The upcoming years the provision of personal is planned in accordance with the three main administrative challenges of the UL: Belval move, ERP and quality (of processes) and the related objectives. External factors, such as the completion of the library, the expansion of UL facilities or newly created tasks must not be ignored; the provision of personal ought to be constantly reviewed, even though perspectives may not change.

<sup>5</sup> See footnote 20.

<sup>6</sup> The SEVE has already received one position in 2013 in anticipation of the P4 (2014-17)

### III. Forecast: Strategic tasks for the next upcoming P4

- Clarify relationships of central and local management and administration
- Clarify relationships (e.g. concerning communication, fundraising, research, budget) between faculties and centers (see above, here the administrative related questions)
- Clarify (administrative) roles on the Belval facility between the different stakeholders (e.g. SIL-Fonds Belval/BUL – libraries of other Belval-Site-user).

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AF/12.08.2013



## UL communications strategy 2014 - 2017

### External communication: current situation

In the first ten years of its existence, the University has established itself as an educational and research actor in Luxembourg and the Greater Region and is positioning itself in the European higher education landscape as well. In its tenth year, the University is mainly associated with the following brand attributes:

- Internationality (students, academic corps, multilingualism, exchange programs, research projects)
- Local relevance (education, local economic and institutional cooperation, economic factor in the Minett region)
- Research locomotive (in the context of the national strategy for the future)

This perception is still fresh and needs to be reinforced in the target group's minds – prospective students and students, scientists, national research actors, stakeholders in business, government, media and the public.

### Objectives of perception 2014-2017

The most important goals of the Four Year Plan 2014-2017 that are relevant to communication are, among others, to further sharpen the academic profile of the university, to strengthen local relevance, to use the move to Belval for the consolidation of achievements and to improve internal communications.

The aim of the external communication strategy 2014-2017 therefore is to strengthen the reputation of the UL as a research university with excellence in selected research areas as well as to force the profile of the UL as a leading player in the "new" Luxembourg. Both perceptions are prerequisites to promote confidence in the institution and to attract excellent students and researchers as well as external funding. As for communications, the following objectives of perception can be derived:

1) *"The UL is a particularly international, highly networked research university. It is characterized by proximity to people and society, and relevance in practice and application options."*

#### ➤ **Objective of perception: „An internationally relevant research university“**

The focus here is communication on UL research activities. As for the selection of topics, priority will be given to the central priorities defined in the Four Year Plan (computational sciences, Law and European Law, Luxembourg School of Finance, Educational Sciences for Luxembourg), endowed chairs, and third-party funded international projects.

Target groups are science media, researchers, students and applicants. Measures:

- Expansion of international media relations
- Expansion of the pool of experts for example on political and economic issues
- Participation in international research fairs
- Improvement of the web content of the research units
- Building and maintaining personal web pages for scientific staff on [www.uni.lu](http://www.uni.lu)
- Marketing of scientific conferences with the help of keynote speakers and UL publications presented there

2) *"The UL is the locomotive that will help to further develop the country towards a knowledge society, to further diversify the economy, and will thus help to secure Luxembourg as a location for the future. The University inspires an innovative economy in research and education and it is itself an economic factor."*

➤ **Objective of perception: „Our university - a driver of our country's future“.**

The focus here are corporate communications as well as public relations: an identity-creating communication, transporting the image of the UL as the local "Driver" who takes the lead in communicating Luxembourg as a location of education and research, and, with the help of science marketing and knowledge transfer, promotes the local perception of the UL as university connected to the society and serving the country. Measures:

- International press visits to present Luxembourg as a location of research, in cooperation with local partners
- Science events to involve citizens: science slams, popular lectures, guided tours in cooperation with internal partners
- Preparation of a crisis communications plan for management of possible reputation-damaging crises in cooperation with SIL

**Internal communication: Current situation and objectives 2014-2017**

The still weakly developed sense of community, the lack of awareness of a connecting mission statement, of a vision and values in practice as well as the fragmentation of the University were among the core criticisms of the second external evaluation in late 2012. Due to the founding history, rapid growth and many different campuses it will remain a difficult challenge to strengthen the UL's corporate identity. However, the objectives of internal communication 2014-2017 will be:

➤ **Objective: Strengthen the "corporate identity" of the university community**

The collaborative development of a vision and the consistent communication of a vision is a management task, but it can be supported by the Communications Department through the development of appropriate tools and actions.

Measures:

- Establishment of an identity-promoting university magazine (in print and / or online)
- Production of corporate videos
- Socialising events for internal audiences in cooperation with HR department
- Internal communication campaign for the move to Belval in cooperation with other internal partners

➤ **Objective: Improving the administrative and the bodies communication**

Again, this is a management function that should be supported by the development of appropriate tools. Measures:

- Permanent internal communications of rectorate decisions to the staff
- Development of an efficient intranet
- Regular information exchange between the management and administrative departments

**Master and PhD student marketing**

Strategic marketing is a management task, including market analyses, perception studies, the definition of target regions and work on blockers (eg, visa problems, lack of scholarships). This requires a consistent support of the Communications department by the rectorate. Current resources do not allow systematic marketing for individual courses. However, almost half of all master programs, especially the natural sciences, had less than 25 freshmen in October 2012. To get more applicants and to select the best ones will only be possible if the UL's perception will be increased with the help of more intensive image campaigns in a few destination countries and with individual campaigns for selected master programs (Priority: FSTC) as well as for doctoral schools. This requires higher marketing budgets.

Experience shows that in higher education marketing, students and graduates as "ambassadors" enjoy high credibility. Also, the young target group is mainly accessible online. Student marketing will therefore focus on student assistant teams and online marketing. However, marketing will need the cooperation and resources of the study directors. Also, the expansion of activities for UL alumni will be a key success factor of student marketing. Measures:

- Conduct a perception study in cooperation with UL scientists
- Recruitment, coaching and supervision of a student marketing team (peer-to-peer marketing)
- Expansion of the social media community, in particular the use of LinkedIn for the target group alumni
- Construction of platforms for exchange between applicants and students
- Implementation of individual campaigns for selected Master programs in cooperation with study directors
- Search Engine Optimisation (SEO)
- Production of online videos about programs, student life, alumni
- Establishment of efficient evaluation tools in cooperation with the SEVE.

The following list of required resources is based on the projected 2014-2017 budget reality.

<b>Objectives 2014-2017</b>	<b>Resources required: 3 FTE, 2 students, add. budget</b>
Promoting awareness of the UL as relevant international research university and as a local Driver	<ul style="list-style-type: none"> <li>- Media relations advisor</li> <li>- Event manager (0,5 FTE)</li> </ul>
Strengthen the "corporate identity" of the UL community Improvement of internal communication	<ul style="list-style-type: none"> <li>- Project manager for internal communication</li> </ul>
Promotion of selected Master programs and Doctoral Schools	<ul style="list-style-type: none"> <li>- Additional annual marketing budget (+ min. 30 000 €)</li> <li>- 2 additional student jobs for marketing</li> </ul>
Administrative and technical maintenance	<ul style="list-style-type: none"> <li>- Technical / administrative support (0,5 FTE)</li> </ul>

## SFC's Human Resources Requirements for P4 2014-2017

The next four-years-plan will be hallmarked for SFC by the replacement of the existing Enterprise Resource Planning (ERP) -system Piton with the new one SAP.

During **2014** we'll implement SAP-Finance and Controlling module along with HR-module (for HR-department). The scheduled Go-Live date for both SAP-modules is January 1<sup>st</sup>, 2015.

This deployment will require much attention and change management to enable the new system as well as ensuring that the ongoing administrative processes are by no way interrupted or the service quality endangered.

Therefore, we recommend to hire one Project-manager in **2014** to follow-up the ERP-deployments milestones and actions and hence disburden the Head of SFC from an additional project follow-up role.

Furthermore, the new SAP-landscape will require in-house specialist's competencies to continuously improve the system and help existing users. Thus, we recommend to hire one SAP-FI/CO-specialist.

Moreover, we envisage to buttress SFC's controlling functions (i.e. cost-analysis, budget-controlling, etc.) by hiring one new Controller.

Last, but not least, the move to Belval and special projects (e.g. Biotec) stated in the President's P4-plan will result in substantial increase in volume (i.e. number of invoices, Travel-expense claims, etc.). In order to cope with this growth in transactions four new employees in both Front- and Back-Office are foreseen in 2014.

