

3RD FOUR-YEAR PLAN OF THE UNIVERSITY OF LUXEMBOURG (2014-2017)

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1. Guiding and profiling principles

The University of Luxembourg has developed very successfully along its first two 4-year plans; in fact a glimpse at our current key performance indicators shows that in almost all categories we surpass the goals set out in the plan and concomitant contract. It is mainly the quality and sustained effort of our staff that is behind this success. We are proud of our success, and having made this point here, further remarks on our performance will only be provided as necessary in the remaining text.

The University of Luxembourg is committed to excellence in teaching, research and transfer; assessing and increasing the quality of each by efficiently empowering academic and administrative staff remains the foremost priority. However, this endeavour is paralleled by another challenge, the development of the Belval campus which is an enormous challenge, a great opportunity and a severe constraint guiding this 4-year plan (the “Plan” from now on). The implementation of the new premises should proceed swiftly, professionally and according to the highest quality standards. But the timing and funding of this development are highly uncertain and it requires expertise and input from the University which we are only now acquiring. The questions regarding initial equipment purchases, the communication and data storage infrastructures, the furniture, the security issues, the logistics, the decisions of what to keep and move and what to write off, the maintenance, and more will keep us busy and will have top priority. Even if the whole Plan will not deal with Belval, it has to be understood that it watermarks it, and that most major decisions in the next four years will be affected by it. A successful move to the new campus will provide the University with new momentum which will benefit its successive development.

But most complex situations - and certainly this is one - can be turned into opportunities, and this is what this Plan will do. We will use this period of uncertainty in the Belval development, that we know will demand much of our energies and resources, to consolidate programs that we have initiated, to improve the quality of everything we are already doing, to set up a performing administration, to become stronger and more resilient, to innovate our procedures and our teaching, to streamline our rules, to improve communication - particularly in-house -, to sharpen our profile, to play a larger role in Luxembourgish society, to become more relevant and to work towards the goals set out in our vision statement. Our response to uncertainty is flexibility and adaptability; the Plan will reflect these features as instead of establishing numerous programs it will rather set up efficient decision making mechanisms, which will allow us to decide in due time.

Growth, thus, will be minimal and will certainly not follow an equal-slice-of-the-cake policy. Some areas will basically stay put in this Plan, but everybody will be challenged to improve upon their performance. Very likely we will still be very privileged if we compare ourselves to other universities, especially in Europe, that are fighting with shrinking governmental funding¹ and increasing demands from the governments.

The Plan - as is clear from the preceding sections - takes into account the recommendations of the recent second external evaluation of the University. The Annexes are part of it, but the proposals

¹ A very recent *European University Association* study found that of 20 countries studied 13 were funding universities less in 2012 than in 2008.

received from the different components² of the University are too broad and often too ambitious for the budgetary reality that we will face in the next four years. The main text of the Plan, thus, mainly selects, focusses and prioritises. The financial uncertainties of Europe in general, but also of our country in particular, imply that the Plan defines a general frame, and leaves the details to the F&C. This decentralisation will require an efficient interplay of the Executive and Management Teams, the University Council and the Board of Governors, to ensure the relevance and quality of our choices and decisions. The Plan does not take into account the amendments to the foundational law of the University sent to the *Chambre des députés* by our Ministry, as the uncertainties regarding this bill are too significant to allow us to assume that it will become law.

Art. 3 (2) of the foundational law of the University refers to fundamental principles on which the institution should be organized:

- Interdisciplinarity
- Teaching-research synergies
- Internationality and in particular cooperation with other universities
- Generalized mobility
- Multilingual teaching
- Tutorage

We can proudly state that they are all already part and parcel of the University, and yet several of them have to be further strengthened, as will be elaborated upon later in the Plan.

The Plan is the basic document for use by the Ministry to prepare the third *Contrat d'établissement*. An executive plan - including a timeline - based on the contract and this document will be elaborated, particularly if the contract does not overlap sufficiently with the proposed Plan.

² The Faculties - Faculty of Science, Technology and Communication (FSTC), Faculty of Law, Economics and Finance (FDEF) and Faculty of Language and Literature, Humanities, Arts and Education (FLSHASE) - and the Interdisciplinary Centres - Security, Reliability and Trust (SnT) and Luxembourg Centre for Systems Biomedicine (LCSB) - (F&C).

2. The priorities³

The priorities of the Plan will be presented in four groups, two referring to Faculty priorities, one to the Interdisciplinary Centres and one to Medicine. A few of the priorities are dominantly research based, others dominantly teaching. But most combine research and teaching and some research and transfer. These details will not be provided here. Each priority has a line in the budget proposal.

2.1 Central priorities

A) Computational sciences (E)

Computational Sciences (CS) 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. With the emergence of scalable High Performance Computing (HPC) solutions and of grid and cloud computing, CS are becoming feasible and reasonable for an exploding set of application domains. With the help of advanced mathematical modelling and analysis and the necessary computing capabilities, not only are classical scientific problems being solved much faster, but also challenging problem classes that were previously beyond our access can now be addressed. During the 2nd 4-year plan, the FSTC and the two ICs have developed competencies over many if not all the research units that are directly or indirectly related to CS. Within this Plan, CS will be promoted at the heart of the UL key research challenges, combining mathematical competences with computer science tools and algorithms, industrial application expertise from engineering, empirical software engineering, and empirical disciplines such as condensed matter physics, life sciences, geophysics, social sciences, psychology, finance and economics. Not only research groups of FSTC and other faculties but also the two ICs, SnT and LCSB, are highly involved in all parts of CS and will greatly benefit from further development. HPC will be an integral part of this project and needs to further grow to support this priority. Available UL competences in CS have to be consolidated and strengthened by new positions in the relevant fields.

The first ERC-grantee has very recently been appointed professor in this area.

B) Law, stressing European Law (I)

Law as a profession plays a conspicuous role in Luxembourg and in its economy. The presence of the *Court of Justice of the European Union* and of other European institutions which are associated with this discipline as well as the very European character of the country itself make the choice of continuing this priority rather obvious. Its successful development as highlighted by the academic staff recruited and the decision of the government to negotiate the creation of a *Max Planck Institute for International, European and Regulatory Procedural Law* and to subsequently fund it, justify further strengthening this priority. These efforts will not so much lead to further increasing its academic staff, but rather to strengthening its European character and buttressing its collaboration with the Max Planck Institute,

³ Priorities will be classified as very expensive (VE), expensive (E) or inexpensive (I). Belval, not included here among the priorities, is of course (VE). The order of presentation has no meaning.

and to permeating other disciplines, without forgetting to intensify its contribution to the development of Luxembourgish law. In view of the increasing number of Law graduates having difficulties in securing a job in many countries, care should be exercised in raising excessively the number of graduates.

The potential of this priority to catalyse the establishment of Luxembourg as a renowned centre for worldwide scholars of European Law is too alluring to be missed. The possibility of creating a school, the conditions for doing so, and its consequences for the FDEF, should be explored.

C) Luxembourg School of Finance (LSF) (I)

There is no doubt about the importance of International Finance for Luxembourg, its financial centre and, therefore, for our University. Beyond the excellence of its research, the LSF continues to play an increasingly relevant role for the Luxembourgish financial and banking sector. For example, LSF just hosted the European Conference of the Financial Management Association, one of the most prestigious events in finance. Moreover, the LSF's new education programmes, such as the Executive Programme in Wealth Management, are now offering high-quality continuing education for senior professionals. In addition, as the LSF hosts the *Deutsche Bank Chair in Finance*, the LSF shows great potential for future development and expansion. The University simply cannot miss the opportunity to participate, through the LSF, in the process of knowledge creation and transfer, that can contribute to the analysis of past and the current on-going financial crises and to perhaps show new ways to sustainably develop financial markets. However, the University must address certain structural difficulties that the LSF has encountered in hiring the staff necessary to help achieve its goals. The University must analyse the origins of such difficulties, then determine appropriate corrective measures and, finally, properly implement them in a timely manner.

D) Educational sciences (I)

As in many modern states, Luxembourg's education system has to face some major challenges due to rapid social change and increasing migration. These challenges are mainly linked to two factors: multilingualism and high levels of cultural, social and linguistic diversity. Research indicates that the education system struggles to compensate for the correlation between socioeconomic status and school success. This is reflected, for instance, by the fact that PISA scores are lower than average. The University needs to contribute proactively with her⁴ research, analyses, policy advice, and education and professionalization of teachers⁵, her innovative curriculum development, and her monitoring and assessment. A new organizational structure of the educational research will closely follow the recommendations made by the external evaluation committee; in this context, the University will host a service centre LUCET (Luxembourg Centre for Educational Testing) which will conduct national school monitoring and international comparative studies.

The improvement of Luxembourg's education system is a long-term project, requiring a research-based understanding of the social and historical dynamics of Luxembourg's society and the role of the

⁴ We use *her* when referring to the University and *his* when referring to persons.