Thus, an overall increase of **seven** employees is recommended for **2014**.

In **2015** (after SAP's Go-Live) we expect to be able to strengthen the Budgeting- and Reporting function by adding one new employee dedicated to this function accompanied by another Accountant to cope with the volume increase.

By **2016** SFC's size will have substantially grown which necessitates strengthening the organizational and administrative assistance by hiring one new employee.

Finally, in **2017**, after successfully stabilizing the SAP-system and having had experience with at least one complete accounting, closing, and planning cycle, we recommend to reorganize SFC's team set-up and sub-group composition. This will again be supplemented by hiring one new Accountant to cope with volume increase and to create capacity for SFC to focus on the reorganization project.

Luxembourg, 25.07.2013

Emanuel Milioto  
Head of Finance and Accounting

## Positions Needed in HR Coming Four Year Plan (P4)

Below please find an overall estimate of the staff need in HR for the next P4. The basis for this estimate is that the level of activities at the University continues at the same level as of now also in the new P4. The HR requirements have been based on an estimation that there will be a need to support around 450 – 500 employees more than HR are supporting today. An estimate of around 1800 employees are foreseen in the new P4 compared to around 1360 as of today.

Three big projects will be implemented during the next P4:

- Move to Belval
- Implementation of the ERP system
- Quality system at the University

All of those projects will impact the activities in the HR department and the activities that the department have to support going forward (please see an overview of the HR need on the following page).

The move to Belval will mean that most of the University will psycially be based on one address. This will be an opportunity to build up a corporate culture at the University with a centralised approach on certain things. Until now focus have been based on a more decentralised approach where each Faculty, Center, Department or entity have the priority to establish own area of responsibility. This has lead to a very decentralized approach as a result, which is logical in a phase of start up. This decentralised approach has also lead to a need for individual solutions in order to solve individual cases, which to a high extent will disappear when implementing a more central approach.

The implementation of the ERP system will mean a different way of working. All of a sudden we will have one integrated system where we have been used to work with different stand-alone systems. However, the precondition for a successful implementation of this is that we need to build up process and procedures.

The process and procedures will also be the basis for a successful implementation of a cross University Quality system.

The overall heading from a HR point of view will be change management. HR has to support staff at the University to be able to cope with all these changes in the coming P4 plan. HR will implement the results of the external HR benchmark study that we are currently working on. We need to review the present structure for compensation and benefits. The precondition for this is to have a formal structure of job descriptions and jobgrading across the University and to develop a new structure in regard to compensation of benefits linked to the hieraki within the University. This revised structure needs to be based on the need of the organisation and supporting the overall goal and strategy of the University.

Another challenges that the department has to support in the next P4 is to bring the University to next level. This means that we need to support an organisation which is no any longer in the phase of establishing/building up – now it is an organisation which is already established. HR has to support an organisation who need clear guidelines, based on policies and a clearly defined organisational structure. Decisions have to be made when desicions are to be made from a central point of view and when decisions can be made decentrally.

### Need for HR Department

2013: = 16 Positions

2014: **+ 3 Positions** = 19 Positions

1 position for Katrin and Mike (both of them are now 50 % on HR budget)

1 position for the ERP

1 position

50 % HR BP – development in Walferdange and Center of Systems Biomedicine (LCSB)

50 % Recruitment – increase in number of recruitments (replacements etc. 2012 6.000 recruitments)

2015: **+ 3 Positions** = 22 Positions

1 position HR Professional

1 position Compensation/Benefits/Pension

1 position HR Controlling

2016: **+ 1 position** = 23 Positions

HR Professional

2017: **+ 1 position** = 24 Positions

1 positions people development/training

Total need for additional **8 positions** over the 4 year period of time.



## SIU Activities 2014 – 2017

The *Service Informatique de l'Université* (SIU) is the university department responsible for the support of all university staff concerning all questions related to Information Technology (IT). In the period 2014-2017, the SIU will continue providing all standard IT services (IT helpdesk, administration of central IT services, organization of IT-related acquisitions, etc.) to UL staff as it did in the last years. During the complete period, the SIU will accompany the installation of an (planned) ERP system at the university and its integration into the existing IT-services infrastructure. Depending on the availability of human resources, also in-house developments for that system will be done.

The following overview shortly describes major additional SIU tasks planned in the context of the next 4-year plan. The successful realization of these tasks is based on the availability of sufficiently many well-trained IT staff. Due to the new challenges introduced by the new Belval site, additional staff for the network and IT services unit and several new IT support staff will be needed to guarantee best possible IT support in this expectedly very dynamic period of the university.

### 2014

Enormous network installations on the new site Belval have to be realized in 2014. These installations comprehend:

- The installation of the network backbone in the *Centre de calcul* including the complete configuration of the new network and related network services.
- The complete cabling inside the *Maison des Sciences Humaines* and the *Maison du Savoir*, including the setup of the connection between these buildings and the *Centre de calcul*.
- The move of the current IT server and services infrastructure from campus Kirchberg to the *Centre de calcul* in Belval, probably in several steps in 2014 / 2015.
- An extension of the central storage infrastructure with a more flexible and scalable cloud-based design is planned in several steps, starting in 2014.
- A new external building for the LCSB, planned to be ready for use mid 2014, will be integrated into the network and IT service infrastructure.

In the last quarter of 2014, the FSLHASE is expected to move to Belval, and one of the main tasks of the SIU is giving IT support during this move. The SIU will integrate all IT equipment for moved staff into the new network infrastructure in Belval. Therefore, the SIU support unit Walferdange will gradually move to Belval in relation with the number of staff still located in Walfer. Depending on the availability of the *Maison du Savoir*, also parts of the central SIU units will move to Belval in late 2014 / early 2015. Due to increased need for IT support at various locations, the availability of IT support staff must be extended in 2014 and 2015.

### 2015

The move of the central administration from campus Limpertsberg to Belval is planned for 2015. Again it will be one of the main tasks of the SIU to support that move and to integrate existing equipment into the new IT environment. Since campus Limpertsberg will not be completely abandoned, some IT support will still be needed on Limpertsberg. The partial move of the SIU support units to Belval will necessitate a dynamic re-organization of the SIU to adapt to the new situation and to guarantee optimal IT support for UL staff located on any of the available sites.

### 2016

For the SIU network unit, one major task in 2016 (probably already starting in 2015) will be the organization of the cabling in the *Maison du Nombre* and its connection to the *Centre de calcul*.

Moreover, under the condition of the availability of a second smaller server room in Belval, a disaster recovery policy for vital services will be implemented. For the last quarter of 2016, the move of all UL staff currently located on campus Kirchberg to Belval is foreseen. As with previous moves, the SIU local unit Kirchberg will gradually move to Belval with respect to the number of staff still on Kirchberg.

#### **2017**

At the current time, the situation of new buildings in Belval planned for 2017 is still unclear such that currently no planning for IT installations in new buildings can be made. We expect however that, after consolidation in Belval, requests for additional central IT services will show up. In the fast developing field of IT, new technologies arise very quickly. The SIU will continue to support the work of all UL staff with providing access to new and innovative technologies.

## UNIVERSITY LIBRARY (BUL) – P4

MP Pausch 12/03/13 - Une version française suit l'anglais.

### The University Library (BUL): what are the users' priorities for 2014-2018?

#### **For our collections (in order of priority)**

- to have rich paper and electronic collections, « just in time » and « just in case », tailored to the multiplication of needs, research topics and teaching;
- to consult the dissertations and theses of the University;
- to have access to “course reading” collections per course.

#### **For our services (in order of priority)**

- to be able to access the library with longer opening hours;
- to have, per discipline, a reference service providing aid with literature research which enables the orientation of users within the immense volume of available content;
- to receive training, preferably integrated into the course curriculum, permitting the development of documentary and information skills;
- to have an article and book delivery service on each campus that furnishes items from both the National Library and international libraries;
- to have a service specifically directed to researchers to support their publication activities notably the distribution and promotion of their works in Open Access.

**Together, all of these user priorities represent the basic services of a university library.**

Implementing or consolidating these basic services constitutes the BUL's objective for the next P4 – all while facing ever increasing usage of our existing services (60% increase in visitors between 2008 and 2012, 410% increase in electronic resource usage, etc.). It is on this basis that requests for increases in both financial and human resources have been made, validated by an internationally renowned expert in the field.<sup>1</sup>

The BUL, like all university libraries in Europe, seeks to support and fully participate in the objectives of teaching quality, attractiveness of the University (aiding in our ability to attract and keep high-quality personnel), interdisciplinarity and research innovation all within a multilingual context.

Without the means by which to develop until our arrival in Belval, the quality, the existence even, of basic university library services cannot be guaranteed.

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<sup>1</sup> Cfr. *The Library: a strategic tool serving the University of Luxembourg* / Marie-Françoise Bisbrouck, 2012

**Bibliothèque universitaire (BUL): qu'attendent les usagers de manière prioritaire pour la période 2014-2018 ?**

**Au niveau des collections (classé par priorité)**

- de disposer de collections papier et électronique riches, adaptées « just in time » et « just in case » face au défi de la multiplication des besoins, des sujets de recherche et d'enseignement;
- de consulter les travaux de fin d'études et les thèses de l'UL ;
- de disposer de collections de « références de semestre » par cours.

**Au niveau des services (classé par priorité)**

- de pouvoir fréquenter une bibliothèque ouverte plus largement,
- de disposer d'un service de livraison d'articles et de livres sur chaque campus provenant des bibliothèques à l'étranger et de la Bibliothèque nationale,
- de disposer, par discipline, d'un service de référence et de soutien à la recherche documentaire, permettant d'orienter les usagers dans d'immense volume de contenu disponible,
- d'avoir une offre de formation, intégrée de préférence au cursus, permettant le développement des compétences informationnelles et documentaires,
- de disposer d'un service destiné spécifiquement aux chercheurs, pour soutenir l'activité de publication, la diffusion et la valorisation de leurs travaux via l'Open Access.

**L'ensemble de ces attentes prioritaires pour les usagers, constituent en vérité les services de base d'une bibliothèque universitaire.**

Mettre en place ou consolider ces services de base constituent l'objectif de la Bibliothèque universitaire pour le prochain P4 – tout en devant faire face à un usage des services existants en augmentation croissante (+60% de fréquentation des lieux entre 2008 et 2012, +410% de consultation des ressources en ligne, etc.). C'est sur cette base que reposent les demandes d'accroissement en ressources humaines et financières, dont l'évaluation a été faite au plus juste par une experte internationalement reconnue<sup>2</sup>.

La Bibliothèque souhaite, comme toute bibliothèque universitaire en Europe, soutenir et participer pleinement aux objectifs de qualité de l'enseignement, d'attractivité de l'Université (en permettant d'attirer et de conserver du personnel de haut niveau), d'interdisciplinarité et d'innovation de la recherche dans un contexte multilingue.

Sans moyen pour se développer jusqu'à Belval, la qualité et l'existence même des services de base d'une bibliothèque universitaire ne peuvent être garantis.

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<sup>2</sup> Cfr. *The Library: a strategic tool serving the University of Luxembourg* / Marie-Françoise Bisbrouck, 2012

**1/ Tableau des projections budgétaires du SIL pour le plan quadriennal 2014-2017**

TABLEAU DE COMPOSITION DES BUDGETS ANNUELS PREVISIONNELS DU SIL	ANNEES BUDGETAIRES :		2013	2014	2015	2016	2017
	SURFACES EXPLOITEES (FIN D'ANNEE) M2 :		75 564	144 474	157 274	177 740	200 227
	EFFECTIFS DE L'UNIVERSITE (FIN D'ANNEE) :		1 417	1 504	1 590	1 677	1 774
	RECRUTEMENTS ANNUELS SIL (Postes structuels) :		2,5	7	3,5	5	1
FRAIS D'EXPLOITATION RECURRENTS			METHODE DE CALCUL				
Coûts d'énergie TTC (€/an) :	Ratio par m2 surface brute	1 511 801	2 787 014	6 116 170	6 860 411	10 588 534	
Travaux d'entretien courant techniques TTC (€/an) :	Ratio par m2 surface brute	774 864	1 528 349	2 626 759	2 824 826	3 534 664	
Contrats maintenance et entretien technique TTC (€/an) :	Ratio par m2 surface brute	593 462	1 446 941	3 005 618	3 546 977	5 307 011	
Audiovisuel multimedia TTC (€/an) :	Ratio par m2 surface brute	74 717	126 661	201 702	214 968	252 502	
Coûts nettoyage locaux TTC (€/an) :	Ratio par m2 surface brute	2 113 247	2 918 385	4 065 445	4 426 525	5 454 969	
Coûts d'entretien des surfaces extérieures vertes et grises TTC (€/an) :	Ratio par m2 surface brute	404 500	354 206	274 528	199 732	153 375	
Travaux d'entretien courant sécurité TTC (€/an) :	Ratio par m2 surface brute	66 683	99 010	146 884	159 273	195 609	
Gestion d'accès TTC (€/an) :	Ratio par m2 surface brute	72 565	107 244	157 582	170 238	206 848	
Contrats maintenance et entretien sécurité TTC (€/an) :	Ratio par m2 surface brute	133 366	198 021	293 769	318 546	391 218	
Travaux d'entretien courant gros-oeuvre TTC (€/an) :	Ratio par m2 surface brute	148 373	217 810	317 608	341 995	414 864	
Frais d'études et de consultation TTC (€/an) :	Ratio par m2 surface brute	74 717	109 449	159 362	171 569	208 018	
Gestion des espaces inclus frais de gestion locative TTC (€/an) :	Ratio par m2 surface brute	74 717	109 449	159 362	171 569	208 018	
Gestion des déchets TTC (€/an) :	Ratio par personne	170 014	184 937	200 434	216 687	235 039	
Eau potable TTC (€/an) :	Ratio par personne	99 175	107 880	116 920	126 401	137 106	
Frais liés au staff (catering, repro, poste, téléphonie mobile) TTC (€/an) :	Ratio par personne	1 105 769	1 202 842	1 303 633	1 409 346	1 528 707	
Gardiennage TTC (€/an) :	Suivant affectation	344 500	980 472	1 865 182	2 219 219	2 674 693	
Outsourcing (réceptionnistes, employés polyvalents) TTC (€/an) :	Suivant affectation	100 000	358 750	630 375	753 823	883 050	
Frais de déménagement du staff TTC (€/an) :	Calcul direct des mouvements	50 000	166 460	194 996	155 072	172 195	
Frais généraux TTC (€/an) :	Prorata budget	36 836	52 916	82 175	88 175	113 100	
FRAIS D'EXPLOITATION PONCTUELS							
Gros déménagement (BUL) TTC (€) :	Etude en cours	0	100 000	0	200 000	0	
Gros déménagement labos (UR-ING, UR-BIO, UR-PHY) TTC (€) :	Etudes à planifier	0	100 000	300 000	0	200 000	
INVESTISSEMENTS							
Frais de mobilier nouveaux engagés TTC (€/an) :	Hors mobilier spécifique ou de labo	408 730	311 295	317 138	327 905	377 261	
Animalerie BIOTECH1-Etage +6 TTC (€) :	60 % SIL – 40 % LCSB	0	240 000	0	0	0	
Remise en l'état plateaux loués (148 AV FAIEN, K2B2, K2D2) TTC (€) :	Estimation sommaire	0	0	150 000	0	100 000	
Location bureaux temporaires sur Belval (SIL, LCSB) TTC (€/an) :	En cours	30 000	140 000	30 000	0	0	
Projets courants (transfos, nouveaux labos, divers,...) (€) :	Suivant demandes	646 000	200 000	216 759	234 336	254 183	
AUTRES FRAIS							
Coût loyers + charges (WEICKER, BIOTECH2, DEXIA,...) TTC (€/an) :	Suivant baux de location	3 957 576	4 534 118	5 714 682	5 264 859	5 276 741	
TOTAL BUDGET SIL – HORS CENTRE DE CALCUL TTC (€/an) :			12 991 412	18 682 209	28 647 083	30 402 452	38 867 712
CENTRE DE CALCUL							
Frais de maintenance et d'entretien TTC (€/an) :	Estimation sommaire	0	953 711	1 066 422	1 093 083	1 120 410	
Consommations énergétiques TTC (€/an) :	Estimation sommaire suivant SIU	0	721 373	1 534 896	2 272 982	3 302 445	
BUDGET CENTRE DE CALCUL TTC (€/an) :			0	1 675 084	2 601 318	3 366 065	4 422 855
TOTAL BUDGET SIL TTC (€/an) :				20 357 293	31 248 401	33 768 517	43 209 567