⁵ The future of the FOPED and the introduction of a Master in secondary education are some of the items to be considered.

education system in it. Targeted appointments will support the overall research agenda so as to enhance the University's excellence and status internationally. The introduction and consolidation of international academic programs at Master and PhD levels (e.g., Master in Social and Educational Sciences, Doctoral School in Education), innovative curricula for teacher education and professionalisation, and systematic analyses of on-going education reforms (e.g., National Education Reports) will contribute to supporting excellence and equity in education in Luxembourg.

2.2 Other priorities

A) Physics and Materials Science (E)

This priority can directly contribute to innovation in the industrial and manufacturing sector of our country. It helps to maintain a high level of diversity in the economy by creating a knowledge platform for a novel atomic/molecular/materials based industry that complements the successful ICT and financial service sector. The University's research unit Physics and Materials Science concentrates on the fundamental science in the field of materials and is internationally well recognized. The existence of two CRPs, working on applications of this discipline, offers the opportunity to create together an internationally visible materials platform which uses synergies by combining the basic science approach of the University with the application oriented research of the CRPs. This goal should drive the work in the next years. An ambitious 10-years strategy of the University in collaboration with the New CRP with well-defined goals and benchmarks should be approved the latest by 2015. Substantial additional space becoming available on Campus Limpertsberg may allow expanding the successful activities of the research unit, even before moving to Belval. The unit hosted the first privately - and generously - financed chair of the University, the TDK Chair, which has been a real success. The unit has also been extremely successful in attracting and hosting three ATTRACT-FNR fellows.

B) Entrepreneurship and Innovation/Audit (I)

Entrepreneurship, Innovation and Audit are a group of interweaved disciplines that are still underdeveloped in our institution but however are of high importance for Luxembourg. Luxembourg needs to further the entrepreneurial spirit, as many young people have a hard time resisting the siren song of a civil servant career. The collaboration with the *Chamber of Commerce* in the frame of the *Luxembourg Business Academy* (LBA) has been extremely fruitful thanks to the success of the *Master in Entrepreneurship and Innovation*. The *Master in Accounting and Audit* is another success that needs to be strengthened as well as it is managed almost single-handedly. LBA has the ambition of substantially enlarging its scope of action with the aim of analysing the possibility of creating a *Business School*⁶. A strategic feasibility study should be finished no later than end of 2015. The City of Luxembourg has recently expressed its intention to finance a *Chair in Family Business Management*. The four major international consulting and auditing firms will also be approached and their financial support for this

⁶ Successful Business Schools are only loosely attached to their Universities; it is likely that an amendment of the foundational law of the University might be needed to allow for the adequate legal frame.

priority solicited. This priority, with its strong interfaculty character⁷ and its relevance for the Interdisciplinary Centres needs an important boost within this Plan, as Luxembourg's economy has to rely on the entrepreneurial and innovative mind-set of its youth. A strengthening of the business, innovation and entrepreneurial teaching activities of the University is thus a duty of a public institution towards the society, which finances it⁸. Economics, and in some sense finance, is of course perceived as the main academic discipline buttressing business and entrepreneurship, and as such plays an important role in this Plan. Engineering is the other academic discipline that plays an important role in buttressing innovation.

C) Multilingualism and Intercultural Studies (I)

Few places on our planet offer such a rich multilingual reality as does Luxembourg, with its three administrative languages - Luxembourgish, French and German - together with English and Portuguese being spoken by many in the country, and with other languages also frequently used. The University reflects this multilingualism by using as teaching languages French, English and German, and where required by the discipline, Luxembourgish. The challenges of extreme multilingualism are huge, and we are in a unique position to address them under perfect conditions; conditions that allow for innovative insights in the field of cultural diversity. This new knowledge is not only of interest to our country, as the migrations that are taking place everywhere will lead to multilingual circumstances in many cities worldwide. Different languages come with different cultures and philosophies of life. This situation represents a huge potential for creativity and innovative thinking, which should be appropriately explored. But it also requires using languages as bridges, not as barriers, and using cultural differences as opportunities, not as threats.

The vision is that with this priority the University will become the reference for scholars in the field of multilingualism and cultural diversity. Research within this priority will focus particularly on linguistic and cultural dimensions, as well as addressing the social, political and educational challenges associated with them. The continuous development of the *Lëtzebuergesch Studien* is part and parcel of this priority.

D) Sustainable Development (I)

All three faculties consider Sustainable Development a priority in their proposals (see annexes A1, A2 and A3)⁹. There is also a Cell in charge of Sustainable Development at the University level, and we are part of a group of world-class universities in the International Sustainable Campus Network, which is an initiative of the EPFL and the ETHZ. The key-words for this priority in this Plan are focussing, profiling and structuring. The key areas are: social cohesion, health, governance and engineering. Sustainable Development is a priority because there is an urgent need for better models of prevention and intervention based on science. The PEARL-FNR five-year research programme on Comparative Social Inequality set up in 2012 focuses on wealth distribution, inequalities, welfare States (health, retirement, unemployment, and social management of exclusion), and their consequences on social

⁷ Notice in particular its relation with the priority D) below.

⁸ The largest undergraduate major in the US is by far business, accounting for nearly a quarter of the degrees.

⁹ Annexes are referred to as A#, A1 is the plan of FSTC, A2 the one of FDEF, A3 the one of FLSHASE, A4 corresponds to SnT, A5 to LCSB and A6 to the Central Administration (CA).

stability and sustainability. The maintenance of good health through prevention and better health care are of crucial importance for Sustainable Development. Age-related diseases and functional impairments (e.g. chronic physical conditions and mental disorders) pose a major challenge in terms of individual suffering and economic cost for society. Moreover, many of the challenges of sustainable development are narrowly related to the spatial and ecological dimension: the greening of industries, carbon emissions and energy policies, cross-border resource management, as well as urban planning and local development are all issues that urgently need to be addressed for Luxembourg. The City of Esch chair in *Social business and social management* is also part of this priority. Sustainable engineering solutions are also required to meet the energy and natural resource requirements of society while simultaneously guarding the natural environment.

2.3 Interdisciplinary Centres (IC)

Scientific advisory boards will be set up for both ICs. One of their tasks will be to coordinate an assessment of the ICs when they have been functioning for 7 years. The assessment will provide recommendations regarding their long-term future developments, goals, profiling, funding or even the possible termination of the IC.

A) *The Interdisciplinary Centre in Security, Reliability and Trust (E)*

SnT aims 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 20 members, launching some 20 EU/ESA projects, and protecting and licensing IP. The university set highly ambitious, long term goals for SnT in the Strategic Plan 2009 and a solid foundation for continued development towards these targets has now been laid. The centre has not reached a steady state in its operations. The centre will continue to grow responding to demands for research collaborations from industrial and governmental partners and increasing its participation in European projects in the next four year period.

1. Partnership Program

SnT will strengthen the impact oriented research program focussing on long-term partnerships and create critical mass and sustainable research centred on SnT's larger, interdisciplinary Strategic Research Collaborations with partners (currently six areas). 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.

2. European Presence

SnT will establish Luxembourg as a strong and respected European research partner in Security, Reliability and Trust. A sustainable and long-term research activity builds on faculty positions (professors and/or chief scientists). As recommended in the evaluation report, SnT will be strengthened by faculty appointments coordinated with the centre. This includes areas such as Data

Protection and Privacy Law, Human Machine Interaction, Dependable Systems, Image Analysis and Sensor Fusion, and Multimedia Processing. In addition, SnT will appoint Research Scientists to strengthen and sustain its strategic research areas.

3. Knowledge Transfer

SnT will develop its technology transfer capabilities by introducing structured instruments (proof-of-concept, training, support) facilitating exploitation of research results. Support functions will be tailored to and implemented close to the research activities increasing effectiveness. A seed fund will be established (20% SnT and 80% private investment) dedicated to fund early stages of ICT start-ups from university and partner research.

4. Interdisciplinary Research Environment

As identified in the external evaluation report, SnT should establish appropriate facilities creating a meeting place that fosters interdisciplinary research and supporting the next phase of expansion and development.

B) Luxembourg Centre for Systems Biomedicine (VE)

The LCSB was created as an interdisciplinary research centre combining mathematical-computational approaches with experimental platforms and clinical expertise. The first years were dedicated establishing a functional and competitive interdisciplinary biomedical research centre of 14 research groups. A strategic focus on Parkinson's disease was chosen and will now be extended to neurodegenerative diseases in general.

The next 4 years will be characterised by developing LCSB into an international centre of excellence. LCSB will reach out both, locally in Luxembourg and internationally to create critical mass through sustainable research collaborations. At the same time, LCSB wants to reach out to society, offering open doors to the public and contributing to better health.

A particular emphasis will be on the identification of early diagnosis and stratification of neurodegenerative diseases and the discovery of relevant targets for future preventive and therapeutic drugs. To pursue this strategy, LCSB will extend its strategic infrastructure to meet the needs of medically relevant research, e.g. through animal models, high-content imaging and a high-performance IT environment. In addition, LCSB aims to offer career opportunities for clinical scientists that work in both biomedical research and healthcare provision.

LCSB will become an internationally renowned centre for the computational analysis of huge data sets in biomedicine. The approaches to handling and integrating and interpreting big data will be core and will serve to support an interdisciplinary research culture within the university.