## **2 / Notes explicatives**

Les événements ayant un gros impact financier sur le plan quadriennal 2014-2017 sont :

- 2014 > Livraison de la Maison des Sciences Humaines, de la Maison du Savoir, du centre de calcul
- 2015 > Livraison du bâtiment de laboratoires BIOTECH2
- 2016 > Livraison de la Maison du Nombre des Arts et des Etudiants, de la Maison du Livre
- 2017 > Livraison de la Maison de la Vie et de la Maison des Matériaux I

Les hypothèses de calcul du budget du SIL :

- L'Université a un statut de locataire et assure seulement l'entretien « locatif » des bâtiments.
- Les projets d'aménagement initial du Campus Belval ne sont pas repris dans le budget SIL.
- Les coûts d'exploitation par m2 ou par employé sont extrapolés dans la mesure du possible des chiffres actuels. En l'absence de référence, les ratios sont estimés.
- Le budget tient compte du calendrier de livraison des Maisons suivant les indications du Fonds Belval (31/01/2013)
- Les calculs tiennent compte du nombre de mois d'exploitation dans l'année
- Les budgets intègrent les frais du personnel opérationnel nécessaire au fonctionnement des bâtiments suivant les heures d'ouverture actuelles
- Le personnel opérationnel est compté en outsourcing à partir de 2014

### **Ce qui n'est pas inclus dans le budget du SIL :**

- Les travaux d'aménagement initial du Campus Belval (Budget Michael Scheuern)
- Aménagement d'une animalerie au +2 de BIOTECH
- L'aménagement d'une salle IT au Campus Limpertsberg, ainsi que tout autre gros aménagement ou grosse transformation sur ce campus après le départ à Belval
- Les frais liés à la mobilité et au transport dans le cadre de la réduction de l'impact CO2 (Navettes de bus, auto-partage,...)
- Les frais de traitement électronique de l'archive courante et la reprise de l'archive historique (Logiciels, tiers archiveur,...)
- Les frais de démontage des bâtiments modulaires édifiés par l'Université sur les sites de Walferdange et du Kirchberg (BLOC X, BLE, BLF, BLG)
- Les frais d'entretien et de gestion du gros œuvre
- L'option d'achat du bâtiment BIOTECH2 (20 M€)

Les chiffres incluent :

- Inflation 2.5 %/an, augmentation tarifs énergie 3%/an.
- Croissance annuelle du personnel de l'Université : 6%/an soit environ 80 personnes/an
- Horaires d'ouverture avec présence SIL : Lundi à vendredi 7h00-17h00 (idem situation actuelle)

Les marges de sécurité :

- Les frais correspondant au centre de calcul sont à réévaluer régulièrement en fonction de l'utilisation de cette infrastructure et de la refacturation aux consommateurs
- Les calculs ne tiennent pas compte d'une montée en puissance progressive de l'utilisation des bâtiments (ils sont utilisés à 100 % dès la remise des clés)



## Draft P4 strategy of the Department/ Vicepresident for Research (Ludwig Neyses/ Lucienne Blessing 8/3/13)

**Executive summary:** In the present P4, the Research Service has been built up from scratch and successfully facilitated a more than 270 % growth in grant income from external funders. *Hence, it does not cost, it brings in money. It needs to be increased in times of budget constraints as external funds are the only expandable source of money.* In the next four year plan, in agreement with the wishes of the 'Conseil de Gouvernance', we will focus on

- establishing the Department for Research as the key strategic planning tool for UL;
- further increasing our success in supporting UL's soaring external grant and other income;
- increasing the attractiveness of UL through improving internal research conditions;
- disseminating and exploiting the knowledge generated for the benefit of Luxembourg.

**Background:** Over the last 5 years, the University has seen the gradual development of research support from 1 secretary until 2009 to the establishment of the Department for Research in 2013 with 5 staff. At the same time, the number of grant applications doubled to 400 (sic!) resulting in an unmanageable workload, reactive rather than proactive, application deadline driven, support and a risk to quality assurance in grant administration.

The second major objective of the VP research, i.e. developing strategies contributing to the development of science, economy and society could of necessity only be addressed in part, for instance through an HR strategy for researchers, initial IT grant management support and the establishment of standards for grant quality assurance.

**Proposal for the P4 Strategy:** The CG discussed with the then Vicepresident for Research, Prof. Lucienne Blessing the further development of the Research Service (05/ 2012). The present strategy is fully based on and extends these stipulations. Its focus areas are:

- *development of UL's research strategy.* This includes defining present and novel strategic areas (e.g. Medicine, which will be financed separately, new Interdisciplinary Centres, e.g. in Material Sciences, 'Universite de la Grande Region'). It will function as a 'think tank' generating innovative ideas e.g. in interdisciplinary projects and in the areas mentioned below. It will also introduce efficient and accepted measures of performance measurement;
- *grant income support.* We will extend the already outstanding success of the Research Service in supporting grant acquisition and reporting, a key motor of research, University income and development as well as a major internationally accepted performance indicator;
- *attractivity of UL.* We will increase the internal grant budget to support special research initiatives, attract top researchers and to ensure an attractive research and training environment for early stage researchers, in particular through the further development of our successful Doctoral Schools;
- *dissemination, communication, social and economic integration as well as exploitation.* This goal, sometimes referred to as the 'entrepreneurial University' (in a social, humanistic, educational as well as a commercial sense) will be pursued by further extending the already strong multiple external ties of UL (inter-/national companies, ministries, Max-Planck Society, European institutions etc.) as well as through the establishment of a Technology Transfer Office.

**Staff and non-staff budget needed to comply with the stipulations of the CG:**

***Overall, our effective Research Service has greatly facilitated the acquisition of large sums of grant money at small cost: the Research Service does not cost, it brings in money. Hence, our further strategy is as follows:***

- an extensive workload and quality assurance analysis showed that a total of 12 staff is the minimum required to assure further growth – in times of budget constraints, increases will mainly have to come through external funds, which, in turn is predicated on an increase in staff to support grant acquisition, in analogy to other major Universities. Overall, cost for the research service will be in the order of 2% of total grant income, a record compared to the usual 3-5%.
- the internal grant system has proved to be a key factor in the successful development of the University. To further increase the attractiveness of UL we propose a minimum increase of the research grant budget from 1.8 M (new grants awarded) to 3.0 M€/year. To improve quality, a comprehensive research training offer for all research staff is required, increasing the training budget from 77 k€ to 150 k€. The budgets of the VP Research need to increase from 50 k€ to € 120 k€ to accommodate the changes in tasks and personnel.

## SEVE - Plan quadriennal 2014-2017

### I. Hypothèses de travail

#### 1. Progression du nombre d'étudiants

Cf. texte principal

#### 2. Belval

Le déménagement du SEVE se fera en une seule étape. Des procédures sont mises en place, assurant la dématérialisation des dossiers ainsi que le traitement en back office, de sorte que les déplacements des étudiants sont de moins en moins nécessaires.

#### 3. Mobilité des étudiants

Le nombre de nouveaux étudiants en Bachelor étant amené à se stabiliser, on pose l'hypothèse que le nombre de départs en Bachelors évoluera de la même façon. La mobilité en Master est appelée à se développer, cependant elle restera très minoritaire par rapport à la mobilité en Bachelor. Par ailleurs, la mise en place de bourses et notamment du fonds de mobilité est à prendre en compte.

#### 4. Logements

L'objectif fixé au SEVE était de disposer d'un parc locatif suffisant pour 20 % des étudiants (doctorants inclus). Considérant la composition de la population estudiantine (près de 50 % de Luxembourgeois), cet objectif a été revu à 15% (chiffres DSW: benchmark maxi = 15%; 2012: 10,63%).

#### 5. Qualité

Les coordinateurs/spécialistes des différentes unités seront sensibilisés aux aspects d'amélioration permanente des processus et procédures ainsi qu'à la mise en place d'outils de reporting adaptés. Des formations seront organisées afin que ces éléments soient intégrés et partagés ensuite au sein des équipes.