LCSB will valorise its research results into clinical and industrial applications, creating spin offs and establishing industrial partnerships.

2.4 A national priority: School of Medicine (VE)

The increasing difficulties in offering Luxembourgers training in the medical sciences in other countries is a challenge that requires to be taken up by the University. Thus, the creation of a School of Medicine is considered here. A *School of Medicine* would also benefit the local hospitals as well as the health system of the country in general. Therefore, in the current Plan, the University will set up a Bachelor program in medicine. A subsequent Master program for clinical training will be organised and implemented in the 4th 4-year plan, in part with partner universities. This is a major, complex and eventually¹⁰ very costly project that also requires coordination and collaboration with hospitals. Within this Plan the Bachelor program will be commence. In addition all the agreements necessary for the Master program will be established. Studies in medicine and clinical research will furthermore nicely complement the activities of the Luxembourg Centre for Systems Biomedicine and the Life Science Research Unit.

¹⁰ A very important increase in funding is foreseen in the 4th 4-year plan, as well as possibly some funding for the hospitals participating in the clinical training. To attract professors with clinical activity salaries higher than the usual ones should also be foreseen.

3. Quality in research, teaching and transfer

The external evaluation gave the University very good marks in the areas where research is concerned. The quality of research is measured with the adequate, discipline-dependent, performance indicators. These indicators are again being carefully selected, both at the global level of the University (Section 9), as well as at the F&C level (annexes). The University will ask the external evaluators, when the third external evaluation starts, to carefully assess the quality of the research performed by our University with discipline-dependent indicators. Still, the best way to ensure quality is to hire the best candidates¹¹; that goal is always the most important challenge, where complacency should never be tolerated.

With respect to teaching, the external evaluation indicated that more should be done. A quality strategy is being prepared. Although our teaching staff is very international, and course evaluations show high satisfaction rates, our teaching methodologies still require a more interactive, critical and participative pedagogy. To change the way one teaches is notoriously difficult, as teachers might not always see compelling reasons for changing¹². And yet, the spreading of the *Massive online open courses* (MOOCs) might eventually empty the lecture halls of many teachers, creating a major upheaval. Another major issue here is to guarantee the correct use of the language chosen for teaching. Courses will be offered to improve upon this issue, as well as upon modernising our pedagogical approaches. We expect that a bit of gentle coercion will be needed, as modernisation may not be perceived as a problem by some teachers, but only by the students. One will need the whole four years of the Plan to set up efficient measures to modernise and improve our teaching¹³. But we must emphasize that the real pressure by students to do better will only come if fees are substantially raised: you get what you pay for!

As our academic staff is outnumbered by the adjunct teaching staff by a factor three¹⁴, the quality of the teaching of the adjunct staff is a major issue that must be addressed. Furthermore it is important that teachers understand that teaching at a university is not the same as teaching at a secondary school.

The annually planned teaching obligations of our academic staff are to be honoured first and should never be dependent on research activities. Research activities should be organised in a way that allows satisfying the teaching obligations correctly.

Employability is a key guiding principle of our quality assessment. It will be quantified in such a way that it can be included in our list of key performance indicators.

Accreditation by internationally recognised agencies of some of our programmes might be of interest.

¹¹ Resources are foreseen in the budget for hiring on average one outstanding professor or chief scientist per year with the only requirement of being among the best in their discipline, without taking into account priorities or any other criteria.

¹² Physics Nobel Prize Carl Wieman has spent the last 15 years applying the science of learning to how undergraduate courses should be taught (see SCIENCE, 19 April 2013, 292).

¹³ Of interest are the 16 recommendation recently put forward by the High Level Group on the Modernisation of Higher Education, http://ec.europa.eu/education/higher-education/doc/modernisation_en.pdf.

¹⁴ The teaching load being roughly one third means that 50% of our teaching is done by practitioners.

Doctoral education and doctoral schools continue to be a quality priority. Care should be taken not to create too many nor too narrowly defined doctoral schools, and to ensure disciplinary coherence with the structures (Research units, schools, etc.) of the Faculties. The optional introductory courses in business and entrepreneurship offered already to all PhD candidates should be made so attractive that it becomes a rule to take them.

For transfer - of technologies, procedures, methods, ideas, or brains - quality is usually thought to be less of an issue for the University, as the market will eventually take care of bad quality. And yet the prestige of the institution, slow to be built up and easily lost, would be damaged. At least the quality of our brain transfer, i.e. PhD degree and MA and MSc degree holders, should be an absolute priority. Finally the percentage of industrial PhD should be increased, as they represent one of the most efficient ways of collaborating with industry.

4. Students and learning

Students are the lifeblood of the University. Whether one should expect them to play a major role in the general governance of the University is open to debate¹⁵. But what is not debatable is that the students should be more active, proactive, and demanding when it comes to learning and teaching. Our goal is to present proposals to further this participation, possibly by introducing a certain professionalization, which would warrant continuity. Doctoral candidates, because of their maturity and the fact that most of them stay with us for four years, and often were Master students at our University before, make them ideal candidates to drive this participatory movement. Although often the employee status, which most of them enjoy, puts them in a chimera-like category which could be perceived as not ideal for defending students' interests.

The global improvement of the linguistic skills of our students - how to guarantee the required competences, how to improve these, how to certify them in the diploma - will also be a major goal of our multilingualism policy.

Our University being small has quickly established a tutoring system that is perceived as useful by most. However, a comprehensive quality assessment of the system has not been performed yet. An assessment will be carried out with the aim of offering a meaningful tutoring system.

Our Bachelor programmes should be reviewed and possibly broadened. They should offer 10% of optional ECTS points to expand the students' background.

Great care should be taken before approving new Master programmes, making sure that they will attract new students, and that they do not drain students already enrolled in other programmes at our University. Major/minor programmes, often interfaculty, as well as "European" programmes should be given serious consideration. The University will assess by the Summer 2014 and for the academic year 2015/2016 whether some of the existing Masters with few applications and where practically all applicants are accepted should not be phased out; the resources that would be liberated could be used for new Master programmes. The possibility of generalising tutorage to first semester Master students will be considered.

Proposals such as setting up a Confucius Institute, a Russian Culture Centre, a chair for Italian Studies, etc. should only be initiated if important external funding is warranted for a long enough period of time.

Lifelong learning in the broadest sense, i.e. continuing education, professional education, education for seniors, introductory lectures for juniors, outreach activities, etc. will be further developed. The opening of our eleven Bachelor programs to the general public, on the basis of part-time studies, is to be analysed and implemented.

The current tuition fees should be reviewed and overhauled. Tuition should be an instrument of student recruitment policy and take into account employability and demand; this is a central part of accountability. Of course, promising, less well-off students should always be guaranteed acceptance

¹⁵ The story of the first three student representatives who took part from 2005 to 2012 in the meetings of the Board of Governors is telling.

into the university, *numerus clausus* permitting; an inability to cover fees should never be a reason for any potential applicant to not join our University. The new programme in Medicine could offer an excellent opportunity for the introduction of a meaningful fee-policy.

By the end of the Plan the number of regular¹⁶ students - full time or part time - should not go beyond 7500¹⁷, premises permitting. The SEVE¹⁸ will have to be further strengthened to cope professionally with all things related to our students.

¹⁶ i.e. students enrolled in programmes which are sanctioned by a diploma or a certificate.

¹⁷ There are 180 million students worldwide, i.e. 1 in 40 of the global population; advanced economies have a ratio of 1 in 30. There are some 10000 students from Luxembourg studying abroad.

¹⁸ The departments are : Communication (SC), Finance and accounting (SFC), Human resources (SRH), IT (SIU), Library (BU), Logistics and infrastructure (SIL), Research support (SR), Students and student life (SEVE).

5. Administration and organisation

The Administration and its understaffed situation¹⁹ were taken to task in the last external evaluation. The Administration as a whole has encountered difficulties in keeping up with the growth of the institution. There are at least two reasons for this: 1) the decision was made to give priority in the first and the current four-year plan to academic staff instead of administrative staff development; and 2) it was decided that substantial growth of the Administration should start after the move to Belval, which will substantially shift priorities in profiles. Unfortunately the move to Belval is not imminent and we can no longer postpone strengthening the Administration. Growth of the Administration - while simultaneously improving its present organisation - will be our main human resources priority in this four-year plan.

The preparation of the move to Belval and the move itself will require setting up a team, possibly within or strongly linked to the SIL, to be responsible for organizing and overseeing the move. Once the Belval campus is ready to accept students and research units, significant new logistic and infrastructure challenges as well as the substantial increase in surfaces will also require buttressing the SIL²⁰. We expect that eventually the fact of the University being spread over only two - instead of four - campuses should compensate for the very important increase in size. All this will be costly, and is not yet included in the concrete budget proposal, but can be found in the *off-limits Belval* item at the end of the budget.

The setting up of a comprehensive, all-inclusive and integrated software platform capable of dealing with all resources of university administration (ERP) will be expensive, time consuming and will require training at all levels. In particular the introduction of a full cost and analytic accounting will also require more staff in the SFC. This is however a central and urgent project of modernization of the administration and enjoys as such a priority status, as indicated in the external evaluation report.

The current efforts to improve the procedures for setting up our budget, the control by the budget-holders - who should have a complete, updated and precise view of their budget - as well as an intelligent carry-over procedure that allows for the best use of money and avoids the end-of-the-year spending spree with the sole purpose of ensuring a larger budget the year after, should be pursued with determination. F&Cs should have as much budget allocation flexibility as possible; but certainly an increased responsibility goes with the flexibility. Controls whose total cost - salaries included - is larger than half the amount controlled should be scrapped; creative solutions that ensure compliance with public accountability will have to be found. This accountability is part of the quality culture that we are aiming for.

A major challenge is setting the priorities and the limits for IT: generalised back-logs, HPC, bandwidth, storage, etc., all of which are very costly and are of permanently increasing and unbounded needs²¹. The decision of what, when and how much of it to do with external providers is

¹⁹ At the EUA Council meeting in October 2013 in Vilnius, the following figures indicating the ratio of administrative positions per 100 students were given: Greece 3.6, Germany 11.5. Our figure is 4.8.

²⁰ Unless the *Fonds Belval* is charged to do this task.

²¹ A petabyte of storage capacity would allow offering each student and alumnus a gigabyte, creating stronger and lasting links to the institution.

to be made first. The Department also requires a strengthening of its management and reorganisation, delimiting more clearly in-house services from what is research.

The library also needs to further extend opening hours and services; but how much can be done meaningfully before moving to Belval remains to be seen. The role of university libraries is changing at a pace such that users sometimes have trouble keeping up. In addition, an empty library building would be a sign of poor planning. A realistic long term development plan for the time when the library building will be finished should be established. An important increase in our on-line offer of journals, books and documents is foreseen. An archiving policy should also be worked out.

The external evaluation also pointed out that the university community felt not to be sufficiently informed on decision taken by the Executive team, and this in spite of the meetings of the Management team, of the University council, and the briefing sessions after the meetings of the Board of Governors. While all these channels of communication exist, the way of using these channels to inform the community on ongoing debates and decisions will be improved. On the other hand, the community will be encouraged to give more inputs and feedbacks to the Management team. To this end, debates in the University council and the implementation of a more performing intranet and regular open meetings should be assessed.

The SEVE should be buttressed to ensure the quality of its varied and extensive activities, so that students feel taken care of in their administrative tasks from their first contact with our institution to their hopefully enriching and worthy experience as an alumnus.

The SR has to pursue its set-up phase, support even more our researchers in being successful in securing third-party financing, particularly at the European level, and assess the current use of the University's own research funds.

The SRH is dealt with in Section 7. Measures will be taken to strengthen the information flux and the synergies between the different departments.

At a level coming immediately below the departments, the University is organising herself in offices, of which 5 are being set up, reorganised or enlarged. A Language Center (LC) is in its recruiting phase.

The Belval Office (BO) is being reorganised and enlarged. The office will be led by a project coordinator and will be the counterpart of the Fonds Belval.

The International Office (IO) will in due time take over the *Euraxess Service Centre* from the SEVE and the people dealing with the *University of the Greater Region*. The international relations policy should be mainly user-driven, i.e. driven by the faculties, and mainly motivated by student mobility. The consolidation of the *University of the Greater Region* and other consortia is also an essential part of the IO. Agreements motivated by diplomacy are of course a must for the only university of the country, but should not play an overwhelming role.

Legal Affairs (LA) will also be strengthened.

A Quality Office (QO) will be set up. The office will have the remit of defining the general quality frame of the University, of coordinating the quality officers in the F&Cs, of further defining and updating the relevant global quality indicators of the institution, and of ensuring, when they allow quantification, their collection, treatment and analysis. It has to be decided if the QO should be dependent on the Executive team or on the Board of Governors, i.e. in practice on its Secretary.

The possibility of substantially strengthening our technology and knowledge transfer activities, based on intellectual property and innovative knowledge, should be seriously considered and the needed structure created, unless it is taken over by LA or SR. A small seed fund is foreseen in the budget.

The growth of the different cells²² should be moderate. The cells usually depend on a single person.

The *Règlement d'ordre intérieur* (ROI) will be reviewed by legal experts and then translated into English.

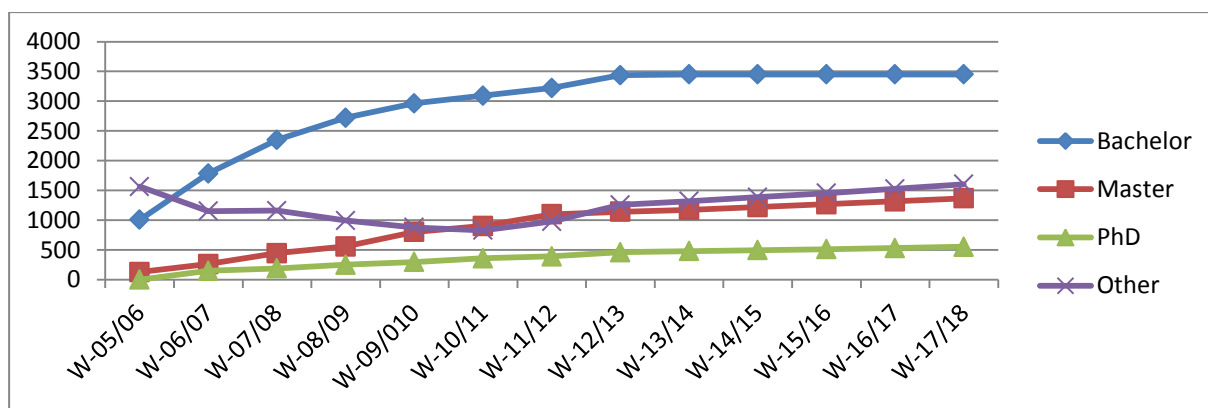
²² Cells: Sustainability, culture, outreach, equal opportunities.

6. Key figures

These figures give a view of where the University stands in the year 2013. Only for the figures referring to the students have we dared to make a forecast: it should be taken *cum grano salis*.

A. Number of students – progression

	W-13/14	W-14/15	W-15/16	W-16/17	W-17/18	Avg. increase
Bachelor	3450	3450	3450	3450	3450	0%
Master	1173	1219	1267	1316	1367	4%
PhD	477	494	511	530	551	4%
Total Bologna students	5100	5163	5228	5296	5368	1,3%
Other	1318	1384	1453	1525	1602	5%
Total UL students	6418	6547	6681	6821	6970	2,1%



B. Structural positions (existing positions)

(including civil servants and staff allocated by the Government)

Effectifs en poste au 30/06/2013			
	PSAT ¹	ACAD	TOTAL
FSTC	82	146	228
Professeur ²		45	45
Assistant professeur		11	11
Chargé de cours		2	2
Professeur IST		7	7
Corps intermédiaire		81	81
Personnel scientifique	26		26
Personnel administratif	27		27
Personnel technique	29		29
FDEF	35	89	124
Professeur ²		34	34
Assistant professeur		13	13
Chargé de cours		1	1
Corps intermédiaire		41	41
Personnel scientifique	7		7
Personnel administratif	28		28
Personnel technique	0		0
FLSHASE	77	138	215
Professeur ²		30	30
Assistant professeur		29	29
Chargé de cours		34	34
Corps intermédiaire		45	45
Personnel scientifique	32		32
Personnel administratif	37		37
Personnel technique	8		8
SnT	15	10	25
Professeur (directeur)		1	1
Corps intermédiaire		9	9
Personnel scientifique	4		4
Personnel administratif	11		11
LCSB	16	4	20
Professeur (directeur)		2	2
Assistant professeur		1	1
Corps intermédiaire		1	1
Personnel scientifique	4		4
Personnel administratif	8		8
Personnel technique	4		4
Services et unités	175	0	175
SC - communication	5		5
SFC - finances et comptabilité	21		21
SRH - ressources humaines	19		19
SIU - informatique	26		26
BUL - bibliothèque	25		25
SIL - infrastructures et logistique	52		52
SR - Recherche	4		4
SEVE - étudiants	19		19
Affaires juridiques	2		2
Relations internationales	2		2
Rectorat ³	24	0	24
Membres du rectorat	5		5
Chargé de mission	2		2
Personnel administratif	17		17
TOTAL UL	424	387	811

¹ personnel scientifique, administratif et technique

² y compris le doyen

³ les membres du rectorat ne sont pas comptés dans les facultés

Note: 44 étudiants-salariés / stagiaires non-inclus

C. Non-structural positions with contracts

Effectifs en poste au 30/06/2013	
FSTC	117
Collaborateurs scientifiques	33
Collaborateurs admin./techniques	1
Corps intermédiaire	17
Chaires	2
AFR	62
ATTRACT FELLOWS	2
FDEF	45
Collaborateurs scientifiques	5
Collaborateurs admin./techniques	2
Corps intermédiaire	7
Chaires	3
AFR	28
FLSHASE	159
Collaborateurs scientifiques	67
Collaborateurs admin./techniques	3
Corps intermédiaire	18
Chaires	1
Personnel financé par PEARL	5
AFR	63
ATTRACT FELLOWS	2
SnT ¹	128
Collaborateurs scientifiques	56
Collaborateurs admin./techniques	5
Corps intermédiaire	26
Personnel financé par PEARL	4
AFR	37
LCSB ¹	94
Collaborateurs scientifiques	48
Collaborateurs admin./techniques	16
Corps intermédiaire	1
PHD students (LCSB)	14
PHD students (AFR)	10
AFR	3
ATTRACT FELLOWS	2
TOTAL UL	543

¹ Les directeurs des CI sont comptabilisés dans les postes structurels.