### II. Objectifs et moyens

#### 1. Admissions – Inscriptions

Au fur et à mesure que l'informatisation des processus se fera (poursuite de la numérisation des dossiers, amélioration des fonctionnalités d'ACME, paiements en ligne, mise en place de workflows avec les faculté, en particulier les directeurs des études), l'accent sera mis sur l'amélioration continue des procédures d'admission. Avec la multiplication des formations, il devient urgent d'uniformiser les documents demandés lors des demandes d'admission. Un effort sera également fait sur l'uniformisation des délais.

Ressources nécessaires Admissions - Inscriptions: 2 postes administrateurs de dossiers (support)

2014	2015	2016	2017
	+1		+1

#### 2. Mobilité

Aujourd'hui, 600 départs et 180 entrées sont traitées par l'unité mobilité. Une première étape d'informatisation a été mise en place (vœux des étudiants / attribution des places par les directeurs des études). La mise en place d'un workflow gérant toutes les étapes de l'administration de la mobilité sera poursuivie. La gestion du programme Erasmus reste centrale; dès 2014, le nouveau fonds de mobilité pour les Bachelors, alimenté par la hausse des frais d'inscriptions de Bachelor première année, sera mis en place et géré. De plus, l'accent sera mis sur la réciprocité des accords.

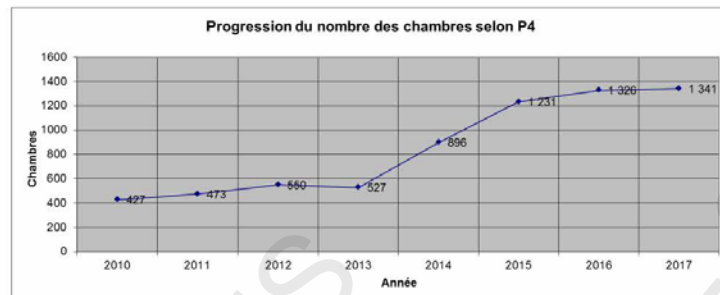
Ressources nécessaires Mobilité des étudiants: 2 postes administrateurs de dossiers (support)

2014	2015	2016	2017
+2 (dont 1 accordé)			

#### 3. Logements étudiants

Les projets identifiés dès aujourd'hui se présentent de la façon suivante:

	2010	2011	2012	2013	2014	2015	2016	2017
<b>Chambres</b>	427	473	550	527	896	1 231	1 326	1 341
Progression annuelle	84	46	77	-23	367	335	95	15
Dont lettre d'intention signée					241	275		



Ressources nécessaires Logements des étudiants: 3 postes administrateurs de dossiers (support).  
6 concierges seront nécessaires en 2017 (cf. planification SIL)

2014	2015	2016	2017
+2	+1		

Ces projets seront réalisés en fonction des ressources budgétaires qui pourront être dégagées pour les logements étudiants.

#### 4. BED

Considérant les objectifs de l'Université en terme de nombre de doctorants:  
Ressources nécessaires BED: 2 postes administrateurs de dossiers (support)

2014	2015	2016	2017
+0.5		+0.5	

#### 5. Campus Carrières

Un volet de VAE lié au Life Long Learning en collaboration avec l'IUIL, sera intégré à Campus Carrières. La personne qui en sera chargée aura pour mission de formaliser les procédures de VAE et d'offrir un accompagnement aux demandeurs. Le SEVE mettra également en place un "Employability Pass", en collaboration étroite avec les facultés et en particulier les directeurs des études, qui permettra aux étudiants de capitaliser des ECTS autour des savoir-faire et des savoir-être indispensables à la construction de leur employabilité.

Ressources nécessaires Campus Carrières: 1 poste (spécialiste)

2014	2015	2016	2017
+ 1			

#### 6. Bureau d'assistance psychologique

Le support psychologique reste adressé aux étudiants (et non au personnel).

Actuellement, la psychologue travaille à mi-temps. Son poste devrait couvrir 75% dans un premier temps, puis 100%.

Ressources nécessaires psychologie: 0.5 poste (spécialiste)

2014	2015	2016	2017
+ 0,25		+ 0,25	

#### 7. Bureau de la Vie Etudiante

Le BVE a été ouvert grâce au support de deux étudiants. Nous continuerons à employer des étudiants, mais, afin d'assurer la qualité et la continuité du travail, une ressource structurelle permanente est nécessaire.

Ressources nécessaires BVE: 1 poste (support)

2014	2015	2016	2017
+1			

### III. Récapitulatif des postes nécessaires

2014	2015	2016	2017	Total 2014-17
+ 6,75	+ 2	+ 0,75	+ 1	+ 10,5

## Language Centre

### Multilingualism as an added value: The Language Policy of the University of Luxembourg

#### 1. General objective

Due to its specific location, history and mission the language policy of the University of Luxembourg (UL) foresees three languages as languages of instruction: English, French and German. Multilingualism is thus an essential part of the strategic development of the UL and a specific feature that distinguishes it from monolingual universities or those that introduce only English as a medium of instruction. Although this mission and vision were formulated for the UL from its foundation, the necessary measures to implement the systematic management of trilingualism to ensure that students benefit from the potential of the University have not yet been taken. The general aim now should be to realize and put into practice what had been foreseen for a long time. The added value created by studying in a multilingual and international university must become more visible.

#### 2. Specific objectives

##### *Implementation of university-specific language courses*

- One of the most important aims consists in implementing structures and measures to support and coordinate systematically the learning of the three languages, with a specific focus on training in oral and written academic communication skills. A structured and diversified programme of courses needs to be planned and teaching staff recruited as the University takes over full responsibility for teaching from current provision by commercial language schools.
- Additional courses in intercultural competences in the context of HE will equip students for effective studies within the UL and during periods of mobility.
- Concerning the teaching staff, language courses for persons with a high academic background who wish to extend their languages of instruction need to be offered. These might be complemented with an offer of courses dealing with the management of multilingual and multicultural classrooms and recognition of different academic cultures (including learning styles of international students) in order to enhance the awareness of the potential and challenges of an international und multilingual university.
- For the administrative staff, language courses and additional courses in intercultural communication will be planned (i.e. in the context of consulting, mentoring etc.).
- Courses in Luxembourgish for students, teaching staff and administrative staff are needed to facilitate integration into Luxembourgish society.

##### *Assessment and certification*

- Criteria and procedures that evaluate the language proficiency levels before students start their university career at the UL need to be developed; cooperation with professional language testing institutes will be enhanced.
- Criteria and requirements for certification of linguistic (and intercultural) competences with bi- or trilingual diplomas will be defined.
- Bi- und trilingual programmes that can lead to bi- or trilingual diplomas will be identified and adapted to the criteria (e.g. percentage of courses in the second or third language, requirements for written work in more than one language).

##### *Policy development*

A comprehensive and full-fledged language policy for the UL will be developed, implemented and permanently evaluated.

#### **Targets and evaluation**

- Targets (e.g. courses established, numbers of students and staff involved over a specified timeline) and benchmarks for learners' achievements need to be established (e.g. using the CEFR levels)
- Evaluation of the programme of courses and the efficiency of teaching needs to be planned; external evaluation will be considered.
- On the basis of experience, the existing language policy of the UL and its implementation will be reviewed and refined on a biennial basis.

#### **3. Measures**

In order to achieve the specific objectives listed above, we suggest the creation of a *Language Centre* which will be responsible for the development and implementation of the envisaged goals. This Centre should be attached to the Rectorate, in particular to the President and the Director of Administration; the Centre will be directed by the Senior Advisor to the President on Multilingualism (Head) and a scientific and pedagogical coordinator, preferably the head of the *Research Programme Multilingualism and Intercultural Studies* within the FLSHASE. All activities will be informed by relevant research in second language acquisition and multilingual education, especially in close cooperation with the planned *Research Programme*. The process of development and implementation will be supported by an advisory board.

Measures in 2014-2017:

- a) 3 posts (ensuring at least one specialist in each of the three languages) need to be created (70 % teaching, 20 % research, 10 % administration) (line manager: the President; delegation to the Senior Advisor on Multilingualism as Head of the Centre).
- b) Administrative support (50 % 2013 - Dec. 2015, 100 % 2016 - 2017) will be necessary.
- c) Part-time lectures ("vacataires") according to need will be also necessary as well as 2 student assistants for general support.