Note: 113 étudiants-salariés / stagiaires non-inclus

D. Expenditures as of 31 October 2013 (following page)

ETAT DES DEPENSES AU 31/10/2013 - PAR ACTIVITE -

Entité	Activités	Autorisé 2012	Réalisé au 31/12/2012	% Real. 12 / Aut. 12	Autorisé 2013	Réalisé au 31/10/2013	% Real. 13 / Aut. 13
FSTC	Fonctionnement général	144 053	151 826	105%	157 350	104 804	67%
	Formation	1 680 508	1 225 114	73%	2 177 120	789 933	36%
	Recherche dont :	5 745 514	5 540 257	96%	5 662 044	3 798 244	67%
	- Unités de recherche (y compris laboratoires)	3 528 364	3 305 161	94%	3 448 300	2 126 010	62%
	- Projets internes de recherche en cours ou approuvés	2 217 150	2 235 096	101%	2 213 744	1 672 234	76%
	Totaux - Dépenses	7 570 075	6 917 198	91%	7 996 514	4 692 981	59%
FDEF	Fonctionnement général	270 000	168 399	62%	190 000	128 123	67%
	Formation	3 299 158	2 334 589	71%	3 476 270	1 484 026	43%
	Recherche dont :	1 083 935	1 060 111	98%	1 443 789	889 168	62%
	- Unités de recherche (y compris laboratoires)	719 900	690 766	96%	759 000	532 678	70%
	- Projets internes de recherche en cours ou approuvés	364 035	369 345	101%	684 789	356 490	52%
	Totaux - Dépenses	4 653 093	3 563 100	77%	5 110 059	2 501 317	49%
FLSHASE	Fonctionnement général	562 900	530 302	94%	606 915	438 031	72%
	Formation	2 663 706	2 413 320	91%	2 660 921	982 540	37%
	Recherche dont :	3 103 925	2 959 292	95%	3 578 357	2 525 348	71%
	- Unités de recherche (y compris laboratoires)	1 283 301	1 209 567	94%	1 447 099	1 035 024	72%
	- Financement UL partiel de l'institut Monitoring						
	- Projets internes de recherche en cours ou approuvés	1 820 624	1 749 725	96%	2 131 258	1 490 325	70%
	Totaux - Dépenses	6 330 531	5 902 914	93%	6 846 193	3 945 920	58%
SnT	Fonctionnement général	361 349	46 824	13%	271 972	326 801	120%
	Recherche dont :	2 409 964	1 621 310	67%	2 728 940	1 476 377	54%
	- Groupes de recherche (y compris laboratoires)	1 487 800	834 288	56%	1 926 050	994 727	52%
	- Projets internes de recherche en cours ou approuvés	922 164	787 022	85%	802 890	481 650	60%
	Réduction budgétaire 2013 *				(250 000)		
	Totaux - Dépenses	2 771 313	1 668 133	60%	2 750 912	1 803 178	66%
LCSB	Nouvel équipement du LCSB (quote-part UL)	-	-		1 000 000	463 398	46%
	Fonctionnement général				420 000		
	Recherche dont :	79 945	80 032	100%	1 943 589	2 602 610	134%
	- Groupes de recherche (y compris laboratoires)	-	-		1 680 000	2 501 133	
	- Projets internes de recherche en cours ou approuvés	79 945	80 032	100%	263 589	101 477	38%
	Réduction budgétaire 2013 *				(250 000)		
	Totaux - Dépenses	79 945	80 032	100%	3 113 589	3 066 008	98%
COMMUN	CONSEIL DE GOUVERNANCE	175 700	128 224	73%	167 400	72 782	43%
	RECTORAT dont :	2 425 733	1 972 853	81%	3 554 734	2 536 875	71%
	- HPC	700 000	747 088	107%	700 000	428 934	61%
	- Service Recherche	97 700	80 079	82%	142 800	106 694	75%
	- Fonds Innovation						
	Affectation nouveaux projets internes de recherche	657 944	657 944		(255 195)	35 571	
	LOGEMENT DES ETUDIANTS	2 903 438	2 494 293	86%	3 096 159	2 086 910	67%
	DEPENSES COMMUNES						
	Salaires, traitements et frais connexes toute UL dont :	61 591 234	57 164 069	93%	64 912 575	56 152 948	87%
	- provision pour paiement 13ème mois		-			6 169 342	
	- Salaires, traitements et frais connexes Commun	12 549 432	12 218 801	97%	12 872 556	9 878 487	77%
	- Salaires, traitements et frais connexes FSTC	20 772 400	18 486 930	89%	19 686 534	15 769 955	80%
	- Salaires, traitements et frais connexes FDEF	11 152 401	10 470 911	94%	12 388 767	9 182 267	74%
	- Salaires, traitements et frais connexes FLSHASE	15 600 495	15 163 877	97%	18 339 816	13 267 745	72%
	- Salaires, traitements et frais connexes SnT	639 356	823 549	129%	804 028	703 750	88%
	- Salaires, traitements et frais connexes LCSB	877 151	-	0%	820 874	1 181 401	144%
	Bibliothèque	1 776 000	1 636 376	92%	1 908 000	1 447 953	76%
	Informatique	3 035 000	2 867 640	94%	3 105 000	2 118 357	68%
	Outil de gestion financière	-	-		1 200 000	167 394	14%
	Vie étudiante	438 000	437 154	100%	485 866	428 154	88%
	Logistique et infrastructure	7 780 000	8 595 083	110%	12 533 000	9 764 746	78%
	Nouvelles infrastructures et réaménagements	4 543 227	3 438 815	76%	-	897 116	
	Fonctionnement général	1 391 000	801 600	58%	1 445 000	952 072	66%
	Fonctionnement général - compte de gestion	-	2 624 690		-	(3 270 952)	
		80 554 461	77 565 427	96%	85 589 440	68 657 788	80%
	Totaux - Dépenses	86 717 276	82 818 740	96%	92 152 539	73 389 926	80%
BELVAL	Conception, études et construction du site Belval				5 585 000	2 411 894	
	Aménagement du bâtiment ADEM pour le Master Architecture				200 000		
	Aménagement Biotech phase III / containers LCSB				200 000		
	Location du bâtiment Dexia pour le LCSB				246 000		
	Totaux - Dépenses				6 231 000	2 411 894	
Total des dépenses liées à la Contribution Annuelle Financière de l'Etat / Recettes Propres		108 122 234	100 950 117	93%	124 200 805	91 811 224	74%
Plan Techn. de la Santé	LCSB						
	-> Personal Blood Proteomics & Personal Genome Sequencing	13 603 747	13 382 218	98%	13 194 752	9 634 079	73%
	-> Bâtiment Belval LCSB	-	(2 186 049)		-	7 112	
	-> Aménagement Belval LCSB	1 000 000	1 969 482		-	(67 484)	
	-> Fonctionnement et équipement du LCSB	500 000	5 756 142	1151%	1 500 000	464 899	31%
	Totaux - Dépenses	15 103 747	18 921 794	125%	14 694 752	10 038 605	68%
RECHERCHE EXTERNE	FSTC	6 412 068	5 287 843	82%	7 375 200	5 362 711	73%
	FDEF	2 563 980	2 048 013	80%	2 505 003	2 127 242	85%
	FLSHASE	9 916 725	7 587 130	77%	10 769 346	7 264 024	67%
	SnT	5 570 485	5 608 004	101%	7 748 400	5 907 398	76%
	LCSB	1 128 851	1 596 319	141%	1 902 772	4 854 867	255%
	COMMUN	863 125	804 788	93%	970 378	751 077	77%
	Projet INTERREG "Université Grande Région"	114 991	143 510	125%	33 752	-	0%
	Construction Campus Belval	1 580 927	1 976 159	125%	395 232	-	0%
	Totaux - Dépenses	28 151 152	25 051 766	89%	31 700 084	26 267 319	83%
Total des dépenses liées aux Autres Financements		43 254 899	43 973 560	102%	46 394 836	36 305 924	78%
CONTRIBUTION NATURE	Rémunérations du personnel de l'Etat	7 336 190	8 029 234	109%	6 602 571	-	0%
	Totaux - Dépenses	7 336 190	8 029 234		6 602 571	-	
Grand Total dépenses UL		158 713 322	152 952 912	96%	177 198 212	128 117 148	72%

Notes:

* Réduction budgétaire 2013 : le détail de cette réduction reste à finaliser

E. Teaching capacity

Enseignement			
Année 2012-2013			
	ECTS (programmes de 1 ^{er} et 2 ^{ème} niveaux)	ECTS (écoles doctorales, cours transversaux)	Unités d'enseignement (UE)
Formations			
UL (cours transversaux)		156	1 441
FSTC	1 300		28 175
FDEF	1 230		17 377
FLSHASE	1 956		36 301
Total	4 486	156	83 294

Capacité d'enseignement 2013				
Année 2012-2013				
	Effectif	Enseignement donné (UE)	Capacité d'enseignement disponible (UE)	Rapport enseignement donné/capacité disponible
Professeurs & Ass.-profs				
UL (cours transversaux)	-	226	-	-
FSTC (LCSB, SnT incl.)	64	12 770	11 520	110,85%
FDEF	50	5 676	9 000	63,07%
FLSHASE	61	12 678	10 980	115,46%
Total	175	31 350	31 500	99,52%
Chargés de cours & Profs IST				
UL (cours transversaux)	-	34	-	-
FSTC	9	2 430	2 160	112,50%
FDEF	1	256	240	106,67%
FLSHASE	32	6 875	7 680	89,52%
Total	42	9 595	10 080	95,19%
Corps intermédiaire				
UL (cours transversaux)	-	947	-	-
FSTC (LCSB, SnT incl.)	262	3 885	23 580	16,48%
FDEF	77	2 261	6 930	32,63%
FLSHASE	127	1 915	11 430	16,75%
Total	466	9 008	41 940	21,48%
Autres UL				
UL (cours transversaux)	2,5	88	-	-
FSTC	17,5	1 281	-	-
FDEF	2,5	503	-	-
FLSHASE	18	1 763	-	-
Total	40,5	3 635	-	-
Capacité propre UL utilisée	723,5	53 588	83 520	64,16%
Vacataires				
UL (cours transversaux)	9	146	-	-
FSTC	129,5	7 809	-	-
FDEF	161,5	8 681	-	-
FLSHASE	235,5	13 070	-	-
Total enseignement vacataires	535,5	29 706	-	35,66%

7. Personnel

The Human Resources Strategy for Researchers and its action plan set up by the Research Vice-presidency and the SRH within the frame of the *European Charter for Researchers and Code of Conduct for the Recruitment of Researchers* should be pursued with vigour, while at the same time ensuring that our positions are always open to candidates from anywhere.

The first Professors and Associate Professors appointed according to the promotion procedure of our Internal Regulations (ROI) should take up their positions in the first year of the Plan.

A proper career development frame for Scientific, Technical and Administrative personnel (PSAT), with training, incentives to change positions and promotion, should be set up with the support of the SRH to improve satisfaction in the working place.

The possibility of offering a complementary pension fund for the personnel of the University should seriously be studied. Alternatively, or in combination, the discussions on the introduction of performance-based bonuses or incentives should be concluded before the end of 2014.

Academic positions liberated by whatever reasons stay in principle within the F&C. Their profiles are however not kept.

Increases in academic personnel will always require a written statement by the F&C's head stating that the necessary office/laboratory is available according to the current or reasonably foreseeable circumstances. The number of new positions for academic staff will be very moderate in this Plan, since our current lack of space severely limits growth (please note that each new professor position comes with several other positions, i.e. PhD students, Post-docs and maybe technicians).

8. Budget

The budget's base-line is the 2013 budget of 132 M€ (117 base-line budget without biomedicine - 114 governmental grant plus 3 added from the reserve - plus 15 for biomedicine). The Prime Minister in his last State of the Nation speech said that growth for the University will be limited to one figure rates. We have thus chosen a yearly rate of 9.8% in current Euros²³. The normal increase in expenditure, basically due to inflation, has been distributed among the different budget lines: they are therefore to be understood in current Euros as well as carrying the difference of current and fixed Euros of the base-line budget of 132 M€. The indexation hypothesis assumed is the following: 1.5% per year on salaries, i.e. on 60% of the budget: this has been included separately in the budget. Also, and for the first time, the linear increase of salaries, which is due to the fact that most of the retirees - enjoying the highest salaries - are civil servants, and thus not on the payroll of the University, has been included. When the university is in its stationary state, i.e. when people retiring are on the payroll of the University, both this increase as well as the salaries for hiring new staff replacing retirees will be dropped.

The budget proposal contains five groups of items: 1) those which have to be included because they cannot be avoided; 2) those corresponding to the priorities including medicine as a national project; 3) those which are decided upon yearly by the Faculties and according to their plans, strictly avoiding of course a priority-compensating policy, which would lead to giving eventually the same slice of the cake to everybody; 4) those managed by the executive team; and 5) those managed by the Administration under the supervision of the executive team.

The faculties will enjoy almost complete autonomy over the budget component which they manage: they can decide how much goes into investment, operations or positions, with the only limitation that positions have to be approved yearly – if possible by categories instead of individually - by the executive team to ensure that the necessary space is available and, more importantly, that their funding is sustainable within and beyond the Plan.

This has the consequence that the line *masse salariale* in the table below has to be taken with extreme care, as it is a very rough estimate of how much of the budget might go into positions. In any case, the percentage of wage expenditure with respect to total expenditure should at most have a moderate increase along this Plan, to reach levels comparable to other universities.

Academic positions which have been approved by the Board between September 1st, 2012 and August 1st, 2013, will, if possible, be financed by the 2013 budget or whatever remains of it. Otherwise the positions are to be financed by the Plan's Faculties budget (see table below). For all other positions at the Faculty level only those that have been explicitly approved by the Administration will receive funding. New positions at the Interdisciplinary Centres have to be financed by the Centres' 2013 budget or by the Plan's budget (see table below).

Matching funds are a new feature of this Plan. They will hopefully encourage everybody in our institution to seek external funding, knowing that if needed it can be supplemented with at most 50% of the total amount. But they will also provide complementary support to those who are successful in

²³ This corresponds to the line *contribution régulière de l'État* in the table which follows.

getting full external funding for their projects, infrastructures or personnel. A well thought out overhead policy has to be defined as well²⁴.

The recently created *Luxembourg University Foundation*²⁵, will also play a role in attracting external funding as well as slowly building up an endowment of the University. It will be needed to contribute to the funding of the *Mouse House*.

It should also be noted that the budget foreseen below for the School of Medicine is an absolute minimal one, and will probably have to be completed by other sources.

The budget proposal is not balanced yearly, but it is balanced globally over the four years. Either it will be balanced in the relevant global expenditure budget or a three years loan will be taken to bridge the first few years.

No additional rentals are foreseen, except if needed to host strategically relevant projects and research funded by external money.

A detailed estimation of external project funding is not included, except for the global amount of external research funding shown in section 9, since the details are too uncertain. A large part of it goes into salaries of researchers who receive a fixed term contract.

A delta-budget which relates directly to the proposals of this text is included in this section, as well as more detailed information about the hypotheses behind the figures of the *masse salariale* shown in the budget table which follows.

Initial equipment purchases and moving, increased running costs, the construction of a Mouse House and increased maintenance costs related to Belval are not included in the budget; they are very roughly estimated to be at least 50 M€ per year. They should be understood with a 20 to 30% uncertainty, and they will certainly not be uniform over the four years.

²⁴ The latest Horizon 2020 news on overheads point at an across-the-board 25% reimbursement rate for all, sweeping away with all the red tape. Of course the top institutions are not amused. The FNR has recently adopted the same figure.

²⁵ Under the umbrella of the *Fondation de Luxembourg*.