#### **4. Timeline and milestones**

- 2013:** Preparatory activities, clarification of status quo and recruitment of 3 lecturers and a 1 administrative support (50%)
- 2014:** Implementation of language courses; piloting phase for implementation of bi- or trilingual diploma
- 2015:** Continuation of the piloting phase and internal interim evaluation
- 2016:** Completion of the piloting phase
- 2017:** Stabilisation of structures:
  - Agreement for each faculty of percentage of programmes which shall function fully multilingually;
  - Normalisation of language tests, language courses and diplomas;
  - Decision making about extension of language offer, e.g. Chinese (in cooperation with planned Confucius Institute), or other relevant languages for Luxembourg (e.g. Portuguese and Italian) or other important world languages (e.g. Spanish).



## Conseiller Belval P4 2014 – 2017 (Cellule Belval)

### **Avant propos :**

L'approche du déménagement, la mise en service des premiers bâtiments à Belval et la préparation des différentes tâches afférentes influent sur l'organisation du projet et impliquent l'intervention d'acteurs supplémentaires autour du « Conseiller Belval », justifiant de plus en plus la mise en place d'une « cellule Belval ».

Pour un fonctionnement plus efficace et une meilleure collaboration avec les structures existantes de l'Université, il est fortement souhaitable que cette « Cellule Belval » soit structurée, officiellement dotée d'une mission claire et qu'elle soit intégrée de manière visible à l'organigramme de l'Université, et (avec préférence et vue du lien avec l'infrastructure universitaire) sous la direction du Directeur Administratif.

En l'absence formalisée de cette « Cellule », les tâches suivantes incombent au « Conseiller Belval » qui supporte avec son « équipe » directement 3,5 FTE (plus ou moins informellement liés à sa fonction).

Les tâches comprennent actuellement (juillet 2013) les volets suivants :

- Programmation des besoins en espace (pour Belval et CL)
- Surveillance de la construction et contrôle des prestations du Fonds Belval
- Coordination et communication avec les utilisateurs (internes et externes)
- Coordination des travaux d'aménagement et gestion du budget Aménagement

### **Programmation des besoins en espace :**

Considérant que les derniers bâtiments de la phase I (Aile Nord Aile Sud) seront livrés fin 2017, et que le délai entre la programmation et la livraison d'un immeuble est d'environ 10 ans, le volet « Programmation des besoins en espace » reste une tâche permanente et importante qui va bien au-delà des quatre prochaines années.

A court terme, des études conceptuelles seront nécessaires pour le développement du programme de la future utilisation du Campus Limpertsberg (Masterplan) et la planification des bâtiments de la phase II sur le Campus Belval.

### **Surveillance de la construction et contrôle des prestations du Fonds Belval :**

Conformément au planning actuellement en vigueur, les travaux du Fonds Belval continueront pendant les quatre prochaines années, notamment pour la construction de : la Maison du Nombre, la Bibliothèque, la Halle d'essais des ingénieurs et le complexe Aile Nord Aile Sud.

### **Coordination et communication avec les autres utilisateurs (internes et externes) :**

L'accent sera mis sur l'accompagnement au changement qui a pour vocation, dans le cas du projet Belval, de préparer et d'accompagner le personnel de l'UL dans la transition que représente le déménagement. Un « change facilitator », mis en place auprès du directeur administratif sera principalement dédié à cette tâche, en coordination avec des groupes de travail ad hoc et les structures existantes de l'Université.

### **Coordination des travaux d'aménagement et gestion du budget Aménagement**

Cette tâche est la plus récemment confiée à la « Cellule Belval ». Elle est la plus complexe et la plus intensive car il s'agit de gérer des travaux et un budget de 200.000.000 € pendant les quatre à cinq prochaines années. Pour ce faire, la Cellule dispose d'une équipe « projet – team » composée de chefs de projets provenant du SIL et du SIU.

## Prévisions pour les Affaires juridiques de l'UL (plan quadriennal 2014-2017 et avant)

### 1/ Activités des Affaires juridiques de l'UL

Les Affaires juridiques réalisent les activités juridiques journalières de l'UL et l'accompagnement contractuel des projets de recherche entrepris au nom de l'UL (conclusion des conventions de recherche, contrats de prestation de services, préparation et vérifications des clauses et contrats de propriété intellectuelle, administration de la propriété intellectuelle et valorisation des résultats de la recherche, conseil juridique, vérification et mise en conformité avec la législation, traitements des litiges...). A ces missions juridiques, les Affaires juridiques effectuent régulièrement en amont un travail de négociation contractuelle avec les partenaires contractuels extérieurs.

### 2/ Perspectives d'avenir

A la date du 16.07.2013, 2 personnes composent les Affaires juridiques : le responsable juridique et le chargé de valorisation. Au regard des activités croissantes entreprises, les Affaires juridiques devraient évoluer vers un Service juridique (vœu qui avait déjà été formulé en 2009) composé de 5 personnes. Par conséquent le futur Service devrait être complété par 3 autres personnes et permettrait de répondre aux impératifs suivants :

- un(e) juriste chargé du suivi des conventions : permettrait de compléter les effectifs et permettre aux affaires juridiques de répondre à la surcharge de travail et nouvelles missions et impératifs d'urgence. **A ce titre, il serait judicieux que Mme Iwona Seredynska soit rattaché aux affaires juridiques et non plus au LCSB.** Iwona travaille auprès du LCSB en tant que juriste dans le cadre d'un CDD à mi-temps ayant débuté en février 2013 et s'achevant en février 2015. Elle serait prête à envisager de travailler pour les Affaires juridiques dans le cadre d'un CDI à temps plein, ce qui ne l'empêcherait pas de poursuivre l'entièreté des tâches qu'elle exécute actuellement pour le LCSB.
- assistant(e) des Affaires juridiques : accomplir le secrétariat et l'accompagnement des tâches liées aux activités des Affaires juridiques en concertation avec les autres services (secrétariat affaires juridiques courantes et notamment suivi et secrétariat des conventions/ de la propriété intellectuelle). A ce titre, le CDD de Mme Christine Kinet vient à terme fin août 2013. **En raison de son expérience acquise à l'Université et sa connaissance des règles de procédure du suivi des conventions, il serait avantageux d'affecter Mme Kinet aux Affaires juridiques.**
- juriste spécialisé(e) achats et marché publics permettant :
  - aux Affaires juridiques de répondre à l'attente de différents services de l'UL (notamment le SIL et le Service de la comptabilité, labo et unités de recherche) d'un juriste in-house spécialisé dans l'accompagnement juridique des achats et marchés publics ; par conséquent, le juriste aura une activité transversale et réalisera sa mission de coordination en interaction avec les autres services concernés ; en effet, à l'heure actuelle, l'UL fait appel à un juriste externe (avocat spécialisé en marchés publics pour valider les soumissions publiques) ;

- aux Affaires juridiques de remplir l'activité achats/marchés publics traditionnellement confiée à un service juridique et éviter ainsi d'externaliser cette activité;
- à l'UL de regrouper les achats et systématiser les procédures d'appel d'offre et réaliser ainsi des économies d'échelle ; le juriste pourra également mettre en place des procédures visant à négocier les prix de façon plus systématique ; la négociation peut être sacrifiée faute de temps et de personnel qualifié ;
- le juriste pourra également mettre en place une procédure/organisation visant à assurer la conformité juridique des passations de marché et permettra l'accompagnement administratif et juridique des services concernés par des achats et marchés publics ;
- de répondre aux besoins liés à l'augmentation des activités et des effectifs de l'UL et assurer la sécurité juridique des activités du Service avec un nombre raisonnable de personnes qualifiées ;
- coller au plus près de la réalité des projets des commandes et soumissions et affaires courantes.