Perspective de budget 2014 - 2017 (hors financements externes sur convention)							
		2013	2014	2015	2016	2017	Grand total 2014-2017
Facs + Centres	A	35,982	40,585	47,769	46,337	52,810	187,502
FSTC dont :	t	5,808	6,636	7,416	8,352	9,351	31,754
Budget ordinaire FSTC		5,808	5,808	5,808	5,808	5,808	23,231
Croissance non spécifiée		-	0,528	1,108	1,744	2,443	5,823
Priorité Computational science		-	0,100	0,100	0,200	0,200	0,600
Priorité Matériaux		-	0,200	0,400	0,600	0,900	2,100
FDEF dont :	u	4,425	5,319	5,971	7,187	8,074	26,552
Budget ordinaire FDEF		4,425	4,425	4,425	4,425	4,425	17,701
Croissance non spécifiée		-	0,594	1,246	1,962	2,749	6,551
Priorité Droit		-	0,100	0,100	0,400	0,500	1,100
Priorité LSF		-	0,100	0,100	0,200	0,200	0,600
Priorité Entrepreneurship / Audit / LBA		-	0,100	0,100	0,200	0,200	0,600
FLSHASE dont :	v	5,658	6,030	6,682	7,698	8,485	28,896
Budget ordinaire FLSHASE		4,836	4,836	4,836	4,836	4,836	19,345
Croissance non spécifiée		-	0,594	1,246	1,962	2,749	6,551
Financement Monitoring		0,607	-	-	-	-	-
Priorité Education / LUCET		-	0,400	0,400	0,500	0,500	1,800
Priorité Multilinguisme et interculturalité		0,215	0,100	0,100	0,200	0,200	0,600
Priorité Sustainable development		-	0,100	0,100	0,200	0,200	0,600
SnT dont :	w	2,546	3,500	3,500	3,800	4,200	15,000
Budget ordinaire SnT		2,546	3,000	3,000	3,000	3,000	12,000
Priorité SnT		-	0,500	0,500	0,800	1,200	3,000
LCSB dont :	x	17,545	18,800	22,200	16,300	17,700	75,000
Biotech / LCSB		17,545	10,800	13,200	14,800	16,200	55,000
Premier équipement Technoconsult		-	7,500	7,500	-	-	15,000
Location technoconsult		-	0,500	1,500	1,500	1,500	5,000
Priorité Ecole de médecine	y	-	0,300	2,000	3,000	5,000	10,300
Projets internes de recherche (PUL et PDE)	B	5,044	6,000	6,000	5,000	5,000	22,000
Services centraux	C	32,559	34,413	38,040	39,679	42,501	154,632
Conseil de Gouvernance	f	0,167	0,267	0,167	0,167	0,167	0,768
(dont recherche nouveau Recteur)			0,100	-	-	-	0,100
Promotion de l'excellence :	g	-	0,798	2,115	3,254	4,316	10,483
Fonds de recrutement d'excellence		-	0,198	0,415	0,654	0,916	2,183
Fonds de pension complémentaire / Primes		-	0,200	0,700	1,000	1,400	3,300
Matching funds / seed funds		-	0,200	0,600	1,000	1,200	3,000
Réserve exceptionnelle		-	0,200	0,400	0,600	0,800	2,000
Infrastructures :	h	0,700	1,550	1,900	3,750	4,600	11,800
Heavy equipment fund / Bibliothèque		-	0,400	0,600	0,900	1,000	2,900
HPC		0,700	1,000	1,000	2,400	3,000	7,400
Big data & archiving		-	0,150	0,300	0,450	0,600	1,500
Services :	i	30,059	28,884	30,444	28,994	29,704	118,025
Fonctionnement général		1,500	1,500	1,550	1,600	1,600	6,250
Bibliothèque		1,908	2,100	2,100	2,100	2,100	8,400
Ressources numériques bibliothèque		-	0,200	0,400	0,600	0,800	2,000
Logements des étudiants		3,096	4,196	4,196	4,196	4,196	16,785
Vie étudiante		0,486	0,458	0,458	0,458	0,458	1,830
ERP		1,200	2,620	2,500	0,800	0,800	6,720
Informatique		3,105	3,100	3,100	3,100	3,100	12,400
Logistique et infrastructure + aménagements		13,179	13,780	16,140	16,140	16,650	62,710
Conception, études et construction du site Belval		5,585	0,930	-	-	-	0,930
Unités et cellules dépendant du Rectorat	j	1,632	2,914	3,414	3,514	3,714	13,556
Rectorat (budget ordinaire)		1,535	1,814	1,814	1,814	1,814	7,256
Centre de langues		-	0,500	0,600	0,600	0,700	2,400
Unité qualité		-	0,300	0,500	0,500	0,500	1,800
Pédagogie universitaire et accréditation		-	0,100	0,200	0,300	0,400	1,000
Université de la Grande Région		0,098	0,200	0,300	0,300	0,300	1,100
Masse salariale	D	68,218	76,937	82,273	87,104	93,256	339,571
Reconstitution des réserves	E	-	-	-	1,500	1,800	3,300
Grand total besoins	GT	141,803	157,935	174,081	179,620	195,367	707,004
Contribution régulière de l'Etat		114,000	144,936	159,140	174,735	191,859	670,670
Contribution Plan Technologie Santé 2009/2013		14,695	-	-	-	-	-
Autofinancement : recettes propres		6,652	7,543	8,000	8,500	9,000	33,043
Utilisation résultats reportés		6,459	-	-	-	-	-
Delta de financement annuel		- 0,002	5,456	6,941	-3,615	-5,492	3,291
Grand total ressources		141,803	157,935	174,081	179,620	195,367	707,004

Besoins pour nouveau campus Belval	56,950	67,150	69,970	75,010	269,080
Conception, études et construction du site Belval (non inclus dans GT)	50,000	50,000	50,000	50,000	200,000
Logistique et entretien Belval (non inclus dans GT)	6,950	17,150	19,970	25,010	69,080

A = somme de t à y / C = somme de f à j / GT = somme de A à E

Détail des chiffres de la masse salariale						
	2013	2014	2015	2016	2017	Grand total 2014-2017
Masse salariale, budget validé (voir Note 1)	68,218	-	-	-	-	
Masse salariale		76,937	82,273	87,104	93,256	339,571
Masse salariale hors lignes spécifiées ci-dessous		72,849	73,981	74,579	75,759	297,169
Rectorat - Unité Belval		0,200	0,200	0,300	0,300	1,000
Rectorat - International office		0,100	0,100	0,200	0,200	0,600
Rectorat - Unité affaires juridiques		0,100	0,100	0,100	0,100	0,400
Rectorat - Autres structures		0,100	0,200	0,400	0,500	1,200
Services - BUL		0,100	0,300	0,400	0,600	1,400
Services - SC		0,100	0,200	0,200	0,200	0,700
Services - SEVE		0,200	0,300	0,400	0,500	1,400
Services - SFC		0,200	0,400	0,500	0,600	1,700
Services - SIL		0,400	0,600	0,900	0,100	2,000
Services - SIU		0,100	0,200	0,300	0,400	1,000
Services - SR		0,100	0,200	0,200	0,400	0,900
Services - SRH		0,100	0,200	0,300	0,400	1,000
Prises en charge - augmentation linéaire des salaires		0,600	1,200	1,800	2,400	6,000
Prises en charge - index salaires		1,188	2,492	3,925	5,497	13,102
Prises en charge - salaires de postes ex-fonctionnaires		0,500	0,900	1,300	1,800	4,500
Prises en charge - postes PEARL		-	-	-	1,500	1,500
Prises en charge - postes ATTRACT		-	0,500	1,000	1,500	3,000
Prises en charge - chaire ATOZ		-	0,200	0,200	0,200	0,600
Prises en charge - chaire SES		-	-	-	0,200	0,200
Prises en charge - chaire Arcelor Mittal		-	-	0,100	0,100	0,200

Masse salariale par entité (source SRH 08/08/2013)	68,218	76,937	82,273	87,104	93,256	339,571
CRC	13,320	16,515	18,247	19,904	21,276	75,941
FDEF	12,535	13,715	14,315	15,052	15,629	58,711
FLSHASE	18,393	20,499	21,252	22,040	23,232	87,022
FSTC	21,205	23,024	24,355	25,489	26,837	99,705
LCSB (voir Note 2)	1,637	1,719 (+0,5)	1,787 (+0,8)	1,850 (+0,9)	1,913 (+1,1)	7,269 (+3,3)
SNT (voir Note 3)	1,128	1,166 (+0,3)	1,212 (+0,4)	1,254 (+0,6)	1,297 (+0,8)	4,930 (+2,1)
Non directement attribuable à une seule entité		0,300	1,104	1,515	3,073	5,992

Note 1 : la masse salariale 2013 initialement validée était de 64,913 millions. Le budget après projection est réévalué.
La différence est matérialisée par un recours supplémentaire aux résultats reportés des années précédentes.

Note 2 : le LCSB gère de manière autonome l'augmentation de la masse salariale via la ligne "Biotec / LCSB" qui lui est attribuée
(2014 : 0,500 / 2015 : 0,800 / 2016 : 0,900 / 2017 : 1,100)

Note 3 : le SnT gère de manière autonome l'augmentation de la masse salariale via la ligne "priorité SnT" qui lui est attribuée
(2014 : 0,300 / 2015 : 0,400 / 2016 : 0,600 / 2017 : 0,800)

Hypothèses pour une masse salariale égale à 53 % de la contribution régulière de l'Etat						
		2014	2015	2016	2017	Grand total 2014-2017
Budget RH - simulation entrées au CRC au 01/09		75,894	81,658	86,531	92,902	336,985
Frais de personnel - postes occupés au 31/12/2013		73,908	76,712	79,256	81,820	311,695
Frais de personnel - postes attribués durant le P4		1,606	3,427	4,632	5,727	15,392
Frais de personnel - prises en charge P4		0,380	1,520	2,643	5,355	9,898
Recrutements additionnels - entrées au 01/09:		0,658	2,660	4,732	6,916	14,966
sur budget Priorités		0,263	1,064	1,893	2,766	5,986
sur budget Facultés		0,197	0,798	1,419	2,075	4,490
sur budget Autres		0,197	0,798	1,419	2,075	4,490
Masse salariale (source SRH)		76,553	84,318	91,263	99,818	351,951
Contribution régulière de l'Etat		144,936	159,140	174,735	191,859	670,670
Part de la contribution régulière de l'Etat affectée à la masse salariale		52,82%	52,98%	52,23%	52,03%	52,48%
Masse salariale nécessaire pour atteindre 53%		76,816	84,344	92,610	101,685	355,455
Ecart avec la simulation ci-dessus		0,264	0,026	1,347	1,867	3,504

Budget Simulation P4

	FTE	2013	2014	2015	2016	2017	Comments
Gross remunerations actual staff 31/12/2013	848,44	58 286 295,00	58 286 295,00	58 286 295,00	58 286 295,00	58 286 295,00	
Full costs recruitments 2013			2 354 814,52	2 354 814,52	2 354 814,52	2 354 814,52	
Employer costs		9 932 003,92	13 266 947,93	16 070 462,83	18 614 483,14	21 179 049,14	Included in employer costs: index increase, linear increase and employer contribution social security
Total calculated budget actual staff 31/12/2013		68 218 298,92	73 908 057,45	76 711 572,35	79 255 592,66	81 820 158,66	
New Hires P4 (65,53 Admin + 8 Faculties)	73,53	0,00	1 606 188,91	3 426 701,04	4 632 389,78	5 727 008,07	Starting date for new hires Admin 01/09 of a year
Prise en charge P4			380 061,49	1 519 941,09	2 642 942,15	5 354 721,28	Replacements civil servants, transfer of attract fellows to UL budget, etc.
SUB TOTAL		68 218 298,92	75 894 307,85	81 658 214,48	86 530 924,59	92 901 888,01	
Additional recruitments							
Priorities			263 291,75	1 063 970,82	1 892 630,81	2 766 497,09	
Faculties			197 468,81	797 978,12	1 419 473,11	2 074 872,82	
Other			197 468,81	797 978,12	1 419 473,11	2 074 872,82	
TOTAL			76 552 537,23	84 318 141,53	91 262 501,61	99 818 130,74	

Annexe A (21 octobre)

Nouvelles lignes de budget importantes pour le P4 2014-17 (en M€)

	2014	2015	2016	2017	
Contribution de l'Etat 2013	132,000	132,000	132,000	132,000	528,000
Reconstitution des réserves	0,000	0,000	1,500	1,800	3,300
Prises en charge					
Chaires PEARL	0,000	0,000	0,000	1,500	1,500
Postes ATTRACT	0,000	0,500	1,000	1,500	3,000
Chaire ATOZ	0,000	0,200	0,200	0,200	0,600
Chaire SES	0,000	0,000	0,000	0,200	0,200
Chaire ArcelorMittal	0,000	0,000	0,100	0,100	0,200
Salaires de postes ex-fonctionnaires	0,500	0,900	1,300	1,800	4,500
Augmentation linéaire des salaires	0,600	1,200	1,800	2,400	6,000
Index salaires	1,188	2,492	3,925	5,497	13,102
Priorités FSTC					
Computational science	0,100	0,100	0,200	0,200	0,600
Matériaux	0,200	0,400	0,600	0,900	2,100
Priorités FDEF					
Droit	0,100	0,100	0,400	0,500	1,100
LSF	0,100	0,100	0,200	0,200	0,600
Entrepreneurship/Audit/LBA	0,100	0,100	0,200	0,200	0,600
Priorités FLSHASE					
Education / LUCET	0,400	0,400	0,500	0,500	1,800
Multilinguisme et interculturalité	0,100	0,100	0,200	0,200	0,600
Sustainable development	0,100	0,100	0,200	0,200	0,600
Priorité SnT					
SnT	0,500	0,500	0,800	1,200	3,000
Priorité LCSB					
Biotech/LCSB	-4,200	-1,800	-0,200	1,200	-5,000
Premier équipement Technoconsult	7,500	7,500	0,000	0,000	15,000
Location Technoconsult	0,500	1,500	1,500	1,500	5,000
Priorité Médecine					
Ecole de médecine	0,300	2,000	3,000	5,000	10,300
Facultés					
FSTC	0,528	1,108	1,744	2,443	5,823
FDEF	0,594	1,246	1,962	2,749	6,551
FLSHASE	0,594	1,246	1,962	2,749	6,551
Promotion de l'excellence					
Fonds de recrutement d'excellence	0,198	0,415	0,654	0,916	2,184
Fonds de pension complémentaire / Primes	0,200	0,700	1,000	1,400	3,300
Matching funds/seed funds	0,200	0,600	1,000	1,200	3,000
Réserve exceptionnelle	0,200	0,400	0,600	0,800	2,000
Infrastructures					
Heavy equipment fund	0,400	0,600	0,900	1,000	2,900
HPC	1,000	1,000	2,400	3,000	7,400
Big data & archiving	0,150	0,300	0,450	0,600	1,500
Services					
BUL	0,100	0,300	0,400	0,600	1,400
Ressources numériques bibliothèque	0,200	0,400	0,600	0,800	2,000
SC	0,100	0,200	0,200	0,200	0,700
SEVE	0,200	0,300	0,400	0,500	1,400
Logements étudiants	1,100	1,100	1,100	1,100	4,400
SFC	0,200	0,400	0,500	0,600	1,700
ERP	2,620	2,500	0,800	0,800	6,720
SIL	0,400	0,600	0,900	0,100	2,000
SIU	0,100	0,200	0,300	0,400	1,000
SR	0,100	0,200	0,200	0,400	0,900
SRH	0,100	0,200	0,300	0,400	1,000
Unités et cellules dépendant du rectorat					
Centre de langues	0,500	0,600	0,600	0,700	2,400
Unité Qualité	0,300	0,500	0,500	0,500	1,800
Pédagogie universitaire et accréditation	0,100	0,200	0,300	0,400	1,000
Unité Belval	0,200	0,200	0,300	0,300	1,000
International office	0,100	0,100	0,200	0,200	0,600
Université de la Grande Région	0,200	0,300	0,300	0,300	1,100
Unité affaires juridiques	0,100	0,100	0,100	0,100	0,400
Autres structures	0,100	0,200	0,400	0,500	1,200
Budget hors Belval	150,972	164,608	170,498	184,554	670,632
Contribution régulière de l'Etat	144,936	159,140	174,735	191,859	670,671
Belval	50,000	50,000	50,000	50,000	

9. Key performance indicators

The second edition of the *Times Higher Education* (THE) ranking of the best universities under 50 years old has recently been published. In spite of all the shortcomings of these rankings, it is our explicit ambition to make it into this young university ranking as soon as possible²⁶. Very conveniently our key performance indicators match almost perfectly the 13 indicators used by THE. The indicators proposed here correspond basically to those currently used with a few changes to match those of the THE and to better measure quality in research.

Performance indicator	Performance indicators - Subcategories	Measures	2012	2017
EXTERNAL FUNDING	Government (without direct funding)	Revenues in M€	2,1	3,0
	European Union	Revenues in M€	3,9	6,0
	Endowed Chairs	Revenues in M€	1,7	2,0
	Other external funding, private and foreign	Revenues in M€	3,0	4,0
	Fonds national de la recherche	Revenues in M€	18,2	23,4
	Total	Revenues in M€	28,9	38,4
RESEARCH	Publications	Number of refereed publications and book chapters	1097	1335
		Total number of citations - Web of Science	2477	3900
		Authored, edited books and conference proceedings	73	89
	Chairs	Funded Chairs over a 5-year period	5	5

²⁶ Surprisingly two of the 100 have been founded in the 21st century, but one is a merger of older institutions and the other is a medical university.

Performance indicator	Performance indicators - Subcategories	Measures	2012	2017
LEARNING AND TEACHING	Student figures	Numbers of students	6 288	7 170
		Bologna Index	32%	36%
	Bachelor	Number of students	3 435	3 450
		Bachelor degrees awarded	530	550
	Master	Number of students	1 139	1 367
		Master degrees awarded	266	319
	PhD	Number of students	459	551
		PhD degrees awarded	57	70
	Lifelong Learning	LLL programmes plus adult students (aged>30) in non-LLL Bachelor and Master	1 295	1 550
		Bologna Lifelong Learning programmes	7	10
	Mobility	Mobility ratio (outgoing/incoming)	30%	33%
		Non-commuting mobility (outside Greater region)	69,3%	75%
	Accommodation	Accommodation units (beds)	550	1 100
	Student barometer	Participation rate	26%	33%
		Overall student course satisfaction	80%	>80%
	Employability	Employability: percentage of graduates in employment with an activity related to their discipline/evaluated programme after 6 months (only a selection of programs in 2012)	87,5%	>88%
INNOVATION		Patents	5	8
		Licenses	2	4
INTERNATIONAL OUTLOOK		International versus Domestic - Academic and scientific staff	77%	77%
		Non-luxembourgish-students not having a high-school degree from Luxembourg	43%	50%

10. Annexes

What follows are the proposals of the Faculties, the Interdisciplinary Centres and the Central Administration. They try to take into account, to a larger or lesser degree, the budgetary constraints of the proposal found in Section 8, but they often exceed it. Thus, without substantial additional, public or private funding, they will not all be implemented. As a consequence, an approval of the Plan does not imply the approval of these proposals in their detail, but only as a frame of action that will have to adapt in its concrete measures to the yearly approved budget of the University.

The annexes are contained in a separate booklet.