### 3/ Activités et budget

Période	Effectifs	Fonctions	Missions	Budget annuel
Situation actuelle (au 01/02/13)	2	<ul style="list-style-type: none"> <li>responsable juridique</li> <li>chargé valorisation</li> </ul>	<ul style="list-style-type: none"> <li>réalisation des tâches juridiques courantes (conventions, conseil, litiges) ; coordination des affaires juridiques : coordination contractuelle (coordination juridique via l'outil suivi des conventions); coordination des dossiers communs avec le SIL (notamment contrats de baux immobiliers, dossiers de marchés publics) ; coordination des dossiers de propriété intellectuelle traités en interaction avec le chargé valorisation</li> <li>ingénieur-conseil en charge de la gestion de la propriété intellectuelle et des dossiers de valorisation (le chargé valorisation n'est pas un juriste) ; réalisation de ces missions et toute autre mission juridique impliquant la propriété intellectuelle et la valorisation en concertation avec le responsable juridique</li> </ul>	Dépenses 2012: 106.621 €
Prévision future	4	<ul style="list-style-type: none"> <li>responsable juridique</li> <li>chargé valorisation</li> <li>juriste</li> <li>assistante des affaires juridiques</li> <li>juriste des achats et marchés publics</li> </ul>	<ul style="list-style-type: none"> <li>missions: voir ci-dessus ; à celle-ci s'ajoutera la coordination de l'activité achats et marchés publics</li> <li>missions: voir ci-dessus</li> <li>validation juridique des conventions</li> <li>soutien juridique des research facilitators</li> <li>réalisation de ces missions et toute autre tâche juridique courante en concertation avec le responsable juridique</li> <li>mission générale d'assistance/suivi administratif de l'ensemble des activités du service affaires juridiques (relation permanente avec les research facilitators des facultés et centres interdisciplinaires notamment dans le cadre du suivi des conventions, formalités administrative diverses, des brevets, marques, contacts avec les conseils extérieurs; organisation du suivi de la base de données de signature des conventions (outil du suivi des conventions) en interaction avec le responsable juridique.</li> <li>encadrement de la procédure de marché en lien avec le responsable achats-marchés publics ; la participation à la prospection fournisseurs ; la gestion des précontentieux relatifs aux marchés ; l'apport d'un conseil juridique en interne.</li> <li>réalisation de ces missions et toute autre tâche juridique courante en concertation avec le responsable juridique</li> </ul>	<ul style="list-style-type: none"> <li>Litiges affaires courantes (avocats, conseils): 30.000 €</li> <li>Formations: 15.000 €</li> <li>Protection brevets: 120.000 €</li> <li><b>Total: 155.000 €</b></li> </ul>

## **Creation of an international office at the University of Luxembourg (P4 2014-2017)**

One of the strategic goals of the University of Luxembourg is to be in a top ranking of universities in the coming decade. A fundamental indicator in measuring that result is undoubtedly internationalisation. Naturally, international relations become a valuable tool in reaching this goal.

An international office has always been an integral part of any renowned university around the world. The purpose of an international office is manifold. First off, being the umbrella organisation for international relations within the University, it creates a lot of positive impact within the university and also externally. Furthermore, it increases visibility for the university abroad, helps to promote a global profile and international competitiveness. An international office contributes also in enhancing the reputation of a university and introducing the university globally. Furthermore, it plays a part in attracting international students, faculty and staff to the university. To integrate mobility of students and staff with the strategic policy-making of international relations brings also synergy and spill-over effects. A well-managed international office facilitates the work of many people within the university and provides an excellent resource to draw from. It serves as a one-stop shop for students and staff and at the same time acts as a clear point of entry into the university for stakeholders from abroad. The creation of a central international office appears as a solution which would benefit the entire university.

An international office would coordinate, manage and oversee quality-assurance for university-wide international partnerships and funding programmes from the European Commission and the EACEA (Erasmus, Erasmus Mundus, Tempus etc.) related to education. The office would provide strategic support to the university management and work with the implementation of the internationalisation policy and action plan. The office would also provide service and support to faculties. This work includes gathering and communicating information on opportunities for international mobility, cooperation opportunities and financing sources, following trends, developments and opportunities related to higher education in the partner regions, and initiating and implementing new international mobility and cooperation activities in collaboration with various university stakeholders. The office would also take on the administration of student exchange, including welcoming activities for incoming students, and the exchange of staff. Other domains to cover would be the "cotutelles" (PhD mobility) and shorter mobility for PhD students, much required from the faculties. The faculties are also asking for more help for students and staff to gain entry to Luxembourg, i.e., visa issues. Cooperation with the doctoral schools would be another feature, as the doctoral schools are keen to offer exchange opportunities for their students and staff. The international office would also take care of preparing international high-profile visits to the university (Heads of state, etc.) and university delegation visits. At the same time it would arrange visits from the University of Luxembourg internationally, including state visits.

The International Office would be led by a head of department, (responsable de service) an administrator, an assistant, three persons working with the mobility of students and one person working with the mobility of researchers. This means an office of 8 persons. 2 persons are already employed at the rectorate with these issues. One additional position is already foreseen in the current 4-year plan (2010-2013). The budget for the office would be around 80.000 euro per year. The breakdown of that is:

- 15.000 running costs
- 10.000 others
- 15.000 memberships
- 20.000 travels
- 20.000 Summer school for top students at the UL

## Cell for Sustainable Development (Four year strategy 2014-17)

After the establishment of the Cell for Sustainable Development in 2009, the period 2010-2013 saw the signature of the International Sustainable Campus Network (ISCN) Charter and implementation of first University-wide initiatives for sustainable development. The Cell's first strategic action plan 2010-2013 was developed in a participatory process. Activities in the period 2014-2017 will include consolidation projects as well as new projects and strategy. The Cell's role is to foster close collaboration between the faculties, the rectorate, students and the administration; a key partner will be the Luxembourg chapter of the student association OIKOS that is currently being established with support of the Cell.<sup>1</sup> The move to the new campus in Esch-Belval will also determine the Cell's agenda. The Head of the Cell's leading role in policy and research work in international networks such as the International Sustainable Campus Network will continue to benefit all our UL activities. The two main strands of work are: first, *co-creating integration projects for transformative change* on campus and in municipalities together with members across the UL community and local stakeholders. Second, the cell will co-create *strategy for a sustainable university* focussing on curriculum change and further engaging the university in local, regional and national sustainable development.

**Integration projects for transformative change:** The Cell's main goal remains the improved integration of research, education, campus operation and civic engagement for greater sustainability on and beyond campus. Integration projects will be designed to address concrete complex problems such as sustainable transport or energy-use in the built environment. These projects will focus on the nexus between human activities and the environment by seeking to better understand and effect dynamic changes in the relation between humans and the material world. Social learning processes for co-creation of new science, technologies, knowledge and social norms will play a central role in such projects by connecting the social and natural sciences (and the university's faculties) and engaging diverse expert and stakeholder groups in practice. The Certificate in 'Sustainability and Social Innovation', constituted of two core courses with public events and project-based experiential learning opportunities, has been set up as a Luxembourg platform for co-designing and establishing such integration projects. Three types of integration projects can be distinguished:

1. *Implementation projects* to adopt new technological or communication measures (established in 2010-2013) will continue to focus on further co-creation and integrated implementation of the UL sustainable transport strategy, waste management and recycling on campus, and the greening of student housing. These projects largely consolidate achievements under the last four year plan.
2. *Socio-technical experimentation and the development of a living laboratory* on the UL Belval campus (and possible one in Beckerich) will in the first place be concerned with reducing energy-use in the built-environment, the scope of which will comprise sustainable commuting and business travel. More research intensive socio-technical experimentation stages social learning processes in communities, driven by the bottom-up co-design of indicator and monitoring regimes to help define and evaluate learning and 'progress'.
3. *Fostering the creation of social enterprises* will largely occur through the course on 'Social Enterprise and Innovation' (part of the Certificate), the Chair on 'Social Business and Social Management' established by the City of Esch-sur-Alzette, and the social entrepreneurship competition organized for students, that OIKOS is planning to take on. A first focus here is to promote co-creation of a staff or citizens group to invest in PV systems to be placed on buildings in Belval, to cover for a significant share of our electricity needs.

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<sup>1</sup> OIKOS is an international student association dedicated to sustainable development (focus on economics and management) and an internationally leading reference point for the promotion of sustainability change agents.

**Strategy for a sustainable university.** The Cell will work closely together with the Working Group on Sustainability with four permanent representatives from the three faculties and the student body, to foster co-creation for sustainability in research, teaching and civic engagement across the UL.

*Curriculum Change:* we will continue to support faculties and the rectorate in curriculum change towards more issue-driven critical interdisciplinarity integrated with practice in degree programmes, in complement of more disciplined approaches. This builds on the Cell's successful co-initiation of the Open Course Programme fostering multi-disciplinarity in education, establishment of the Certificate in 'Sustainability and Social Innovation', and involvement in development of an interdisciplinary strand on sustainability for the planned doctoral school of the research unit IPSE in FLSHASE.

*Closer connection of the UL to local and national development, and politics and policy:* Since 2013, the Head of the Cell is a member of the Conseil Supérieur pour un Développement Durable resulting in a closer connection to national policy-making. After the move to Esch-Belval, the Cell will initiate a process for co-designing a vision and action plan for a 'sustainable university' that is effectively engaged in regional sustainable development, together with students, staff, the rectorate, key regional and national economic and political actors, and organised civil society. Continued sustainability reporting for the University, an ISCN Charter obligation, is considered part of this strategic activity, in line with the new emphasis on sustainability in this four year plan.



## Espace cultures

Le service culturel a comme but de promouvoir l'articulation entre la diffusion culturelle et des missions fondamentales de l'Université du Luxembourg (UL) que sont la formation et la recherche.

La politique culturelle de l'UL tente à se décliner en démarches de plus en plus diversifiées visant à un développement artistique et culturel destiné à impliquer ou intéresser le milieu universitaire de l'UL en le prenant en compte dans ses spécificités tout en cherchant à le relier au tissu urbain respectivement sociétale.

Elle consiste à accompagner les pratiques artistiques et culturelles de ses membres, à promouvoir la création artistique et la diffusion culturelle auprès des populations universitaires, à vitaliser les campus par l'action culturelle mais aussi inciter l'université à s'ouvrir sur son environnement culturel territorial, voire même stimuler une relation interactive entre l'un et l'autre.

Il s'agit notamment de proposer aux membres de la communauté universitaire des éléments complémentaires de construction de soi, pouvant contribuer à leur socialisation, à leur formation ou à leur ouverture d'esprit, l'intégration à l'université, la formation à l'autonomie, l'équilibre personnel, la santé. À ce propos, dans l'univers de savoirs gigantesques mais de plus en plus segmentés dans lesquels évolue l'université, est-ce illégitime de penser que la culture peut s'avérer un outil de mise en perspective et de compréhension du monde essentiel à chacun ?

Comment ne pas conclure à travers ces différentes réflexions que le développement de la politique culturelle universitaire implique que les différents mondes "culturels" et institutionnels qu'elle associe, aillent chacun au-delà de leur propre culture? Le chemin de cette réconciliation reste encore et toujours à construire, mais il ne faut pas être pessimiste face à un pareil défi parce que, ici tout comme ailleurs, le but c'est le chemin.

Dans ce contexte le service gère et coordonne les activités culturelles de l'ensemble de la communauté universitaire de l'UL afin de

- favoriser et d'améliorer les conditions de vie à l'intérieur de l'établissement,
- contribuer à l'émergence de nouveaux talents par la mise à disposition de lieux appropriés,
- sensibiliser les publics universitaires par la mise en place de spectacles et de manifestations culturelles,
- dynamiser le dialogue interculturel,
- constituer une plate-forme de coopération, de débats et d'actions dans le domaine de la politique culturelle,
- d'encourager la mise en place de réelles démarches culturelles promouvant l'échange de projets, d'idées et d'opinions,
- participer à la construction de l'Europe interculturelle par le débat d'idées constituant à élaborer une citoyenneté européenne,
- créer des liens de participation active avec les Amis de l'UL ainsi que le tissu sociétale luxembourgeois et européen

Actuellement espace cultures fait découvrir aux membres de la communauté universitaire un calendrier riche et varié grâce à sa philosophie synergétique avec les institutions socio-politiques et culturelles

**Activités internationales**

ECP (European Cultural Parliament), UNeECC (University Network of European Capitals of Culture), TAD (Transatlantic Dialogue), ECStA (European Council for Student Affairs)

**Focus structurel dans le cadre du programme quadriennal:**

*Dans l'optique de créer un staff adéquat pouvant développer et compléter continuellement les différents projets ou bien ensembles et afin de répondre de manière adéquate à la demande d'une communauté en croissance continue il faudra prévoir*

**Un assistant (m/f)**

Missions:

- Assister et remplacer le coordinateur du service culturel dans toutes ses tâches.

**Un support administratif (m/f)**

Missions:

- Assumer une permanence régulière au niveau de l'accueil et de l'information
- Administrer des tâches de secrétariat courantes

*En dehors du support régulier le projet prévoit des supports temporaires p.ex. étudiant-e-s en management culturel désirant acquérir une expérience professionnelle au niveau de la création respectivement de la gestion de projets culturels.*

Luxembourg, juillet 2013

François Carbon

## Genderbeauftragte

### Aktionsfahrplan für den nächsten Vier-Jahres-Plan 2014-2017

Statistics – Structures – Knowledge

1. Personal
  - a. Erhöhung des Anteils von Frauen im akademischen Lehrkörper um 5 % mit besonderem Augenmerk auf die Berufung von *Professorinnen*; auch wäre zu überlegen, ähnlich wie z.B. in Deutschland, ein Professorinnenprogramm anzustreben oder andere Incentives / Anreize für das gezielte Einstellen von Professorinnen in den Fakultäten oder Interdisziplinären Zentren
  - b. Fortführung der Datensammlung zu Beschäftigtenzahlen
  - c. Integration des Leitfadens für genderechte Rekrutierungsverfahren in die Fakultäten und interdisziplinären Zentren ; schon integriert im LCSB; Übersetzung des Leitfadens in die französische Sprache; die englische Übersetzung liegt schon vor
  - d. Fördermassnahmen für Nachwuchswissenschaftlerinnen:
    - *Mentoringprogramm* mit Frauen UND Männern als Mentorinnen und Mentoren
    - Seminare für Nachwuchswissenschaftlerinnen zur *Karriereplanung*
    - Auslobung eines Preises für den besten Abschluss einer Frau in den naturwissenschaftlichen Fächern; eventuell zusammen mit dem Zonta Club
  - e. Entwicklung und Vorbereitung gendersensibler *Welcome Pakete* für neue Mitarbeiterinnen und Mitarbeiter
  - f. *Schulungen* anbieten für die Kolleginnen und Kollegen z.B. von der Personalabteilung
2. Verbesserung der Vereinbarkeit von Beruf/Studium und Privatleben am zukünftigen Universitätsstandort Esch-Belval
  - a. Kindertagesstätte in Kooperation mit der Stadt Esch
  - b. Stillräume, Babysitterbörse
3. Sensibilisierung der universitären Öffentlichkeit
  - a. Regelmässige Plakataktionen wie z.B. gegen sexuelle Belästigung
  - b. Erstellen von *Informationsbroschüren*
4. Konferenzen, Vorlesungsreihe, Weiterbildungsangebote
  - a. Wiedereinführung einer jährlich stattfindenden internationalen Konferenz zu Genderforschung; Einladung der Helsinki Group „Women and Science“ für das zweite Halbjahr 2015 : luxemburgischer EU Ratsvorsitz; ähnlich wie im Juni 2005
  - b. Interdisziplinäre Vorlesungsreihe mit international bekannten Referierenden; jeweils im Sommersemester (z.B. Londa Schiebinger, Hannelore Faulstich-Wieland, Andrea Maihofer, Susanne Beer, Judith Butler, Sabine Hark)
  - c. Interdisziplinäre Weiterbildungsangebote „Genderkompetenz in Theorie und Praxis“
5. Vernetzung und Kooperation
  - a. Regelmässig stattfindende Konferenz der Genderbeauftragten der Universitäten der Großregion – einmal pro Semester
  - b. Verstärkung der Kooperation mit der Helsinki Group der EU Kommission Women and Science

## Metaxy

Metaxy est le programme d'activités de l'Université du Luxembourg pour la diffusion des connaissances sans but de certification ou de diplomation. Le but essentiel, outre la valeur culturelle intrinsèque de ces activités, est de fortifier l'assise de l'université dans la population du pays et de la région.

Metaxy comporte l'organisation de conférences et autres manifestations pour un public généraliste, des activités ciblées sur les enseignants du secondaire, des activités adressées à un public de jeunes, ainsi que l'organisation des programmes d'auditeurs libres.

Le programme dispose actuellement d'un poste de secrétariat à 40% (Mme Schwartz). A terme, il nécessite pour son bon fonctionnement d'**un poste de secrétariat entier**, appelé à reprendre une partie de la tâche d'organisation assurée actuellement par le Chargé de mission.

## Secrétariat du CG

A titre conservatoire il est demandé de réserver un poste de collaborateur qualifié venant appuyer le Secrétaire du CG outre le poste de secrétariat actuel (Mme Langumier).